# UNITED STATES
# SECURITIES AND EXCHANGE COMMISSION
**Washington, D.C. 20549**

## FORM 10-K

**(Mark One)**

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

**For the fiscal year ended December 31, 2023**

**OR**

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

**For the transition period from __________ to**

**Commission File Number: 000-32743**

# DZS INC.

**(Exact name of registrant as specified in its charter)**

| | |
|---|---|
| **Delaware** | **22-3509099** |
| **(State or other jurisdiction of incorporation or organization)** | **(I.R.S. Employer Identification No.)** |

**5700 Tennyson Parkway, Suite 400**
**Plano, Texas 75024**

**(Address of principal executive office)**
**Registrant's telephone number, including area code: (469) 327-1531**
**Securities registered pursuant to Section 12(b) of the Exchange Act:**

| Title of each class | Trading Symbol | Name of each exchange on which registered |
|---|---|---|
| **Common Stock, $0.001 Par Value** | **DZSI** | **The Nasdaq Capital Market** |

**Securities registered pursuant to Section 12(g) of the Exchange Act: None**

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☐ No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Exchange Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☐ No ☒

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☐ No ☒

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act:

| | | | |
|---|---|---|---|
| Large accelerated filer | ☐ | Accelerated filer | ☒ |
| Non-accelerated filer | ☐ | Smaller reporting company | ☒ |
| | | Emerging growth company | ☐ |

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☒

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☒

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b). ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

As of July 22, 2024, there were 38,024,783 shares outstanding of the registrant's common stock, $0.001 par value. As of June 30, 2023 (the last business day of the registrant's most recently completed second fiscal quarter), the aggregate market value of the common stock held by non-affiliates of the registrant was approximately $87,407,029.

DOCUMENTS INCORPORATED BY REFERENCE

None.

## TABLE OF CONTENTS


| | | Page |
|---|---|---|
| **PART I** | | |
| Item 1. | Business | 1 |
| Item 1A. | Risk Factors | 10 |
| Item 1B. | Unresolved Staff Comments | 31 |
| Item 1C. | Cybersecurity | 31 |
| Item 2. | Properties | 33 |
| Item 3. | Legal Proceedings | 33 |
| Item 4. | Mine Safety Disclosures | 33 |
| **PART II** | | |
| Item 5. | Market for Registrant’s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities | 34 |
| Item 6. | [Reserved] | 34 |
| Item 7. | Management’s Discussion and Analysis of Financial Condition and Results of Operations | 35 |
| Item 7A. | Quantitative and Qualitative Disclosures about Market Risk | 40 |
| Item 8. | Financial Statements and Supplementary Data | 41 |
| Item 9. | Changes in and Disagreements with Accountants on Accounting and Financial Disclosure | 80 |
| Item 9A. | Controls and Procedures | 80 |
| Item 9B. | Other Information | 87 |
| Item 9C. | Disclosure Regarding Foreign Jurisdictions that Prevent Inspections | 87 |
| **PART III** | | |
| Item 10. | Directors, Executive Officers and Corporate Governance | 88 |
| Item 11. | Executive Compensation | 94 |
| Item 12. | Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters | 109 |
| Item 13. | Certain Relationships and Related Transactions, and Director Independence | 110 |
| Item 14. | Principal Accountant Fees and Services | 111 |
| **PART IV** | | |
| Item 15. | Exhibits and Financial Statement Schedules | 113 |
| Item 16. | Form 10-K Summary | 113 |
| Index to Exhibits | | 114 |
| Signatures | | 117 |

***Forward-looking Statements***

This Annual Report on Form 10-K, including “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” contains forward-looking statements regarding future events and our future results that are subject to the safe harbors created under the Securities Act of 1933 (the “Securities Act”) and the Securities Exchange Act of 1934 (the “Exchange Act”). These statements are based on current expectations, estimates, forecasts, and projections about the industries in which we operate, and reflect the beliefs and assumptions of our management as of the date hereof.

We use words such as “anticipate,” “believe,” “continue,” “could,” “estimate,” “expect,” “forecast,” “goal,” “intend,” “may,” “plan,” “project,” “seek,” “should,” “target,” “will,” “would,” variations of such words, and similar expressions to identify forward-looking statements. In addition, statements that refer to projections of earnings, revenue, costs or other financial items in future periods; anticipated growth and trends in our business, industry or key markets; cost synergies, growth opportunities and other potential financial and operating benefits of our acquisitions; future growth and revenues from our products; our ability to access capital to fund our future operations; future economic conditions and performance; the impact of the global outbreak of COVID-19, also known as the coronavirus; the impact of interest rate and foreign currency fluctuations; anticipated performance of products or services; competition; plans, objectives and strategies for future operations, including our pursuit or strategic acquisitions and our continued investment in research and development; other characterizations of future events or circumstances; and all other statements that are not statements of historical fact, are forward-looking statements within the meaning of the Securities Act and the Exchange Act. Although we believe that the assumptions underlying the forward-looking statements are reasonable, we can give no assurance that our expectations will be attained. Readers are cautioned not to place undue reliance on such forward-looking statements, which are being made as of the date of this Annual Report on Form 10-K. Except as required by law, we undertake no obligation to update any forward-looking statements, whether as a result of new information, future events or otherwise.

Factors which could have a material adverse effect on our operations and future prospects or which could cause actual results to differ materially from our expectations include factors discussed in Part I, Item 1A “Risk Factors” and Part II, Item 7 “Management’s Discussion and Analysis of Financial Condition and Results of Operations” of this Annual Report on Form 10-K, as well as factors described from time to time in our future reports filed with the U.S. Securities and Exchange Commission (the “SEC”).

## PART I

## ITEM 1. BUSINESS

DZS Inc. (“DZS” or the “Company,”) was incorporated under the laws of the state of Delaware in June 1999. Until August 8, 2024, the Company’s common stock was traded on The Nasdaq Global Select Market ("Nasdaq") under the symbol “DZSI”. Since August 8, 2024, the Company's common stock has traded on the OTC market under the symbol "DZSI". The mailing address of our worldwide headquarters is 5700 Tennyson Parkway, Suite 400, Plano, Texas 75024, and our telephone number at that location is (469) 327-1531.

***Company Overview***

DZS is global provider of access and optical networking infrastructure and artificial intelligence ("AI") driven cloud software solutions that enable the emerging hyper-connected, hyper-broadband world and broadband experiences. The Company provides a wide array of reliable, cost-effective networking technologies and cloud software to a diverse customer base.

We research, develop, test, sell, manufacture and support platforms in the areas of mobile transport and fixed broadband access, as discussed below. We have regional development and support centers around the world to support our customer needs. As of December 31, 2023, we employed over 660 personnel worldwide.

***Our Solutions and Platforms***

Our solutions and platforms portfolio include products in Access Edge, Subscriber Edge, Optical Edge, and Cloud Software.

- *Access Edge.* Our DZS Velocity portfolio offers a variety of solutions for carriers and service providers to connect residential and enterprise customers, either using high-speed fiber or leveraging their existing deployed copper networks to offer broadband services to customer premises. Once our broadband access products are deployed, the service provider can offer voice, ultra-high-definition video, high-speed internet access and business class services to their customers. In addition, the switching and routing products we provide in this space offer a high-performance and manageable solution that bridges the gap from carrier access technologies to the core network. DZS “system-on-a-card” technology increases the velocity with which service providers can leap to multi-gigabit services at scale by enabling rapid transition from Gigabit Passive Optical Network (“GPON”) to 10 Gigabit Symmetrical Passive Optical Network (“XGS-PON”) and 50 Gigabit Passive Optical Network (“50G PON”) in the future and Gigabit Ethernet (“GE”) to 10 GE via any service port across a range of existing DZS Velocity chassis and 10 GE optimized stackable fixed form factor units.

- *Subscriber Edge*. Our DZS Helix connected premises product portfolio offers a large collection of optical network terminals (“ONTs”) and smart gateway solutions for any fiber to the “x” (“FTTx”) deployment. DZS ONTs and Smart Gateway platforms are designed for high bandwidth services being deployed to the home or business. Our connected premises portfolio consists of indoor/outdoor ONTs and gateways delivering best-in-class data and WiFi throughout the premises to support FTTx applications. The product feature set gives service providers an elegant migration path from legacy voice to soft switch architectures without replacing ONTs.

- *Optical Edge.* Our DZS Chronos and DZS Saber portfolios provide robust, manageable and scalable solution for mobile operators and service providers that enable them to modularly upgrade their edge transport to up to 400 gigabits per second (400 Gbps) speed as well as provide mobile fronthaul/midhaul/backhaul (“xHaul”) systems capable of supporting the transport needs for fifth generation wireless technologies (“5G”) and beyond. Our Saber solutions are 5G-ready xHaul and coherent optics capable and are open, software-defined, and field proven. Our mobile xHaul and edge transport products may be collocated at the radio access node base station and can aggregate multiple radio access node base stations into a single backhaul for delivery of mobile traffic to the radio access node network controller or be leveraged as transport vehicles for FTTx deployments. Our products support pure Ethernet switching as well as layer 3 IP and Multiprotocol Label Switching (“MPLS”), and we interoperate with other vendors in these networks. The Saber portfolio also provides high bandwidth optical transport and services, enabling service providers to push high bandwidth transport closer to their subscribers near the edge of their networks. Complementary to the growth of high bandwidth technologies like XGS-PON and 5G mobile at the access edge, Saber products leverage environmentally hardened dense wavelength-division multiplexing (DWDM) coherent optics to deliver transport bandwidth speeds from 100 Gbps to 400 Gbps over long distances that can be necessary to support advanced access and mobile technologies. Some DZS Saber platforms also provide additional feature such as multi-degree colorless directionless contentionless (CDC) FlexGrid reconfigurable optical add-drop multiplexer (ROADM) functionality, which allows service providers to easily adjust to changing network traffic demands.

- *Cloud Software.* Our DZS Cloud Software platforms provide software capabilities specifically in the areas of network orchestration, application slicing, automation, analytics, service assurance, and consumer broadband experience. Via our DZS Xtreme solutions we offer a commercial, carrier-grade network-slicing enabled orchestration platform complementing our position with physical network devices supporting Open RAN (“O-RAN”) and 4G/5G networks. Communications service providers (“CSPs”) are implementing software defined networking (“SDN”) and network functions virtualization (“NFV”) architectures to reduce reliance on proprietary systems and hardware, which increase service agility, flexibility, and deployment of new network services while lowering costs. Our Expresse software solution provides a clear view of multi-vendor, multi-technology access networks for both network and service assurance while monitoring, identifying, diagnosing, and fixing network problems via an AI-based recommendation engine. CloudCheck software is an advanced WiFi experience management and analytics solution that enables CSPs to monitor, manage and optimize home WiFi networks. DZS customers are implementing experience and service assurance solutions to reduce support costs, including specifically the costs of WiFi troubleshooting and truck rolls, improve service performance and customer satisfaction, and ultimately reduce subscriber churn and increase average revenue per user (ARPU).

- On June 1, 2024, the Company completed an acquisition of Netcomm Wireless Pty Ltd, a private limited company registered in New South Wales, Australia (“Netcomm”) (the "Netcomm Acquisition"). In conjunction with the Netcomm Acquisition, the Company expanded its product portfolio by adding NetComm’s Fiber Extension, Connected Home, Fixed Wireless Access (“FWA”) and Industrial Internet of Things (“IoT”) products.

***Industry Background***

Expansion in our business across the Americas, Europe, Middle East and Africa (“EMEA”), and Australia/New Zealand (“ANZ”) regions is driven by the increased demand of residential subscribers, cloud service providers and enterprises for mobile and fixed network access and transport solutions, communications equipment and software that enable or support access to higher speed bandwidth access to the internet and better broadband experiences.

Furthermore, increased competition between CSPs in particular for subscriber broadband services has resulted in significant investment pressure to upgrade network infrastructure to meet growing bandwidth needs. Broadband access and transport networks must be multiservice in nature and must have extensive quality of service guarantees in order to support 5G, mobile xHaul, symmetric business services and residential services, as well as virtual overlay networks for alternative operators and wholesale access.

In recent years, the growth of social communications and networking has placed significant demands on legacy access infrastructure, which was exacerbated in 2020 by the global COVID-19 pandemic which drove a dramatic rise in remote work and learning as well as entertainment streaming. This increased demand has been challenging for the industry, even for the newest and most advanced CSPs. Increased subscriber usage of smartphone, video streaming services, PC gaming services and high definition and ultra-high-definition televisions has increased the network throughput demand driven by music, pictures, user-generated content (as found on many video-sharing sites) and high-definition video, which have all become a growing part of subscribers’ regular exchange of information. In addition, we are already seeing AI and the symmetric transfer of data and analytics drive massive new requirements in network capacity and latency and expect this to increase significantly over time.

Trends such as Software-as-a-Service (SaaS), Cloud-based services, IoT, AI, and 5G have also increased the demand for broadband network edge access and customer premises solutions. All of these new technologies share a common dependency on high-bandwidth communication networks and sophisticated traffic management tools. As bandwidth demands continue to increase, carriers need to continue to upgrade their network infrastructure to support such demand. The infrastructure upgrade cycle typically has the effect of moving bandwidth bottlenecks from one part of the network to another (such as a carrier’s access network, core network or data centers), depending on the selection of technology and costs.

It is widely acknowledged in the industry that a fiber-optic broadband access network is the preferred network architecture for a broadband fixed network. This network architecture is commonly called Fiber to the Premises ("FTTP") for business subscribers or Fiber to the Home ("FTTH") for residential subscribers. With FTTH, all services are generally delivered to the premises through smart optical networking terminal units ("ONTs"). Fiber to the Node ("FTTN") and Fiber to the Curb ("FTTC") architectures are also deployed where the fiber-optic cable terminates at a street cabinet which can contain a Digital Subscriber Line Access Multiplexer ("DSLAM"), Multiple Service Access Node ("MSAN") or Distribution Point Unit ("DPU") that then provides higher speed services to their customers over the last mile legacy copper wireline infrastructure. FWA technology leveraging 4G/5G and WiFi technologies has also emerged as a necessary option where the business case for fiber cannot be met. With the shift away from the legacy copper telephone Time-division Multiplexing ("TDM") switches (used in carrier networks from the 1980's to the early 2000's), many carriers that continue to provide services over copper wireline networks are decommissioning their legacy telephone switches and moving services over to Voice over Internet Protocol ("VoIP") platforms via an MSAN/Softswitch solution. Our broadband access products and solutions are designed to address all these FTTx configurations by allowing carriers and CSPs to either use fiber-optic networks or leverage their existing deployed copper networks to offer broadband services to customer premises. The demand for FTTx is also driven by various government sponsored broadband stimulus funding programs. These initiatives cultivate broadband opportunities around the world. Several of the most prominent initiatives are in North America, including American Rescue Plan Act (ARPA), the CARES Act, the Consolidated Appropriations Act, the Rural Digital Opportunity Fund (RDOF) the Infrastructure Investment and Jobs Act, and the Broadband Equity, Access, and Deployment (BEAD) program. Global government sponsored broadband stimulus initiatives are less commonly known, though equally important in their contributions to the investment in fiber-optic broadband access network. We are benefiting from several customers that have accelerated their network investment because of government broadband stimulus programs.

With respect to mobile wireless networks, the popularity of mobile smartphones and increasing demand for mobile data has forced mobile network operators to upgrade their mobile access technologies from 3rd generation wireless ("3G") to 4th generation wireless ("4G" or "LTE") and to 5G. These technology upgrades are typically accompanied by network infrastructure upgrades, including upgrades to the carriers' access networks (referred to as "mobile xHaul"), core networks and data centers. Our mobile xHaul products, which have features for time sensitive networks, provide a robust, manageable and scalable solution for mobile network operators that enable them to upgrade their mobile fronthaul/backhaul systems and migrate to 4G and 5G. In addition, the FWA portfolio we added with the Netcomm Acquisition leverages 4G and 5G licensed spectrum to deliver fiber-like broadband speeds to homes where the business case for fiber network deployment is challenged. Many DZS FWA solutions can be self-installed both indoors and outdoors providing a significant operational and time-to-market advantage for our customers.

Another growing industry trend is the desire of carriers and service providers to simplify network operations and reduce costs. Increasingly, we see network operators seeking to reduce the number of active components in their networks and to centralize network data and control in data centers, both of which require network redesigns and upgrades. Our FTTP portfolio, FiberLAN portfolio of Passive Optical LAN ("POL") products, as well as our Saber portfolio of Ethernet switching and transport products and SDN and NFV tools and building blocks, are designed to address these market trends, with FTTP and POL emerging as a popular customer choice for network upgrades.

**Our Strategy**

We strive to balance growth with financial discipline that specifically focuses on improving product margins, increasing recurring software and service revenue, and managing expenses to drive profitability. The principal elements of our strategy include:

- ***Global Presence.*** We have a global customer base with active customers in more than 50 countries worldwide. In 2023, we provided our fixed and wireless network access solutions, transport solutions, connectivity solutions, and cloud software to Tier 1, national, and regional carriers in the Asia-Pacific region, EMEA, and the Americas. On April 5, 2024, the Company completed a divestiture of its certain subsidiaries in Asia enabling the Company to focus its go-to-market strategy, technology and innovation on the Americas, EMEA, and ANZ regions. We currently leverage our infrastructure across these regions, which includes sales offices, research and development "Centers of Excellence" in the United States of America ("United States" or "U.S."), Germany, India, Spain, Turkey and Canada, third-party development partners in Brazil and the Republic of Korea ("South Korea") and contract manufacturing capabilities in the United States, South Korea, Vietnam, Thailand and China, to support our customer base.

- ***Leading FTTx Market Position.*** We hold a strong innovation leadership position in the FTTx network access space. We offer customers an extensive choice of indoor and outdoor fiber demarcation and fully integrated smart gateways with telephone data, Power over Ethernet ("POE"), WiFi and over-the-top set-top box ("OTT STB") capabilities and other service interfaces. In the FTTx optical line terminal ("OLT") category and fiber extension FTTC solutions, we offer a large portfolio of modular chassis, single platforms, and software for deployment in datacenter, central office, extended temperature environments and multi-dwelling unit ("MDU") scenarios.

- ***Technology Leadership.*** We believe that our future success is built upon our investment in the development of advanced communications technologies. We continue to focus on research and development to maintain our leadership position in broadband network edge access and transport solutions, connectivity communications equipment and cloud software. These development efforts include innovating around 5G mobile xHaul technology in collaboration with our leading Tier 1 carriers, innovating in environmentally hardened DWDM coherent optics and compact ROADM solutions to address emerging transport traffic needs, developing a new generation of SDN/NFV solutions for unified wired and wireless networks, upgrading our broadband access technology for 10 and 25/50/100 gigabit PON technologies, 4G and 5G FWA solutions, FTTC fiber extension solutions, IoT enterprise solutions and introducing our AI-driven, cloud managed WiFi solutions and data analytics offerings. We also continue to expand and differentiate our portfolio through software investments in network orchestration, automation and slicing, a unified operating system and a subscriber experience software-as-a-service (SaaS) platform. Our software expansion and vision are designed to improve our long-term margin profile while differentiating DZS in the marketplace.

- ***Strategic Mergers and Acquisitions***. In addition to organic growth, we may from time to time seek to expand our operations and capabilities through strategic acquisitions.

  On June 1, 2024, DZS acquired NetComm Wireless Pty Ltd. ("NetComm"), a developer of innovative Fiber Extension (also known as FTTC), FWA, IoT and Home Broadband connectivity solutions based in Sydney, Australia. This acquisition underscores our commitment to provide CSPs and enterprise customers with a comprehensive set of connectivity solutions that enhance our overall portfolio with differentiated solutions to capitalize on our broadband anywhere vision and go-to-market strategy.

  On May 27, 2022, the Company acquired certain assets and liabilities of Adaptive Spectrum and Signal Alignment, Incorporated ("ASSIA"), an industry pioneer of broadband access quality-of-experience and service assurance software solutions (the "ASSIA Acquisition"). The core assets acquired include the CloudCheck® WiFi experience management and Expresse® access network optimization software solutions. These software solutions add powerful data analytics and network intelligence capabilities to DZS Cloud, including cloud-managed WiFi solutions, access network optimization and intelligent automation tools.

  On March 3, 2021, the Company acquired substantially all of the assets of RIFT, Inc., a network automation solutions company, and all the outstanding shares of RIFT.IO India Private Limited, a wholly owned subsidiary of RIFT, Inc. (collectively "RIFT"). RIFT developed a carrier-grade software platform that simplifies the deployment of any slice, service, or application on any cloud.

  On February 5, 2021, we acquired Optelian Access Networks Corporation ("Optelian"), a leading optical networking solution provider based in Ottawa, Ontario, Canada, and its portfolio of optical transport solutions. This acquisition introduced the "O-Series" to the DZS portfolio of carrier grade optical networking products with 100 gigabits per second and above capability, expanding DZS product portfolios by providing environmentally hardened, high capacity, and flexible solutions at the network edge.

  On January 3, 2019, we acquired Keymile to expand our business efforts in the EMEA region. The acquired Multi-service Access Nodes (MSAN) portfolio complemented the DZS existing portfolio by offering leading class point-to-point active FTTx Ethernet and copper-based access technology based on G. Fast technology as well as VoIP gateway features.

- ***Ecosystem Partners***. We believe there is further opportunity to grow sales through our channel partners, particularly with distributors, value-added resellers, system integrators, as well as with municipalities and government organizations. We have a track record of building a diverse but targeted network of partners to help drive growth in specific segments of our business or in specific geographies. For FiberLAN, we are working with distributors, value added resellers, and system integrators to broaden our enterprise go to market presence.

**Customers**

We generally sell our products and services directly to carriers and CSPs that offer voice, data and video services to businesses, governments, utilities and residential subscribers, as well as enterprises serving the hospitality, education, commercial properties, medical, and entertainment venues/stadiums. Our customer base includes regional, national and international carriers and CSPs. To date, our products have been deployed by hundreds of carriers, CSPs and enterprises across the Asia-Pacific, Americas, EMEA, and ANZ regions.

We also sell solutions indirectly to end customers through system integrators and distributors to the service providers, hospitality, education, stadiums, manufacturing and business enterprises as well as to the government and military.

For the year ended December 31, 2023, one customer represented 12% of net revenue. For the year ended December 31, 2022, no customers represented more than 10% of net revenue.

**Research and Development**

The industry in which we compete is subject to rapid technological developments, evolving industry standards, changes in customer requirements, and continuing developments in communications service offerings. Our continuing ability to adapt to these changes, and to develop new and enhanced products, is a significant factor in maintaining or improving our competitive position and our prospects for growth. Therefore, we continue to make significant investments in product development.

We have core research and development "Centers of Excellence" located in the United States, Germany, Canada, Turkey, India and Spain as well as third-party development partners in South Korea and Brazil. In all of these centers, we develop and test both our hardware and software solutions. We continue to invest heavily in automated and scale testing capabilities for our products to better emulate our customers' networks.

Our product development activities focus on products to support both existing and emerging technologies in the segments of the communications industry that we consider viable revenue opportunities. We are continuing to refine our solution architecture, introducing new products using the various solutions we support, and creating additional interfaces and protocols for both domestic and international markets.

We are committed to investing in advanced technology research and development for new products and innovative solutions that align with our business strategy. Our research and product development expenses were $55.8 million and $56.1 million in 2023 and 2022, respectively.

## Intellectual Property

We seek to establish, maintain and protect our proprietary rights in our technology and products through the use of patents, copyrights, trademarks and trade secrets. We also seek to maintain our trade secrets and confidential information by nondisclosure policies and through the use of appropriate confidentiality agreements. We have obtained a number of patents and trademarks in the United States and in other countries, and in connection with the ASSIA Acquisition, we also acquired a significant number of software patents. There can be no assurance, however, that these rights can be successfully enforced against competitive products in every jurisdiction or any particular jurisdiction. Although we believe the protection afforded by our patents, copyrights, trademarks and trade secrets has value, the rapidly changing technology in the networking industry and uncertainties in the legal process, both domestically and internationally, make our future success dependent primarily on the innovative skills, technological expertise, and management abilities of our employees rather than on the protection afforded by patent, copyright, trademark, and trade secret laws.

Many of our products include intellectual property licensed from third parties. While it may be necessary in the future to seek or renew licenses relating to various aspects of our products, we believe, based upon past experience and standard industry practice, that such licenses generally could be obtained on commercially reasonable terms. Nonetheless, there can be no assurance that the necessary licenses would be available on acceptable terms, if at all. Our inability to obtain certain licenses or other rights or to obtain such licenses or rights on favorable terms, or the need to engage in litigation regarding these matters, could have a material adverse effect on our business, operating results and financial condition. The communications industry is characterized by rapidly changing technology, a large number of patents, and frequent claims and related litigation regarding patent and other intellectual property rights. We cannot assure you that our patents or other proprietary rights will not be challenged, invalidated or circumvented, that others will not assert intellectual property rights to technologies that are relevant to us, or that our rights will give us a competitive advantage. In addition, the laws of some foreign countries may not protect our proprietary rights to the same extent as the laws of the United States.

## Sales and Marketing

We currently have a global sales presence with customers from over 50 countries across the Americas, EMEA, Asia Pacific, and ANZ regions, and we sell our products and services both directly and indirectly through channel partners with support from our salesforce. As part of our direct sales process, we partner with carriers from the early phases of technology development to ensure our products are carrier-grade and purpose-built for the most rigorous of environments. Our indirect sales channel partners include distributors, value added resellers, and system integrators. These partners sell directly to, and service, end customers and often provide additional value-added services such as system installation, technical support, and professional support services in addition to equipment sales. Our sales efforts are generally organized and sized according to geographical regions for target carriers, service providers, municipalities and enterprise customers. In 2023, we had the following sales organization structure.

- ***Americas Sales***. Our Americas Sales organization includes coverage of North America and Latin America regions. The organization establishes and maintains direct and indirect relationships with customers in the Americas, which includes carriers and service providers, cable operators, utilities and enterprises. In addition, this organization is responsible for managing our distribution channel, inside sales and sales engineering activities.
- ***EMEA Sales***. This organization establishes and maintains direct and indirect relationships with customers in the EMEA region, which includes carriers and service providers, cable operators, utilities and enterprises.
- ***Asia Pacific Sales***. This sales organization establishes and maintains direct and indirect relationships with customers in the Asia Pacific region, which includes carriers and service providers, cable operators, utilities and enterprises, in particular, with our South Korean customers, consisting primarily of Tier 1 carriers. These carriers have historically been early innovators across various telecommunications industry upgrade cycles, including broadband access technology and mobile fronthaul/backhaul technology. We partner with such carriers from the early phases of technology development to ensure our products are carrier-grade and purpose-built for the most rigorous of environments.
- ***Enterprise Sales.*** Our Enterprise Sales organization includes global geographic coverage and is primarily focused on coverage of our FiberLAN solutions. The organization establishes and maintains direct and indirect relationships with enterprise customers for both greenfield (i.e., projects that do not follow a prior work) and brownfield (i.e., projects that modify or upgrade existing infrastructure or products) projects targeting enterprise customers in several industry verticals, including education (i.e., K-12, universities and colleges, etc.), hospitality, healthcare, stadiums, corporate campuses, and others.

With the acquisition of Netcomm, we also established an ANZ sales organization that maintains direct and indirect relationships with customers in the ANZ region, consisting primarily of Tier 1 carriers.

Our marketing team works closely with our sales, research and product development organizations, and our customers by providing communications that keep the market current on our products and features. Marketing also identifies and sizes new target markets for our products, creates awareness of our company and products, generates contacts and leads within these targeted markets, performs outbound education and public relations, and participates in industry associations and standard industry bodies to promote the growth of the overall industry.

Our backlog consists of purchase orders for products and services that we expect to ship or perform within the next year. Our backlog may fluctuate based on the timing of when purchase orders are received. As of December 31, 2023, our backlog was approximately $200.8 million, compared to $291.3 million at December 31, 2022. We consider backlog to be an indicator, but not the sole predictor, of future sales because our customers may cancel or defer orders without penalty.

**Competition**

We compete in communications equipment and software markets, providing products and services for the delivery of broadband connectivity, connected home and business, mobile and optical edge transport, and cloud software-based services. These markets are characterized by rapid change, converging technologies and a migration to solutions that offer advantages in both operational efficiency and service performance. These market factors represent both an opportunity and a competitive threat to us. We compete with numerous vendors in our core broadband connectivity and connected home and business markets, including ADTRAN, Calix, Huawei, Nokia, and ZTE, among others. In our FiberLAN business, which is a subset of our broadband connectivity and connected home and business market, our competitors include Cisco, Nokia, and Tellabs, among others. In our mobile and optical edge transport business, our competitors include Ciena, Infinera, Nokia, Cisco and Juniper Networks, among others. In our cloud software business, our competitors include solutions from ADTRAN, Calix, Ciena, Nokia, and Solarwinds. In addition, a number of companies have introduced products that address the same network needs that our products and solutions address, both domestically and internationally. The overall number of our competitors may increase, and the identity and composition of competitors may change. As we continue to expand our sales across the Americas, EMEA, and ANZ regions, we may see new competition in different geographic regions. Barriers to entry are relatively low, and new ventures to create products that do or could compete with our products are regularly formed. Many of our competitors have greater financial, technical, sales and marketing resources than we do.

The principal competitive factors in the markets in which we presently compete and may compete in the future include:

- product performance;
- feature capabilities;
- manufacturing capacity;
- interoperability with existing products;
- scalability and upgradeability;
- conformance to standards;
- breadth of services;
- reliability;
- ease of installation and use;
- geographic footprints for products;
- ability to provide customer financing;
- pricing;
- technical support and customer service; and
- brand recognition.

While we believe that we compete successfully with respect to each of these factors, we currently face and expect we will continue to face intense competition in our markets. In addition, the inherent nature of communications networking requires interoperability. As such, we must cooperate and at the same time compete with many companies.

**Manufacturing and Operations**

Operationally, we use a global sourcing procurement program to purchase and manage key raw materials and subassemblies through qualified suppliers, sub-contractors, original equipment and design manufacturers and electronic manufacturing service vendors. Through 2022, our manufacturing process has used a strategic combination of procurement from qualified suppliers and in-house manufacturing in Seminole, Florida, USA. In October 2022, we announced an agreement with Fabrinet, a third-party provider of electro-mechanical and electronic manufacturing and distribution services, to transition the sourcing, procurement, order-fulfillment, and manufacturing activities in the Company's Seminole facility to Fabrinet. The transition began in October 2022 and completed in the beginning of 2023, whereupon the Company no longer manufactures the products it sells. We have also relied and will continue to rely on other contract manufacturers, primarily located in China, Thailand, and South Korea, and original design manufacturers for high volume, low mix products.

Some completed products are procured to our specifications and shipped directly to our customers. We also acquire completed products from certain suppliers, which we configure and ship from our facility. Some of these purchases are significant. We purchase both standard off-the-shelf parts and components, which are generally available from more than one supplier, and single-source parts and components. We have generally been able to obtain adequate supplies to meet customer demand in a timely manner from our current vendors, or, when necessary, from alternate vendors. We believe that alternate vendors can be identified if current vendors are unable to fulfill our needs, or design changes can be made to employ alternate parts.

We have experienced significant disruptions in our supply chain during the last three years. As of early 2024, supply chain pressures have fallen from unprecedented levels following the COVID-19 pandemic, however, we anticipate that such pressures will continue in 2024. As we continue to incur elevated costs for components and expedite fees, our supply chain and operations teams continue to focus on managing through a constrained environment, thereby enabling DZS to maximize shipments despite elongated lead times. In 2023, we transitioned the sourcing, procurement, order-fulfillment, and manufacturing for our velocity (OLT), Saber (Optical) product lines to Fabrinet. The new sourcing and manufacturing model is expected to mitigate certain supply chain risks related to procurement of raw materials. We remain cautious about continued supply chain headwinds that challenge the industry and anticipate a constrained supply chain environment to persist throughout 2024.

We design, specify, and monitor all of the tests that are required to meet our quality standards. Our manufacturing and test engineers work closely with our design engineers to ensure manufacturability and testability of our products, and to ensure that manufacturing and testing processes evolve along with our technologies. Our manufacturing engineers specify, build, or procure our test stations, establish quality standards and protocols, and develop comprehensive test procedures and processes to assure the reliability and quality of our products. Products that are procured complete or partially complete are inspected, tested, or audited for quality control.

Our Quality Management System is compliant with, and we are certified to, ISO-9001:2015 by our external registrar, National Standards Authority of Ireland. ISO-9001:2015 requires that our processes be documented, followed and continuously improved. Internal audits are conducted on a regular schedule by our quality assurance personnel, and external audits are conducted by our external registrar each year. Our quality system is based upon our model for quality assurance in production and service to ensure our products meet rigorous quality standards.

**Compliance with Regulatory and Industry Standards**

Our products must comply with a significant number of voice and data regulations and standards which vary by jurisdiction. Standards for new services continue to evolve, and we may need to modify our products or develop new versions to meet these standards. Standards setting and compliance verification in the United States are determined by the Federal Communications Commission, Underwriters Laboratories (a global safety certification company), Quality Management Institute (a management training and leadership company), Telecordia (an operations management and fraud prevention solutions company which is a subsidiary of Ericsson), and other communications companies. In international markets, our products must comply with standards issued, implemented and enforced by the regulatory authorities of foreign jurisdictions, as applicable, such as the European Telecommunications Standards Institute (“ETSI”), among others.

**Environmental Matters**

Our operations and manufacturing processes are subject to federal, state, local and foreign environmental protection laws and regulations. Such laws and regulations relate to the presence, use, handling, storage, discharge and disposal of certain hazardous materials and wastes, the pre-treatment and discharge of process waste waters and the control of process air pollutants. Under certain laws of the United States, we can be held responsible for cleanup costs at currently or formerly owned or operated locations or at third party sites to which our wastes were sent for disposal. To date, liabilities relating to contamination have not been significant, and have not had a material impact on our operations or results. We believe that our operations and manufacturing processes currently comply in all material respects with applicable environmental protection laws and regulations. If we fail to comply with any present or future laws or regulations, we could be subject to liabilities, the suspension of production or a prohibition on the sale of our products. In addition, such regulations could require us to incur significant expenses to comply with environmental laws or regulations, including expenses associated with the redesign of any non-compliant product or the development or installation of additional pollution control technology. From time to time new laws or regulations are enacted, and it is difficult to anticipate how such laws or regulations will be implemented and enforced, or the impact they will have on our operations or results.

Our operations in the European Union are subject to the Restriction on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Directive and the Waste Electrical and Electronic Equipment Directive. We are aware of and are taking suitable action to comply with the new European Union Restriction of Hazardous Substances standards. Our operations in the United States or other countries, such as Japan and China are subject to similar legislation. Our failure to comply with any regulatory requirements or contractual obligations relating to environmental matters or hazardous materials could result in us being liable for costs, fines, penalties and third-party claims, and could jeopardize our ability to conduct business in the jurisdictions where such laws or the regulations apply.

**Employees**

As of December 31, 2023, we employed over 660 personnel worldwide. We consider the relationships with our employees to be positive. Competition for technical personnel in our industry is intense. We believe that our future success depends in part on our continued ability to hire, assimilate and retain qualified personnel. To date, we believe that we have been successful in recruiting qualified employees, but there is no assurance that we will continue to be successful in the future.

**Website and Available Information**

Our investor website address is *http://investor.dzsi.com*. The information on, or accessible through, our website does not constitute part of this Annual Report on Form 10-K, or any other report, schedule or document we file or furnish to the SEC. On our investor website, we make the following filings available free of charge as soon as reasonably practicable after they are electronically filed with or furnished to the SEC: our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and any amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act. The SEC maintains an internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC at *http://www.sec.gov.*

## ITEM 1A. RISK FACTORS

*An investment in our common stock involves a high degree of risk. You should carefully consider the risks described below and the other information in this Annual Report on Form 10-K and in other filings we make with the SEC before making an investment decision. Our business, prospects, financial condition, or operating results could be harmed by any of these risks, as well as other risks not currently known to us or that we currently consider immaterial. If any of such risks and uncertainties actually occurs, our business, financial condition or operating results could differ materially from the plans, projections and other forward-looking statements included in the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations" and elsewhere in this report and in our other public filings. The trading price of our common stock could decline due to any of these risks, and, as a result, you may lose all or part of your investment.*

**Risk Factors Summary**

The following is a summary of the principal risks that could adversely affect our business and financial results:

***Risks Related to the Restatement of our Consolidated Financial Statements***

- The restatement of our previously issued financial statements has been time-consuming and expensive and could expose us to additional risks that could materially adversely affect our financial position, results of operations and cash flows.
- The restatement of our previously issued financial results has resulted in multiple securities class actions, as well as government investigations that could result in government enforcement actions that could have a material adverse impact on our results of operations, financial condition, liquidity and cash flows.
- We have identified material weaknesses in our internal control over financial reporting which could, if not remediated, adversely affect our ability to report our financial condition and results of operations in a timely and accurate manner, which may adversely affect investor confidence in our company and, as a result, the value of our common stock.
- If our internal controls are not effective, there may be errors in our financial information that could require a restatement or delay our SEC filings. Such material weaknesses could materially and adversely affect our operations, financial condition, reputation and stock price.
- Matters relating to or arising from our Audit Committee investigations, including regulatory investigations and proceedings, litigation matters and potential additional expenses, may adversely affect our business and results of operations.
- We have not been in compliance with Nasdaq's requirements for continued listing and as a result our common stock was suspended from trading on the Nasdaq as of August 8, 2024, and in the future it may be delisted from trading on the Nasdaq, which has had and will continue to have a material effect on us and our stockholders.
- The delayed filing of some of our periodic SEC reports has made us currently ineligible to use a registration statement on Form S-3 to register the offer and sale of securities, which could adversely affect our ability to raise future capital or complete acquisitions.

***Risks Related to our Liquidity***

- We may not have the liquidity to support our future operations and capital requirements.
- We have experienced significant losses and we may incur losses in the future. If we fail to generate sufficient revenue to sustain our profitability, our stock price could decline.

***Customer and Product Risk***

- The long and variable sales cycles for our products could cause revenue and operating results to vary significantly from quarter to quarter.
- The market we serve is highly competitive and we may not be able to compete successfully.
- We depend upon the development of new products and enhancements to existing products, and if we fail to predict and respond to emerging technological trends and customers' changing needs, our operating results and market share may suffer.

- Because our products are complex and are deployed in complex environments, our products may have defects that we discover only after full deployment by our customers, which could have a material adverse effect on our business.
- Sales to CSPs are especially volatile, and weakness in sales orders from this industry could harm our business, operations, financial condition and liquidity.
- We depend on a limited source of suppliers for several key components. If we are unable to obtain these components on a timely basis, we will be unable to meet our customers' product delivery requirements, which would harm our business.
- We rely on the availability of third-party licenses.
- Our intellectual property rights could prove difficult to protect and enforce.
- There are additional risks to our intellectual property as a result of our international business operations.
- Claims that our current or future products or components contained in our products infringe the intellectual property rights of others may be costly and time consuming to defend and could adversely affect our ability to sell our products.
- Due to the international nature of our business, political or economic changes or other factors in a specific country or region could harm our future revenue, costs and expenses, and financial condition.
- We face exposure to foreign currency exchange rate fluctuations.

***Risks Related to our Industry***

- The telecommunications networking business requires the application of complex revenue and expense recognition rules and the regulatory environment affecting generally accepted accounting principles is uncertain. Changes in financial accounting standards or practices may cause adverse, unexpected financial reporting fluctuations and harm our business.
- Changes in government regulations related to our business could harm our operations, financial condition, and liquidity.
- Industry consolidation may lead to increased competition and could harm our operating results.

***Risks Related to our Common Stock***

- DASAN Networks, Inc. ("DNI") owns a significant amount of our outstanding common stock and has the ability to exert significant influence or control over any matters that require stockholder approval, including the election of directors and the approval of certain transactions, and DNI's interests may conflict with our interests and the interests of other stockholders.
- There is a limited public market of our common stock.
- We do not expect to declare or pay dividends in the foreseeable future.

***General Risk Factors***

- We may need additional capital, and we cannot be certain that additional financing will be available.
- Our level of indebtedness could adversely affect our business, operations, financial condition, and liquidity
- Our future operating results are difficult to predict and our stock price may continue to be volatile.
- Strategic acquisitions or investments that we have made or that we could pursue or make in the future may disrupt our operations and harm our business, operations, financial condition, and liquidity.
- Litigation and government investigations could result in significant legal expenses and settlement payments, fines or damage awards.
- If demand for our products and solutions does not develop as we anticipate, then our business operations, financial condition, and liquidity will be adversely affected.

- Increased tariffs on products and goods that we purchase from off-shore sources (particularly Chinese sources) and changes in international trade policies and relations could have an adverse effect on our customers and operating results.
- We rely on contract manufacturers for a portion of our manufacturing requirements.
- We face supply chain risk, and our failure to estimate customer demand properly could result in excess or obsolete component inventories that could adversely affect our gross margins.
- The loss of a key customer or a significant deterioration in the financial condition of a key customer could have a material adverse effect on the Company's results of operations.
- We have experienced significant turnover with respect to our executives, and our business could be adversely affected by these and other transitions in our senior management team or if any future vacancies cannot be filled with qualified replacements in a timely manner.
- Restructuring activities could disrupt our business and affect our results of operations.
- Decreased effectiveness of share-based compensation could adversely affect our ability to attract and retain employees.
- Our success largely depends on our ability to retain and recruit key personnel, and any failure to do so could harm our ability to meet key objectives.
- Our collection, processing, storage, use, and transmission of personal data could give rise to liabilities as a result of governmental regulation, increasing legal requirements.
- Cyberattacks or other security incidents that disrupt our operations or compromise data, may expose us to liability, harm our reputation or otherwise adversely affect our business.
- Compliance or the failure to comply with current and future environmental regulations could cause us significant expense.
- Failure to comply with the U.S. Foreign Corrupt Practices Act and similar laws associated with our international activities could subject us to significant civil or criminal penalties.
- Our business and future operating results are subject to global economic and market conditions.
- Natural disasters, public health crises, political crises, and other catastrophic events or other events outside of our control may damage our facilities or the facilities of third parties on which we depend, and could materially impact our supply chain and the operations of our customers and suppliers.
- Future issuances of additional equity securities could result in dilution of existing stockholders' equity ownership.

For a more complete discussion of the material risks facing our business, see below.

**Risks Related to the Restatement of our Consolidated Financial Statements**

***The restatement of our previously issued financial statements has been time-consuming and expensive and could expose us to additional risks that could materially adversely affect our financial position, results of operations and cash flows.***

We have restated our previously issued financial statements for the quarterly and year-to-date periods ended March 31, June 30, September 30, and December 31, 2022, and March 31, 2023. These restatements, and the remediation efforts we have undertaken and are continuing to undertake, have been time-consuming and expensive and could expose us to a number of additional risks that could materially adversely affect our financial position, results of operations and cash flows.

In particular, we have incurred significant expenses, including audit, legal, consulting and other professional fees and lender fees, in connection with the restatement of our previously issued financial statements and the ongoing remediation of material weaknesses in our internal control over financial reporting. We have taken a number of steps, including adding significant internal resources and implementing a number of additional procedures, in order to strengthen our accounting and compliance functions and attempt to reduce the risk of additional misstatements in our financial statements. To the extent these steps are not successful, we could be forced to incur additional time and expense. Our management's attention has also been diverted from the operation of our business in connection with the restatements and ongoing remediation of material weaknesses in our internal controls.

We are also subject to multiple securities class actions arising out of certain of the misstatements in our financial statements. For additional discussion see Item 3. Legal Proceedings and Note 14 Commitments and Contingencies in the Notes to Consolidated Financial Statements.

***The restatement of our previously issued financial results has resulted in multiple securities class actions, as well as government investigations that could result in government enforcement actions that could have a material adverse impact on our results of operations, financial condition, liquidity and cash flows.***

We are subject to securities class actions relating to our previous public disclosures and there is a risk that additional litigation is initiated or that the scope of the previously-filed class actions is expanded. In addition, we are subject to government investigations. For additional discussion see Item 3. Legal Proceedings and Note 14 Commitments and Contingencies in the Notes to Consolidated Financial Statements. In June and August of 2023, DZS shareholders filed three putative securities class actions related to DZS's June 1, 2023 Form 8-K announcing the Company's intention to restate its financial statements for the first quarter of 2023. Each suit was filed in the Eastern District of Texas. All three cases allege violations of Sections 10(b) and 20(a) of the Exchange Act against DZS, its Chief Executive Officer and its Chief Financial Officer. The cases are: (1) Shim v. DZS et al., filed June 14, 2023; (2) Link v. DZS et al., filed June 27, 2023; and (3) Cody v. DZS et al., filed August 9, 2023. Three potential lead plaintiffs filed applications for appointment on August 14, 2023. On September 12, 2023, the cases were consolidated under the lead case Shim v. DZS et al. The plaintiffs are seeking unspecified damages, interest, fees, costs and interest. Furthermore, the Company voluntarily contacted the Fort Worth office of the SEC Division of Enforcement regarding the restatement and independent investigation, is providing information and documents to the SEC and will continue to cooperate with the SEC's investigation into these matters. We could become subject to additional private litigation or investigations, or one or more government enforcement actions, arising out of the misstatements in our previously issued financial statements. Our management may be required to devote significant time and attention to these matters, and these and any additional matters that arise could have a material adverse impact on our results of operations, financial condition, liquidity and cash flows. While we cannot estimate our potential exposure to these matters at this time, we have already expended significant amounts investigating the claims underlying and defending this litigation and expect to continue to need to expend significant amounts to defend this litigation.

***We have identified material weaknesses in our internal control over financial reporting which could, if not remediated, adversely affect our ability to report our financial condition and results of operations in a timely and accurate manner, which may adversely affect investor confidence in our company and, as a result, the value of our common stock.***

Our management is responsible for establishing and maintaining adequate internal control over our financial reporting, as defined in Rule 13a-15(f)under the Exchange Act. In Item 9A, "Controls and Procedures" of this Annual Report, management identified material weaknesses in our internal control over financial reporting.

As a result of the material weaknesses, our management concluded that our internal control over financial reporting was not effective as of December 31, 2023. We are actively engaged in developing a remediation plan designed to address the material weaknesses, but our remediation efforts are not complete and are ongoing. If our remedial measures are insufficient to address the material weaknesses, or if additional material weaknesses or significant deficiencies in our internal control are discovered or occur in the future, it may materially adversely affect our ability to report our financial condition and results of operations in a timely and accurate manner. If we are unable to report our results in a timely and accurate manner, we may not be able to comply with the applicable covenants in our financing arrangements, and may be required to seek additional waivers or repay amounts under these financing arrangements earlier than anticipated, which could adversely impact our liquidity and financial condition. Although we continually review and evaluate internal control systems to allow management to report on the sufficiency of our internal controls over financial reporting, we cannot assure you that we will not discover additional weaknesses in our internal control over financial reporting. The next time we evaluate our internal control over financial reporting, if we identify one or more new material weaknesses or are unable to timely remediate our existing material weaknesses, we may be unable to assert that our internal controls are effective. If we are unable to assert that our internal control over financial reporting is effective, or if our independent registered public accounting firm is unable to express an unqualified opinion or expresses an adverse opinion on the effectiveness of our internal controls, we could lose investor confidence in the accuracy and completeness of our financial reports, which would have a material adverse effect on the price of our common stock and possibly impact our ability to obtain future financing on acceptable terms. We may also lose assets if we do not maintain adequate internal controls.

***If our internal controls are not effective, there may be errors in our financial information that could require a restatement or delay our SEC filings. Such material weaknesses could materially and adversely affect our operations, financial condition, reputation and stock price.***

We have, in the past, experienced issues with our internal control over financial reporting related to revenue recognition. It is possible that we may discover significant deficiencies or material weaknesses in our internal control over financial reporting in the future. Any failure to maintain or implement required new or improved controls, or any difficulties we encounter in their implementation, could cause us to fail to meet our periodic reporting obligations, or result in material misstatements in our financial information. If we are unable to effectively remediate and adequately manage our internal control over financial reporting in the future, we may be unable to produce accurate or timely financial information. As a result, we may be unable to meet our ongoing reporting obligations or comply with applicable legal requirements, which could lead to the imposition of sanctions or further investigation by regulatory authorities. Any such action or other negative results caused by our inability to meet our reporting requirements or comply with legal and regulatory requirements could lead investors and others to lose confidence in our financial data and could adversely affect our business and our stock price. Significant deficiencies or material weaknesses in our internal control over financial reporting could also reduce our ability to obtain financing or could increase the cost of available financing. Internal control over financial reporting may not prevent or detect all errors or acts of fraud.

Internal control over financial reporting may not achieve, and in some cases have not achieved, their intended objectives. Control processes that involve human diligence and compliance, such as our disclosure controls and procedures and internal control over financial reporting, are subject to lapses in judgment and breakdowns resulting from human failures. Controls can also be circumvented by collusion or improper management override of such controls. Because of such limitations, there are risks that material misstatements due to error or fraud may not be prevented or detected, and that information may not be reported on a timely basis. The failure of our controls to be effective could have a material adverse effect on our business, financial condition, results of operations, and market for our common stock, and could subject us to regulatory scrutiny and penalties.

***Matters relating to or arising from our Audit Committee investigations, including regulatory investigations and proceedings, litigation matters and potential additional expenses, may adversely affect our business and results of operations.***

We have incurred, and may continue to incur, significant expenses related to legal, accounting, and other professional services in connection with the Audit Committee investigations and related legal matters, as previously disclosed in our public filings, including the review of our accounting, the audit of our financial statements and the ongoing remediation of deficiencies in our internal control over financial reporting. As described in Item 9A., “Controls and Procedures” of this report, we have taken a number of steps in order to strengthen our accounting function and attempt to reduce the risk of future recurrence and errors in accounting determinations. The validation of the efficacy of these remedial steps will result in us incurring near term expenses, and to the extent these steps are not successful, we could be forced to incur significant additional time and expense. The incurrence of significant additional expense, or the requirement that management devote significant time that could reduce the time available to execute on our business strategies, could have a material adverse effect on our business, results of operations and financial condition. These expenses, the delay in timely filing our periodic reports, and the diversion of the attention of the management team that has occurred, and is expected to continue, has adversely affected, and could continue to adversely affect, our business and financial condition. As a result, we are exposed to greater risks associated with litigation, regulatory proceedings and government enforcement actions. Any future investigations or additional lawsuits may adversely affect our business, financial condition, results of operations and cash flows.

***We have not been in compliance with Nasdaq's requirements for continued listing and as a result our common stock has been suspended from trading on Nasdaq, and in the future it may be delisted from trading on the Nasdaq, which has had and will continue to have a material effect on us and our stockholders.***

We are currently delinquent in the filing of certain of our periodic reports with the SEC. As a result, we are not in compliance with listing requirements of Nasdaq Listing Rule 5250(c)(1) which requires timely filing of periodic financial reports with the SEC. As a result of our failure to file our periodic reports with the SEC in a timely manner or within any extension periods prescribed by Nasdaq, on August 8, 2024 trading of our common stock on Nasdaq was suspended, and we are subject to delisting from trading on Nasdaq. There can be no assurance whether or when the suspension of trading on Nasdaq will be lifted. If our common stock is delisted, there can be no assurance whether or when it would again be listed for trading on Nasdaq or any other exchange. Since the announcement that trading of our common stock on Nasdaq would be suspended, the market price of our stock has declined and become more volatile, and our stockholders may find that their ability to trade in our common stock will be adversely affected. If our common stock is delisted, the market price of our shares will likely decline further and become more volatile, and our stockholders may find that their ability to trade in our stock will be adversely affected. Furthermore, institutions whose charters do not allow them to hold securities in unlisted companies might sell our shares, which could have a further adverse effect on the price of our stock. In addition, our ability to hire and retain key personnel and employees may be adversely affected by volatility or reductions in the price of our common stock, since these employees are generally granted equity-based awards. We have previously experienced and may continue to experience employee attrition and difficulty attracting talent as a result of these issues. We may not be successful in attracting, integrating, or retaining qualified personnel to fulfill our current or future needs, nor may we be successful in keeping the qualified personnel we currently have.

***The delayed filing of some of our periodic SEC reports has made us currently ineligible to use a registration statement on Form S-3 to register the offer and sale of securities, which could adversely affect our ability to raise future capital or complete acquisitions.***

As a result of the delayed filing of some of our periodic reports with the SEC, we will not be eligible to register the offer and sale of our securities using a registration statement on Form S-3 until one year from the date we regained and maintain status as a current filer. Should we wish to register the offer and sale of our securities to the public prior to the time we are eligible to use Form S-3, both our transaction costs and the amount of time required to complete the transaction could increase, making it more difficult to execute any such transaction successfully and potentially harming our financial condition.

Furthermore, the Company has several employee and director equity plans that are registered under the Securities Act of 1933, as amended, pursuant to Form S-8. Under SEC regulations, the Company's failure to timely file its periodic and annual reports with the SEC resulted in the suspension of the availability of these insider equity plans. For that reason, employees and directors have not been permitted to liquidate any preexisting holdings of the Company's common stock, nor has the Company been able to issue equity retention or incentive awards.

**Risks Related to our Liquidity**

**We may not have the liquidity to support our future operations and capital requirements.**

As of December 31, 2023, we had approximately $19.0 million in unrestricted cash and cash equivalents, including $6.8 million in cash balances held by our international subsidiaries. If we are unable to raise additional capital, we may be unable to adequately fund our existing operations. Our current liquidity condition exposes us to the following risks: (i) vulnerability to adverse economic conditions in our industry or the economy in general; (ii) limitations on our ability to adequately plan for, or react to, changes in our business and industry; and (ii) negative investor and customer perceptions about our financial stability, which could limit our ability to obtain financing or acquire customers.

Our current liquidity condition could be further harmed, and we may incur significant losses or expend significant amounts of capital if: (i) the market for our products develops more slowly than anticipated or if it retracts; (ii) we fail to establish market share or generate revenue at anticipated levels; (iii) our capital expenditure forecasts change or prove to be inaccurate; (iv) we fail to respond to unforeseen challenges or take advantage of unanticipated opportunities; or (v) the on-going COVID-19 pandemic continues to negatively impact our business or further exacerbates any of the foregoing risks.

To meet our liquidity needs and to finance our capital expenditures and working capital needs for our business, we may be required to raise substantial additional capital, reduce our operations (including through the sale of assets) or both.

**We have experienced significant losses and we may incur losses in the future. If we fail to generate sufficient revenue to sustain our profitability, our stock price could decline.**

We had a net loss of $135.2 million and $41.3 million for the years ended December 31, 2023 and 2022 respectively. Additionally, we have incurred significant losses in prior years. We have an accumulated deficit of $263.9 million as of December 31, 2023. We expect that we will continue to incur substantial product cost, research and product development, sales and marketing, customer support, administrative and other expenses in connection with the ongoing development of our business. In addition, we may be required to spend more on research and product development than originally budgeted to respond to industry trends. We may also incur significant new costs related to acquisitions and the integration of new technologies and other acquisitions that may occur in the future. We may not be able to adequately manage costs and expenses or achieve or maintain adequate operating margins. As a result, our ability to achieve profitability in future periods will depend on our ability to generate and sustain higher revenue while maintaining reasonable costs and expense levels. If we fail to generate sufficient revenue to achieve profitability in future periods, we may continue to incur operating losses, which could be substantial, and our stock price could decline.

## Customer and Product Risk

**The long and variable sales cycles for our products could cause revenue and operating results to vary significantly from quarter to quarter.**

The target customers for our products have substantial and complex networks that they traditionally expand in large increments on a periodic basis. Accordingly, our marketing efforts are focused primarily on prospective customers that may purchase our products as part of a large-scale network deployment. Our target customers typically require a lengthy evaluation, testing and product qualification process. Throughout this process, we are often required to spend considerable time and incur significant expenses educating and providing information to prospective customers about the uses and features of our products. Even after a company makes the final decision to purchase our products, it could deploy our products over extended periods of time. The timing of deployment of our products varies widely, and depends on a number of factors, including our customers' skill sets, geographic density of potential subscribers, the degree of configuration and integration required to deploy our products, and our customers' ability to finance their purchase of our products as well as their operations. The impact of the COVID-19 pandemic on our supply chain has increased the volatility of our deployment timeframes. As a result of any of these factors, our revenue and operating results could vary significantly from quarter to quarter.

**The market we serve is highly competitive and we may not be able to compete successfully.**

Competition in communications equipment markets is intense. These markets are characterized by rapid change, converging technologies and a migration to networking solutions that offer superior advantages. We are aware of many companies in related markets that address particular aspects of the features and functions that our products provide. Currently, our primary competitors in our core business include ADTRAN, Calix, Huawei, Nokia and ZTE, among others. In our FiberLAN business, our competitors include Cisco, Nokia and Tellabs. In our Ethernet switching business, our competitors include Cisco, and Juniper. We also may face competition from other communications equipment companies or other companies that may enter our markets in the future. In addition, a number of companies have introduced products that address the same network needs that our products and solutions address, both domestically and internationally. Many of our competitors have longer operating histories, greater name recognition, larger customer bases and greater financial, technical, sales and marketing resources than we do and may be able to undertake more extensive marketing efforts, adopt more aggressive pricing policies and provide more customer financing than we can. In particular, we are encountering price-focused competitors from Asia, especially China, which places pressure on us to reduce our prices. If we are forced to reduce prices in order to secure customers, we may be unable to sustain gross margins at desired levels or achieve profitability. Competitive pressures could result in increased pricing pressure, reduced profit margins, increased sales and marketing expenses and failure to increase, or the loss of, market share, any of which could reduce our revenue and adversely affect our financial results. Moreover, our competitors may foresee the course of market developments more accurately than we do and could develop new technologies that render our products less valuable or obsolete.

In our markets, principal competitive factors include: (i) product performance; (ii) interoperability with existing products; (iii) scalability and upgradeability; (iv) conformance to standards; (v) breadth of services; (vi) reliability; (vii) ease of installation and use; (viii) geographic footprints for products; (ix) ability to provide customer financing; (x) pricing; (xi) technical support and customer service; and (xii) brand recognition.

If we are unable to compete successfully against our current and future competitors, we may have difficulty obtaining or retaining customers, and we could experience price reductions, order cancellations, increased expenses and reduced gross margins, any of which could have a material adverse effect on our business, operations, financial condition, and liquidity.

**We depend upon the development of new products and enhancements to existing products, and if we fail to predict and respond to emerging technological trends and customers' changing needs, our operating results and market share may suffer.**

The markets for our products are characterized by rapidly changing technology, evolving industry standards, changes in end-user requirements, frequent new product introductions and changes in communications offerings from network service provider customers. Our future success depends on our ability to anticipate or adapt to such changes and to offer, on a timely and cost-effective basis, products that meet changing customer demands and industry standards. We may not have sufficient resources to successfully and accurately anticipate customers' changing needs and technological trends, manage long development cycles or develop, introduce and market new products and enhancements. The process of developing new technology is complex and uncertain, and if we fail to develop new products or enhancements to existing products on a timely and cost-effective basis, or if our new products or enhancements fail to achieve market acceptance, our business, operations, financial condition and liquidity would be materially adversely affected.

**Because our products are complex and are deployed in complex environments, our products may have defects that we discover only after full deployment by our customers, which could have a material adverse effect on our business.**

We produce highly complex products that incorporate leading-edge technology, including both hardware and software. Software often contains defects or programming flaws that can unexpectedly interfere with expected operations. In addition, our products are complex and are designed to be deployed in large quantities across complex networks. Because of the nature of these products, they can only be fully tested when completely deployed in large networks with high amounts of traffic, and there is no assurance that our pre-shipment testing programs will be adequate to detect all defects. As a result, our customers may discover errors or defects in our hardware or software, or our products may not operate as expected. If we are unable to cure a product defect, we could experience damage to our reputation, reduced customer satisfaction, loss of existing customers and failure to attract new customers, failure to achieve market acceptance, reduced sales opportunities, loss of revenue and market share, increased service and warranty costs, diversion of development resources, legal actions by our customers, and increased insurance costs. Defects, integration issues or other performance problems in our products could also result in damages to our customers, financial or otherwise. Our customers could seek damages for related losses from us, which could seriously harm our business, operations, financial condition and liquidity. A product liability claim brought against us, even if unsuccessful, would likely be time consuming and costly. The occurrence of any of these problems would seriously harm our business, operations, financial condition and liquidity.

**Sales to CSPs are especially volatile, and weakness in sales orders from this industry could harm our business, operations, financial condition and liquidity.**

Sales activity in the service provider industry depends upon the stage of completion of expanding network infrastructures, the availability of funding, and the extent to which service providers are affected by regulatory, economic and business conditions in the country of operations. Although some service providers may be increasing capital expenditures over the depressed levels that have prevailed over the last few years, weakness in orders from this industry could have a material adverse effect on our business, operations, financial condition and liquidity. Additionally, a weaker global economy could cause some of these service providers to delay or cancel planned capital expenditures. Changes in technology, competition, overcapacity, changes in the service provider market, regulatory developments, adverse economic effects caused by the COVID-19 pandemic and constraints on capital availability have had a material adverse effect on many of our service provider customers, with many of these customers going out of business or substantially reducing their expansion plans. These conditions have materially harmed our business and operating results, and we expect that some or all of these conditions may continue for the foreseeable future. Finally, service provider customers typically have longer implementation cycles; require a broader range of services including design services; demand that vendors take on a larger share of risks; often require acceptance provisions, which can lead to a delay in revenue recognition; and expect financing from vendors. All these factors can add further risk to business conducted with service providers.

**We depend on a limited source of suppliers for several key components. If we are unable to obtain these components on a timely basis, we will be unable to meet our customers' product delivery requirements, which would harm our business.**

We currently purchase several key components from a limited number of suppliers. If any of our limited source of suppliers become insolvent, cease business or experience capacity constraints, work stoppages or any other reduction or disruption in output, they may be unable to meet our delivery schedules. Our suppliers may enter into exclusive arrangements with our competitors, be acquired by our competitors, stop selling their products or components to us at commercially reasonable prices, refuse to sell their products or components to us at any price or be unable to obtain or have difficulty obtaining components for their products from their suppliers. If we do not receive critical components from our limited source of suppliers in a timely manner, we will be unable to meet our customers' product delivery requirements. Any failure to meet a customer's delivery requirements could materially adversely affect our business, operations, and financial condition and liquidity and could materially damage customer relationships. We may occasionally build up in inventory in response to these supply chain issues which increases the risk of inventory obsolescence. The current worldwide shortage of semiconductors may exacerbate these risks.

**We rely on the availability of third-party licenses.**

Many of our products are designed to include software or other intellectual property licensed from third parties. It may be necessary in the future to seek or renew licenses relating to various elements of the technology used to develop these products. We cannot assure you that our existing or future third-party licenses will be available to us on commercially reasonable terms, if at all. Our inability to maintain or obtain any third-party license required to sell or develop our products and product enhancements could require us to obtain substitute technology of lower quality or performance standards, or at greater cost.

**Our intellectual property rights could prove difficult to protect and enforce.**

We generally rely on a combination of copyrights, patents, trademarks and trade secret laws and commercial agreements containing restrictions on disclosure and other appropriate terms to protect our intellectual property rights. We enter into confidentiality, employee, contractor and commercial agreements with our employees, consultants and corporate partners, and control access to and distribution of our proprietary information and use of our intellectual property and technology. Despite our efforts to protect our proprietary rights, unauthorized parties, including those affiliated with foreign governments, may attempt to copy or otherwise obtain and use our products, technology or intellectual property. Monitoring unauthorized use of our technology and intellectual property is difficult, and we do not know whether the steps we have taken will prevent unauthorized use of our technology, particularly in foreign countries or jurisdictions where laws may not protect our proprietary rights as extensively as in the United States. We cannot assure you that our pending, or any future, patent applications will be granted, that any existing or future patents will not be challenged, invalidated, or circumvented, or that any existing or future patents will be enforceable or that infringement by third parties will even be detected. While we are not dependent on any individual patents, if we are unable to protect our proprietary rights, we may find ourselves at a competitive disadvantage to others who need not incur the substantial expense, time and effort required to create the innovative products.

**There are additional risks to our intellectual property as a result of our international business operations.**

We may face risks to our technology and intellectual property as a result of our conducting strategic business discussions outside of the United States, and particularly in jurisdictions that do not have comparable levels of protection of corporate proprietary information and assets such as intellectual property, trademarks, trade secrets, know-how and customer information and records. While these risks are common to many companies, conducting business in certain foreign jurisdictions, housing technology, data and intellectual property abroad, or licensing technology to joint ventures with foreign partners may have more significant exposure. For example, we have shared intellectual properties with entities in China, South Korea, India, Thailand, and Vietnam pursuant to confidentiality agreements in connection with discussions on potential strategic collaborations, which may expose us to material risks of theft of our proprietary information and other intellectual property, including technical data, manufacturing processes, data sets or other sensitive information. Our technology may be reverse engineered by the parties or other parties, which could result in our patents being infringed or our know-how or trade secrets stolen. The risk can be by direct intrusion wherein technology and intellectual property is stolen or compromised through cyber intrusions or physical theft through corporate espionage, including with the assistance of insiders, or via more indirect routes.

**Claims that our current or future products or components contained in our products infringe the intellectual property rights of others may be costly and time consuming to defend and could adversely affect our ability to sell our products.**

The communications equipment industry is characterized by the existence of a large number of patents and frequent claims and related litigation regarding patent, copyright, trademark and other intellectual property rights, that may relate to technologies and related standards that are relevant to us. From time to time, we receive correspondence from companies claiming that our products are using technology covered by or related to the intellectual property rights of these companies and inviting us to discuss or demanding licensing or royalty arrangements for the use of the technology or seeking payment for damages, injunctive relief and other available legal remedies through litigation. These companies also include third-party non-practicing entities (also known as patent trolls) that focus on extracting royalties and settlements by enforcing patent rights through litigation or the threat of litigation. These companies typically have little or no product revenues and therefore our patents could provide little or no deterrence against such companies filing patent infringement lawsuits against us. In addition, third parties have initiated and could continue to initiate litigation against our manufacturers, suppliers, distributors or even our customers alleging infringement or misappropriation of their proprietary rights with respect to existing or future products, or components of our products. For example, proceedings alleging patent infringement are routinely commenced in various jurisdictions against manufacturers and consumers of products in the wireless and broadband communications industry. In some cases, courts have issued rulings adverse to such manufacturers and customers, which can result in monetary damages that we are obligated to indemnify or that may impact the cost and availability of components or sales of our products. Courts may also issue injunctions preventing manufacturers from offering, distributing, using or importing products that include the challenged intellectual property. Adverse rulings or injunctive relief awarded against key suppliers of components for our products could result in delays or stoppages in the shipment of affected components, or require us to recall, modify or redesign our products containing such components. Regardless of the merit of claims against us or our manufacturers, suppliers, distributors or customers, intellectual property litigation can be time consuming and costly, and result in the diversion of the attention of technical and management personnel. Any such litigation could force us to stop manufacturing, selling, distributing, exporting, incorporating or using products or components that include the challenged intellectual property, or to recall, modify or redesign such products. In addition, if a party accuses us of infringing upon its proprietary rights, we may have to enter into royalty or licensing agreements, which may not be available on terms acceptable to us, if at all. If we are unsuccessful in any such litigation, we could be subject to significant liability for damages and loss of our proprietary rights. Any of these events or results could have a material adverse effect on our business, operations, financial condition and liquidity.

**Due to the international nature of our business, political or economic changes or other factors in a specific country or region could harm our future revenue, costs and expenses, and financial condition.**

We currently have significant operations in Germany, Spain, Turkey, India and Canada (and, as of June 1, 2024, Australia), as well as sales and technical support teams in various locations around the world. We continue to consider opportunities to expand our international operations in the future. The successful management and expansion of our international operations requires significant human effort and the commitment of substantial financial resources. Further, our international operations may be subject to certain risks, disruptions and challenges that could materially harm our business, operations, financial condition, and liquidity, including: (i) unexpected changes in laws, policies and regulatory requirements, including but not limited to regulations related to import-export control; (ii) trade protection measures, tariffs, embargoes and other regulatory requirements which could affect our ability to import or export our products into or from various countries; (iii) political unrest or instability, acts of terrorism or war in countries where we or our suppliers or customers have operations, including the ongoing military conflicts between Russia and Ukraine and Israel and Hamas, and China-Taiwan tensions; (iv) political considerations that affect service provider and government spending patterns; (v) heightened political tensions between the U.S. and China regarding trade practices and intellectual property rights; (vi) differing technology standards or customer requirements; (vii) developing and customizing our products for foreign countries; (viii) fluctuations in currency exchange rates, foreign exchange controls and restrictions on cash repatriation; (ix) longer accounts receivable collection cycles and financial instability of customers; (x) requirements for additional liquidity to fund our international operations; (xi) pandemics, epidemics and other public health crises, such as the COVID-19 pandemic; (xii) difficulties and excessive costs for staffing and managing foreign operations; (xiii) ineffective legal protection of our intellectual property rights in certain countries; (xiv) potentially adverse tax consequences; and (xv) changes in a country's or region's political and economic conditions.

In addition, some of our customer purchase agreements are governed by foreign laws and regulations, which may differ significantly from the laws and regulations of the United States. We may be limited in our ability to enforce our rights under these agreements and to collect damages, if awarded. Any of these factors could harm our existing international operations and business or impair our ability to continue expanding into international markets.

**We face exposure to foreign currency exchange rate fluctuations.**

We conduct significant business in Germany, Spain, the United Kingdom and Canada (and, as of June 1, 2024, Australia), as well as in other countries in Europe, Asia-Pacific, Middle East and Latin America, all of which subject us to foreign currency exchange rate risk.

We have in the past and may in the future undertake a hedging program to mitigate the impact of foreign currency exchange rate fluctuations. The use of such hedging activities may not offset any or more than a portion of the adverse financial effects of unfavorable movements in foreign currency exchange rates over the limited time the hedges are in place. Moreover, the use of hedging instruments may introduce additional risks if we are unable to structure effective hedges with such instruments, which could adversely affect our business, operations, financial condition, and liquidity.

As such, our results of operations and our cash flows could be impacted by changes in foreign currency exchange rates.

**Risks Related to our Industry**

**The telecommunications networking business requires the application of complex revenue and expense recognition rules and the regulatory environment affecting generally accepted accounting principles is uncertain. Changes in financial accounting standards or practices may cause adverse, unexpected financial reporting fluctuations and harm our business.**

The nature of our business requires the application of complex revenue and expense recognition rules and the current regulatory environment affecting U.S. GAAP is uncertain. Significant changes in U.S. GAAP could affect our financial statements going forward and may cause adverse, unexpected financial reporting fluctuations and harm our operating results. U.S. GAAP is subject to interpretation by the Financial Accounting Standards Board, the Securities and Exchange Commission (SEC) and various bodies formed to promulgate and interpret appropriate accounting principles. In addition, we have in the past and may in the future need to significantly change our customer contracts, accounting systems and processes when we adopt future or proposed changes in accounting principles. The cost and effect of these changes may negatively impact our results of operations during the periods of transition.

**Changes in government regulations related to our business could harm our operations, financial condition, and liquidity.**

Our operations are subject to various laws and regulations, including those regulations promulgated by the Federal Communications Commission ("FCC"). The FCC has jurisdiction over the entire communications industry in the United States and, as a result, our existing and future products and our customers' products are subject to FCC rules and regulations. Changes to current FCC rules and regulations and future FCC rules and regulations could negatively affect our business. Non-compliance with the FCC's rules and regulations would expose us to potential enforcement actions, including monetary forfeitures, and could damage our reputation among potential customers. The uncertainty associated with future FCC decisions may cause network service providers to delay decisions regarding their capital expenditures for equipment for broadband services. In addition, international regulatory bodies establish standards that may govern our products in foreign markets. The SEC has adopted disclosure rules regarding the use of "conflict minerals" mined from the Democratic Republic of Congo and adjoining countries and procedures regarding a manufacturer's efforts to prevent the sourcing of such conflict minerals. These rules may have the effect of reducing the pool of suppliers who can supply "conflict free" components and parts, and we may not be able to obtain "conflict free" products or supplies in sufficient quantities for our operations. Also, we may face reputational challenges with our customers, stockholders and other stakeholders if we are unable to sufficiently verify the origins for the conflict minerals used in our products. In addition, governments and regulators in many jurisdictions have implemented or are evaluating regulations relating to cyber security, privacy and data protection, which can affect the markets and requirements for networking and communications equipment. We are unable to predict the scope, pace or financial impact of government regulations and other policy changes that could be adopted in the future, any of which could negatively impact our operations and costs of doing business. Because of our smaller size, legislation or governmental regulations can significantly increase our costs and affect our competitive position. Changes to or future domestic and international regulatory requirements could result in postponements or cancellations of customer orders for our products and services, which could harm our business, operations, financial condition and liquidity. Further, we cannot be certain that we will be successful in obtaining or maintaining regulatory approvals that could, in the future, be required to operate our business.

**Industry consolidation may lead to increased competition and could harm our operating results.**

There has been a trend toward industry consolidation in the communications equipment market for several years. We expect this trend to continue as companies attempt to strengthen or hold their market positions in an evolving industry and as companies are acquired or are unable to continue operations. We believe that industry consolidation may result in stronger competitors that are better able to compete as sole-source vendors for customers. This could have a material adverse effect on our business, operations, financial condition, and liquidity. Furthermore, rapid consolidation could result in a decrease in the number of customers we serve. The loss of a major customer could have a material adverse effect on our business, operations, financial condition, and liquidity.

## Risks Related to our Common Stock

**DNI owns a significant amount of our outstanding common stock and has the ability to exert significant influence or control over any matters that require stockholder approval, including the election of directors and the approval of certain transactions, and DNI's interests may conflict with our interests and the interests of other stockholders.**

As of December 31, 2023, DNI owned approximately 28.3% of the outstanding shares of our common stock, representing a significant amount of the votes entitled to be cast by the holders of our outstanding common stock at a stockholder meeting. Due to its significant ownership percentage of our common stock, DNI has the ability to substantially influence or control the outcome of any matter submitted for the vote of our stockholders, including the election of directors and the approval of certain transactions. The interests of DNI may conflict with the interests of our other stockholders or with holders of our indebtedness and may cause us to take actions that our other stockholders or holders of our indebtedness do not view as beneficial.

DNI's large concentration of stock ownership may make it more difficult for a third party to acquire us or discourage a third party from seeking to acquire us. Any potential third-party acquirer would most likely need to negotiate any such transaction with DNI, and the interests of DNI with respect to such transaction may be different from the interests of our other stockholders or with holders of our indebtedness.

Additionally, one of the Company's directors serves as an executive officer of DNI – Choon Yul Yoo is the Chief Operating Officer of DNI. Mr. Yoo owes fiduciary duties to us and, in addition, has duties to DNI. As a result, Mr. Yoo may face real or apparent conflicts of interest with respect to matters affecting both us and DNI. Also, Min Woo Nam, Chief Executive Officer and Chairman of the Board of Directors of DNI served as Chairman of the Board of Directors of DZS until his resignation from the DZS Board effective as of September 15, 2023.

**There is a limited public market of our common stock.**

There is a limited public market for our common stock. The average daily trading volume in our common stock during the 12 months ended December 31, 2023 was approximately 245,000 shares per day. We cannot provide assurances that a more active trading market will develop or be sustained. As a result of low trading volume in our common stock, the purchase or sale of a relatively small number of shares of our common stock could result in significant price fluctuations and it may be difficult for holders to sell their shares without depressing the market price of our common stock.

DNI, our largest stockholder, owned approximately 9.1 million shares of our common stock as of December 31, 2023 and such shares are registered with the SEC for resale. These shares are eligible for resale without restriction as to volume limitations. Our stock price could suffer a significant decline as a result of any sudden increase in the number of shares sold in the public market or market perception that the increased number of shares available for sale will exceed the demand for our common stock.

**We do not expect to declare or pay dividends in the foreseeable future.**

We do not expect to declare or pay dividends in the foreseeable future, as we anticipate that we will invest future earnings in the development and growth of our business. Therefore, holders of our common stock will not receive any return on their investment unless they sell their securities, and holders may be unable to sell their securities on favorable terms or at all.

## General Risk Factors

**We may need additional capital, and we cannot be certain that additional financing will be available.**

In September 2023, DASAN Network Solutions, Inc., a Korea corporation, as borrower ("DNS Korea"), entered into two Loan Agreements (the "DNI Loan Agreements") with DNI, as lender, DZS California, Inc., a California corporation, as collateral provider, and the Company. DNS Korea is an indirect subsidiary of the Company. Pursuant to the DNI Loan Agreements, DNS Korea received two three-year term loans in an aggregate principal amount equal to 39.6 billion South Korean Won ("KRW"), the equivalent of $29.9 million as of the date of the transactions. The net proceeds under the DNI Loan Agreements were used to repay the outstanding obligations under a Credit Agreement with JP Morgan Chase Bank, N.A. and the Company.

In 2023, DNS Korea also entered into various financing arrangements with foreign banks and other lending institutions consisting primarily of trade facilities and short-term loans. Pursuant to these financing arrangements, DNS Korea received short-term loans in an aggregate principal amount equal to KRW 19.0 billion, the equivalent of $14.6 million as of the date of the transactions.

On December 29, 2023, DZS Inc., as borrower, entered into a Loan Agreement (the "EdgeCo Loan Agreement") with EdgeCo, LLC ("EdgeCo"), as lender. Pursuant to the EdgeCo Loan Agreement, the Company received a three-year term loan in an aggregate principal amount equal to $15.0 million. In connection with the EdgeCo Loan Agreement, the Company also entered into a Warrant Agreement (the "Warrant Agreement"), dated as of December 29, 2023, by and between the Company and EdgeCo that issued a warrant to EdgeCo to subscribe for 6,100,000 shares of Common Stock at an exercise price of $1.84 per share.

Refer to Note 8 Debt, in the Notes to Consolidated Financial Statements, for more detail.

In January 2024, November 2022 and January 2021, we also raised approximately $10.0 million, $30.8 million and $59.5 million, respectively, in separate equity offerings. Refer to Note 9 Stockholders' Equity, in the Notes to Consolidated Financial Statements, for more detail.

We need sufficient capital to fund our ongoing operations and may require additional financing in the future to expand our business, acquire assets or repay or refinance our existing debt. Our ability to obtain financing will depend, among other things, on our development efforts, business plans, operating performance and condition of the capital markets at the time we seek financing. We cannot assure you that additional financing will be available to us on favorable terms when required, or at all. Any debt financing secured by us in the future could become more expensive due to rising interest rates or involve restrictive covenants relating to our capital-raising activities and other financial and operational matters, which may make it more difficult for us to obtain additional capital. If we raise additional funds through the issuance of equity, equity-linked or debt securities, those securities may have rights, preferences or privileges senior to the rights of our common stock, and our stockholders may experience dilution.

If we need additional capital and cannot raise it on acceptable terms, we may not be able to, among other things: (i) maintain existing operations; (ii) pay ordinary expenses; (iii) fund our business expansion or product innovation; (iv) pursue future business opportunities, including acquisitions; (v) respond to unanticipated capital requirements; (vi) repay or refinance our existing debt; (vii) hire, train and retain employees; or (viii) respond to competitive pressures or unanticipated working capital requirements.

Our failure to do any of these things could seriously harm our business, financial condition, liquidity and operating results. In addition, we may be required to reduce the scope of our planned product development and sales and marketing efforts beyond the reductions that we have previously taken, and reduce operations in low margin regions, including reductions in headcount, which could have a material adverse effect on our business, operations, financial condition and liquidity.

**Our level of indebtedness could adversely affect our business, operations, financial condition, and liquidity**

As of December 31, 2023, the Company had a total of $37.9 million of long-term debt obligation, net of $7.7 million of unamortized debt discount and issuance costs and $19.6 million of short-term debt obligation. We may incur additional indebtedness in the future, including additional borrowings under the EdgeCo Loan Agreement or other future credit facilities with other financial institutions or DNI.

Even if we are able to obtain new financing upon a default under the EdgeCo Loan Agreement and the February 2023 DNI Loan, it may not be on commercially reasonable terms or on terms that are acceptable to us. The level of indebtedness could have important consequences and could materially and adversely affect us in a number of ways, including:

- limiting our ability to obtain additional financing in the future for working capital, capital expenditures, acquisitions or general corporate purposes;
- limiting our flexibility to plan for, or react to, changes in our business or market conditions;
- requiring us to use a significant portion of any future cash flow from operations to repay or service the debt, thereby reducing the amount of cash available for other purposes;
- making us more highly leveraged than some of our competitors, which could place us at a competitive disadvantage; and
- making us more vulnerable to the impact of adverse economic and industry conditions and increases in interest rates.

The DNI Loan Agreements, the EdgeCo Loan Agreement, and the instruments governing our other indebtedness contain certain covenants, limitations, and conditions with respect to the Company that could restrict our ability to operate our business.

The DNI Loan Agreements contain certain financial covenants, including requiring DNS Korea to maintain (i) a maximum Leverage Ratio (as defined in the Loan Agreement) of (a) 6.00 to 1.00 at the end of each of the second and third quarter of 2024, (b) 5.00 to 1.00 from the fourth quarter of 2024 through the second quarter of 2025 and (c) 4.00 to 1.00 from the third quarter of 2025 until the DNI Loan is repaid in full, (ii) cash of at least KRW 1.3 billion and (iii) a combined total of cash, accounts receivable and inventory of at least KRW 33.0 billion. In addition, the DNI Loan Agreements contain various covenants that limit the ability of the Company, DNS Korea and DZS California to, among other things, (i) grant liens on the Collateral Assets to any third party, (ii) sell, donate, pledge, provide as collateral or otherwise dispose of the Pledged Shares to any third party, (iii) incur or assume indebtedness, (iv) make loans to affiliates or (v) engage in certain other transactions or make certain other fundamental changes.

The EdgeCo Loan Agreement contains various covenants that limit the ability of the Company (and in certain cases, certain of its subsidiaries) to, among other things, enter into any merger or consolidation, incur indebtedness, incur liens, make dividends or stock repurchases, and acquire any businesses (other than a similar business to that of the Company). The EdgeCo Loan Agreement contains events of default that are customary for loans of this type. If an event of default occurs under the EdgeCo Loan Agreement, EdgeCo will be entitled to accelerate and call the unpaid principal balance of the Loan and all accrued interest and to take various actions against the collateral, including by exercising its right to acquire or sell the collateral to satisfy any obligations under the outstanding indebtedness.

We cannot assure you that we will be able to comply with our financial or other covenants in the future, or that any covenant violations will be waived in the future. Any acceleration of amounts due could have a material adverse effect on our business, operations, financial condition, and liquidity.

We cannot assure you that we will be able to generate cash flow in amounts sufficient to enable us to service our debt or to meet our working capital and capital expenditure requirements. If we are unable to generate sufficient cash flow from operations or to borrow sufficient funds to service our debt, due to borrowing base restrictions or otherwise, we may be required to sell assets, reduce capital expenditures, purchase credit insurance or obtain additional financing. We cannot assure you that we will be able to engage in any of these actions on reasonable terms, if at all.

**Our future operating results are difficult to predict and our stock price may continue to be volatile.**

As a result of a variety of factors discussed in this Annual Report on Form 10-K, our revenues for a particular quarter are difficult to predict. Our revenue and operating results may vary significantly from quarter to quarter due to a number of factors, many of which are outside of our control. The primary factors that could affect our results of operations include the following: (i) commercial acceptance of our products and services; (ii) fluctuations in demand for network access products; (iii) fluctuation in gross margin; (iv) our ability to attract and retain qualified and key personnel; (v) the timing and size of orders from customers; (vi) the ability of our customers to finance their purchase of our products as well as their own operations; (vii) new product introductions, enhancements or announcements by our competitors; (viii) our ability to develop, introduce and ship new products and product enhancements that meet customer requirements in a timely manner; (ix) changes in our pricing policies or the pricing policies of our competitors; (x) the loss of or failure to renew on commercially reasonable terms any third-party licenses necessary for or relating to our products; (xi) the ability of our company and our contract manufacturers to attain and maintain production volumes and quality levels for our products; (xii) our ability to obtain sufficient supplies of sole or limited source components; (xiii) increases in the prices of the components we purchase, or quality problems associated with these components; (xiv) unanticipated changes in regulatory requirements which may require us to redesign portions of our products; (xv) changes in accounting rules; (xvi) integrating and operating any acquired businesses; (xvii) our ability to achieve targeted cost reductions; (xviii) how well we execute on our strategy and operating plans; and (xix) general economic conditions as well as those specific to the communications, internet and related industries.

Any of the foregoing factors, or any other factors discussed elsewhere herein, could have a material adverse effect on our business, operations, financial condition and liquidity that could adversely affect our stock price. We anticipate that our stock price and trading volume may continue to be volatile in the future, whether due to the factors described above, volatility in public stock markets generally (particularly in the technology sector) or otherwise.

**Strategic acquisitions or investments that we have made or that we could pursue or make in the future may disrupt our operations and harm our business, operations, financial condition, and liquidity.**

As part of our business strategy, we have made investments in and acquired other companies, including ASSIA in 2022, that we believe are complementary to our core business. In the future we may continue to make investments in or acquire other companies or complementary solutions or technologies. Any such acquisition or investment may divert the attention of management and cause us to incur various expenses in identifying, investigating, and pursuing suitable opportunities, whether or not the transactions are completed, and may result in unforeseen operating difficulties and expenditures. These transactions could also result in dilutive issuances of equity securities, the incurrence of debt or assumption of liabilities, and increase our risk of litigation exposure, which could adversely affect our operating results. In addition, if the resulting business from such a transaction fails to meet our expectations, our operating results, business, and financial condition may suffer or we may be exposed to unknown risks or liabilities.

Additionally, any significant acquisition would require the consent of our lenders. Any failure to receive such consent could delay or prohibit us from acquiring companies that we believe could enhance our business. Furthermore, we may dedicate significant time and capital resources in the pursuit of acquisition opportunities and may be unable to find and identify desirable acquisition targets or business opportunities or be successful in entering into an agreement with any particular strategic partner.

Upon the closing of any acquisition transaction, we will need to integrate the acquired organization and its products and services with our legacy operations. The integration process may be expensive, time-consuming and a strain on our resources and our relationships with employees, customers, distributors and suppliers, and ultimately may not be successful. The benefits or synergies we may expect from the acquisition of complementary or supplementary businesses may not be realized to the extent or in the time frame we initially anticipated. Mergers and acquisitions of high-technology companies are inherently subject to increased risk and to many factors outside of our control, and we cannot be certain that our previous or future acquisitions will be successful and will not materially adversely affect our business, operations, financial condition, and liquidity. Any failure to successfully acquire and integrate acquired organizations and their products and services could seriously harm our business, operations, financial condition, and liquidity.

Some of the risks that could affect our ability to successfully integrate acquired businesses, including ASSIA's telecommunication systems business, include those associated with: (i) failure to successfully further develop the acquired products or technology; (ii) insufficient revenues to offset increased expenses associated with acquisitions and where competitors in such markets have stronger market positions; (iii) conforming the acquired company’s standards, policies, processes, procedures and controls with our operations; (iv) difficulties in entering markets in which we have no or limited prior experience; (v) difficulties in integrating the operations, technologies, products and personnel of the acquired companies; (vi) coordinating new product and process development, especially with respect to highly complex technologies; (vii) potential loss of key employees, customers, distributors, vendors and other business partners of the companies we acquire following and continuing after the announcement of acquisition plans or transactions; (viii) hiring and training additional management and other critical personnel; (ix) in the case of foreign acquisitions, the need to integrate operations across different cultures and languages and to address the particular economic, currency, political and regulatory risks associated with specific countries; (x) increasing the scope, geographic diversity and complexity of our operations; (xi) diversion of management’s time and attention away from normal daily operations of the business and the challenges of managing larger and more widespread operations resulting from acquisitions; (xii) consolidation of facilities, integration of the acquired company’s accounting, human resource and other administrative functions and coordination of product, engineering and sales and marketing functions; (xiii) the geographic distance between the companies; (xiv) failure to comply with covenants related to the acquired business; (xv) unknown, underestimated, and/or undisclosed liabilities for activities of the acquired company before the acquisition, including patent and trademark infringement claims, violations of laws, employment claims, pension liabilities, commercial disputes, tax liabilities and other known and unknown liabilities.

**Litigation and government investigations could result in significant legal expenses and settlement payments, fines or damage awards.**

From time to time, we are subject to litigation regarding intellectual property rights or other claims and have indemnification clauses in most of our customer contracts that may require us to indemnify customers. We have also been named as a defendant in multiple securities class action lawsuits, litigation with Plume and are subject to an investigation by the government. For more information on currently pending litigation, please see "Part I, Item 3. Legal Proceedings." We are generally obligated, to the extent permitted by law, to indemnify our current and former directors and officers who are named as defendants in these lawsuits. Defending against litigation or government investigation may require significant attention and resources of management. Regardless of the outcome, such litigation or investigation could result in significant legal expenses. At this time, it is not possible to predict the outcome of the ongoing lawsuits, including whether or not any proceedings will continue, and when or how these matters will be resolved. Regardless of whether we are ultimately successful in these lawsuits, we will likely continue to incur substantial legal fees in connection with these matters.

If the defenses we claim in our material litigation matters are ultimately unsuccessful, or if we are unable to achieve a favorable settlement with an adverse party or a government agency, we could be liable for large settlement payments, damage awards or fines that could have a material adverse effect on our business and results of operations.

**If demand for our products and solutions does not develop as we anticipate, then our business operations, financial condition, and liquidity will be adversely affected.**

Our future revenue depends significantly on our ability to successfully develop, enhance and market our products and solutions to our target markets. Most network service providers have made substantial investments in their current infrastructure, and they may elect to remain with their current architectures or to adopt new architectures in limited stages or over extended periods of time. A decision by a customer to purchase our products will involve a significant capital investment. We must convince our service provider customers that they will achieve substantial benefits by deploying our products for future upgrades or expansions. We may experience difficulties with product reliability, partnering, and sales and marketing efforts that could adversely affect our business and divert management attention and resources from our core business. We do not know whether a viable market for our products and solutions will develop or be sustainable in our businesses. If these markets do not develop or develop more slowly than we expect, our business, operations, financial condition and liquidity will be materially harmed.

**Increased tariffs on products and goods that we purchase from off-shore sources (particularly Chinese sources) and changes in international trade policies and relations could have an adverse effect on our customers and operating results.**

The pricing of our products to customers and our ability to conduct business with certain customers can be affected by changes in U.S. and other countries' trade policies. For example, before the trade deal was signed between the U.S. and China on January 15, 2020, the United States had imposed tariffs on a wide-range of products and goods manufactured in China that are directly or indirectly imported into the United States. In response, various countries and economic regions announced plans or intentions to impose retaliatory tariffs on a wide-range of products they import from the United States. Any newly imposed, announced and threatened U.S. tariffs and retaliatory tariffs could have the effect of increasing the cost of materials we use to manufacture certain products, which could result in lower margins. The tariffs could also result in disruptions to our supply chain, as suppliers struggle to fill orders from companies trying to purchase goods in bulk ahead of announced tariffs. Although we believe that the incremental costs to us of these tariffs were immaterial, if new tariffs are imposed or if new tariffs apply to additional categories of components used in our manufacturing activities, and if we are unable to pass on the costs of tariffs to our customers, our operating results would be harmed.

Changes in political environments, governmental policies, international trade policies and relations, trade practices and the protection of intellectual property rights, could result in revisions to laws or regulations or their interpretation and enforcement, trade sanctions, or retaliatory actions by China in response to U.S. actions, which could have an adverse effect on our customers, business plans and operating results.

**We rely on contract manufacturers for a portion of our manufacturing requirements.**

Through 2023, we have relied on contract manufacturers to perform a portion of the manufacturing operations for our products. In October 2022, we announced an agreement with Fabrinet, a third-party provider of electro-mechanical and electronic manufacturing and distribution services, to transition the sourcing, procurement, order-fulfillment, and manufacturing activities in the Company's Seminole, Florida facility to Fabrinet. The transition began in October 2022 and substantially completed in the beginning of 2023, whereupon the Company no longer manufactures its products. Fabrinet and other contract manufacturers we utilize build products for other companies, including our competitors. In addition, we do not have contracts in place with some of these providers and may not be able to effectively manage those relationships. We cannot be certain that our contract manufacturers will be able to fill our orders in a timely manner. We face a number of risks associated with this dependence on contract manufacturers including reduced control over delivery schedules, the potential lack of adequate capacity during periods of excess demand, poor manufacturing yields and high costs, quality assurance, increases in prices, and the potential misappropriation of our intellectual property. We have experienced in the past, and may experience in the future, problems with our contract manufacturers, such as inferior quality, insufficient quantities and late delivery of products.

**We face supply chain risk, and our failure to estimate customer demand properly could result in excess or obsolete component inventories that could adversely affect our gross margins.**

We have experienced, and may continue to experience supply shortages, or delays in receiving, certain component parts as a result of strong demand for the component parts and/or capacity constraints or other problems experienced by suppliers. If shortages or delays persist, the price of these components may increase, or the components may not be available at all, and we may also encounter shortages if we do not accurately anticipate our needs. Conversely, we may not be able to secure enough components at reasonable prices or of acceptable quality to build new products in a timely manner in the quantities or configurations needed. Accordingly, our revenue and gross margins could suffer until other sources can be developed. We have experienced significant disruptions in our supply chain during the last three years. As of early 2024, supply chain pressures have fallen from unprecedented levels following the COVID-19 pandemic, however, we anticipate that such pressures will continue in 2024. These supply issues have limited our ability to supply the demand of certain customers. It is difficult to predict the future impact of these ongoing supply issues. Our operating results would also be adversely affected if, anticipating greater demand than actually develops, we commit to the purchase of more components than we need. Furthermore, as a result of binding price or purchase commitments with suppliers, we may be obligated to purchase components at prices that are higher than those available in the current market. In the event that we become committed to purchase components at prices in excess of the current market price, our gross margins could decrease. In the past we experienced component shortages that adversely affected our financial results and, in the future, may continue to experience component shortages.

**The loss of a key customer or a significant deterioration in the financial condition of a key customer could have a material adverse effect on the Company's results of operations.**

The Company's revenue is dependent on several key customers. A loss of one or more of the Company's key customers, or a dispute or litigation with one of these key customers could affect adversely our revenue and results of operations. A significant deterioration in the financial condition or bankruptcy filing of a key customer could affect adversely the Company's business, results of operations, and financial condition.

In addition, the Company is subject to credit risk associated with the concentration of accounts receivable from its key customers. As of December 31, 2023, one customer represented 11% of net accounts receivable. As of December 31, 2023 the Company has an allowance for doubtful account of $12.3 million related to one customer. If one or more of the Company's top customers were to become bankrupt or insolvent or otherwise were unable to pay for the products and services provided by the Company, the Company may incur significant write-offs of accounts receivable or incur other impairment charges, which may have a material adverse effect on the Company's results of operations.

**We have experienced significant turnover with respect to our executives, and our business could be adversely affected by these and other transitions in our senior management team or if any future vacancies cannot be filled with qualified replacements in a timely manner.**

We have experienced significant turnover on our executive team since 2018. As a result of this turnover, our remaining management team has been required to take on increased responsibilities, which could divert attention from key business areas. If we continue to experience similar turnover in the future, we may be unable to timely replace the talent and skills of our management team.

Management transitions are often difficult and inherently cause some loss of institutional knowledge, which could negatively affect our results of operations and financial condition. Our ability to execute our business strategies may be adversely affected by the uncertainty associated with these transitions and the time and attention from the board and management needed to fill any future vacant roles could disrupt our business. If we are unable to successfully identify and attract adequate replacements for future vacancies in our management roles in a timely manner, we could experience increased employee turnover and harm to our business, growth, financial condition, results of operations and cash flows. We face significant competition for executives with the qualifications and experience we seek.

Further, we cannot guarantee that we will not face similar turnover in the future. Our senior management's knowledge of our business and industry would be difficult to replace, and any further turnover could negatively affect our business, growth, financial conditions, results of operations and cash flows.

**Restructuring activities could disrupt our business and affect our results of operations.**

We have taken steps, including reductions in force, office closures, and internal reorganizations to reduce the cost of our operations, improve efficiencies, or realign our organization and staffing to better match our market opportunities and our technology development initiatives. We may take similar steps in the future as we seek to realize operating synergies, to achieve our target operating model and profitability objectives, or to reflect more closely changes in the strategic direction of our business or the evolution of our site strategy and workplace. These changes could be disruptive to our business, including our research and development efforts, and could result in significant expense, including accounting charges for inventory and technology-related write-offs, workforce reduction costs and charges relating to consolidation of excess facilities. Substantial expense or charges resulting from restructuring activities could adversely affect our results of operations and use of cash in those periods in which we undertake such actions.

Competition to attract highly skilled technical, engineering and other personnel with experience in our industry is intense. We may experience difficulty attracting qualified personnel to fill key positions. In addition, labor shortages and employee mobility may make it more difficult to hire and retain employees. There can be no assurance we will be successful in attracting and retaining the talent necessary to execute on our business plans.

**Decreased effectiveness of share-based compensation could adversely affect our ability to attract and retain employees.**

We have historically used equity incentives, including stock options and restricted stock units, as a key component of our employee compensation program in order to align the interests of our employees with the interests of our stockholders, encourage employee retention and provide competitive compensation and benefit packages. If the trading price of our common stock declines, this would reduce the value of our share-based compensation to our present employees and could adversely affect our ability to retain existing or attract prospective employees. As discussed elsewhere in these Risk Factors, our stock price has been and may continue to be volatile, making the use of share-based compensation less valuable. Difficulties relating to obtaining stockholder approval of equity compensation plans could also make it harder or more expensive for us to grant share-based payments to employees in the future.

**Our success largely depends on our ability to retain and recruit key personnel, and any failure to do so could harm our ability to meet key objectives.**

Our future success depends upon the continued services of our Chief Executive Officer and other key employees, and our ability to identify, attract and retain highly skilled technical, managerial, sales and marketing personnel who have critical industry experience and relationships that we rely on to build and operate our business. As discussed elsewhere in these Risk Factors, we have experienced significant turnover on our executive team since 2018, including the departures of our former Chief Executive Officer and Chief Financial Officer. The loss of the services of any of our key employees or executive officers could delay the development and production of our products and negatively impact our ability to maintain customer relationships, which could harm our business, operations, financial condition and liquidity.

**Our collection, processing, storage, use, and transmission of personal data could give rise to liabilities as a result of governmental regulation, increasing legal requirements.**

We collect, process, store, use, and transmit personal data on a daily basis. Personal data is increasingly subject to legal and regulatory protections around the world, which vary widely in approach and which possibly conflict with one another. In recent years, for example, U.S. legislators and regulatory agencies, such as the Federal Trade Commission, as well as U.S. states have increased their focus on protecting personal data by law and regulation and have increased enforcement actions for violations of privacy and data protection requirements. The State of California recently adopted the California Consumer Protection Act ("CCPA"), which went into effect on January 1, 2020. The European Commission also approved and adopted the General Data Protection Regulation (GDPR), a data protection law, which became effective in May 2018. These data protection laws and regulations are intended to protect the privacy and security of personal data that is collected, processed, and transmitted in or from the relevant jurisdiction. Both the CCPA and the GDPR established new requirements applicable to the processing of personal data, afford new data protection rights to individuals and impose significant penalties for data breaches. Individuals also have a right to compensation under the GDPR for financial or non-financial losses. In July 2020, the EU-U.S. Privacy Shield framework which allowed U.S. companies that self-certify to the U.S. Department of Commerce and publicly commit to comply with specified requirements to import personal data from the EU was invalidated as a GDPR compliance mechanism by the European Court of Justice ("ECJ"). These developments create some uncertainty. Ensuring compliance with these laws is an ongoing commitment that involves substantial costs, which could otherwise adversely affect our business operations and negatively impact our financial position or cash flows. Any failure to comply with applicable regulations could also result in regulatory enforcement actions against us, subject us to negative publicity and significant penalties and ultimately cause an adverse effect on our business.

**Cyberattacks or other security incidents that disrupt our operations or compromise data, may expose us to liability, harm our reputation or otherwise adversely affect our business.**

We rely on hardware, software, technology infrastructure, data centers, digital networks and online sites and services for both internal and customer-facing operations that are critical to our business, or collectively, IT Systems. In addition, as part of our business operations, we collect, store, process, use and/or disclose information, including sensitive data relating to our business and personal information about individuals such as our employees and our customers' subscribers, or collectively, Confidential Information. We process Confidential Information to operate our business, including in connection with the provision of our cloud services and by relying on our and our providers' IT Systems and data centers, including third-party data centers. We also engage third-party providers to support various internal functions, such as human resources, finance, information technology and electronic communications, as well as the development and delivery of our customer-facing products and cloud services, which includes collecting, handling, processing and/or storage of data on our behalf. These internal and external functions involve an array of software and systems, including cloud-based, that enable us to conduct, monitor and/or protect our business, operations, systems and information technology assets. Our cloud-based solutions enable us to host our customers' subscriber data in third-party data centers.

We face evolving cybersecurity risks that threaten the confidentiality, integrity and availability of our IT Systems and Confidential Information, including from diverse threat actors such as state-sponsored organizations, opportunistic hackers and hacktivists, as well as through diverse attack vectors such as social engineering/phishing, malware (including ransomware), malfeasance by insiders, human or technological error and, as a result of bugs, misconfigurations or exploited vulnerabilities in software or hardware. Threat actors could steal Confidential Information related to our business, products, employees, customers and our customers' subscribers; hold data ransom; and/or disrupt our systems and services or those of our supply chain partners, vendors, customers or others. We expect cybersecurity attacks and security breaches to accelerate in the future, including sophisticated supply chain attacks. As we and our third-party providers continue to increase our reliance on virtual environments and communications systems and cloud-based solutions to support our work-from-anywhere culture and overall business needs, our exposures to third-party vulnerabilities and security risks also increase. Because threat actors are increasingly sophisticated and aggressive, our efforts may be inadequate to prevent, detect or recover from future attacks due, for example, to the increased use by attackers of tools and techniques (including artificial intelligence) that are specifically designed to circumvent controls, to avoid detection, and to remove or obfuscate forensic evidence. We may also experience security breaches that may remain undetected for an extended period.

We and certain of our third-party providers have been subject to cyberattacks and other security incidents, and we expect such attacks and incidents to continue in varying degrees. There can be no assurance that our cybersecurity risk management program and processes, including our policies, controls or procedures, will be fully implemented, complied with or effective in protecting our IT Systems and Confidential Information. Accordingly, while to date no cybersecurity incidents have had a material impact on our operations or financial results, we cannot guarantee that material incidents will not occur in the future. A cyberattack or incident that affects the confidentiality, integrity or availability of our IT Systems or Confidential Information could result in significant investigative, security and remediation costs, regulatory fines and penalties and/or litigation costs and other liability. Even if we and our third-party providers allocate, implement and manage reasonable security and data protection measures, we could still experience significant data loss, unauthorized data disclosure or a breach of our IT Systems, products or those of our third-party providers (for example, data centers) that materially impact our business. The continued growth of our cloud-based platform and managed services portfolio and increased reliance on third-party development partners and third-party software and cloud-based solutions increases the likely risks arising from security breaches or data loss. Any data loss or compromise of our systems that collect and process personal information (including personal information of our customers' subscribers), or third-party data centers where that personal information is stored, could result in loss of confidence in the security of our offerings and loss of customers or customer goodwill. Further, security incidents could subject us to obligations under privacy and data security laws and regulations around the world (including to notify governmental authorities, regulatory bodies and/or affected individuals), lead to liability given the increasing development of such strict laws and regulations, increase the risk of litigation and governmental or regulatory investigation, require us to notify our customers or other counterparties in relation to such incidents, damage our reputation and adversely affect our business, financial condition, operating results and cash flows. Although we maintain insurance that may apply to cybersecurity risks and liabilities, there can be no guarantee that any or all costs or losses incurred will be partially or fully insured or that we will be able to procure applicable insurance in the future on reasonable terms or at all.

**Compliance or the failure to comply with current and future environmental regulations could cause us significant expense.**

We are subject to a variety of federal, state, local and foreign environmental regulations. If we fail to comply with any present or future regulations, we could be subject to liabilities, the suspension of production or prohibitions on the sale of our products. In addition, such regulations could require us to incur other significant expenses to comply with environmental regulations, including expenses associated with the redesign of any non-compliant product. From time to time new regulations are enacted, and it is difficult to anticipate how such regulations will be implemented and enforced and the impact that they could have on our operations or results. For example, in 2003 the European Union enacted the Restriction on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Directive and the Waste Electrical and Electronic Equipment Directive, for implementation in European Union member states. We are aware of similar legislation that is currently in force or has been considered in the U.S., as well as other countries, such as Japan and China. Implementation of and compliance with these laws may be costly or could otherwise adversely affect our business operations, which could negatively impact our financial position or cash flows. Our failure to comply with any such regulatory requirements or contractual obligations could result in us being liable for costs, fines, penalties or third-party claims, and could jeopardize our ability to conduct business in countries or jurisdictions where such regulations apply.

**Failure to comply with the U.S. Foreign Corrupt Practices Act and similar laws associated with our international activities could subject us to significant civil or criminal penalties.**

Failure to comply with the Foreign Corrupt Practices Act could subject us to significant civil or criminal penalties. A significant portion of our revenues is generated from sales outside of the United States. As a result, we are subject to the U.S. Foreign Corrupt Practices Act (the “FCPA”). The FCPA generally prohibits U.S. companies and their intermediaries from making corrupt payments to foreign officials for the purpose of obtaining or keeping business or otherwise obtaining favorable treatment and requires companies to maintain adequate record-keeping and internal accounting practices to accurately reflect the transactions of the company. The FCPA applies to companies, individual directors, officers, employees and agents. Under the FCPA, U.S. companies may be held liable for the corrupt actions taken by employees, strategic or local partners or other representatives. If we or our intermediaries fail to comply with the requirements of the FCPA or similar legislation, governmental authorities in the U.S. and elsewhere could seek to impose civil and/or criminal fines and penalties which could have an adverse effect on our results of operations, financial condition and cash flow.

**Our business and future operating results are subject to global economic and market conditions.**

Market turbulence and weak economic conditions, as well as concerns about energy costs, geopolitical issues, inflation, the availability and cost of credit, business and consumer confidence, and unemployment could impact our business in a number of ways, including:

*Potential deferment of purchases and orders by customers*: Uncertainty about global economic conditions could cause consumers, businesses and governments to defer purchases in response to flat revenue budgets, tighter credit, decreased cash availability and weak consumer confidence. Accordingly, future demand for our products could differ materially from our current expectations.

*Customers' inability to obtain financing to make purchases and/or maintain their business:* Some of our customers require substantial financing in order to finance their business operations, including capital expenditures on new equipment and equipment upgrades, and make purchases from us. The potential inability of these customers to access the capital needed to finance purchases of our products and meet their payment obligations to us could adversely impact our business, operations, financial condition, and liquidity. While we monitor these situations carefully and attempt to take appropriate measures to protect ourselves, including factoring credit arrangements to financial institutions, it is possible that we may have to defer revenue until cash is collected or write-down or write-off uncollectible accounts. Such write-downs or write-offs, if large, could have a material adverse effect on our business, operations, financial condition, and liquidity. If our customers become insolvent due to market and economic conditions or otherwise, it could have a material adverse effect on our business, operations, financial condition and liquidity.

*Negative impact from increased financial pressures on third-party dealers, distributors and retailers*: We make sales in certain regions through third-party dealers, distributors and retailers. These third parties may be impacted, among other things, by a significant decrease in available credit. If credit pressures or other financial difficulties result in insolvency for these third parties and we are unable to successfully transition end customers to purchase our products from other third parties, or from us directly, it could adversely impact our business, operations, financial condition, and liquidity.

*Negative impact from increased financial pressures on key suppliers:* Our ability to meet customers' demands depends, in part, on our ability to obtain timely and adequate delivery of quality materials, parts and components from our suppliers. Certain of our components are available only from a single source or limited sources. If certain key suppliers were to become capacity constrained or insolvent, it could result in a reduction or interruption in supplies or a significant increase in the price of supplies and adversely impact our financial condition and results of operations. In addition, credit constraints of key suppliers could result in accelerated payment of accounts payable by us, impacting our cash flow.

We may experience material adverse impacts on our business, operations, financial condition, and liquidity as a result of weak or recessionary economic or market conditions in the United States, South Korea, Germany, or the rest of the world.

**Natural disasters, public health crises, political crises, and other catastrophic events or other events outside of our control may damage our facilities or the facilities of third parties on which we depend, and could materially impact our supply chain and the operations of our customers and suppliers.**

Our global headquarters is located in Plano, Texas. We have development centers in the U.S., Turkey, Germany, India, Spain, and Canada (and, as of June 1, 2024, Australia) and third-party development partners in South Korea and Brazil. Our manufacturing partners are primarily located in the U.S., China and South Korea. These facilities are subject to disruption from natural causes beyond our control, including physical risks from tornados, severe storms, floods, other natural disaster or power shortages or outages that could disrupt operations or impair critical systems. Any of these disruptions or other events outside of our control could affect our business negatively, harming our operating results. In addition, in the event any of our facilities or the facilities of our suppliers, contract manufacturers, third-party service providers, or customers, is affected by natural disasters, such as hurricanes, earthquakes, tsunamis, power shortages or outages, floods or monsoons, public health crises, such as pandemics and epidemics, political crises, such as terrorism, war, political instability or other conflict, or other events outside of our control, our business and operating results could suffer. Disasters occurring at our or our vendors' facilities also could impact our reputation.

Any of the foregoing events may have the effect of disrupting our supply chain, which could harm our business, financial condition results of operations**.** Illness, travel restrictions, absenteeism, or other workforce disruptions could negatively affect our supply chain, manufacturing, distribution, or other business processes. We may face additional production disruptions in the future, which may place constraints on our ability to produce products in a timely manner or may increase our costs.

**Future issuances of additional equity securities could result in dilution of existing stockholders' equity ownership.**

We may determine from time to time to issue additional equity securities to raise additional capital, to support growth, or, as we have in recent years, to make acquisitions. Further, we may issue stock options, grant restricted stock awards or other equity awards to retain, compensate and/or motivate our employees and directors. In January 2024, November 2022 and January 2021, we also raised approximately $10.0 million, $30.8 million and $59.5 million, respectively, in separate equity offerings. In addition, in connection with the EdgeCo Loan Agreement and the Warrant Agreement, the Company issued a warrant to EdgeCo to subscribe for 6,100,000 shares of Common Stock at an exercise price of $1.84 per share. These issuances of our securities diluted the voting and economic interests of existing stockholders, and any future issuances of our securities could also dilute the voting and economic interests of existing stockholders.

## ITEM 1B. UNRESOLVED STAFF COMMENTS

None

## ITEM 1C. CYBERSECURITY

*Cybersecurity Risk Management and Strategy*

We recognize the importance of establishing governance and oversight over cybersecurity risks, and we have developed and implemented a cybersecurity risk management program intended to protect the confidentiality, integrity and availability of our critical systems and information.

We design and assess our program based on the National Institute of Standards and Technology Cybersecurity Framework, or NIST CSF, and the MITRE ATT&CK® Framework. This does not imply that we meet any particular technical standards, specifications or requirements, only that we use the NIST CSF and the MITRE ATT&CK® as a guide to help us identify, assess and manage cybersecurity risks relevant to our business.

Our cybersecurity risk management program is integrated into our overall enterprise risk management program and shares common methodologies, reporting channels and governance processes that apply across the enterprise risk management program to other legal, compliance, strategic, operational, and financial risk areas.

Key aspects of our cybersecurity risk management program include the following:

- risk assessments designed to help identify material cybersecurity risks to our critical systems, information, products, services and our broader enterprise IT environment;
- a security team principally responsible for managing (1) our cybersecurity risk assessment processes, (2) our security controls and (3) our response to cybersecurity incidents;
- the use of external service providers, where appropriate, to assess, test or otherwise assist with aspects of our security controls and processes;
- cybersecurity awareness training of our employees, incident response personnel and senior management;
- a cybersecurity incident response plan that includes procedures for responding to cybersecurity incidents; and
- a third-party risk management process for key service providers, suppliers and vendors.

The landscape of cyber threats is constantly evolving, making it increasingly challenging to effectively defend against them or implement sufficient preventative measures. We have observed a rise in the volume, frequency, and sophistication of cyber-attacks. To date, no risks from cybersecurity threats or previous cybersecurity incidents have materially affected our business strategy, results of operations, or financial condition. However, there can be no assurance that our controls and procedures in place to monitor and mitigate the risks of cyber threats, including the remediation of critical information security and software vulnerabilities, will be sufficient and/or timely and that we will not suffer material losses or consequences in the future. Additionally, while we have in place insurance coverage designed to address certain aspects of cyber risks, such insurance coverage may be insufficient to cover all insured losses or all types of claims that may arise. See Item 1A "Risk Factors – Cyberattacks or other security incidents that disrupt our operations or compromise data, may expose us to liability, harm our reputation or otherwise adversely affect our business."

*Cybersecurity Governanc*e

This risk management approach informs decision-making processes related to the company's strategic priorities, the allocation of resources, and the establishment of oversight mechanisms. Our Board considers cybersecurity risk as part of its risk oversight function, and the governance of this program resides with our Board, which bears the ultimate responsibility for the oversight of cybersecurity risks. Supporting the Board, the Audit Committee plays a pivotal role by engaging in regular reviews of our cybersecurity efforts in collaboration with management and providing periodic updates to the Board. These assessments are conducted regularly, with additional sessions convened as needed to address emerging issues or refine strategies. In addition, management updates the Board, as necessary, regarding any significant cybersecurity incidents.

Our Chief Operations Officer is primarily responsible for assessing and managing our material risks from cybersecurity threats and supervises both our internal cybersecurity personnel and our retained external cybersecurity consultants. He/She stays informed about and monitors the prevention, detection, mitigation and remediation of key cybersecurity risks and incidents through various means, which may include briefings with internal and external security team members, threat intelligence and other information obtained from public or private sources and alerts and reports produced by security tools deployed in the IT environment.

Our cybersecurity management team includes our corporate global applications director, who leads the operational teams responsible for enterprise security, data governance and enterprise incident response, and global operations, and our senior vice president of cloud edge and engineering operations, who leads the operational teams responsible for product and cloud security, data governance and product security incident response. Our operational cybersecurity teams are comprised of members with decades of collective experience in IT security systems, tooling, operations, and governance, and hold various IT security industry certifications and have received specialized cybersecurity training.

## ITEM 2. PROPERTIES

In 2020, the Company moved its headquarter and established its Engineering Center of Excellence in Plano, Texas, U.S, where we lease office space. We leased facilities for manufacturing in Seminole, Florida, U.S., where we previously manufactured our low volume, high mix products. In October 2022, we started a transition of the manufacturing to Fabrinet, which was substantially completed in the beginning of 2023, whereupon the Company no longer manufactures its products. In December 2023, the Company signed an agreement to terminate the Seminole lease effective in the beginning of 2024. We also maintain offices to provide sales and customer support at various domestic and international locations. We believe that our existing facilities are suitable and adequate for our present purposes.

## ITEM 3. LEGAL PROCEEDINGS

***Plume***

On October 10, 2022, Plume Design, Inc. ("Plume") filed suit against DZS in the Superior Court of the State of Delaware, alleging that DZS breached a reseller contract with Plume and seeking $24.75 million in damages. The parties have completed briefing on dispositive motions, and a trial is currently set for October 7, 2024. DZS intends to vigorously defend this lawsuit.

***Class Action***

In June and August of 2023, DZS shareholders filed three putative securities class actions related to DZS's June 1, 2023 Form 8-K announcing the Company's intention to restate its financial statements for the first quarter of 2023. Each suit was filed in the Eastern District of Texas. All three cases allege violations of Sections 10(b) and 20(a) of the Exchange Act against DZS, its Chief Executive Officer and its Chief Financial Officer. The cases are: (1) Shim v. DZS et al., filed June 14, 2023; (2) Link v. DZS et al., filed June 27, 2023; and (3) Cody v. DZS et al., filed August 9, 2023.

Three potential lead plaintiffs filed applications for appointment on August 14, 2023. On September 12, 2023, the cases were consolidated under the lead case Shim v. DZS et al. The plaintiffs are seeking unspecified damages, interest, fees, costs and interest. As of July 31, 2024, the court has not yet ruled on the appointment of a lead plaintiff and the Defendants have not yet responded to any complaint. DZS intends to vigorously defend these lawsuits.

In light of the events giving rise to the restatement, DZS began cooperating, and intends to continue to cooperate, with the U.S. Securities and Exchange Commission (the "SEC"), which has informed DZS that it is investigating potential violations of the federal securities laws related to DZS.

On June 3, 2024, counsel for a shareholder of the Company sent the Company a demand for certain books and records related to events related to the Company's June 1, 2023 Form 8-K. The demand was made pursuant to Section 220 of the Delaware General Corporation Law. While the Company does not concede the demand is proper, it has produced certain records to the shareholder.

In addition to the matters discussed above, from time to time, the Company is subject to various legal proceedings, claims and litigation arising in the ordinary course of business. While the outcome of these matters is currently not determinable, the Company records an accrual for legal contingencies that it has determined to be probable to the extent that the amount of the loss can be reasonably estimated. The Company does not expect that the ultimate costs to resolve these matters will have a material adverse effect on its consolidated financial position, results of operations or cash flows. However, litigation is subject to inherent uncertainties, and unfavorable rulings could occur. If an unfavorable ruling were to occur, there exists the possibility of a material adverse impact on the results of operations and cash flows of the reporting period in which the ruling occurs, or future periods.

## ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

## PART II

### ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Until August 8, 2024, our common stock was listed on the Nasdaq Capital Market under the symbol "DZSI". Since August 8, 2024, the Company's common stock has traded on the OTC market under the symbol "DZSI".

As of April 24, 2023, we had 367 registered stockholders of record. A substantially greater number of holders of DZS common stock are "street name" or beneficial holders, whose shares are held of record by banks, brokers or financial institutions.

**Dividend Policy**

We have never paid or declared any cash dividends on our common stock or other securities and do not anticipate paying cash dividends in the foreseeable future. Any future determination to pay cash dividends will be at the discretion of the Board of Directors, subject to any applicable restrictions under our debt and credit agreements, and will be dependent upon our financial condition, results of operations, capital requirements, general business condition and such other factors as the Board of Directors may deem relevant.

### ITEM 6. [RESERVED]

## ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

We are a global provider of access and optical networking infrastructure and cloud software solutions that enable the emerging hyper-connected, hyper-broadband world and broadband experiences. The Company provides a wide array of reliable, cost-effective networking technologies and software to a diverse customer base.

We research, develop, test, sell, manufacture and support platforms in the areas of mobile transport and fixed broadband access, as discussed below. We have extensive regional development and support centers around the world to support our customer needs.

Our key financial objectives include the following:

- Increasing revenue while continuing to carefully control costs;
- Continuing investments in strategic research and product development activities that will provide the maximum potential return on investment;
- Minimizing consumption of our cash and cash equivalents; and
- Improving gross margin through a wide range of initiatives, including an increase in the mix of recurring software revenue and reducing fixed costs by outsourcing manufacturing.

### 2023 Highlights and Recent Developments

On September 12, 2023 and September 22, 2023, DNS Korea, as borrower, entered into the DNI Loan Agreements with DNI, as lender, DZS California, Inc., a California corporation, as collateral provider, and DZS Inc. DNS Korea is an indirect subsidiary of the Company. Pursuant to the DNI Loan Agreements, DNS Korea received two three-year term loans in an aggregate principal amount equal to 39.6 billion South Korean Won ("KRW"), the equivalent of $29.9 million as of the date of the transactions. The net proceeds under the DNI Loan Agreements were used to repay the outstanding obligations under the JPM Credit Agreement, and the JPM Credit Agreement was terminated on December 14, 2023.

On December 29, 2023, the Company, as borrower, entered into a Loan Agreement (the "EdgeCo Loan Agreement") with EdgeCo, as lender. Pursuant to the EdgeCo Loan Agreement, the Company received a three-year term loan in an aggregate principal amount equal to $15.0 million. The principal amount of the Loan is payable on December 29, 2026 and bears interest at a fixed rate of 13.0% per annum. In connection with the EdgeCo Loan Agreement, the Company also entered into a Warrant Agreement (the "Warrant Agreement"), dated as of December 29, 2023, by and between the Company and EdgeCo, that issued a warrant to EdgeCo to subscribe for 6,100,000 shares of Common Stock at an exercise price of $1.84 per share.

On December 29, 2023, the Company entered into a Securities Purchase Agreement (the "Securities Purchase Agreement") with IV Global Fund No. 4, a Korean limited partnership ("IV Global Fund"). The general partner of IV Global Fund, Invites Ventures Co., Ltd., and its limited partners are affiliates of DNI. Pursuant to the Securities Purchase Agreement, the Company agreed to issue 5,434,783 shares (the "Private Placement Shares") of Common Stock to IV Global Fund, at a purchase price of $1.84 per share, for an aggregate purchase price of $10.0 million. The issuance and sale of the Private Placement Shares was consummated on January 3, 2024.

### Trends and Uncertainties

Over the last few years, the world has experienced significant demand for mobile and fixed network access solutions and communications equipment that enable or support access to higher speed bandwidth access to the internet. The demand was exacerbated in 2020 by the global COVID-19 pandemic which drove a dramatic rise in remote work and learning as well as entertainment streaming. We are benefiting from these shifts in business and consumer behaviors, that represent positive, long-term opportunities for our business.

In the face of extraordinary demand across a range of industries and the impact of the COVID-19 pandemic, global supply for certain raw materials and components used in our products has experienced substantial constraint and disruption in recent periods. The current worldwide shortage of semiconductors and continued inflation have exacerbated these risks. As of early 2024, supply chain pressures have fallen from unprecedented levels following the COVID-19 pandemic, however, supply chain pricing, freight and logistics costs, product and component availability, and extended lead-times continue to be a challenge. We have experienced and continue to experience disruptions in our supply chain, which has adversely impacted our operations and the operations of some of our key suppliers.

### Impact of Inflation and Changing Prices

The financial statements and related data presented herein have been prepared in accordance with U.S. GAAP, which requires the measurement of financial position and operating results in terms of historical dollars without considering changes in the relative purchasing power of money over time due to inflation. Although our operations are influenced by general economic conditions, we do not believe that inflation had a material effect on our results of operations during our fiscal year ended December 31, 2023.

## FINANCIAL PERFORMANCE

### Consolidated Results of Operations

The table below presents the historical consolidated statement of comprehensive income (loss) as a percentage of revenues and year-over-year changes (in thousands except percent change).

| | Years ended December 31, | | | | Increase (Decrease) |
|---|---|---|---|---|---|
| | 2023 | % of net revenue | 2022 | % of net revenue | from 2022 to 2023 |
| Net revenue | $ 244,541 | 100 % | $ 357,528 | 100 % | (31.6 )% |
| Cost of revenue | 204,102 | 83 % | 244,046 | 68 % | (16.4 )% |
| Gross profit | 40,439 | 17 % | 113,482 | 32 % | (64.4 )% |
| Operating expenses: | | | | | |
| Research and product development | 55,780 | 23 % | 56,124 | 16 % | (0.6 )% |
| Selling, marketing, general and administrative | 88,260 | 36 % | 85,371 | 24 % | 3.4 % |
| Restructuring and other charges | 4,491 | 2 % | 4,617 | 1 % | (2.7 )% |
| Impairment of long-lived assets | 3,073 | 1 % | 827 | 1 % | 271.6 % |
| Impairment of goodwill | 12,594 | 5 % | — | 1 % | 100.0 % |
| Amortization of intangible assets | 5,230 | 2 % | 3,570 | 1 % | 46.5 % |
| Total operating expenses | 169,428 | 69 % | 150,509 | 44 % | 12.6 % |
| Operating loss | (128,989 ) | (53 )% | (37,027 ) | (12 )% | 248.4 % |
| Interest expense, net | (3,992 ) | (2 )% | (1,442 ) | — | 176.8 % |
| Loss on extinguishment of debt | (594 ) | — | — | — | 100.0 % |
| Other expense, net | (864 ) | — | (1,837 ) | — | (53.0 )% |
| Loss before income taxes | (134,439 ) | (55 )% | (40,306 ) | (12 )% | 233.5 % |
| Income tax provision | 779 | — | 964 | — | (19.2 )% |
| Net loss | $ (135,218 ) | (55 )% | $ (41,270 ) | (12 )% | 227.6 % |

### Net Revenue

The following table presents our revenues by product technology (dollars in thousands):

| | Years ended December 31, | | Increase (Decrease) |
|---|---|---|---|
| | 2023 | 2022 | from 2022 to 2023 |
| Access Networking Infrastructure | $ 199,706 | $ 318,218 | (37.2 )% |
| Cloud Software and Services | 44,835 | 39,310 | 14.1 % |
| Total | $ 244,541 | $ 357,528 | (31.6 )% |

Our revenue from sales of access networking infrastructure products includes Access Edge, Optical Edge, and Subscriber Edge network solutions. Our cloud software and services revenue represents revenue from our Cloud Software solutions including DZS Xtreme, Expresse and CloudCheck software, and revenue from maintenance and other professional services associated with product shipments.

Our revenues decreased 31.6% or $113.0 million to $244.5 million for the year ended December 31, 2023 compared to $357.5 million for the year ended December 31, 2022. The decrease in access networking infrastructure revenue was primarily attributable to lower spending levels from our major customers in Asia and Americas. The increase in cloud software and services revenue was primarily due to the revenue related to the ASSIA Acquisition.

The following table presents our revenues by geographical concentration (dollars in thousands):

| | Years ended December 31, | | Increase (Decrease) |
|---|---|---|---|
| | 2023 | 2022 | from 2022 to 2023 |
| Americas | $ 60,544 | $ 107,392 | (43.6 )% |
| Europe, Middle East, Africa | 60,504 | 76,404 | (20.8 )% |
| Asia | 123,493 | 173,732 | (28.9 )% |
| Total | $ 244,541 | $ 357,528 | (31.6 )% |

Our geographic diversification reflects the combination of market demand, a strategic focus on capturing market share through new customer wins and new product introductions.

The decrease in net revenue for the year ended December 31, 2023 was attributable to decreased revenue across all the regions driven by decreased spending levels from our major customers, which was partially offset by revenue related to the ASSIA Acquisition.

We anticipate that our results of operations in any given period may depend to a large extent on sales to a small number of large accounts. As a result, our revenue for any quarter may be subject to significant volatility based upon changes in orders from one or a small number of key customers across the regions.

**Cost of Revenue and Gross Profit**

Total cost of revenue decreased 16.4% to $204.1 million for 2023, compared to $244.0 million for 2022. Total cost of revenue was 83.5% of net revenue for 2023, compared to 68.3% of net revenue for 2022, which resulted in a decrease in gross profit percentage to 16.5% for 2023 from 31.7% for 2022. The decrease in total cost of revenue was primarily due to the decrease in sales volume. The gross profit percentage decrease was primarily due to the change in number and mix of products sold, elevated component costs, expedite fees paid to deliver certain products, and increase in inventory obsolescence reserve.

**Operating expenses**

*Research and Product Development Expenses:* Research and development expenses include personnel costs, outside contractor and consulting services, depreciation on lab equipment, costs of prototypes and overhead allocations.

Research and product development expenses decreased by 0.6% to $55.8 million for 2023 compared to $56.1 million for 2022. The small decrease was primarily due to certain cost saving initiatives started by the Company in the third quarter of 2023 offset by the impact from the ASSIA Acquisition.

*Selling, Marketing, General and Administrative Expenses:* Selling, marketing, general and administrative expenses include personnel costs for sales, marketing, administration, finance, information technology, human resources and general management as well as legal and accounting expenses, rent, utilities, trade show expenses and related travel costs.

Selling, marketing, general and administrative expenses increased by 3.4% to $88.3 million for 2023 compared to $85.4 million for 2022. The increase was primarily due to increase in allowance for credit losses partially offset by certain cost saving initiatives started by the Company in the third quarter of 2023.

*Restructuring and Other Charges:* Restructuring and other charges for 2023 primarily related to the strategic decision to outsource manufacturing from the Company's Seminole, Florida facility to Fabrinet. Restructuring and other charges for 2022 related primarily to both the transition to Fabrinet and the transition of DZS GmbH and Optelian to sales and research and development centers. See Note 6 Restructuring and Other Charges of the Notes to Consolidated Financial Statements, for further information.

*Impairment of Long-Lived Assets:* During 2023, the Company recorded an impairment charge of $3.1 million for its certain intangible and other long-lived assets related to Asia asset group and certain right-of use assets from operating leases in connection with vacating the respective office space. During 2022, the Company recorded an impairment charge of $0.8 million for the right-of use assets from operating leases in connection with vacating the respective office space.

*Impairment of Goodwill:* During 2023, the Company recorded an impairment charge of $12.6 million for its goodwill due to declines in financial performance of its reporting units. There was no goodwill impairment related charge in 2022.

*Interest Expense, net:* Interest expense, net relates mainly to earnings from our cash and cash equivalents, interest expense associated with the credit facilities and amortization of debt issuance costs associated with obtaining such credit facilities. The Company recorded $4.0 million and $1.4 million of interest expense, net, in 2023 and 2022, respectively.

*Loss on Extinguishment of Debt:* During 2023, the Company paid the outstanding term loan borrowings in full and terminated the JPM Credit Facility. In association with this debt repayment, the Company recorded a loss on extinguishment of debt of $0.6 million. There was no debt extinguishment related charge in 2022.

*Other Expense, net:* Other expense, net relates mainly to realized and unrealized foreign currency exchange gains and losses. The Company recorded a $0.9 million and $1.8 million net loss, in 2023 and 2022, respectively. The change in other expense, net was primarily due to foreign currency exchange rates fluctuation during the above periods.

*Income Tax Provision:* We incurred an income tax expense of $0.8 million for 2023 as compared to $1.0 million expense incurred in 2022. Despite consolidated net losses, we incurred income tax provision due to taxable income generated in certain international jurisdictions.

Information about our effective tax rate is summarized below (in thousands except tax rate):

| | Years ended December 31, 2023 | Years ended December 31, 2022 |
|---|---|---|
| Loss before income taxes | $ (134,439) | $ (40,306) |
| Total tax provision | 779 | 964 |
| Effective tax rate | -0.6% | -2.4% |

**LIQUIDITY AND CAPITAL RESOURCES**

Our operations have historically and continue to be financed through a combination of our existing cash and cash equivalents, cash generated in the business, borrowings, and equity sales.

The following table summarizes the information regarding our cash and cash equivalents and working capital (in thousands):

| | December 31, 2023 | December 31, 2022 |
|---|---|---|
| Unrestricted cash and cash equivalents | $ 18,957 | $ 34,347 |
| Working capital | $ 30,557 | $ 89,658 |

As of December 31, 2023, we had $30.6 million of working capital and $19.0 million in unrestricted cash and cash equivalents, which included $6.8 million in cash balances held by our international subsidiaries.

As of December 31, 2023, the Company had a total of $37.9 million of long-term debt obligation, net of $7.7 million of unamortized debt discount and issuance costs and $19.6 million of short-term debt obligation.

On December 29, 2023, the Company entered into a Securities Purchase Agreement (the “Securities Purchase Agreement”) with IV Global Fund No. 4, a Korean limited partnership (“IV Global Fund”). The general partner of IV Global Fund, Invites Ventures Co., Ltd., and its limited partners are affiliates of DNI. Pursuant to the Securities Purchase Agreement, the Company agreed to issue 5,434,783 shares (the “Private Placement Shares”) of Common Stock to IV Global Fund, at a purchase price of $1.84 per share, for an aggregate purchase price of $10.0 million. The issuance and sale of the Private Placement Shares was consummated on January 3, 2024.

We continue to focus on cost management, operating efficiency and efficient discretionary spending. Management is actively taking measures to enhance profitability and liquidity, including reducing the Company’s cost structure and cash outflows, including its investment in inventory, and managing receivable balances through aggressive collection efforts and tighter customers payment terms. These plans are not completely within the Company’s control, as some actions are dependent on the Company’s lenders, vendors and customers. However, management believes that such plans are reasonably achievable and the Company will sufficiently meet its liquidity needs. In addition, if necessary, we may sell assets, issue debt or equity securities, rationalize the number of products we sell, adjust our manufacturing footprint, and reduce our operations in low margin regions, including reductions in headcount. Based on our current plans and current business conditions, we believe that these measures along with our existing cash and cash equivalents will be sufficient to satisfy our anticipated cash requirements for at least the next 12 months from the date of this Annual Report on Form 10-K.

The following table presents a summary of our cash flow activity for the periods set forth below (in thousands):

| | Years ended December 31, 2023 | Years ended December 31, 2022 |
|---|---|---|
| Consolidated Statements of Cash Flows Data | | |
| Net cash used in operating activities | $ (45,875) | $ (50,587) |
| Net cash provided by (used in) investing activities | 255 | (28,014) |
| Net cash provided by financing activities | 29,294 | 64,768 |
| Effect of exchange rate changes on cash, cash equivalents and restricted cash | (1,230) | (1,342) |
| Net change in cash, cash equivalents and restricted cash | $ (17,556) | $ (15,175) |
| Cash, cash equivalents and restricted cash at beginning of period | $ 38,464 | $ 53,639 |
| Cash, cash equivalents and restricted cash at end of period | $ 20,908 | $ 38,464 |

### *Operating Activities*

Net cash used in operating activities during 2023 was $45.9 million compared with $50.6 million net cash used in operating activities during 2022. The decrease in cash used in operating activities was primarily due to an improvements in the Company's working capital.

### *Investing Activities*

Net cash provided by investing activities totaled $0.3 million during 2023 and consisted primarily of cash received from the sale of manufacturing equipment as part of transition to Fabrinet partially offset by cash used to purchase property and equipment. This is in comparison to net cash used in investing activities of $28.0 million for 2022, which consisted primarily of cash used in the ASSIA Acquisition and purchases of property and equipment.

### *Financing Activities*

Net cash provided by financing activities during 2023 was $29.3 million and consisted primarily of proceeds from EdgeCo Loan, net proceeds from related party loans, net proceeds from short-term borrowings partially offset by the repayment of the borrowings under the JPM Credit Facility. Net cash provided by financing activities during 2022 was $64.8 million and consisted primarily of proceeds from the equity offering, borrowing under the term loan to fund the ASSIA Acquisition, net drawings on Revolving Credit Facility, a related party term loan discussed in Note 12 to the Consolidated Financial Statements, and proceeds from exercise of stock awards, partially offset by payments of debt issuance cost and contingent consideration for the Optelian Acquisition.

## Debt Facilities

As of December 31, 2023, the Company had a total of $37.9 million of long-term debt obligation, net of $7.7 million of unamortized debt discount and issuance costs and $19.6 million of short-term debt obligation. See Note 8 to the Consolidated Financial Statements for further information about Company's debt facilities.

## Future Requirements and Funding Sources

Our fixed commitments for cash expenditures consist primarily of payments under operating leases, inventory purchase commitments, and payments of principal and interest for debt obligations.

From time to time, we may provide or commit to extend credit or credit support to our customers. This financing may include extending the terms for product payments to customers. Any extension of financing to our customers will limit the capital that we have available for other uses.

Our accounts receivable, while not considered a primary source of liquidity, represent a concentration of credit risk because a significant portion of the accounts receivable balance at any point in time typically consists of a relatively small number of customer account balances. As of December 31, 2023, one customer represented 11% of net accounts receivable. Refer to Note 1 Organization and Summary of Significant Accounting Policies, in the Notes to Consolidated Financial Statements, for further detail. Our receivables from customers in countries other than the U.S. represented 88% of accounts receivable. We do not currently have any material commitments for capital expenditures, or any other material commitments aside from operating leases for our facilities, inventory purchase commitments and debt obligations.

## Contractual Commitments and Off-Balance Sheet Arrangements

As of December 31, 2023, our future contractual commitments included operating lease obligations and purchase commitments. Future minimum operating lease obligations were $11.0 million and included operating lease payments for our office locations and manufacturing, research and development locations, which expire at various dates through 2028. Refer to Note 13 Leases, in the Notes to Consolidated Financial Statements, for more details. Our purchase order commitments were $148.5 million and included inventory purchase commitments to our contract manufacturers and component suppliers. Refer to Note 14 Commitments and Contingencies, in the Notes to Consolidated Financial Statements, for more details.

The Company’s pension plan obligations are excluded from the contractual commitments since the plan is unfunded, and the timing and amount of any cash payments are uncertain. Refer to Note 15 Employee Benefit Plans, in the Notes to Consolidated Financial Statements, for more details.

## Critical Accounting Estimates

Management's discussion and analysis of our financial condition and results of operations is based on our accompanying consolidated financial statements that have been prepared in accordance with GAAP. We base our estimates on historical experience, current trends and on various other assumptions that we believe are relevant at the time our consolidated financial statements are prepared. While we believe that our estimates, assumptions, and judgments are reasonable, they are based on information available when the estimate was made. Changes to these estimates could have a material effect on our results of operations and financial condition.

We believe the following accounting estimates are the most critical in understanding and evaluating our consolidated financial statements as they require the most difficult, subjective or complex judgments, resulting from the need to make estimates about the effect of matters that are inherently uncertain. Refer to Note 1 Accounting Policies, in the Notes to Consolidated Financial Statements, for further information on our critical accounting estimates and policies, which are as follows:

*Revenue Recognition* **–** the calculation of transaction price, net of variable consideration. Our sales arrangements to certain distributors provide our distributors with volume discounts, price adjustments, and other allowances under certain circumstances. For contracts with customers that contain multiple performance obligations, we account for the promises separately as individual performance obligations if they are distinct.

*Inventories* – the capitalization of manufacturing costs in inventory, excluding factory excess capacity costs. Inventory reflected at the lower of cost or net realizable value considering future demand and market conditions.

*Goodwill and Long-lived Assets* – the valuation methods and assumptions used in assessing the impairment of property, plant and equipment, identified intangibles, and goodwill, including the determination of asset groupings and the identification and allocation of goodwill to reporting units.

*Business Combination* – the valuation methods and assumptions used in assessing the fair value of assets and liabilities on the acquisition date.

*Income Tax* – the determination of deferred tax assets and liabilities based on differences between the financial reporting and the income tax bases of assets and liabilities. Valuation allowances are established, when necessary, to reduce deferred tax assets to the amount expected to be realized.

*Allowances for Doubtful Accounts* – the determination of expected credit losses through analysis of information obtained from credit rating agencies, financial statement review, and historical and current collection trends.

*Pension Benefit Obligation* – the valuation methods and assumptions used to measure the pension benefit obligation.

*Warrant* – the valuation methods and balance sheet classification.

## Item 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISKS

Not required.

**ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA**

**DZS INC. AND SUBSIDIARIES**

**INDEX TO CONSOLIDATED FINANCIAL STATEMENTS**


| | Page |
|---|---|
| Report of Independent Registered Public Accounting Firm (PCAOB ID:243) | 42 |
| Consolidated Balance Sheets | 44 |
| Consolidated Statements of Comprehensive Income (Loss) | 45 |
| Consolidated Statements of Stockholders' Equity | 46 |
| Consolidated Statements of Cash Flows | 47 |
| Notes to Consolidated Financial Statements | 48 |


No financial statement schedules are required because all the relevant data is included elsewhere in these consolidated financial statements.

**REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM**

To the Stockholders and the Board of Directors of DZS Inc.

DZS Inc.

Plano, Texas

**Opinion on the Consolidated Financial Statements**

We have audited the accompanying consolidated balance sheets of DZS Inc. (the "Company") as of December 31, 2023 and 2022, the related consolidated statements of comprehensive income (loss), stockholders' equity, and cash flows for each of the two years in the period ended December 31, 2023, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2023, and 2022, and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2023**,** in conformity with accounting principles generally accepted in the United States of America.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the Company's internal control over financial reporting as of December 31, 2023, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO") and our report dated August 13, 2024 expressed an adverse opinion thereon.

**Basis for Opinion**

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's consolidated financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud.

Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

**Critical Audit Matters**

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

**Revenue Recognition**

As described in Note 1 to the consolidated financial statements, the Company's consolidated net revenue balance was $244.5 million for the year ended December 31, 2023. The Company recognizes revenue from contracts with customers when control of the promised goods or services is transferred to the customers, in an amount that reflects the consideration the Company expects to be entitled in exchange for those goods or services.

We identified the timing of revenue recognition related to certain product arrangements as a critical audit matter. The principal consideration for our determination is the significant degree of auditor judgement and substantial audit effort necessary to evaluate the appropriateness of the timing of revenue recognition for certain transactions, which was further impacted by the associated material weakness with respect to revenue recognition. Auditing these elements involved especially challenging auditor judgment due to the nature and extent of audit effort required to address these matters.

The primary procedures we performed to address this critical audit matter included:

- Testing the appropriateness of the timing of revenues recognized for a sample of product arrangements by evaluating the terms within the underlying contracts and shipping documentation.
- Examining the Company's assessment of the appropriateness of the timing of revenue recognition for certain transactions.

**Goodwill Impairment**

As described in Note 7 to the consolidated financial statements, during the year ended December 31, 2023, the Company recognized an impairment of goodwill of $12.6 million. The Company conducted its impairment analysis as of December 31, 2023. An impairment exists when the carrying value exceeds the reporting units' fair value. The Company estimates the fair value of its reporting units using a combination of an income and market approach. The determination of the fair value of the reporting units requires management to make estimates of future operating trends and resulting cash flows and judgments on discount rates and other variables.

We identified the evaluation of the Company's goodwill for impairment as a critical audit matter. The principal considerations for our determination is the significant judgements used to evaluate certain assumptions used to determine the fair value of the reporting units, such as the selection of and weighting of the valuation approaches, future cashflows, market multiples, and the discount rate. Auditing these estimates and assumptions required increased auditor judgment and effort including the use of valuation specialists.

The primary procedures we performed to address this critical audit matter included:

- Testing the reasonableness of the future cash flows: (i) comparing to historical operating performance, (ii) comparing to evidence obtained in other areas of the audit, and (iii) evaluating the consistency with external data.
- Utilizing personnel with specialized knowledge and skills in valuation to assist in: (i) evaluating the appropriateness of the valuation approaches used to determine the fair value of the reporting units, including the weighting of the income and market approaches, (ii) evaluating the reasonableness of the discount rate and market multiples used by comparing the inputs to external market data.

**Deferred Tax Assets Valuation Allowance**

As described in Note 11 to the consolidated financial statements, the Company's consolidated gross deferred tax assets balance was $76.4 million before a valuation allowance of $74.3 million as of December 31, 2023. Valuation allowances are established, when necessary, to reduce deferred tax assets to the amount expected to be realized.

We identified the deferred tax assets valuation allowance as a critical audit matter. The principal consideration for our determination is the significant judgement involved in assessing the realizability of the deferred tax assets. Auditing these elements involved especially subjective auditor judgment due to the nature and extent of audit effort required to address these matters.

The primary procedures we performed to address this critical audit matter included:

- Evaluating the company's assessment of the realizability of deferred tax assets, including management's assessment that it is more likely than not that sufficient taxable income will be generated in the future to utilize the net deferred tax assets.
- Evaluating the assessment of the reversals of the existing temporary differences and the proper application of the tax laws.

/s/ BDO USA, P.C.
We have served as the Company's auditor since 2024.

Dallas, Texas
August 13, 2024

**DZS INC. AND SUBSIDIARIES**

**Consolidated Balance Sheets**

**(In thousands, except par value)**

| | As of December 31, | |
|---|---|---|
| | **2023** | **2022** |
| **Assets** | | |
| Current assets: | | |
| Cash and cash equivalents | $ 18,957 | $ 34,347 |
| Restricted cash | 1,804 | 3,969 |
| Accounts receivable – trade, net of allowance for credit losses of $20,449 as of December 31, 2023 and $16,184 as of December 31, 2022 | 70,477 | 134,471 |
| Other receivables | 13,217 | 16,144 |
| Inventories | 82,227 | 94,288 |
| Contract assets | 825 | 576 |
| Prepaid expenses and other current assets | 8,861 | 7,410 |
| Total current assets | 196,368 | 291,205 |
| Property, plant and equipment, net | 5,723 | 9,478 |
| Right-of-use assets from operating leases | 7,135 | 12,606 |
| Goodwill | — | 12,594 |
| Intangible assets, net | 25,484 | 31,742 |
| Other assets | 14,671 | 15,536 |
| Total assets | $ 249,381 | $ 373,161 |
| **Liabilities and Stockholders' Equity** | | |
| Current liabilities: | | |
| Accounts payable – trade | $ 83,914 | $ 118,667 |
| Short-term debt – bank, trade facilities and secured borrowings | 19,633 | 9,706 |
| Current portion of long-term debt | — | 24,073 |
| Contract liabilities | 15,990 | 18,705 |
| Operating lease liabilities | 4,590 | 4,834 |
| Accrued and other liabilities | 41,684 | 25,562 |
| Total current liabilities | 165,811 | 201,547 |
| Long-term debt | 37,908 | — |
| Contract liabilities – non-current | 3,712 | 7,788 |
| Operating lease liabilities – non-current | 5,611 | 11,417 |
| Pension liabilities | 11,802 | 11,021 |
| Other long-term liabilities | 1,978 | 2,806 |
| Total liabilities | 226,822 | 234,579 |
| Commitments and contingencies (Note 14) | | |
| Stockholders' equity: | | |
| Common stock, 72,000 and 36,000 shares authorized, 32,122 and 30,968 shares issued and outstanding as of December 31, 2023 and December 31, 2022, respectively, at $0.001 par value | 31 | 30 |
| Preferred stock, $0.001 par value, 25,000 shares authorized and no shares issued and outstanding as of December 31, 2023 and December 31, 2022, respectively | — | — |
| Additional paid-in capital | 294,863 | 271,884 |
| Accumulated other comprehensive loss | (8,447) | (4,662) |
| Accumulated deficit | (263,888) | (128,670) |
| Total stockholders' equity | 22,559 | 138,582 |
| Total liabilities and stockholders' equity | $ 249,381 | 373,161 |

See accompanying notes to consolidated financial statements.

**DZS INC. AND SUBSIDIARIES**

**Consolidated Statements of Comprehensive Income (Loss)**
**(In thousands, except per share data)**

| | Years ended December 31, 2023 | Years ended December 31, 2022 |
|---|---|---|
| Net revenue | $ 244,541 | $ 357,528 |
| Cost of revenue | 204,102 | 244,046 |
| Gross profit | 40,439 | 113,482 |
| Operating expenses: | | |
| Research and product development | 55,780 | 56,124 |
| Selling, marketing, general and administrative | 88,260 | 85,371 |
| Restructuring and other charges | 4,491 | 4,617 |
| Impairment of long-lived assets | 3,073 | 827 |
| Impairment of goodwill | 12,594 | — |
| Amortization of intangible assets | 5,230 | 3,570 |
| Total operating expenses | 169,428 | 150,509 |
| Operating loss | (128,989) | (37,027) |
| Interest expense, net | (3,992) | (1,442) |
| Loss on extinguishment of debt | (594) | — |
| Other expense, net | (864) | (1,837) |
| Loss before income taxes | (134,439) | (40,306) |
| Income tax provision | 779 | 964 |
| Net loss | (135,218) | (41,270) |
| | | |
| Foreign currency translation adjustments (a) | (2,844) | (4,483) |
| Actuarial gain (loss) | (941) | 4,278 |
| Comprehensive loss | $ (139,003) | $ (41,475) |
| Net loss per share | | |
| Basic | $ (4.29) | $ (1.47) |
| Diluted | $ (4.29) | $ (1.47) |
| Weighted average shares outstanding | | |
| Basic | 31,546 | 28,085 |
| Diluted | 31,546 | 28,085 |

(a) Includes net gain of $0.4 million and net loss of loss of $0.8 million, on intra-entity foreign currency transactions that are of a long-term investment nature for the years ended December 31, 2023 and 2022 respectively. Also includes $0.1 million reclassification of foreign currency gain related to subsidiary dissolution to Other expense, net for the year ended December 31, 2022

See accompanying notes to consolidated financial statements.

## DZS INC. AND SUBSIDIARIES

## Consolidated Statements of Stockholders' Equity
## (In thousands)

| | Common stock | | Additional paid-in capital | Accumulated other comprehensive loss | Accumulated deficit | Total stockholders' equity |
|---|---|---|---|---|---|---|
| | Shares | Amount | | | | |
| Balance as of December 31, 2021 | 27,505 | $ 27 | $ 223,336 | $ (4,457) | $ (86,999) | $ 131,907 |
| Cumulative effect of ASC 326 adoption | — | — | — | — | (401) | (401) |
| Issuance of common stock in public offering, net of issuance costs | 2,884 | 3 | 30,771 | — | — | 30,774 |
| Issuance of common stock upon vesting of restricted stock units, exercise of stock options and employee stock plan purchases, net of shares withheld for taxes | 579 | — | 1,975 | — | — | 1,975 |
| Stock-based compensation | — | — | 15,802 | — | — | 15,802 |
| Net loss | — | — | — | — | (41,270) | (41,270) |
| Subsidiary dissolution | — | — | — | (68) | — | (68) |
| Other comprehensive loss | — | — | — | (137) | — | (137) |
| Balance as of December 31, 2022 | 30,968 | $ 30 | $ 271,884 | $ (4,662) | $ (128,670) | $ 138,582 |
| Issuance of common stock upon vesting of restricted stock units, exercise of stock options and employee stock plan purchases, net of shares withheld for taxes | 1,154 | 1 | (102) | — | — | (101) |
| Issuance of warrants | — | — | 7,238 | — | — | 7,238 |
| Stock-based compensation | — | — | 15,843 | — | — | 15,843 |
| Net loss | — | — | — | — | (135,218) | (135,218) |
| Other comprehensive loss | — | — | — | (3,785) | — | (3,785) |
| Balance as of December 31, 2023 | 32,122 | $ 31 | $ 294,863 | $ (8,447) | $ (263,888) | $ 22,559 |

See accompanying notes to consolidated financial statements.

## DZS INC. AND SUBSIDIARIES

## Consolidated Statements of Cash Flows
## (In thousands)

| | Years ended December 31, | |
|---|---|---|
| | 2023 | 2022 |
| Cash flows from operating activities: | | |
| Net loss | $ (135,218) | $ (41,270) |
| Adjustments to reconcile net loss to net cash provided by (used in) operating activities: | | |
| Depreciation and amortization | 8,570 | 8,429 |
| Impairment of long-lived assets | 3,073 | 827 |
| Impairment of goodwill | 12,594 | |
| Loss on extinguishment of debt | 594 | — |
| Amortization of deferred financing costs | 272 | 173 |
| Stock-based compensation | 15,843 | 15,802 |
| Provision for inventory write-down | 24,752 | 4,946 |
| Provision for credit losses, net of recoveries | 4,443 | (229) |
| Provision for sales returns | 8,184 | 2,556 |
| Provision for warranty expense | 56 | 656 |
| Unrealized loss on foreign currency transactions | 3,765 | 448 |
| Subsidiary dissolution | — | (68) |
| Loss (gain) of disposal of property, plant and equipment | 54 | (135) |
| Deferred taxes | — | — |
| Changes in operating assets and liabilities excluding effects of acquisition: | | |
| Accounts receivable | 53,297 | (49,266) |
| Other receivable | (314) | (9,520) |
| Inventories | (18,065) | (43,994) |
| Contract assets | (249) | 1,488 |
| Prepaid expenses and other assets | 3,473 | (5,402) |
| Accounts payable | (24,645) | 59,139 |
| Contract liabilities | (7,578) | 5,241 |
| Accrued and other liabilities | 1,224 | (408) |
| Net cash used in operating activities | (45,875) | (50,587) |
| Cash flows from investing activities: | | |
| Proceeds from disposal of property, plant and equipment and other assets | 1,829 | 165 |
| Purchases of property, plant and equipment | (1,574) | (4,532) |
| Acquisition of business, net of cash acquired | — | (23,647) |
| Net cash used provided by (used in) investing activities | 255 | (28,014) |
| Cash flows from financing activities: | | |
| Proceeds from issuance of common stock in public offerings, net of issuance costs | — | 30,774 |
| Proceeds from long-term borrowings | 15,000 | 25,000 |
| Repayments of long-term borrowings | (24,073) | (625) |
| Proceeds from short-term borrowings and line of credit, net | 19,636 | 4,000 |
| Repayments of short-term borrowings and line of credit, net | (4,393) | — |
| Proceeds from related party term loan | 36,930 | 5,041 |
| Repayments of related party term loan | (12,693) | — |
| Payments for debt financing costs | (664) | (839) |
| Payments of contingent consideration | (347) | (558) |
| Proceeds from exercise of stock awards and employee stock plan purchases | (102) | 1,975 |
| Net cash provided by financing activities | 29,294 | 64,768 |
| Effect of exchange rate changes on cash, cash equivalents and restricted cash | (1,230) | (1,342) |
| Net change in cash, cash equivalents and restricted cash | (17,556) | (15,175) |
| Cash, cash equivalents and restricted cash at beginning of period | 38,464 | 53,639 |
| Cash, cash equivalents and restricted cash at end of period | $ 20,908 | $ 38,464 |
| | | |
| Reconciliation of cash, cash equivalents and restricted cash to consolidated balance sheets | | |
| Cash and cash equivalents | $ 18,957 | $ 34,347 |
| Restricted cash | 1,804 | 3,969 |
| Long-term restricted cash | 147 | 148 |
| | $ 20,908 | $ 38,464 |
| | | |
| Supplemental disclosure of cash flow information: | | |
| Cash paid during the period for: | | |
| Interest – bank and trade facilities | $ 2,640 | $ 1,177 |
| Interest – related party | $ 232 | $ 65 |
| Income taxes | $ 853 | $ 1,017 |

See accompanying notes to consolidated financial statements.

## (1) Organization and Summary of Significant Accounting Policies

### *(a) Description of Business*

DZS Inc. (referred to, collectively with its subsidiaries, as “DZS” or the “Company”) is a global provider of access and optical networking infrastructure and artificial intelligence ("AI") driven cloud software solutions that enable the emerging hyper-connected, hyper-broadband world and broadband experiences. The Company provides a wide array of reliable, cost-effective networking technologies and cloud software to a diverse customer base.

DZS was incorporated under the laws of the state of Delaware in June 1999. The Company is headquartered in Plano, Texas with contract manufacturers located in the U.S., China, India, and Korea. The Company maintains offices to provide sales and customer support at global locations. Through 2022, we have also used our manufacturing facility in Seminole, Florida. In October 2022, we announced an agreement with Fabrinet, a third-party provider of electro-mechanical and electronic manufacturing and distribution services, to transition the sourcing, procurement, order-fulfillment, and manufacturing activities in the Company's Seminole facility to Fabrinet. The transition began in October 2022 and substantially completed in the beginning of 2023, whereupon the Company no longer manufactures its products.

On April 5, 2024, the Company completed a divestiture of its certain subsidiaries in Asia. The divestiture allows DZS to focus on the Americas, EMEA and ANZ regions that are strategically aligned with the technology and acquisition investments made over the past several years.

### *(b) Basis of Presentation*

The consolidated financial statements are prepared in accordance with accounting principles generally accepted in the United States of America (“U.S. GAAP”) and include the accounts of the Company and its wholly owned subsidiaries. All inter-company transactions and balances have been eliminated in consolidation.

### *(c) Related Party Transactions*

The financial statements include disclosures of material related party transactions. However, disclosure of transactions that are eliminated in the preparation of consolidated financial statements are not required to be disclosed. As of December 31, 2023 and 2022, DASAN Networks, Inc. (“DNI”) owned approximately 28.3% and 29.4% of the outstanding shares of the Company's common stock, respectively. See Note 12 Related Party Transactions for additional information about related party transactions.

### *(d) Risks and Uncertainties*

The accompanying consolidated financial statements have been prepared in conformity with U.S. GAAP, assuming the Company will continue as a going concern.

The Company had a net loss of $135.2 million and $41.3 million for the years ended December 31, 2023 and 2022, respectively. As of December 31, 2023, the Company had an accumulated deficit of $263.9 million and working capital of $30.6 million. As of December 31, 2023, the Company had $19.0 million in unrestricted cash and cash equivalents.

As of December 31, 2023, the Company had a total of $37.9 million of long-term debt obligation, net of $7.7 million of unamortized debt discount and issuance costs and $19.6 million of short-term debt obligation.

The Company’s ability to meet its debt and other obligations as they become due in the ordinary course of business depends on its ability (i) to achieve forecasted results of operations, (ii) obtain additional financing, and (iii) effectively manage working capital requirements. If the Company is unable to secure additional funding when necessary or desired, its operations and future prospects may be adversely impacted.

Based on the Company's current plans and current business conditions, the Company believes that its existing cash and cash equivalents will be sufficient to satisfy its anticipated cash requirements for at least the next 12 months from the date of this Annual Report on Form 10-K.

***Concentration of Risk***

Financial instruments, which potentially subject the class Company to concentrations of credit risk, consist primarily of cash and cash equivalents, accounts receivable and contract assets. Cash and cash equivalents consist principally of financial deposits and money market accounts that are principally held with various domestic and international financial institutions with high credit standing. As of December 31, 2023, the Company had cash accounts in excess of Federal Deposit Insurance Corporation ("FDIC") insured limits.

The Company’s customers include competitive and incumbent local exchange carriers, competitive access providers, internet service providers, wireless carriers and resellers serving these markets. The Company performs ongoing credit evaluations of its customers and generally does not require collateral. Allowances are maintained for potential doubtful accounts based upon the expected collectability of accounts receivable.

For the year ended December 31, 2023, one customer represented 12% of net revenue. For the year ended December 31, 2022, no customers represented more than 10% of net revenue.

As of December 31, 2023, one customer represented 11% of net accounts receivable. As of December 31, 2022, no customers represented more than 10% of net accounts receivable.

As of December 31, 2023, and December 31, 2022, net accounts receivable from customers in countries other than the United States represented 88% and 85%, respectively.

In 2017, the Company entered into an agreement with a customer in India to supply product for a state sponsored broadband project. The Company substantially completed its obligations under the agreement in 2018. The Company billed the customer, which is a state government sponsored entity, approximately $59.0 million and collected payments of approximately $41.7 million by December 31, 2020. In late March 2021, the customer’s state government parent experienced difficulty passing a budget impacting the ability of the customer to make remaining agreed-upon payments to us. In light of this development, the Company recorded an allowance that covered the entire balance unpaid by the customer. Subsequent to March 2021, the Company recovered approximately $3.1 million of accounts receivable related to the customer. As of December 31, 2023 the Company has a recorded allowance for credit losses of $12.3 million related to this receivable. The Company will continue to pursue collection of the entire outstanding balance and any amounts collected will be recognized in the period which they are received. In the event the Company’s efforts to collect from this customer prove unsuccessful, DZS may seek payment through other means, including through legal action.

***(e) Use of Estimates***

The preparation of the consolidated financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenue and expenses during the reporting period. Actual results could differ materially from those estimates.

***(f) Revenue Recognition***

Revenue from contracts with customers is recognized when control of the promised goods or services is transferred to the customers, in an amount that reflects the consideration the Company expects to be entitled to in exchange for those goods or services.

The Company generates revenue primarily from sales of products and services, including, extended warranty service, software and customer support. Revenue from product sales is recognized at a point in time when control of the goods is transferred to the customer, generally occurring upon shipment or delivery, dependent upon the terms of the underlying contract. Many of the Company’s arrangements include customer acceptance provisions which the Company typically considers a formality. In situations when the customer acceptance terms are more than a formality, transfer of control usually occurs upon obtaining the signed acceptance certificate from the customer. In those instances where transfer of control occurs prior to obtaining the signed acceptance certificate, the Company considers a number of factors, including successful completion of customer testing to demonstrate that the delivered products meet all the acceptance criteria specified in the arrangement, its experience with the customer and its experience with other contracts for similar products.

Revenue from services is generally recognized over time on a ratable basis over the contract term, using an output measure of progress, as the contracts usually provide the customer equal benefit throughout the contract period. The Company typically invoices customers for support contracts in advance, for periods ranging from one to five years.

Transaction price is calculated as selling price net of variable consideration. Sales to certain distributors are made under arrangements which provide the distributors with volume discounts, price adjustments, and other allowances under certain circumstances. These adjustments and allowances are accounted for as variable consideration. To estimate variable consideration, the Company analyzes historical data and current economic trends, and changes in customer demand for the Company's products, among other factors. Historically, variable consideration has not been a significant component of the Company's contracts with customers.

For contracts with customers that contain multiple performance obligations, the Company accounts for the promised performance obligations separately as individual performance obligations if they are distinct. In determining whether performance obligations meet the criteria for being distinct, the Company considers a number of factors, including the degree of interrelation and interdependence between obligations and whether or not the good or service significantly modifies or transforms another good or service in the contract. After identifying the separate performance obligations, the transaction price is allocated to the separate performance obligations on a relative standalone selling price basis. Standalone selling prices for products are determined using either an adjusted market assessment or expected cost-plus margin. For customer support and extended warranty services, standalone selling price is primarily based on the prices charged to customers, when sold separately. Unsatisfied and partially unsatisfied performance obligations as of the end of the reporting period primarily consist of products and services for which customer purchase orders have been accepted and that are in the process of being delivered.

The Company records contract assets when it satisfies a performance obligation but does not have an unconditional right to consideration and records accounts receivable when it satisfies a performance obligation and has an unconditional right to consideration. The Company records contract liabilities when cash payments (or unconditional rights to receive cash) are received in advance of fulfilling its performance obligations. The Company records deferred cost of revenue when the costs incurred are directly attributable to the production of goods shipped but not yet recognized as revenue due to performance obligations not being fulfilled, ensuring these costs are matched with future revenue when recognized.

The Company's payment terms vary by the type and location of its customer and the products or services offered. For certain products or services and customer types, the Company requires payment before the products or services are delivered to the customer.

***Other related policies and revenue information***

*Warranties*

Products sold to customers include standard warranties, typically for one year, covering physical operation and software bug fixes and minor updates such that the product continues to function according to published technical specifications. These standard warranties are assurance type warranties and do not offer any services in addition to the assurance that the product will continue working as specified. Therefore, standard warranties are not considered separate performance obligations. Instead, the expected cost of warranty is accrued as expense as discussed below. Optional extended warranties, typically between one and three years, and for up to five years, are sold with certain products and include additional support services. The transaction price for extended warranties is accounted for as service revenue and recognized ratably over the life of the contract.

The Company records estimated costs related to standard warranties upon product shipment or upon identification of a specific product failure. The Company recognizes estimated warranty costs when it is probable that a liability has been incurred and the amount of loss is reasonably estimable. The estimates are based upon historical and projected product failure and claim rates, historical costs incurred in correcting product failures and information available related to any specifically identified product failures. Significant judgment is required in estimating costs associated with warranty activities and the Company's estimates are limited to information available to the Company at the time of such estimates. In some cases, such as when a specific product failure is first identified or a new product is introduced, the Company may initially have limited information and limited historical failure and claim rates upon which to base its estimates, and such estimates may require revision in future periods. The recorded amount is adjusted from time to time for specifically identified warranty exposure.

*Contract Costs*

The Company recognizes an asset for certain costs to fulfill a contract if it is determined that such costs relate directly to a contract or anticipated contracts, can be determined to generate or enhance resources that will be used in satisfying related performance obligations in the future, and are expected to be recovered. Such costs are amortized on a systematic basis that is consistent with the transfer to the customer of the goods to which the asset relates. Contract costs primarily consist of sales commissions that are amortized as sales and marketing expense.

*Financing*

The Company applies the practical expedient not to adjust the promised amount of consideration for the effects of a financing component if the Company expects, at contract inception, that the period between when the Company transfers a good or service to the customer and when the customer pays for the good or service will be one year or less. During the years ended December 31, 2023 and 2022 such financing components were not significant.

*Shipping and Handling*

The Company has elected to account for shipping and handling activities that occur after the customer has obtained control of a good as a fulfillment cost rather than as an additional promised service. As a result, the Company accrues the costs of shipping and handling when the related revenue is recognized.

*Unsatisfied Performance Obligations*

The majority of the Company's performance obligations in its contracts with customers relate to contracts with duration of less than one year. The Company does not disclose the value of unsatisfied performance obligations for contracts with an original expected length of one year or less, based on the elected practical expedients. The transaction price allocated to noncancellable unsatisfied performance obligations included in contracts with duration of more than 12 months is reflected in contract liabilities – non-current on the consolidated balance sheets.

*Disaggregation of Revenue*

The following table presents the revenues by source (in thousands):

| | Years ended December 31, | |
|---|---|---|
| | 2023 | 2022 |
| Access Networking Infrastructure | $ 199,706 | $ 318,218 |
| Cloud Software & Services | 44,835 | 39,310 |
| Total | $ 244,541 | $ 357,528 |

The following table present revenues by geographical region (in thousands):

| | Years ended December 31, | |
|---|---|---|
| | 2023 | 2022 |
| Americas | $ 60,544 | $ 107,392 |
| Europe, Middle East, Africa | 60,504 | 76,404 |
| Asia | 123,493 | 173,732 |
| Total | $ 244,541 | $ 357,528 |

*Sales Tax and Indirect Taxes*

The Company is subject to certain indirect taxes in certain jurisdictions including but not limited to sales tax, value added tax, excise tax and other taxes we collect concurrent with revenue-producing activities that are excluded from the transaction price, and therefore, excluded from revenue.

***(g) Allowances for Credit Losses and Sales Returns***

The Company records an allowance for credit losses for estimated losses resulting from the inability of customers to make payments for amounts owed to the Company. The allowance for credit losses is recorded as an expense under selling, marketing, general and administrative expenses. The Company performs ongoing credit evaluations of its customers and generally does not require collateral. Allowance for credit losses is based upon the expected collectability of accounts receivable using historical loss rates adjusted for customer-specific factors and current economic conditions. The Company determines historical loss rates on a rational and systematic basis. The Company performs periodic assessments of its customers' liquidity and financial condition through analysis of information obtained from credit rating agencies, financial statement review and historical and current collection trends. Though the allowance for doubtful accounts at each balance sheet date represents the Company's best estimate at that point in time, an increase or decrease to the allowance for credit losses may be required in the future based on updated historical loss rates, customer-specific factors and economic conditions or if previously reserved balances have been collected.

Activity under the Company's allowance for credit losses is comprised as follows (in thousands):

| | Years ended December 31, | |
|---|---|---|
| | 2023 | 2022 |
| Balance at beginning of year | $ 16,184 | $ 17,735 |
| Charged to expense, net of recoveries | 4,443 | (229) |
| Utilization and write off | — | (117) |
| Cumulative effect of ASC 326 adoption | — | 401 |
| Foreign currency exchange impact | (178) | (1,606) |
| Balance at end of year | $ 20,449 | $ 16,184 |

The Company records an allowance for sales returns for estimated future product returns related to current period product revenue. The allowance for sales returns is recorded as a reduction of revenue and an increase to accrued and other liabilities. The Company bases its allowance for sales returns on periodic assessments of historical trends in product return rates and current approved returned products. If the actual future returns were to deviate from the historical data on which the reserve had been established, the Company's future revenue could be adversely affected.

Activity under the Company's allowance for sales returns is comprised as follows (in thousands):

| | Years ended December 31, | |
|---|---|---|
| | 2023 | 2022 |
| Balance at beginning of year | $ 1,150 | $ 873 |
| Charged to revenue | 8,184 | 2,556 |
| Utilization and write off | (5,053) | (2,279) |
| Balance at end of year | $ 4,281 | $ 1,150 |

***(h) Inventories***

Inventories are stated at the lower of cost or net realizable value, with cost being computed based on an adjusted standard basis, which approximates actual cost on an average or first-in, first-out basis. In assessing the net realizable value of inventories, the Company is required to make judgments as to future demand requirements and compare these with the current or committed inventory levels. Once inventory has been written down to its estimated net realizable value, its carrying value cannot be increased due to subsequent changes in demand. To the extent that a severe decline in forecasted demand occurs, or the Company experiences a higher incidence of inventory obsolescence due to rapidly changing technology and customer requirements, the Company may incur significant expenses for excess and obsolete inventory. The Company also evaluates the terms of its agreements with its suppliers and establishes accruals for estimated losses on adverse purchase commitments as necessary, applying the same lower of cost or net realizable value approach that is used to value inventory.

***(i) Foreign Currency Translation***

For operations outside the United States, the Company translates assets and liabilities of foreign subsidiaries, whose functional currency is the applicable local currency, at end of period exchange rates. Revenues and expenses are translated at periodic average rates. The adjustment resulting from translating the financial statements of such foreign subsidiaries is included in accumulated other comprehensive income (loss), which is reflected as a separate component of stockholders' equity. Realized and unrealized gains and losses on foreign currency transactions are included in other income (expense), net in the accompanying consolidated statements of comprehensive income (loss). Our primary exposure to foreign currency exchange rate movements is with our Korea subsidiary, that has a Korean Won functional currency, our Japan subsidiary, that has a Japanese Yen functional currency, and our Germany subsidiary, that has a Euro functional currency.

***(j) Comprehensive Income (Loss)***

There have been no material items reclassified out of accumulated other comprehensive income (loss) and into net income (loss). The Company's other comprehensive income (loss) for the years ended December 31, 2023 and 2022 is primarily comprised of foreign currency translation gains and losses and actuarial gains and losses from the Company's pension liabilities.

***(k) Property, Plant and Equipment***

Property, plant, and equipment are stated at cost, less accumulated depreciation, and are depreciated using the straight-line method over the estimated useful life of each asset. The useful life of each asset category is as follows:

| Asset Category | Useful Life |
|---|---|
| Furniture and fixtures | 3 to 4 years |
| Machinery and equipment | 2 to 10 years |
| Computers and software | 3 to 5 years |
| Leasehold improvements | Shorter of remaining lease term or estimated useful lives |

Upon retirement or sale, the cost and related accumulated depreciation of the asset are removed from the balance sheet and the resulting gain or loss is reflected in operating expenses.

***(l) Long-Lived Assets***

The Company reviews long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying value of an asset or asset group may not be recoverable. Factors the Company considers important which could trigger an impairment review, include, but are not limited to, significant changes in the manner of use the assets, significant changes in the strategy for the Company's overall business or significant negative economic trends. If this evaluation indicates that the value of an intangible asset may be impaired an assessment of the recoverability of the net carrying value of the asset over its remaining useful life is made. Recoverability of assets to be held and used is measured by comparing the carrying amount of an asset to the future net undiscounted cash flows expected to be generated by the asset. If the carrying amount of an asset exceeds its estimated future net undiscounted cash flows, an impairment expense is recognized in the amount by which the carrying amount of the asset exceeds the fair value of the asset. If this assessment indicates that the cost of an intangible asset is not recoverable, based on the estimated undiscounted future cash flows or other comparable market valuations of the entity or technology acquired over the remaining amortization period, the net carrying value of the related intangible asset will be reduced to fair value and the remaining amortization period may be adjusted. An impairment loss is recognized to the extent that the carrying amount exceeds the asset's fair value.

In the application of impairment testing, the Company is required to make estimates of future operating trends and resulting cash flows and judgments on discount rate, market multiples, and other variables. Actual future results and other assumed variables could differ from these estimates.

Any assets to be disposed of would be separately presented in the balance sheet and reported at the lower of the carrying amount or fair value less costs to sell, and would no longer be depreciated. The assets and liabilities of a disposed group classified as held for sale would be presented separately in the appropriate asset and liability sections of the balance sheet.

***(m) Goodwill and Other Intangible Assets***

Goodwill and other acquisition-related intangible assets not subject to amortization are tested annually for impairment and are tested for impairment more frequently if events and circumstances indicate that the asset might be impaired. The quantitative goodwill impairment test is a two-step process with step one requiring the comparison of the reporting unit's estimated fair value with the carrying amount of its net assets. If necessary, step two of the impairment test determines the amount of goodwill impairment to be recorded when the reporting unit's recorded net assets exceed its fair value. In 2023, the Company changed its annual impairment testing date from October 31 to December 31. The Company believes this new date is preferable as it better aligns with the approval timeline for the Company’s annual operating plan, which includes key inputs and assumptions used to assess the fair value of the Company’s reporting units.

In the application of impairment testing, the Company is required to make estimates of future operating trends and resulting cash flows and judgments on discount rates, market multiples, and other variables. Actual future results and other assumed variables could differ from these estimates.

***(n) Business Combinations***

The Company accounts for business combinations using the acquisition method, which requires the identification of the acquirer, the determination of the acquisition date and the allocation of the purchase price paid by the acquirer to the identifiable tangible and intangible assets acquired, the liabilities assumed, including any contingent consideration and any noncontrolling interest in the acquiree at their acquisition date fair values. Goodwill represents the excess of the purchase price over the fair value of net assets acquired, including the amount assigned to identifiable intangible assets. Identifiable intangible assets with finite lives are amortized over their expected useful lives. Acquisition-related costs are expensed in the periods in which the costs are incurred. The results of operations of acquired businesses are included in our consolidated financial statements from the acquisition date.

***(o) Stock-Based Compensation***

Stock-based compensation cost is measured at the grant date of the awards based on the estimated fair value of the awards. The Company determines the fair value of restricted stock units based on the Company’s stock price on the date of grant. The Company uses the Black Scholes model to estimate the fair value of options, which is affected by the Company's stock price as well as assumptions regarding a number of variables. These variables include the Company's expected stock price volatility over the expected term of the awards, risk-free interest rates and expected dividends. The expected stock price volatility is based on the weighted average of the historical volatility of the Company's common stock over the most recent period commensurate with the estimated expected life of the Company's stock options. The expected term of options granted is determined based on SAB 107 simplified method. Risk-free interest rates reflect the yield on zero-coupon United States Treasury securities.

The Company amortizes the value of the stock-based compensation to expense using the straight-line method. The value of the award is recognized as expense over the requisite service periods in the Company’s consolidated statements of comprehensive income (loss). The Company accounts for forfeitures as they occur.

***(p) Income Taxes***

The Company uses the asset and liability method to account for income taxes. Under this method, deferred tax assets and liabilities are determined based on differences between the financial reporting and the income tax bases of assets and liabilities. Deferred tax assets and liabilities are measured using enacted tax rates and laws that will be in effect when the differences are expected to reverse. Valuation allowances are established, when necessary, to reduce deferred tax assets to the amount expected to be realized.

The Company does not recognize a tax benefit unless it concludes that it is more likely than not that the benefit will be sustained on audit by the taxing authority based solely on the technical merits of the associated tax position. If the recognition threshold is met, the Company recognizes a tax benefit measured at the largest amount of the tax benefit that, in the Company’s judgment, is greater than 50 percent likely to be realized. The Company records interest and penalties related to uncertain tax positions in interest expense and in general and administrative expense, respectively.

***(q) Net Loss per Share***

Basic net loss per share is computed by dividing the net income (loss) for the period by the weighted average number of shares of common stock outstanding during the period. The calculation of diluted net income (loss) gives effect to common stock equivalents; however, potential common equivalent shares are excluded if their effect is antidilutive. Potential common stock equivalent shares are composed of restricted stock units, unvested restricted shares and incremental shares of common stock issuable upon the exercise of stock options.

***(r) Research and Development Costs***

ASC 985-20 requires the capitalization of certain software development costs that are incurred subsequent to the date technological feasibility is established and prior to the date the product is generally available for sale. DZS defines technological feasibility as being attained at the time a working model is completed. There is generally no significant passage of time between achievement of technological feasibility and the availability of our software for general release, and software development costs qualifying for capitalization have been insignificant. Accordingly, DZS has not capitalized any software development costs. The Company expenses all software development costs as incurred and includes such amounts within research and development expense on the consolidated statements of comprehensive income (loss).

***(s) Cloud Computing Costs***

The Company capitalizes certain implementation costs related to the development stage of cloud computing arrangements. Costs related to the preliminary project stage and post-implementation phase are expensed as incurred. Cloud computing costs capitalized are included into other assets on the consolidated balance sheets. Capitalized cloud computing costs are amortized using the straight-line amortization method over the estimated term of hosting arrangements.

***(t) Cash and Cash Equivalents and Restricted Cash***

Cash and cash equivalents consist of cash and short-term investments (if any) with original maturities of less than three months. The Company also maintains restricted cash accounts, which are reserved for specific purposes and cannot be accessed for general business operations.

***(u) Leases***

The Company determines if an arrangement is a lease at inception. Payments under the Company's lease arrangements are primarily fixed. The Company accounts for lease components and non-lease components as a single lease component. Variable lease payment amounts that cannot be determined at the commencement of the lease such as increases in lease payments based on changes in index rates or usage, are not included in the right-of-use assets or lease liabilities. The Company has real estate leases which require payments for common area maintenance, which are expensed as incurred as variable lease costs and hence are not included in the lease payments used to calculate lease liability. Other real estate leases contain fixed payments for common area maintenance, which are considered part of the lease payment and included in the right-of-use assets and lease liabilities. Lease assets and liabilities are recognized at the present value of the future lease payments at the lease commencement date. The interest rate used to determine the present value of the future lease payments is our incremental borrowing rate, because the interest rate implicit in our leases is not readily determinable. The Company's incremental borrowing rate is estimated to approximate the interest rate on a collateralized basis with similar terms and payments. The Company's lease terms include periods under options to extend the lease when it is reasonably certain that we will exercise that option.

***(v) Warrants***

The Company accounts for warrant instruments as either equity-classified or liability-classified instruments based on an assessment of the specific terms of the warrants and applicable authoritative guidance in ASC 480 and ASC 815. The assessment considers whether the warrants are freestanding financial instruments pursuant to ASC 480, meet the definition of a liability pursuant to ASC 480, and meet all of the requirements for equity classification under ASC 815, including whether the warrants are indexed to the Company's own stock and whether the holders of the warrants could potentially require "net cash settlement" in a circumstance outside of the Company's control, among other conditions for equity classification. Upon issuance, warrants are initially measured at fair value.

***(v) Recent Accounting Pronouncements***

In June 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") 2016-13, Financial Instruments – Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments, which requires the Company to measure and recognize expected credit losses for financial assets held and not accounted for at fair value through net income. In November 2018, April 2019 and May 2019, the FASB issued ASU No. 2018-19, Codification Improvements to Topic 326, Financial Instruments - Credit Losses, ASU No. 2019-04, Codification Improvements to Topic 326, Financial Instruments - Credit Losses, and ASU No. 2019-05, Financial Instruments - Credit Losses (Topic 326): Targeted Transition Relief, which provided additional implementation guidance on the previously issued ASU. The Company adopted the updated guidance on January 1, 2022, utilizing the modified retrospective transition method and recorded a cumulative-effect adjustment of $0.4 million to accumulated deficit.

In October 2021, the FASB issued ASU 2021-08, Business Combinations (Topic 805): Accounting for Contract Assets and Contract Liabilities from Contracts with Customers, which requires the Company to apply ASC 606, Revenue from Contracts with Customers, to recognize and measure contract assets and contract liabilities from contracts with customers acquired in a business combination. Before the update such balances were measured and recognized at fair value on the acquisition date. The ASU is effective for fiscal years beginning after December 15, 2022, including interim periods within those fiscal years. Early adoption is permitted, including in interim periods. The Company adopted these requirements prospectively, effective on the first day of the second quarter of year 2022. There was no material impact on our consolidated financial statements on the adoption date.

In December 2023, the FASB issued ASU 2023-09 Income Taxes (Topic 740): Improvements to Income Tax Disclosures, which aims to address requests for improved income tax disclosures from investors that use the financial statements to make capital allocation decisions. The amendments in this ASU address the investor requests for more transparency of income tax information and apply to all entities that are subject to income taxes. The ASU is effective for years beginning after December 15, 2024, but early adoption is permitted. This ASU should be applied on a prospective basis, although retrospective application is permitted. Management is currently evaluating the impact of the changes required by the new standard on the Company's financial statements and related disclosures.

In March 2024, the SEC issued Release Nos. 33-11275; 34-99678 "The Enhancement and Standardization of Climate-Related Disclosures for Investors", which require registrants to provide certain climate-related information in their registration statements and annual reports. The rules require information about a registrant's climate-related risks that are reasonably likely to have a material impact on its business, results of operations, or financial condition. The compliance date for this release was scheduled to be fiscal year 2027 for smaller reporting companies. On April 4, 2024, the SEC voluntarily stayed implementation of this new rule pending judicial review. The Company is currently analyzing the impact that the new climate-related rules will have on its consolidated financial statements and related disclosures.

**(2) Business Combinations**

***ASSIA Acquisition***

On May 27, 2022, the Company acquired certain assets and liabilities of Adaptive Spectrum and Signal Alignment, Incorporated (“ASSIA”), an industry pioneer of broadband access quality-of-experience and service assurance software solutions (the “ASSIA Acquisition”). The core assets acquired include the CloudCheck® WiFi experience management and Expresse® access network optimization software solutions.

The initial purchase consideration was $25.0 million, including a $2.5 million holdback that was released during the third quarter of 2023. In October 2022, the Company agreed to pay an additional $1.35 million of purchase consideration to settle certain unresolved matters related to the ASSIA Acquisition.

The acquisition was recorded as a business combination with valuation of the assets acquired and liabilities assumed recorded at their acquisition date fair value determined using primarily level three inputs, defined as unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities. The Company used a combination of income approach and market approach to determine the fair value of intangible assets acquired. Significant unobservable inputs included estimated future cash flows and a discount rate. Cash flow projections were based on management’s estimates of revenue growth rates and operating margins, EBITDA margins, consideration of industry and market conditions, terminal growth rates and management’s estimates of working capital requirements. The discount rate of 23% was based on a weighted average cost of capital adjusted for the relevant risk associated with the characteristics of intangible assets acquired. Under the market approach, the Company utilized an analysis of royalty rate licensing data. We completed the purchase price allocation for ASSIA Acquisition in the first quarter of 2023.

The following summarizes the final fair values of the assets acquired and liabilities assumed at the date of the ASSIA Acquisition (in thousands):

| **Provisional allocation of purchase consideration** | | |
|---|---|---|
| Cash and cash equivalents | $ | 203 |
| Accounts receivable | | 2,322 |
| Other assets | | 407 |
| Right-of-use assets | | 2,172 |
| Property, plant and equipment | | 232 |
| Intangible assets | | 30,200 |
| Accounts payable | | (75 ) |
| Contract liabilities | | (12,192 ) |
| Operating lease liabilities | | (2,612 ) |
| Accrued and other liabilities | | (756 ) |
| Goodwill | | 6,449 |
| Total purchase consideration | $ | 26,350 |

The purchase price allocation resulted in the recognition of goodwill of approximately $6.4 million, which included the experienced workforce and the expected synergies from combining operations. The Company expects no goodwill to be deductible for tax purposes.

The following table represents the preliminary estimated fair value and useful lives of identifiable intangible assets acquired (estimated fair value in thousands):

| | | Estimated fair value | Estimated useful life |
|---|---|---|---|
| Intangible assets acquired | | | |
| Customer relationships | $ | 18,600 | 15 years |
| Customer backlog | | 5,100 | 10 years |
| Developed technology | | 6,200 | 5 - 7 years |
| Tradenames | | 300 | 10 years |
| Total intangible assets | $ | 30,200 | |

We included $16.9 million of net revenue generated by ASSIA since the acquisition date in the Company’s consolidated statements of comprehensive income (loss) for the reporting period. We did not present the supplemental pro forma information for ASSIA Acquisition since it is impracticable to prepare such financial statements considering the timing and materiality of the transaction.

**(3) Fair Value Measurement**

The Company utilizes a fair value hierarchy that is intended to increase consistency and comparability in fair value measurements and related disclosures. The fair value hierarchy is based on inputs to valuation techniques that are used to measure fair value that are either observable or unobservable. Observable inputs reflect assumptions market participants would use in pricing an asset or liability based on market data obtained from independent sources while unobservable inputs reflect a reporting entity’s pricing based upon their own market assumptions. The fair value hierarchy consists of the following three levels:

Level 1 – Inputs are quoted prices in active markets for identical assets or liabilities.

Level 2 – Inputs are quoted prices for similar assets or liabilities in an active market, quoted prices for identical or similar assets or liabilities in markets that are not active, inputs other than quoted prices that are observable and market-corroborated inputs which are derived principally from or corroborated by observable market data.

Level 3 – Inputs are derived from valuation techniques in which one or more significant inputs or value drivers are unobservable.

***Assets and Liabilities Measured at Fair Value on a Recurring Basis***

The carrying values of financial instruments such as cash and cash equivalents, restricted cash, accounts and other receivables, accounts payable and accrued liabilities approximate their fair values based on their short-term nature. The Company classifies its cash and cash equivalents and restricted cash within Level 1 and other short-term assets and liabilities within Level 2. The carrying value of the Company's debt approximates its fair values based on the current rates available to the Company for debt of similar terms and maturities. The Company classifies its debt within Level 2.

The Company classifies its contingent liability from Optelian acquisition within Level 3 as it includes inputs not observable in the market. The Company estimates the fair value of contingent consideration as the present value of the expected contingent payments, determined using the revenue forecast for certain Optelian products through the end of 2023. The fair value of contingent liability is generally sensitive to changes in the revenue forecast during the payout period. The change in the respective fair value is included in selling, marketing, general and administrative expenses on the consolidated statement of comprehensive income (loss).

The following table reconciles the beginning and ending balances of the Company’s Level 3 contingent liability (in thousands):

| | Year ended December 31, | |
|---|---|---|
| | 2023 | 2022 |
| Balance at the beginning of the period | $ 1,156 | $ 2,121 |
| Cash payments | (347) | (558) |
| Net change in fair value | (503) | (407) |
| Balance at the end of the period | $ 306 | $ 1,156 |

***Assets and Liabilities Measured at Fair Value on a Non-Recurring Basis***

In conducting the annual goodwill impairment assessment, the Company used a combination of income approach and market approach to determine the fair value of its reporting units. Based on the quantitative assessment performed, it was determined that the carrying amount of goodwill allocated to the Company's reporting units exceeded their fair value primarily due to declines in financial performance. Consequently, the Company recognized an impairment loss for goodwill of $12.6 million for the year ended December 31, 2023. We concluded that this fair value measurement should be categorized within Level 3. See Note 7 Goodwill and Intangible Assets for further information about significant unobservable inputs used in the fair value measurement.

In conducting the impairment assessment for its long-lived assets in Asia, the Company used the estimated cash flows from the expected divestiture of the certain entities in the respective region. The approach used by the Company approximates a combination of income approach and market approach. Based on the assessment performed, the Company concluded that the carrying amount of asset group associated with the Company's business in Asia exceeded its fair value primarily due to declines in financial performance. For the year ended December 31, 2023, the Company recognized an impairment loss of $3.1 million for such asset group. We concluded that this fair value measurement should be categorized within Level 3.

The Company recorded assets acquired and liabilities assumed in conjunction with the ASSIA acquisition. At their acquisition date, fair value was determined using primarily level three inputs, defined as unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities. See Note 2 Business Combinations for further information about significant unobservable inputs used in the fair value measurement.

In conducting the fair value analysis of the warrant issued, the Company used the Black-Scholes option pricing model. The $7.2 million value of the warrant was recognized in stockholders’ equity, as the warrant satisfied all criteria for equity classification under ASC 815. The warrant is not remeasured each reporting period. We concluded that this fair value measurement should be categorized within Level 2. See Note 7 Goodwill and Intangible Assets for further information about significant assumptions used in the fair value measurement.

**(4) Cash and Cash Equivalents and Restricted Cash**

As of December 31, 2023 and 2022, the Company's cash, cash equivalents, and restricted cash consisted of financial deposits. Cash, cash equivalents and restricted cash held within the U.S. totaled $13.4 million and $24.9 million as of December 31, 2023 and December 31, 2022, respectively. Cash and cash equivalents held within the U.S. are held at FDIC insured depository institutions. Cash, cash equivalents and restricted cash held outside the U.S. totaled $7.5 million and $13.6 million as of December 31, 2023 and December 31, 2022, respectively. Restricted cash consisted primarily of cash collateral for letters of credit and performance bonds. Long term restricted cash was $0.1 million as of both December 31, 2023 and December 31, 2022, and is included in other assets on the consolidated balance sheets.

## (5) Balance Sheet Detail

Balance sheet detail as of December 31, 2023 and 2022 is as follows (in thousands):

*Inventories*

| | As of December 31, 2023 | As of December 31, 2022 |
|---|---|---|
| Raw materials | $ 39,748 | $ 37,354 |
| Work in process | 2,818 | 1,050 |
| Finished goods | 39,661 | 55,884 |
| Total inventories | $ 82,227 | $ 94,288 |

Inventories are stated at the lower of cost or net realizable value, with cost being computed based on an adjusted standard basis, which approximates actual cost on an average or first-in, first-out basis. Finished goods include deferred cost of revenue of $16.1 million and $18.6 million as of December 31, 2023 and December 31, 2022, respectively.

Provision for inventory write-down was $24.8 million and $4.9 million for the years ended December 31, 2023 and 2022, respectively.

*Property, plant and equipment*

| | As of December 31, 2023 | As of December 31, 2022 |
|---|---|---|
| Machinery and equipment | $ 13,769 | $ 17,214 |
| Leasehold improvements | 2,426 | 5,683 |
| Computers and software | 4,786 | 4,713 |
| Furniture and fixtures | 2,117 | 1,748 |
| Construction in progress and other | 534 | 1,264 |
| | 23,632 | 30,622 |
| Less: accumulated depreciation and amortization | (17,881) | (21,062) |
| Less: government grants | (28) | (82) |
| Total property, plant and equipment, net | $ 5,723 | $ 9,478 |

Depreciation expense associated with property, plant and equipment was $3.3 million and $4.9 million for the years ended December 31, 2023 and 2022, respectively.

As of December 31, 2023, other assets included $10.6 million of capitalized cloud computing implementation costs related to the Company's enterprise resource planning and reporting software as compared to $10.5 million as of December 31, 2022.

*Accrued and other liabilities*

| | As of December 31, 2023 | As of December 31, 2022 |
|---|---|---|
| Inventory consignment liability | $ 11,457 | $ — |
| Accrued taxes payable | 2,560 | 4,217 |
| Accrued compensation | 6,285 | 8,897 |
| Accrued acquisition holdback | — | 2,500 |
| Accrued warranty | 1,822 | 1,896 |
| Accrued sales returns | 4,280 | 1,150 |
| Excess customer payments | 6,683 | 1,862 |
| Other accrued expenses | 8,597 | 5,040 |
| | $ 41,684 | $ 25,562 |

The Company has a consignment arrangement with Fabrinet where we sold them raw materials as part of the manufacturing transition process, repurchased it, and now hold it as consigned inventory.

The Company accrues for warranty costs based on historical trends for the expected material and labor costs to provide warranty services. The Company's standard warranty period is one year from the date of shipment with the ability for customers to purchase an extended warranty of up to five years from the date of shipment.

The following table summarizes the activity related to the product warranty liability:

| | Years ended December 31, 2023 | 2022 |
|---|---|---|
| Balance at the beginning of the period | $ 1,896 | $ 1,981 |
| Charged to cost of revenue | 56 | 656 |
| Claims and settlements | (109) | (704) |
| Foreign currency exchange impact | (21) | (37) |
| Balance at the end of the period | $ 1,822 | $ 1,896 |

*Contract Balances*

The opening and closing balances of current and long-term contract assets and contract liabilities related to contracts with customers are as follows:

| | Contract assets | Contract liabilities |
|---|---|---|
| December 31, 2022 | $ 576 | $ 26,493 |
| December 31, 2023 | 825 | 19,702 |
| Increase (decrease) | $ 249 | $ (6,791) |

The increase in contract assets during the year ended December 31, 2023 was primarily due to revenue recognition criteria being met for items not yet invoiced during the period.

The decrease in contract liabilities during 2023 was primarily due to the revenue recognition criteria being met for previously deferred revenue, partially offset by invoiced amounts that did not yet meet the revenue recognition criteria. The amount of revenue recognized during the year ended December 31, 2023 that was included in the prior period contract liability balance was $18.7 million. The amount of revenue recognized during the year ended December 31, 2022 that was included in the prior period contract liability balance was $6.0 million. This revenue consists of services provided to customers who had been invoiced prior to the current year. We expect to recognize approximately 81% of outstanding contract liabilities as revenue over the next 12 months and the remainder thereafter.

The balance of contract cost deferred at each December 31, 2023 and 2022 was $1.0 million. During the year ended December 31, 2023, the Company recorded $0.8 million in amortization related to contract cost deferred as of December 31, 2022. During the year ended December 31, 2022, the Company recorded $0.7 million in amortization related to contract cost deferred as of December 31, 2021.

**(6) Restructuring and other charges**

In 2021, the Company made the strategic decision to relocate manufacturing functions of DZS GmbH and Optelian to Seminole, Florida and to transition the above subsidiaries to sales and research and development centers. For the year ended December 31, 2022, the Company recorded $0.8 million of restructuring related costs, consisting primarily of logistics costs and professional services related to legal and accounting support. The restructuring of DZS GmbH and Optelian was completed in 2022 and no related restructuring costs were recorded for the year ended December 31, 2023.

On September 17, 2022, DZS signed an agreement with Fabrinet, a third-party provider of electro-mechanical and electronic manufacturing and distribution services, to transition the sourcing, procurement, order-fulfillment, and manufacturing activities in the Company's Seminole, Florida facility to Fabrinet. The transition to Fabrinet began in October 2022 and substantially completed in the beginning of 2023. Post transition, the DZS Seminole, Florida-based operations, supply chain and manufacturing workforce was reduced by approximately two-thirds and the remaining team was relocated to an appropriately sized facility.

For the year ended December 31, 2022, the Company recorded $3.4 million of restructuring related costs, consisting of accelerated depreciation of manufacturing related assets of $1.3 million, termination-related benefits of $0.7 million, loss on inventory sold to Fabrinet of $0.5 million, and other costs of $0.9 million. The above expenses were included in restructuring and other charges on the consolidated statement of comprehensive income (loss).

For the year ended December 31, 2023, the Company recorded $4.0 million of Fabrinet restructuring related costs, consisting of facility and labor costs of $1.8 million, accelerated depreciation of manufacturing related assets of $0.4 million, inventory write-off of $0.5 million, and other costs of $1.1 million. The above expenses were included in restructuring and other charges on the consolidated statement of comprehensive income (loss).

For the year ended December 31, 2023, the Company also incurred $4.5 million of expedite fees and other elevated inventory related costs, which directly related to the Fabrinet transition. For the year ended December 31, 2023, the Company also recorded an inventory obsolescence reserve of $2.2 million associated with the inventory transition to Fabrinet. These costs were included in cost of revenue on the consolidated statement of comprehensive income (loss).

For the year ended December 31, 2023, the Company also incurred certain maintenance costs related to impaired facilities and non-capitalizable implementation costs related to replacement of the Company's legacy enterprise resource planning and reporting software. The Company included $0.7 million of such costs in restructuring and other charges on the consolidated statement of comprehensive income (loss).

**(7) Goodwill and Intangible Assets**

The following table summarizes the activity related to Goodwill (in thousands):

| | As of December 31, | |
|---|---|---|
| | 2023 | 2022 |
| Balance at the beginning of the period, gross | $ 13,597 | $ 7,148 |
| Accumulated impairment at the beginning of the period | (1,003) | (1,003) |
| Goodwill from acquisitions | — | 6,449 |
| Impairment | (12,594) | — |
| Balance at the end of the period | $ — | $ 12,594 |

During the year ended December 31, 2022, the Company recorded goodwill of $6.4 million related to the ASSIA Acquisition. Refer to Note 2 Business Combinations for further information.

The accumulated impairment of goodwill was $13.6 million and $1.0 million as of December 31, 2023 and December 31, 2022, respectively. In conducting the annual goodwill impairment assessment, the Company used a combination of income approach and market approach to determine the fair value of its reporting units. Under the income approach, the Company determined the fair value of its reporting units based on the present value of estimated future cash flows. Cash flow projections were based on management's estimates of revenue growth rates and operating margins, EBITDA margins, consideration of industry and market conditions, terminal growth rates and management's estimates of working capital requirements. The discount rate of 11.5% was based on a weighted average cost of capital adjusted for the relevant risk associated with the characteristics of its reporting units. Under the market approach, the Company utilized a combination of methods, including estimates of fair value based on market multiples of revenue derived from comparable publicly-traded companies with similar operating and investment characteristics as the reporting units.

Based on the quantitative assessment performed, it was determined that the carrying amount of goodwill allocated to the Company's reporting units exceeded their fair value primarily due to declines in financial performance. Consequently, the Company recognized an impairment loss for goodwill of $12.6 million for the year ended December 31, 2023. The Company recognized no impairment loss for goodwill for the year ended December 31, 2022.

Intangible assets consisted of the following (in thousands except for years):

| | As of December 31, 2023 | | | |
|---|---|---|---|---|
| | Gross Carrying Amount | Accumulated Amortization | Net | Weighted Average Remaining Useful Life |
| Customer relationships | $ 20,662 | $ (4,833) | $ 15,829 | 13.0 years |
| Customer backlog | 5,100 | (1,374) | 3,726 | 8.4 years |
| Developed technology | 11,207 | (5,902) | 5,305 | 4.1 years |
| In-process research and development | 890 | (519) | 371 | 2.1 years |
| Tradenames | 300 | (47) | 253 | 8.4 years |
| Total intangible assets, net | $ 38,159 | $ (12,675) | $ 25,484 | 10.3 years |

| | As of December 31, 2022 | | | |
|---|---|---|---|---|
| | Gross Carrying Amount | Accumulated Amortization | Net | Weighted Average Remaining Useful Life |
| Customer relationships | $ 24,330 | $ (4,759) | $ 19,571 | 13.2 years |
| Customer backlog | 5,100 | (506) | 4,594 | 9.4 years |
| Developed technology | 11,207 | (4,463) | 6,744 | 5.0 years |
| In-process research and development | 890 | (340) | 550 | 3.1 years |
| Tradenames | 300 | (17) | 283 | 9.4 years |
| Total intangible assets, net | $ 41,827 | $ (10,085) | $ 31,742 | 10.7 years |

During the year ended December 31, 2022, the Company recorded $18.6 million, $5.1 million, $6.2 million and $0.3 million in customer relationships, orders backlog, developed technology, and tradenames, respectively, related to the ASSIA Acquisition. Refer to Note 2 Business Combinations for further information.

During the year ended December 31, 2022, the Company performed an impairment assessment for its long-lived assets in response to a triggering event indicating potential impairment. Based on the assessment performed, the Company concluded that the carrying amount of asset group associated with the Company's business in Asia exceeded its fair value primarily due to declines in financial performance. For the year ended December 31, 2023, the Company recognized an impairment loss of $3.1 million for such asset group, and approximately $1.0 million of an impairment loss related to the customer relationship.

Amortization expense associated with intangible assets was $5.2 million and $3.6 million for the years ended December 31, 2023, and 2022, respectively.

As of December 31, 2023, expected future amortization expense for the years indicated was as follows (in thousands):

| | |
|---|---|
| 2024 | $ 4,916 |
| 2025 | 4,910 |
| 2026 | 3,850 |
| 2027 | 3,143 |
| 2028 | 2,401 |
| Thereafter | 6,264 |
| Total | $ 25,484 |

**(8) Debt**

The following table summarize the Company's debt (in thousands):

| | As of December 31, | |
|---|---|---|
| | 2023 | 2022 |
| JPMorgan Term Loan, current portion | $ — | 24,375 |
| EdgeCo Term Loan | 15,000 | — |
| DNI Related Party Loan | 30,600 | — |
| Unamortized debt discount and issuance costs | (7,692) | (302) |
| Long-term debt, including current portion | 37,908 | 24,073 |
| JPMorgan Revolving Credit Facility | — | 4,000 |
| Bank and Trade Facilities - Foreign Operations | 19,633 | — |
| DNI Related Party Loan | — | 5,706 |
| Short-term debt and credit facilities | 19,633 | 9,706 |
| Total Debt | $ 57,541 | $ 33,779 |

***Related Party Debt***

On October 31, 2022, DNS Korea, the Company's wholly-owned subsidiary, entered into a Loan Agreement with DNI (the "November 2022 DNI Loan"). The November 2022 DNI Loan was negotiated and approved on behalf of the Company and its subsidiaries by the audit committee of the Board of Directors of the Company which consists of directors determined to be independent from DNI. The November 2022 DNI Loan consisted of a term loan in the amount of KRW 7.2 billion ($5.0 million USD), with interest payable monthly at an annual rate of 6.0%. The entire outstanding balance on the November 2022 DNI Loan was repaid in the first quarter of 2023.

On January 31, 2023, DNS Korea entered into another short-term loan arrangement with DNI (the “February 2023 DNI Loan”) and borrowed KRW 5.0 billion ($4.1 million USD), with interest payable monthly at an annual rate of 7.0%. The outstanding balance as of February 2023 was repaid in the second quarter of 2023.

On May 12, 2023, DNS Korea entered into another short-term loan arrangement with DNI (the “May 2023 DNI Loan”) and borrowed KRW 4.0 billion ($3.0 million USD), with interest payable monthly at an annual rate of 7.0%. The entire outstanding balance on the May 2023 DNI Loan was repaid in the third quarter of 2023.

On September 12, 2023 and September 22, 2023, DNS Korea entered into two Loan Agreements (the “DNI Loan Agreements”) with DNI, as lender, DZS California, Inc., a California corporation, as collateral provider, and DZS Inc. Pursuant to the DNI Loan Agreements, DNS Korea received two three-year term loans in an aggregate principal amount equal to KRW 39.6 billion, the equivalent of $29.9 million as of the date of the transactions. The DNI Loan Agreements bear interest at a fixed rate of 8.0% per annum. The net proceeds under the DNI Loan Agreements were used to repay the outstanding obligations under the JPM Credit Agreement, and the JPM Credit Agreement was terminated on December 14, 2023.

The obligations under the DNI Loan Agreements are secured by liens on certain assets of DNS Korea (the “Collateral Assets”) and on 9,999,999 shares of the common stock of DNS Korea held by DZS California (the “Pledged Shares”). Collateral Assets included accounts receivable for two customers in the amount of KRW 0.8 billion ($0.6 million USD). In December, 2023, DNI released DNS Korea inventory collateral that was initially included in Collateral Assets.

The Loan Agreement contains certain financial covenants, including requiring DNS Korea to maintain (i) a maximum Leverage Ratio (as defined in the Loan Agreement) of (a) 6.00 to 1.00 at the end of each of the second and third quarter of 2024, (b) 5.00 to 1.00 from the fourth quarter of 2024 through the second quarter of 2025 and (c) 4.00 to 1.00 from the third quarter of 2025 until the DNI Loan is repaid in full, (ii) cash of at least KRW 1.3 billion and (iii) a combined total of cash, accounts receivable and inventory of at least KRW 33.0 billion. As of December 31, 2023, the Company was in compliance with the above covenants.

In addition, the Loan Agreement contains various covenants that limit the ability of the Company, DNS Korea and DZS California to, among other things, (i) grant liens on the Collateral Assets to any third party, (ii) sell, donate, pledge, provide as collateral or otherwise dispose of the Pledged Shares to any third party, (iii) incur or assume indebtedness, (iv) make loans to affiliates or (v) engage in certain other transactions or make certain other fundamental changes.

The Company's debt obligation under the DNI Loan Agreements was KRW 39.6 billion ($30.6 million USD) as of December 31, 2023.

***Bank and Trade Facilities - Foreign Operations***

DNS Korea has entered into various short-term financing arrangements with foreign banks and other lending institutions consisting primarily of term loans and trade facilities. As of December 31, 2023, the Company had an aggregate outstanding balance of $19.6 million under such financing arrangements. The weighted average interest rate on such short-term obligations outstanding as of December 31, 2023 was 5.4%. The average dollar amount of such short-term borrowings outstanding during the year ended December 31, 2023 was $9.8 million. The Company recognized $0.6 million of interest expense for such short-term borrowings during the year ended December 31, 2023.

*Industrial Bank of Korea Loan*

On March 30, 2023, DNS Korea entered into a Loan Agreement with Industrial Bank of Korea (the “IBK Loan”). The IBK Loan consisted of a short-term loan in the amount of KRW 1.2 billion ($0.9 million USD) with interest payable monthly at an annual rate of 6.3%. The entire outstanding balance on the IBK Loan was repaid in the second quarter of 2023.

*Shinhan Bank*

On June 15, 2023, DNS Korea entered into a Loan Agreement with Shinhan Bank (the “Shinhan Loan”). The Shinhan Loan consisted of a short-term loan in the amount of KRW 6.0 billion ($4.7 million USD) with interest payable monthly at an annual rate of 5.2%. The Company's debt obligation under the Shinhan Loan was KRW 6.0 billion ($4.6 million USD) as of December 31, 2023.

*Kookmin Bank*

On July 31, 2023, DNS Korea entered into a Loan Agreement with Kookmin Bank (the “Kookmin Loan”). The Kookmin Loan consisted of a short-term loan in the amount of KRW 2.0 billion ($1.7 million USD) with interest payable monthly at an annual rate of 5.8% The Company's debt obligation under the Kookmin Loan was KRW  2.0 billion ($1.5 million USD) as of December 31, 2023.

*Hana Bank*

On August 17, 2023, DNS Korea entered into a Loan Agreement with Hana Bank (the “Hana Loan”). The Hana Loan consisted of a short-term loan in the amount of KRW 2.0 billion ($1.5 million USD) with interest payable monthly at an annual rate of 5.9%. The Company's debt obligation under the Hana Loan was KRW 1.9 billion ($1.5 million USD) as of December 31, 2023.

*The Export–Import Bank of Korea*

On August 25, 2023, DNS Korea entered into a Loan Agreement with the Export–Import Bank of Korea (the “Export–Import Bank Loan”). The Export–Import Bank Loan consisted of a short-term loan in the amount of KRW 5.0 billion ($3.8 million USD) with interest payable monthly at an annual rate of 4.8% The Company's debt obligation under the Export–Import Bank Loan was KRW 5.0 billion ($3.9 million USD) as of December 31, 2023.

*Korea Development Bank*

On September 5, 2023, DNS Korea entered into a usance letter of credit arrangement with Korea Development Bank (the “KDB Arrangement”). The arrangement provided for a $10.0 million credit line for the DNS Korea's import transactions. The Company's debt obligation under the KDB Arrangement was $5.0 million as of December 31, 2023.

*Woori Bank*

On December 7, 2023, DNS Korea entered into a Loan Agreement with Woori Bank (the “Woori Bank Loan”). The Woori Bank Loan consisted of a short-term loan in the amount of KRW 4.0 billion ($3.0 million USD) with interest payable monthly at an annual rate of 5.8%. Collateral Assets included inventory of KRW 4.8 billion ($3.7 million USD) The Company's debt obligation under the Woori Bank Loan was KRW 4.0 billion ($3.1 million USD) as of December 31, 2023.

***EdgeCo Term Loan***

On December 29, 2023, the Company, as borrower, entered into a Loan Agreement (the “EdgeCo Loan Agreement”) with EdgeCo, as lender. Pursuant to the EdgeCo Loan Agreement, the Company received a three-year term loan in an aggregate principal amount equal to $15.0 million. The principal amount of the Loan was payable on December 29, 2026 and bears interest at a fixed rate of 13.0% per annum, provided, however, that in connection with the EdgeCo Second Loan Agreement, the maturity date of the EdgeCo Loan Agreement was extended to May 31, 2027. Refer to Note 17 Subsequent Events for more details.

The Loan Agreement contains various covenants that limit the ability of the Company (and in certain cases, certain of its subsidiaries) to, among other things, enter into any merger or consolidation, incur indebtedness, incur liens, make dividends or stock repurchases, and acquire any businesses (other than a similar business to that of the Company).

The Loan Agreement contains events of default that are customary for loans of this type. If an event of default occurs under the Loan Agreement, EdgeCo will be entitled to accelerate and call the unpaid principal balance of the Loan and all accrued interest and to take various actions against the collateral, including by exercising its right to acquire or sell the collateral to satisfy any obligations under the outstanding indebtedness.

The Loan Agreement also (i) includes preemptive rights that allow EdgeCo to exercise a right of first refusal in the event the Company decides to seek additional debt financing of up to $15.0 million for additional operating capital or to offer for sale additional unregistered shares of its common stock, par value $0.001 per share, before December 31, 2026 and (ii) in connection with the Warrant Agreement (as defined below), provides EdgeCo with the right to designate a member of the Company’s Board of Directors, in each case subject to certain limitations and exceptions. In particular, EdgeCo’s designation right will terminate upon (x) the payment in full of the loan obligations and (y) its ownership of the Company’s Common Stock being less than 4.9% of the total outstanding Common Stock.

In connection with the EdgeCo Loan Agreement, the Company also entered into (i) a Warrant Agreement (the “Warrant Agreement”), dated as of December 29, 2023, by and between the Company and EdgeCo that issued a warrant to EdgeCo to subscribe for 6,100,000 shares of Common Stock at an exercise price of $1.84 per share, which represents the closing price of the Common Stock on Nasdaq on the trading day immediately preceding the date of the Warrant Agreement, and (ii) a Registration Rights Agreement (the “EdgeCo Registration Rights Agreement”), dated as of December 29, 2023, by and between the Company and EdgeCo that provides EdgeCo customary demand and piggyback registration rights for the 6,100,000 shares of Common Stock underlying the warrant, in the event the warrant is exercised. The warrant was not registered under the Securities Act of 1933, as amended (the “Securities Act”), and was issued pursuant to the private placement exemption from registration thereunder provided by Section 4(a)(2) of the Securities Act.

The Company determined the fair value of the warrant using the Black-Scholes option pricing model using the following significant assumptions: the Company’s expected stock price volatility over the term of the warrant, expected term of the warrant, risk-free interest rate and expected dividends. The $7.5 million value of the warrant was recognized in stockholders’ equity, as the warrant satisfied all criteria for equity classification under ASC 815. The warrant is not remeasured each reporting period. The amount allocated to the warrant was accounted for as a debt discount and recorded as a reduction of debt obligation. As of December 31, 2023, the Company's debt obligation under the EdgeCo Loan Agreement was $7.3 million net of unamortized debt discount and deferred issuance cost of $7.5 million and $0.2 million, respectively.

***JPMorgan Credit Facility***

On February 9, 2022, the Company entered into a Credit Agreement (the “Credit Agreement”) by and between the Company, as borrower, certain subsidiaries of the Company, as guarantors, the lenders party thereto and JPMorgan Chase Bank, N.A., as administrative agent. The Credit Agreement originally provided for revolving loans (the "Revolving Credit Facility") in an aggregate principal amount of up to $30.0 million, up to $15.0 million of which is available for letters of credit, and was scheduled to mature on February 9, 2024. The maximum amount that the Company can borrow under the Credit Agreement is subject to a borrowing base, which is based on a percentage of eligible accounts receivable and eligible inventory, subject to reserves and other adjustments, plus $10.0 million.

On May 27, 2022, the Company entered into a First Amendment to Credit Agreement (the “Amendment”), which amends the Credit Agreement dated February 9, 2022 with the Company, as borrower, certain subsidiaries of the Company, as guarantors, the lenders party thereto and JPMorgan Chase Bank, N.A., as administrative agent.

The Amendment, among other things, (1) provides for a term loan (the “Term Loan”) in an aggregate principal amount of $25.0 million with a maturity date of May 27, 2027, (2) extends the maturity date of the $30.0 million Revolving Credit Facility to May 27, 2025, (3) permits the ASSIA Acquisition, (4) modifies the applicable margin for borrowings under the Credit Agreement to be, at the Company’s option, either (i) the adjusted term SOFR rate plus a margin ranging from 3.0% to 3.5% per year or (ii) the prime rate plus a margin ranging from 2.0% to 2.5% per year, in each case depending on the Company’s leverage ratio, (5) modifies the letter of credit fee such that it ranges from 3.0% to 3.5%, depending on the Company’s leverage ratio, (6) modifies the commitment fee on the unused portion of the Revolving Credit Facility to range from 0.25% to 0.35% per year, depending on the Company’s leverage ratio, (7) modifies the method of calculating the leverage ratio, and (8) modifies the financial covenants to (i) increase the maximum permitted leverage ratio to 3.00 to 1.00 through September 30, 2022, 2.50 to 1.00 thereafter through September 30, 2023, and 2.00 to 1.00 thereafter and (ii) replace the minimum liquidity requirement with a minimum permitted fixed charge coverage ratio of 1.25 to 1.00.

On May 27, 2022, the Company borrowed the full amount of the Term Loan to finance the ASSIA Acquisition.

On February 15, 2023, the Company entered into a Second Amendment to Credit Agreement (the "Second Amendment"), which amends the Credit Agreement dated February 9, 2022 (as previously amended on May 27, 2022). The Second Amendment, among other things, (1) modifies the financial covenants to (i) suspend the maximum leverage ratio requirement of 2.50 to 1.00 until the fiscal quarter ending September 30, 2023 and (ii) suspend the minimum fixed charge coverage ratio requirement of 1.25 to 1.00 until the fiscal quarter ending December 31, 2023, (2) adds new financial covenants to require (i) minimum liquidity of $30.0 million for the fiscal quarter ending March 31, 2023, $35.0 million for the fiscal quarters ending June 30, 2023 and September 30, 2023, and $20.0 million at any time until September 30, 2023, and (ii) minimum EBITDA (as defined in the Credit Facility) of ($1 million) for the fiscal quarter ending March 31, 2023 and $1 for the fiscal quarter ending June 30, 2023, (3) increases the applicable margin for adjusted term SOFR borrowings and prime rate borrowings to 4.0% and 3.0%, respectively, when the Company’s leverage ratio exceeds 2.50 to 1.00, (4) increases the commitment fee on the unused portion of the revolving commitment to 0.40% per year when the Company’s leverage ratio exceeds 2.50 to 1.00, and (5) prohibits dividends and other distributions and tightens certain covenants.

On May 8, 2023, the Company entered into a Third Amendment to the Credit Agreement (the "Third Amendment"), which amends the Credit Agreement dated February 9, 2022 (as previously amended on May 27, 2022 and February 15, 2023). The Third Amendment, among other things, (1) modifies the financial covenants to eliminate the minimum EBITDA (as defined in the Credit Facility) of ($1 million) for the fiscal quarter ending March 31, 2023, (2) decreases the calculation of the borrowing base by $5 million through June 30, 2023 and an additional $5 million thereafter, (3) reduces the amount of the Revolving Credit Facility commitment to $25 million effective June 15, 2023, and (4) increases the applicable margin for adjusted term SOFR borrowings and prime rate borrowings to 4.5% and 3.5%, respectively, when the Company’s leverage ratio exceeds 2.50 to 1.00.

In the third quarter of 2023, the Company repaid the Term Loan outstanding under the Credit Agreement and subsequently terminated the Credit Agreement, including the Revolving Credit Facility, on December 14, 2023. In conjunction with the debt restructuring, the Company recorded $0.6 million loss on extinguishment of debt.

As of December 31, 2022, we presented our long-term debt obligation within the current portion of long-term debt due to the risk of non-compliance with certain financial covenants in the next 12 months.

The future principal maturities of the Company's debt obligations for each of the next five years was as follows as of December 31, 2023 (in thousands):

| | | |
|---|---|---|
| 2024 | $ | 19,633 |
| 2025 | | — |
| 2026 | | 15,000 |
| 2027 | | — |
| 2028 | | 30,600 |
| Total | $ | 65,233 |

**(9) Stockholders' Equity**

***General***

As of December 31, 2023, the Company has authorized the issuance of 72 million shares of common stock and 25 million shares of preferred stock, with a par value of $0.001. As of December 31, 2023, the Company had 32.1 million shares of common stock issued and outstanding. As of December 31, 2023, the Company had reserved 4.1 million shares of common stock for the issuance of options and restricted stock units granted under the Company's 2017 Stock Incentive Plan and Non-Qualified Inducement Stock Option Grant, and for the issuance of shares under the Company's 2018 Employee Stock Purchase Plan. The Company did not issue any shares of preferred stock as of December 31, 2023.

On November 16, 2022, we entered into an underwriting agreement to sell 2.9 million shares of Common Stock (including 0.4 million shares issued pursuant to the underwriters' option to purchase additional shares) at a price of $11.50 per share in an underwritten public offering. The equity offering closed on November 21, 2022 and resulted in gross proceeds of approximately $33.2 million and net proceeds, after deducting underwriting discounts and commissions and offering expenses, of approximately $30.8 million.

On December 29, 2023, the Company entered into a Securities Purchase Agreement (the "Securities Purchase Agreement") with IV Global Fund No. 4, a Korean limited partnership ("IV Global Fund"). The general partner of IV Global Fund, Invites Ventures Co., Ltd., and its limited partners are affiliates of DNI. Pursuant to the Securities Purchase Agreement, the Company agreed to issue 5,434,783 shares (the "Private Placement Shares") of Common Stock to IV Global Fund, at a purchase price of $1.84 per share, for an aggregate purchase price of $10.0 million. The issuance and sale of the Private Placement Shares was consummated on January 3, 2024. The Company accounted for the Private Placement Shares in the first quarter of 2024.

***Changes in Accumulated Other Comprehensive Loss***

The table below summarizes the changes in accumulated other comprehensive loss by component, net of tax (in thousands):

| | As of December 31, | | | |
|---|---|---|---|---|
| | | 2023 | | 2022 |
| Beginning accumulated other comprehensive income | $ | (4,662) | $ | (4,457) |
| Actuarial gain (loss) for pension plan | | (941) | | 4,278 |
| Foreign currency translation adjustments, net | | (2,844) | | (4,483) |
| Ending accumulated other comprehensive income | $ | (8,447) | $ | (4,662) |

During the years ended December 31, 2023 and 2022, the Company recorded a foreign currency translation loss, and no income taxes were allocated to the translation adjustments due to the full valuation allowance position.

***Stock Incentive Plans***

The Company's stock-based compensation plans are designed to attract, motivate, retain and reward employees, directors and consultants and align stockholder and employee interests.

The Company's DASAN Zhone Solutions, Inc. 2017 Incentive Award Plan ("2017 Plan") authorizes the issuance of stock options, restricted stock, restricted stock units, dividend equivalents, stock payment awards, stock appreciation rights, performance bonus awards and other incentive awards. The 2017 Plan authorizes the grant of awards to employees, non-employee directors and consultants of the Company and its subsidiaries. Under the 2017 Plan, stock options may be granted at an exercise price less than, equal to or greater than the fair market value on the date of grant, except that any stock options granted to a 10% stockholder must have an exercise price equal to at least 110% of the fair market value of the Company's common stock on the date of grant. The Board of Directors determine the term of each stock option, the option exercise price and the vesting terms. Stock options are generally granted at an exercise price equal to the fair market value on the date of grant, expiring seven to ten years from the date of grant and vesting over a period of four years.

The maximum number of shares of the Company's common stock which may be granted under the 2017 Plan is the sum of (i) 1,174,359 shares, plus (ii) any shares subject to awards granted under the prior plan to the extent such shares become available for issuance under the 2017 Plan pursuant to its terms, plus (iii) any shares subject to an annual increase on each January 1 during the 10 year term of the 2017 Plan equal to the lesser of (x) 4% of the total shares of the Company's common stock outstanding (on an as-converted basis) and (y) such smaller amount as may be determined by the Board of Directors in its sole discretion. The annual increase on January 1, 2022 was 1,099,636 shares. In addition, the following annual limitations apply: (i) the maximum aggregate number of shares of the Company's common stock that may be subject to awards granted to any one participant during a calendar year is 4,000,000 shares; and (ii) the maximum aggregate amount of cash that may be paid to any one participant during any calendar year with respect to awards initially payable in cash is $10 million. The number of shares of the Company's common stock that may be issued or transferred pursuant to awards granted under the 2017 Plan shall not exceed an aggregate of 8,000,000 shares.

In 2020, the Compensation Committee of the Company's Board of Directors approved the grant to Charles Daniel Vogt, the Company's Chief Executive Officer, of nonqualified stock options to purchase 518,518 shares of the Company's common stock at an exercise price of $10.11 per share, which equaled the closing price of the Company's common stock on August 1, 2020, the effective date of grant. The vesting commencement date is the grant date of options. The shares subject to the option shall vest on the third anniversary of the vesting commencement date, subject to Mr. Vogt's continuous service as an employee, director or consultant through such vesting date. The grant was a part of the Inducement Option Agreements with Mr. Vogt and was not covered by 2017 Plan.

In 2022, certain employees were provided a limited opportunity to exchange two stock options granted under 2017 Plan for one restricted stock unit with the vesting period equal the remaining vesting period for options as of the exchange date. As a result of the transaction, a total of 240,792 stock options were cancelled and 120,396 restricted stock units were granted in exchange. The Company accounted for the exchange as a modification of share-based payments. No incremental expense was recorded in conjunction with the modification.

***Stock Options***

Options issued under the Company's stock incentive plans are exercisable for periods not to exceed ten years, and vest and contain such other terms and conditions as specified in the applicable award document. Options to buy common stock are issued under the 2017 Plan, with exercise prices equal to the closing price of shares of the Company's common stock on the date of award.

The following table sets forth the summary of option activity under the stock option program for the year ended December 31, 2023 (in thousands, except weighted average data):

| | Options Outstanding | Weighted Average Exercise Price | Weighted Average Remaining Contractual Term | Aggregate Intrinsic Value |
|---|---|---|---|---|
| Outstanding at the beginning of the period | 1,496 | $ 11.84 | 7.2 | $ 3,281 |
| Granted | — | — | | |
| Exercised | (1) | 12.08 | | |
| Canceled/Forfeited | (44) | 16.49 | | |
| Expired | (176) | 11.70 | | |
| Outstanding at the end of the period | 1,275 | 11.70 | 6.25 | — |
| Vested and exercisable at the end of the period | 1,139 | $ 11.13 | 6.13 | $ — |

The aggregate intrinsic value represents the total pretax intrinsic value, based on the Company's closing stock price as of December 31, 2023 of $1.97 per share which would have been received by the option holders had the option holders exercised their options as of that date. The aggregate intrinsic value of awards exercised during the year ended December 31, 2022 was $0.5 million. There were no material exercises of stock options during the year ended December 31, 2023.

The Company has estimated the fair value of stock options on the date of grant using the Black Scholes pricing model, which is affected by the Company's stock price as well as assumptions regarding a number of other variables. These variables include the Company's expected stock price volatility over the term of the awards, expected term of the awards, risk-free interest rate and expected dividends. The estimated expected term of options granted was determined based on SAB 107 simplified method because the Company does not have adequate historical data for newly issued stock options. Estimated volatility was based on the historical volatility of the Company and the risk-free interest rate was based on the U.S. Treasury yield in effect at the time of grant for the expected life of the options. The Company does not anticipate paying any cash dividends in the foreseeable future, and therefore used an expected dividend yield of zero in the option valuation model. Forfeitures are recognized as they occur.

The Company did not grant any stock options during the year ended December 31, 2023. The following table summarizes the weighted average assumptions used to value options granted during the year ended December 31, 2022:

| | |
|---|---|
| Expected term (years) | 6.1 |
| Volatility | 58.9 % |
| Risk free interest rate | 1.5 % |
| Dividend yield | 0 % |
| Weighted average fair value of stock options | $ 8.83 |

For the years ended December 31, 2023 and 2022, the Company recorded compensation expense related to stock options of $1.7 million and $3.2 million, respectively. As of December 31, 2023, there was $1.2 million of unrecognized compensation costs which are recognized over a weighted average period of 1.3 years.

***Restricted Stock Units***

The following table sets forth the summary of restricted stock units activity under the stock option program for the year ended December 31, 2023 (in thousands, except weighted average data):

| | RSU Outstanding | Weighted Average Grant Date Fair Value |
|---|---|---|
| Outstanding at the beginning of the period | 2,673 | $ 16.07 |
| Granted | 272 | 10.71 |
| Cancelled/Forfeited | (504 ) | 14.18 |
| Vested and issued | (1,042 ) | 15.74 |
| Outstanding at the end of the period | 1,399 | 15.93 |
| Vested and unissued at the end of the period | — | 20.90 |
| Non-vested at the end of the period | 1,399 | $ 15.93 |

The fair value of restricted stock units is determined based on the Company's stock price on the date of grant. Total grant-date fair value of awards granted during the years ended December 31, 2023 and 2022 was $3.1 million and $31.6 million, respectively. Total fair value of awards vested during the years ended December 31, 2023 and 2022 was $16.4 million and $7.4 million, respectively.

For the years ended December 31, 2023 and 2022, the Company recorded compensation expense related to restricted stock units of $13.4 million and $11.8 million, respectively. As of December 31, 2023, there was $16.0 million of unrecognized compensation costs which are expected to be recognized over a weighted average period of 1.6 years.

***2018 Employee Stock Purchase Plan***

On May 22, 2018, the stockholders of the Company approved the adoption of the DASAN Zhone Solutions, Inc. 2018 Employee Stock Purchase Plan (the "ESPP"). The ESPP replaced the DASAN Zhone Solutions, Inc. 2002 Employee Stock Purchase Plan.

The ESPP authorizes the issuance of up to 250,000 shares of the Company's common stock. In addition, the ESPP provides for an annual increase on the first day of each calendar year beginning on January 1, 2019, and ending on and including January 1, 2028, equal to the lesser of (i) 1% of the shares outstanding on the last day of the immediately preceding calendar year and (ii) such smaller number of shares as may be determined by the Board of Directors in its sole discretion. Notwithstanding the foregoing, the number of shares of stock that may be issued or transferred pursuant to awards under the ESPP may not exceed an aggregate of 2,000,000 shares. These 2,000,000 shares have been registered pursuant to a registration statement on Form S-8 filed with the SEC on November 8, 2018. The purchase price of the shares will be 85% of the lower of the fair market value of our common stock on (a) the first trading day of the offering period or (b) the final trading day of the offering period, which would be the applicable purchase date.

The weighted average assumptions used to value the ESPP shares for the year ended December 31, 2023 included an expected term of 0.5 years, volatility of 81.2% and a risk free interest rate of 4.8%. For each of the years ended December 31, 2023 and 2022, the Company recorded $0.8 million of expense related to the ESPP.

***Stock-based Compensation***

The following table summarizes total stock-based compensation expense for stock options, restricted stock units, and ESPP (in thousands).

| | Years ended December 31, | |
|---|---|---|
| | 2023 | 2022 |
| Cost of revenue | $ 1,211 | 801 |
| Research and product development | 3,944 | 4,857 |
| Selling, marketing, general and administrative | 10,688 | 10,144 |
| | $ 15,843 | $ 15,802 |

**(10) Net Loss Per Share**

The following table sets forth the computation of basic and diluted net loss per share (in thousands, except per share data):

| | Years ended December 31, | |
|---|---|---|
| | 2023 | 2022 |
| Net loss | $ (135,218) | $ (41,270) |
| Weighted average number of shares outstanding: | | |
| Basic | 31,546 | 28,085 |
| Stock options, restricted stock units and share awards | — | — |
| Diluted | $ 31,546 | $ 28,085 |
| Net loss per share: | | |
| Basic | $ (4.29) | $ (1.47) |
| Diluted | $ (4.29) | $ (1.47) |

The following tables set forth potential common stock that is not included in the diluted net loss per share calculation above because their effect would be anti-dilutive for the periods indicated (in thousands):

| | Years ended December 31, | |
|---|---|---|
| | 2023 | 2022 |
| Outstanding stock options | 1,327 | 796 |
| Unvested restricted stock units | 2,898 | 324 |
| Outstanding warrants | 199 | — |

As of December 31, 2023 and 2022, no shares of issued common stock were subject to repurchase.

## (11) Income Taxes

The geographical breakdown of loss before income taxes is as follows (in thousands):

| | Years ended December 31, 2023 | Years ended December 31, 2022 |
|---|---|---|
| Loss before income taxes - Domestic | $ (99,060) | $ (34,906) |
| Loss before income taxes - Foreign | (35,379) | (5,400) |
| Loss before income taxes | $ (134,439) | $ (40,306) |

The following is a summary of the components of income tax provision applicable to loss before income taxes (in thousands):

| | Years ended December 31, 2023 | Years ended December 31, 2022 |
|---|---|---|
| Current: | | |
| Federal | $ 306 | $ 32 |
| State | 68 | 88 |
| Foreign | 405 | 844 |
| Total current tax provision | 779 | 964 |
| Deferred: | | |
| Federal | — | — |
| State | — | — |
| Foreign | — | — |
| Total deferred tax provision | — | — |
| Total tax provision | $ 779 | $ 964 |

A reconciliation of the expected tax provision (benefit) to the actual tax provision (benefit) is as follows (in thousands):

| | Years ended December 31, 2023 | Years ended December 31, 2022 |
|---|---|---|
| Expected tax benefit at statutory rate | $ (27,134) | $ (8,465) |
| Current state taxes, net of federal benefit | 53 | 69 |
| Deferred state taxes, net of federal benefit | — | — |
| Foreign taxes | 203 | 107 |
| Foreign rate differential | (491) | (449) |
| Valuation allowance | 18,393 | 3,744 |
| Uncertain tax positions | — | — |
| Global intangible low taxed income | 878 | 5,676 |
| Share-based compensation | 3,520 | 1,835 |
| Permanent differences | 192 | 111 |
| Tax credits | (575) | 945 |
| Net operating loss adjustment | — | (2,177) |
| Impairment charges | 4,390 | — |
| Other | 1,350 | (432) |
| Total tax provision | $ 779 | $ 964 |

Deferred income taxes reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting and income tax purposes. Significant components of the Company's deferred tax assets and liabilities as of December 31, 2023 and 2022 are as follows (in thousands):

| | As of December 31, | |
|---|---|---|
| | 2023 | 2022 |
| Deferred tax assets: | | |
| Net operating loss carryforwards | $ 33,063 | $ 22,873 |
| Tax credit carryforwards | 5,364 | 4,702 |
| Fixed assets and intangible assets | 3,574 | 2,815 |
| Inventory and other reserves | 13,010 | 8,295 |
| Operating lease liability | 2,407 | 3,889 |
| Capitalized research and experimental expenditures | 11,001 | 6,182 |
| Other | 8,030 | 8,568 |
| Gross deferred tax assets | 76,449 | 57,324 |
| Less valuation allowance | (74,338) | (53,401) |
| Net deferred tax assets | 2,111 | 3,923 |
| Deferred tax liabilities: | — | — |
| Fixed assets and intangible assets | — | (771) |
| Operating lease right-of-use-asset | (1,641) | (2,907) |
| Other assets | (470) | (245) |
| Gross deferred tax liabilities | (2,111) | (3,923) |
| Total net deferred tax assets | $ — | $ — |

For the years ended December 31, 2023 and 2022, the net changes in the valuation allowance were an increase of $20.9 million and $7.4 million, respectively. The increase during the current year is primarily due to capitalized research and experimental expenditures and deferred revenue assumed in conjunction with the ASSIA Acquisition. The Company maintains a valuation allowance on its global net deferred tax assets since it is more likely than not that the net deferred tax assets will not be realized in the foreseeable future.

As of December 31, 2023, the Company had net operating loss carryforwards for federal and state income tax purposes of approximately $52.6 million and $44.5 million, respectively. Approximately $10.9 million of the federal losses expire beginning in 2037, whereas approximately $41.7 million of the losses have an indefinite life. Approximately $32.7 million of the state losses begin to expire in various years beginning in 2026, whereas approximately $11.8 million of the loss carryforwards have an indefinite life. As of December 31, 2023, the Company had German federal and state net operating losses of approximately $37.5 million and $36.8 million respectively, which do not expire and are carried forward indefinitely, and Canadian net operating losses of approximately $13.1 million which may be carried forward for 20 years and begin to expire in 2039.

Pursuant to Sections 382 and 383 of the Internal Revenue Code, or IRC, annual use of the Company's net operating losses and tax credit carryforwards may be limited in the event a cumulative change in ownership of more than 50% occurs within a three-year period. The Company had an ownership change in September 2016, which has resulted in an annual limitation on the amount of net operating loss and tax credit carryforwards which arose prior to that date that the Company can utilize in a future year. In addition, some of the pre-acquisition NOLs were written off in a prior year due to the limitation.

It is possible that the Company experienced a second ownership change subsequent to the above mentioned ownership change in September 2016 which could significantly limit the use of its remaining NOL carryforwards. The company intends to complete a thorough analysis with the assistance of a subject matter expert to determine if in fact a second ownership change has occurred and to what extent the Company's NOL carryforwards are impacted.

As of December 31, 2023, the Company had U.S. research and development tax credit carryforwards of approximately $2.9 million and $2.1 million for federal and state purposes, respectively. If not utilized, the federal carryforwards will expire beginning in 2036. The California credit carryforwards do not expire, the Georgia credit carryforwards will expire beginning in 2026, and the Texas credit carryforwards will expire beginning in 2040. In addition, the Company has Canadian research and investment credits of approximately $2.8 million and $1.8 million, respectively. The Canadian research and investment credits begin to expire in 2031.

The Company does not intend to distribute the earnings from its foreign subsidiaries and has not recorded any deferred tax liability related to such amounts. The Company considers any excess of the amount for financial reporting over the tax basis of our investments in our foreign subsidiaries to be indefinitely reinvested and the determination of any deferred tax liability on this amount is not practicable.

On January 5, 2024, the Company and DZS California Inc. (“DZS California”), a wholly owned subsidiary of the Company, entered into a Stock Purchase Agreement (the “Stock Purchase Agreement”) with DNI. Pursuant to the Stock Purchase Agreement, DZS California sold to DNI all of the equity interests in DASAN Network Solutions, Inc., a Korean company (“DNS Korea”), D-Mobile Limited, a Chinese company, DZS Vietnam Company Limited, a Vietnamese company, Dasan India Private Limited, an Indian company, and DZS Japan, Inc., a Japanese company (the “Asia Sale”). The purchase price for the divestiture consisted of $3.8 million cash, net of certain adjustments, and the elimination of approximately $34 million in debt owed to DNI as of the transaction date. DNI also assumed all DNS Korea's debt obligations to foreign banks outstanding as of the transaction date. The Asia Sale closed on April 5, 2024. As of December 31, 2023 the difference between the inside and outside basis of the shares of the subsidiaries would result in a deferred tax asset. Since it is more likely than not that the deferred tax asset will be utilized in the foreseeable future, the Company did not record the deferred tax asset.

With the exception of those subsidiaries mentioned above, the Company does not intend to distribute the earnings from its foreign subsidiaries and has not recorded any deferred tax liability related to such amount. The Company considers any excess of the amount for financial reporting over the tax basis of our investments in our foreign subsidiaries to be indefinitely reinvested and the determination of any deferred tax liability on this amount is not practicable.

The Company is required to inventory, evaluate, and measure all uncertain tax positions taken or to be taken on tax returns, and to record liabilities for the amount of such positions that may not be sustained, or may only be partially sustained, upon examination by the relevant taxing authorities. After reviewing the documentation maintained in support of uncertain tax positions taken in prior years, the Company concluded that it will be unlikely to sustain those positions should they be audited by the relevant tax authorities. As of December 31, 2023, the Company had gross unrecognized tax benefits of $5.2 million, none of which if recognized, would reduce the effective tax rate in a future period, due to the Company's full valuation allowance on U.S. net deferred tax assets.

A reconciliation of the beginning and ending unrecognized tax benefit amounts for 2023 and 2022 are as follows (in thousands):

| | As of December 31, | |
|---|---|---|
| | 2023 | 2022 |
| Balance at beginning of year | $ 5,213 | $ 4,188 |
| Increases (decreases) related to prior year’s tax positions | — | — |
| Increases related to current year tax positions | — | 1,025 |
| Balance at end of year | $ 5,213 | $ 5,213 |

It is the Company's policy to account for interest and penalties related to uncertain tax positions as interest expense and general administrative expense, respectively in the consolidated statements of comprehensive income (loss).

The Company did not record any interest or penalties during the years ended December 31, 2023 and 2022.

The Company or one of its subsidiaries files income tax returns in the U.S. federal jurisdiction, and various state and foreign jurisdictions. The open tax years for the major jurisdictions are as follows:

| | |
|---|---|
| Federal | 2019 - 2022 |
| California | 2018 - 2022 |
| Canada | 2018 - 2022 |
| Brazil | 2018 - 2022 |
| Germany | 2017 - 2022 |
| Japan | 2017 - 2022 |
| Korea | 2017 - 2022 |
| United Kingdom | 2018 - 2022 |
| Vietnam | 2012 - 2022 |

However, due to the fact the Company had net operating losses and credits carried forward in most jurisdictions, certain items attributable to technically closed years are still subject to adjustment by the relevant taxing authority through an adjustment to tax attributes carried forward to open years.

**(12) Related Party Transactions**

***Related Party Debt***

As of December 31, 2023 and 2022, the Company had KRW 39.6 billion ($30.6 million USD) and KRW 7.2 billion ($5.7 million USD) outstanding of the related party borrowing from DNI, respectively. See Note 8 Debt for additional information about the Company’s related party debt. DNI owns approximately 28.3% of the outstanding shares of the Company's common stock.

The following table sets forth payment guarantees of certain of the Company's performance obligations as of December 31, 2023 that have been provided by DNI. . The amount guaranteed exceeds the principal amounts of outstanding obligations due to collateral requirements by the banks.

| Guarantor | Amount Guaranteed (in thousands) | Description of Obligations Guaranteed |
|---|---|---|
| Dasan Networks, Inc. | $ 12,000 | Payment guarantee to Korea Development Bank |
| Dasan Networks, Inc. | 5,560 | Payment guarantee to Industrial Bank of Korea |
| Dasan Networks, Inc. | 556 | Payment guarantee to Shinhan Bank |
| | $ 18,116 | |

***Other Related Party Transactions***

Net revenue, cost of revenue, operating expense, interest expense, net and other expenses, net to and from relate parties were as follows (in thousands) for the years ended December 31, 2023 and 2022:

| | For the year ended December 31, 2023 | | | | |
|---|---|---|---|---|---|
| Counterparty | Net Revenue | Cost of revenue | Operating Expenses | Interest expense, net | Other expenses, net |
| Dasan Networks, Inc. | $ 827 | $ 538 | $ 926 | $ 826 | $ 25 |

| | For the year ended December 31, 2022 | | | | |
|---|---|---|---|---|---|
| Counterparty | Net Revenue | Cost of revenue | Operating Expenses | Interest expense, net | Other expenses, net |
| Dasan Networks, Inc. | $ 1,748 | $ 969 | $ 1,325 | $ 55 | $ 64 |

The Company has entered into sales agreements with DNI to sell certain services and finished goods produced by the Company. The Company also has an agreement with DNI in which DNI acts as a sales channel to third party customers. The above transactions are included in sales and cost of revenue on the consolidated statements of comprehensive income (loss). Net revenue from DNI is recorded net of royalty fees for a sales channel arrangement.

DNS Korea has a lease agreement with DNI related to the lease of a warehouse facility. DNS Korea also had a separate office lease agreement with DNI. In the first quarter of 2022, DNI sold the office building to the unrelated third party, and the respective lease was reassigned to the new landlord. Operating lease cost related to DNI leases totaled $0.4 million and $0.5 million, for the years ended December 31, 2023 and 2022, respectively. Operating lease expense is allocated between cost of revenue, research and product development, and selling, marketing, general and administrative expenses on the consolidated statements of comprehensive income (loss). As of December 31, 2023, the right-of-use asset and operating lease liability related to DNI leases were $1.3 million. As of December 31, 2022, the right-of-use asset and operating lease liability related to DNI leases were $1.7 million.

The Company also pays a license fee under the Trademark License Agreement with DNI. The license fee is calculated as 0.4% of DNS Korea annual sales. For the years ended December 31, 2023 and 2022, license related expense were $0.5 million and $0.7 million, respectively, and were included into selling, marketing, general and administrative expenses on the consolidated statements of comprehensive income (loss).

Interest expense, net represents interest paid to DNI for the related party debt. Refer to Note 8 Debt for further information. Interest due to DNI was included in accrued and other liabilities on the consolidated balance sheets as of December 31, 2023 and 2022.

Other expenses, net to related parties represent expenses to DNI for its payment guarantees relating to the Company's performance obligations. The Company pays DNI a guarantee fee which is calculated as 0.9% of the guaranteed amount. Refer to the table above for further information about obligations guaranteed by DNI.

***Balances of Receivables and Payables with Related Parties***

Balances of receivables and payables arising from sales and purchases of goods and services with related parties as of December 31, 2023 and 2022 were as follows (in thousands):

| | As of December 31, 2023 | | | | | |
|---|---|---|---|---|---|---|
| Counterparty | Account receivables | Other receivables | Other assets | Loans Payable | Accounts payable | Accrued and other liabilities |
| Dasan Networks, Inc. | $ 963 | $ — | $ — | $ 30,600 | $ 2,356 | $ 1,210 |

| Counterparty | As of December 31, 2022 Account receivables | Other receivables | Other assets | Loans Payable | Accounts payable | Accrued and other liabilities |
|---|---|---|---|---|---|---|
| Dasan Networks, Inc. | $ 943 | $ 123 | $ — | $ 5,706 | $ 1,019 | $ 483 |
| DS Commerce, Inc. | — | — | — | — | 16 | — |
| | $ 943 | $ 123 | $ — | $ 5,706 | $ 1,035 | $ 483 |

The related party receivable and payable balances are reflected in the respective balance sheet captions on the consolidated balance sheets as of December 31, 2023 and 2022.

**(13) Leases**

The Company leases certain properties and buildings (including manufacturing facilities, warehouses, and office spaces) and equipment under various arrangements which provide the right to use the underlying asset and require lease payments for the lease term. The Company's lease portfolio consists of operating leases which expire at various dates through 2028.

The Company determines if an arrangement contains a lease at inception. The Company evaluates each service contract upon inception to determine whether it is, or contains, a lease. Such determination is made by applying judgment in evaluating each service contract within the context of the 5-step decision making process under ASC 842. The key concepts of the 5-step decision making process that the Company evaluated can be summarized as: (1) is there an identified physical asset; (2) does the Company have the right to substantially all the economic benefits from the asset throughout the contract period; (3) does the Company control how and for what purpose the asset is used; (4) does the Company operate the asset; and (5) did the Company design the asset in a way that predetermines how it will be used.

Assets and liabilities related to operating leases are included in the consolidated balance sheets as right-of-use assets from operating leases, operating lease liabilities - current and operating lease liabilities - non-current.

Operating lease right-of-use assets and liabilities are recognized at commencement date based on the present value of lease payments over the lease term. Many of the Company's lease agreements contain renewal options; however, the Company does not recognize right-of-use assets or lease liabilities for renewal periods unless it is determined that the Company is reasonably certain of renewing the lease at inception or when a triggering event occurs. Some of the Company's lease agreements contain rent escalation clauses, rent holidays, capital improvement funding or other lease concessions.

The Company recognizes minimum rental expense on a straight-line basis based on the fixed components of a lease arrangement. The Company amortizes this expense over the term of the lease beginning with the date of initial possession, which is the date lessor makes an underlying asset available for use. Variable lease components represent amounts that are not fixed in nature, are not tied to an index or rate, and are recognized as incurred.

In determining its right-of-use assets and lease liabilities, the Company applies a discount rate to the minimum lease payments within each lease agreement. ASC 842 requires the Company to use the rate of interest that a lessee would have to pay to borrow on a collateralized basis over a similar term an amount equal to the lease payments in a similar economic environment. The Company determines the incremental borrowing rate for each lease based primarily on its lease term and the economic environment of the applicable country or region.

The components of lease expense were as follows for the years ended December 31, 2023, and 2022 (in thousands):

| | Years ended December 31, 2023 | 2022 |
|---|---|---|
| Operating lease cost | $ 4,173 | $ 4,152 |
| Short-term lease cost | 34 | 152 |
| Total net lease cost | $ 4,207 | $ 4,304 |

Short-term lease costs related to the short-term rent of office spaces and office equipment leases. Variable lease cost was not significant for the years ended December 31, 2023 and 2022.

During the years ended December 31, 2022, the Company recorded $0.8 million of impairment charges on the right-of-use assets related to the office lease in Redwood City, California, acquired in conjunction with ASSIA Acquisition. Following the acquisition, the Company made a decision to vacate the space in Redwood City and to adopt a remote work policy in the region. During the years ended December 31, 2023, the Company recorded $0.5 million of impairment charges on the right-of use assets from operating leases in connection with vacating a part of its office space in Plano, Texas, following the reduction in administrative personnel.

Supplemental cash flow information related to the Company's operating leases was as follows for the years ended December 31, 2023, and 2022 (in thousands):

| | Years ended December 31, | |
|---|---|---|
| | 2023 | 2022 |
| Operating cash outflows from operating leases | $ 5,589 | $ 5,184 |
| Right-of-use assets obtained in exchange for operating lease obligations | $ 452 | $ 5,010 |

The following table presents the lease balances within the Company's consolidated balance sheets, weighted average remaining lease term, and weighted average discount rates related to the Company's operating leases as of December 31, 2023 and 2022 (dollars in thousands):

| | As of December 31, | |
|---|---|---|
| | 2023 | 2022 |
| Assets: | | |
| Right-of-use assets from operating leases | $ 7,135 | $ 12,606 |
| | | |
| Liabilities: | | |
| Operating lease liabilities - current | $ 4,590 | $ 4,834 |
| Operating lease liabilities - non-current | 5,611 | 11,417 |
| Total operating lease liabilities | $ 10,201 | $ 16,251 |
| Weighted average remaining lease term | 3.1 years | 3.7 years |
| Weighted average discount rate | 5.0 % | 5.3 % |

The following table presents the Company's future contractual rent obligations as of December 31, 2023 (in thousands):

| | |
|---|---|
| 2024 | $ 4,933 |
| 2025 | 2,795 |
| 2026 | 1,428 |
| 2027 | 1,130 |
| 2028 | 694 |
| Thereafter | — |
| Total operating lease payments | 10,980 |
| Less: imputed interest | (779 ) |
| Total operating lease liabilities | $ 10,201 |

**(14) Commitments and Contingencies**

***Performance Bonds***

In the normal course of operations, from time to time, the Company arranges for the issuance of various types of performance guarantees, such as standby letter of credits or surety bonds. These instruments are arrangements under which the financial institution or surety provides a financial guarantee that the Company will perform in accordance with contractual or legal obligations. As of December 31, 2023, the Company had $20.5 million of performance guarantees in the form of bank guarantees or surety bonds guaranteed by third parties.

***Purchase Commitments***

As of December 31, 2023, we had $148.5 million in outstanding purchase order commitments to our contract manufacturers and component suppliers for inventory. In certain instances, we are permitted to cancel, reschedule or adjust these orders. Consequently, only a portion of this amount relates to firm, non-cancelable and unconditional obligations.

***Trade Compliance Matter***

During the first quarter of 2022, DASAN India Private Limited ("DIPL"), an indirect subsidiary of the Company, received a notice letter from the Office of the Commissioner of Customs, Chennai II of the India Department of Revenue (the “Notice”) claiming DIPL at the time of clearance of customs. The Notice claims that due to such mis-declaration and wrong classification of the imported products, DIPL and its contract manufacturer in India underpaid duties approximating INR 299.6 million ($3.6 million USD based on exchange rates as of December 31, 2023) related to such products. The documents relied upon in the Notice were requested by the Company, however they are yet to be received. In the second quarter of 2023, the Company received a second notice letter issued by the Office of the Principal Commissioner of Customs (Air Cargo) Complex, Chennai VII Commissionerate claiming the alleged underpaid duties approximated INR 389.3 million ($4.7 million based on exchange rates as of December 31, 2023). The two notice letters cover substantially the same shipments and overlap in scope. As we have not yet received the full contents of the Notice, we are unable to estimate a potential loss related to this matter, if any, which could range up to the full amount of the alleged unpaid duties, plus penalties and interest. In the beginning of 2024, the Company divested its certain subsidiaries in Asia, including DIPL. Following the divestiture, any litigation and claims related to the divested subsidiaries are no longer an obligation of the Company. Refer to Note 17 Subsequent Events for additional information about the divestiture.

***Plume***

On October 10, 2022, Plume Design, Inc. (“Plume”) filed suit against DZS in the Superior Court of the State of Delaware, alleging that DZS breached a reseller contract with Plume and seeking $24.75 million in damages. The parties have completed briefing on dispositive motions, and a trial is currently set for October 7, 2024. DZS intends to vigorously defend this lawsuit.

***Class Action***

In June and August of 2023, DZS shareholders filed three putative securities class actions related to DZS’s June 1, 2023 Form 8-K announcing the Company’s intention to restate its financial statements for the first quarter of 2023. Each suit was filed in the Eastern District of Texas. All three cases allege violations of Sections 10(b) and 20(a) of the Exchange Act against DZS, its Chief Executive Officer and its Chief Financial Officer. The cases are: (1) Shim v. DZS et al., filed June 14, 2023; (2) Link v. DZS et al., filed June 27, 2023; and (3) Cody v. DZS et al., filed August 9, 2023.

Three potential lead plaintiffs filed applications for appointment on August 14, 2023. On September 12, 2023, the cases were consolidated under the lead case Shim v. DZS et al. The plaintiffs are seeking unspecified damages, interest, fees, costs and interest. As of July 31, 2024, the court has not yet ruled on the appointment of a lead plaintiff and the Defendants have not yet responded to any complaint. DZS intends to vigorously defend these lawsuits.

In light of the events giving rise to the restatement, DZS began cooperating, and intends to continue to cooperate, with the U.S. Securities and Exchange Commission (the “SEC”), which has informed DZS that it is investigating potential violations of the federal securities laws related to DZS.

On June 3, 2024, counsel for a shareholder of the Company sent the Company a demand for certain books and records related to events related to the Company’s June 1, 2023 Form 8-K. The demand was made pursuant to Section 220 of the Delaware General Corporation Law. While the Company does not concede the demand is proper, it has produced certain records to the shareholder.

In addition to the matters discussed above, from time to time, the Company is subject to various legal proceedings, claims and litigation arising in the ordinary course of business. While the outcome of these matters is currently not determinable, the Company records an accrual for legal contingencies that it has determined to be probable to the extent that the amount of the loss can be reasonably estimated. The Company does not expect that the ultimate costs to resolve these matters will have a material adverse effect on its consolidated financial position, results of operations or cash flows. However, litigation is subject to inherent uncertainties, and unfavorable rulings could occur. If an unfavorable ruling were to occur, there exists the possibility of a material adverse impact on the results of operations and cash flows of the reporting period in which the ruling occurs, or future periods.

**(15) Employee Benefit Plans**

*Defined Contribution Plans*

The Company maintains a 401(k) plan for its employees in the United States whereby eligible employees may contribute up to a specified percentage of their earnings, on a pretax basis, subject to the maximum amount permitted by the Internal Revenue Code. Under the 401(k) plan, the Company made discretionary contributions to the plan in 2023 and 2022. For each year ended December 31, 2023 and 2022, the Company recorded an expense of $0.9 million.

The Company maintains a defined contribution plan for its employees in South Korea. Under the defined contribution plan, the Company contributes the equivalent of 8.3% of an employee's gross salary into the plan. For the year ended December 31, 2023, the Company recorded an expense of $1.4 million for the plan as compared to $1.2 million recorded for the year ended December 31, 2022.

*Defined Benefit Plans*

The Company sponsors defined benefit plans for its employees in Germany and Japan. Defined benefit plans provide pension benefits based on compensation and years of service. The Germany plans were frozen as of September 30, 2003 and have not been offered to new employees after that date.

The following provides a reconciliation of the changes in benefit obligation, and the funded status at the end of the years (in thousand):

| | Years ended December 31, | |
|---|---|---|
| | 2023 | 2022 |
| Benefit obligation at beginning of year | $ 11,021 | $ 16,527 |
| Service cost | 76 | 100 |
| Interest cost | 396 | 146 |
| Benefits paid | (664) | (572) |
| Actuarial (gain) loss | 697 | (4,278) |
| Foreign currency exchange rate change | 276 | (902) |
| Benefit obligation at end of year | 11,802 | 11,021 |
| Underfunded status at end of year | $ 11,802 | $ 11,021 |

The Company has recorded the 2023 and 2022 underfunded status as a long-term liability on the consolidated balance sheets. The Company holds pension insurance contracts, with the Company as beneficiary, in the amount of $2.2 million and $2.5 million as of December 31, 2023 and 2022, respectively, related to individuals under the pension plans. The Company records these insurance contracts based on their cash surrender value at the balance sheet dates. These insurance contracts are classified as other assets on the consolidated balance sheet. The Company intends to use any proceeds from these policies to fund the pension plans. However, since the Company is the beneficiary on these policies, these assets have not been designated pension plan assets.

The net periodic benefit cost related to the plans consisted of the following components (in thousands):

| | Years ended December 31, | |
|---|---|---|
| | 2023 | 2022 |
| Service Cost | $ 76 | $ 100 |
| Interest Cost | 396 | 146 |
| Net amortization of net gain (loss) | (244) | — |
| Net periodic benefit cost | $ 228 | $ 246 |

The service cost component of net benefit cost is presented within cost of revenue or selling, marketing, general and administrative expense on the accompanying consolidated statements of comprehensive income (loss), in accordance with where compensation cost for the related associate is reported. All other components of net benefit cost, including interest cost and net amortization noted above, are presented within other income (expense), net in the accompanying consolidated statements of comprehensive income (loss).

The following table presents changes in benefit obligations recognized net of tax in other comprehensive income (in thousands):

| | Years ended December 31, | |
|---|---|---|
| | 2023 | 2022 |
| Amortization of net (gain) loss | $ 244 | $ — |
| Actuarial (gain) loss in the current period | 697 | (4,278) |
| Net change during the period | $ 941 | $ (4,278) |

The increase in the actuarial loss during the year ended December 31, 2023, compared to the year ended December 31, 2022 was mainly due to the decrease in the discount rate, resulting from an decrease in the implicit rate of high-quality fixed income investments. The estimated net loss and prior service cost for the plans that will be amortized from accumulated other comprehensive loss into net periodic benefit cost over the next fiscal year is not significant. The Company expects to make no contributions to the plans in 2024.

The weighted average assumptions used in determining the periodic net cost and benefit obligation information related to the plans are as follows:

| | Years ended December 31, | |
|---|---|---|
| | 2023 | 2022 |
| Discount rate | 3.2% | 3.7% |
| Rate of compensation increase | 2.0% | 2.0% |

The following benefit payments, which are funded by the Company, are expected to be paid (in thousands):

| | |
|---|---|
| 2024 | $ 632 |
| 2025 | 655 |
| 2026 | 667 |
| 2027 | 669 |
| 2028 | 616 |
| 2029 - 2033 | $ 3,066 |

**(16) Enterprise-Wide Information**

The Company is a global provider of access and optical networking infrastructure and cloud software solutions deployed by advanced Tier 1, national and regional service providers and enterprise customers. There are no segment managers who are held accountable for operations, operating results and plans for levels or components below the Company unit level. Accordingly, the Company is considered to be in a single operating segment. The Company’s chief operating decision maker is the Company’s Chief Executive Officer, who reviews financial information presented on a consolidated basis accompanied with disaggregated revenues by geographic region for purposes of making operating decisions and assessing financial performance.

The Company attributes revenue from customers to individual countries based on location shipped. Refer to Note 1(f) Revenue Recognition for the required disclosures on geographical concentrations and revenues by source.

The Company's property, plant and equipment, net of accumulated depreciation, were located in the following geographical areas (in thousands) as of December 31, 2023 and 2022:

| | As of December 31, | |
|---|---|---|
| | 2023 | 2022 |
| United States | $ 2,841 | $ 5,725 |
| Korea | 2,010 | 2,706 |
| Japan | 532 | 644 |
| Canada | — | 157 |
| Germany | 144 | 110 |
| Other | 196 | 136 |
| | $ 5,723 | $ 9,478 |

**(17) Subsequent Events**

On January 5, 2024, the Company and DZS California Inc. (“DZS California”), a wholly owned subsidiary of the Company, entered into a Stock Purchase Agreement (the “Stock Purchase Agreement”) with DNI. Pursuant to the Stock Purchase Agreement, DZS California sold to DNI all of the equity interests in DNS Korea, D-Mobile Limited, a Chinese company, DZS Vietnam Company Limited, a Vietnamese company, Dasan India Private Limited, an Indian company, and DZS Japan, Inc., a Japanese company (the “Asia Sale”). The purchase price for the divestiture consisted of $3.8 million cash, net of certain adjustments, and the elimination of approximately $34 million in debt owed to DNI as of the transaction date. DNI also assumed all DNS Korea's debt obligations to foreign banks outstanding as of the transaction date. The Asia Sale closed on April 5, 2024. The Company is currently assessing the impact of the transaction on its consolidated financial statements and will account for the transaction in the second quarter of 2024.

On May 3, 2024, the Company entered into a Share Purchase Agreement (the “Share Purchase Agreement”) with Casa Communications Holdings Pty Ltd, a private limited company registered in New South Wales, Australia (the “Seller”). Pursuant to the Share Purchase Agreement, the Company acquired all of the issued and outstanding share capital of Netcomm Wireless Pty Ltd, a private limited company registered in New South Wales, Australia (“Netcomm”) for a purchase price of approximately $8.1 million paid in cash. The purchase price also included a contingent consideration component based on the satisfaction of certain revenue thresholds for the period from January 1, 2024 to December 31, 2024. The maximum contingent consideration payable from the Company to the Seller is $3.0 million. The acquisition closed on June 1, 2024.

On May 31, 2024, the Company, as borrower, entered into a Loan Agreement (the “EdgeCo Second Loan Agreement”) with EdgeCo, LLC, as lender. Pursuant to the EdgeCo Second Loan Agreement, the Company received a three-year term loan in an aggregate principal amount equal to $15.0 million. The principal amount of the Loan is payable on May 31, 2027 and bears interest at a fixed rate of 13.0% per annum. In connection with the EdgeCo Second Loan Agreement, (i) the Company extended the maturity date of the amounts owed under the EdgeCo Loan Agreement to May 31, 2027 and (ii) the Company also entered into a Warrant Agreement (the “Second Warrant Agreement”), dated as of May 31, 2024, by and between the Company and EdgeCo, that issued a warrant to EdgeCo to subscribe for 6,100,000 shares of Common Stock at an exercise price of $0.9095 per share. The loan was primarily used to finance the acquisition of Netcomm and provide working capital to Netcomm.

## ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

As reported in the Current Report on Form 8-K filed by the Company with the Securities and Exchange Commission on January 30, 2024 and in this Annual Report on Form 10-K, Ernst & Young LLP ("EY") resigned as independent registered public accounting firm of the Company effective as of January 24, 2024. The Audit Committee of the Board of Directors of the Company accepted EY's resignation.

During the two most recent fiscal years ended December 31, 2023 and 2022 and the subsequent interim period through the date of the Form 8-K filed on January 30, 2024, there were no disagreements (as described in Item 304(a)(1)(iv) of Regulation S-K under the Securities and Exchange Act of 1934, as amended (the "Exchange Act")) between the Company and EY on any matter of accounting principles or practices, financial statement disclosure, or auditing scope or procedure, which disagreements, if not resolved to EY's satisfaction, would have caused EY to make reference to the subject matter of the disagreement in connection with its reports on the Company's consolidated financial statements for such periods.

## ITEM 9A. CONTROLS AND PROCEDURES

### Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of the Company's disclosure controls and procedures (as such term is defined in Rule 13a-15(f) of the Securities Exchange Act of 1934, as amended (the "Exchange Act")), as of December 31, 2023. The term "disclosure controls and procedures" means our controls and other procedures that are designed to ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC rules and forms, and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

Based on the foregoing evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that our disclosure controls and procedures were not effective as of December 31, 2023, due to the existence of unremediated material weaknesses in internal control over financial reporting described below in Management's Report on Internal Control Over Financial Reporting.

Notwithstanding the existence of the material weaknesses described below, management believes that the restated consolidated financial statements and related financial information included in this Annual Report on Form 10-K/A fairly present, in all material respects, our financial position, results of operations and cash flows as of and for the periods presented, in conformity with generally accepted accounting principles in the United States of America ("GAAP").

### Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting for the Company as defined in Rule 13a-15(f) of the Exchange Act. The Company's internal control over financial reporting is a process designed by, or under the supervision of, our Chief Executive Officer and Chief Financial Officer, and overseen by our Board of Directors (the "Board"), management and other personnel, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with GAAP. Internal control over financial reporting includes those policies and procedures that: (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of our assets; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with GAAP, and that receipts and expenditures are being made only in accordance with authorizations of our management and directors; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on our financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of the effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies and procedures included in such controls may deteriorate.

Our management has assessed the effectiveness of our internal control over financial reporting as of December 31, 2022. In making this assessment, management used the criteria established by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in *Internal Control-Integrated Framework (2013)*.

A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the Company's annual or interim financial statements will not be prevented or detected on a timely basis.

Based on the results of that evaluation, which included assessing information identified during the Audit Committee review and the work undertaken by management in response to the findings of that review, management has concluded that our internal control over financial reporting as of December 31, 2023 was not effective due to the existence of material weaknesses in internal control over financial reporting described below.

*Control Environment, Risk Assessment, Training and Communication of Policies and Procedures*
We did not maintain appropriately designed entity-level controls impacting the control environment and effective monitoring controls to prevent or detect material misstatements to the consolidated financial statements. These deficiencies were attributed to (i) inadequate oversight and accountability over the performance of control activities primarily in the Asia geographic region, (ii) ineffective identification and assessment of risks to properly design, implement, and maintain relevant controls for revenue recognition, (iii) inadequate education and training in certain areas important to financial reporting, and (iv) ineffective controls over ensuring consistent commitment to integrity and ethical values.

*Control Activities*

These material weaknesses contributed to the following additional material weaknesses related to the control activities within certain business processes:

- *Asia Region* - We did not operate effective controls across substantially all of the Asia region's business processes that were in place to achieve timely, complete, and accurate financial accounting, reporting, and disclosures.
- *Revenue Recognition* - We did not appropriately design, implement and maintain effective controls over the revenue recognition process, relating to the proper application of Accounting Standards Codification Topic 606, *Revenue from Contracts with Customers*. The root cause of these control gaps was the inadequate or ineffective process level controls (including but not limited to controls around capturing and managing changes to customer order terms in the company's records, timely processing of customer product returns, oversight of 3rd party business partners, and evaluating non-standard customer shipping terms, and ensuring consistent commitment to integrity and ethical values in documenting and recording revenue arrangements.
- *Information Produced by the Entity* – We did not have effective controls over the adequate testing of reports used in the operation of controls.
- *Income Tax Controls* - We did not operate effective controls surrounding deferred tax assets and liabilities and timeliness of performance of controls.
- *Information Technology General Controls* – We did not operate effective information technology general controls ("ITGC's") in the areas of user access, segregation of duties, and data processing related to certain information technology systems.

The effectiveness of the Company's internal control over financial reporting as of December 31, 2023, has been audited by BDO USA, LLP, an independent registered public accounting firm, as stated in its report included herein.

***Previously Identified Material Weakness in Internal Control over Financial Reporting***

We previously identified during the year ended December 31, 2022 a material weakness in our internal control over financial reporting related to the following:

- In the fourth quarter of 2022, the Company entered into a significant sales agreement with an existing customer which was subject to unique delivery terms. In reviewing the accounting for the revenue transaction, our management identified a deficiency in the effectiveness of a control intended to properly document and review relevant facts in connection with revenue recognition related to such transaction. Accordingly, a material error was detected in recorded revenue in our 2022 preliminary consolidated financial statements as a result of this misapplication of U.S. GAAP.

**Remediation Plan and Status for Reported Material Weaknesses**

We have been working and are currently working to remediate the material weaknesses described above, including assessing the need for additional remediation steps and implementing additional measures to remediate the underlying causes that gave rise to the material weaknesses. The Company is committed to a strong internal control environment as well as integrity and ethical values to ensure that a proper, consistent tone is communicated throughout the organization, including the expectation that previously existing deficiencies will be remediated through implementation of processes and controls to ensure strict compliance with GAAP and 2013 COSO framework.

As part of our commitment to strengthening our internal control over financial reporting, we have taken various personnel actions and initiated other remedial actions under the oversight of the Audit Committee, including:

- Initiated review and plan to enhance processes and controls around the IT environment and the use of key IT applications, including the storage, maintenance, the accessibility of transactional documentation, and the creation of key commercial documents within the Company's Oracle system.
- Initiated review and plan to enhance processes and controls around internal control documentation and document retention.
- Review and design/improve the corporate compliance program', including:
  - o Initiated a plan to Conduct an updated corporate risk assessment.
  - o Completed a review, assessment, and update of the corporate code of conduct.
  - o Issued statement from CEO on commitment to compliance and ethics and assess methods to regularly demonstrate effective "tone at the top" to foster culture of compliance
  - o Plan to provide training to individuals who provide certifications or representations in connection with the company's financial reporting on the meaning of the representations included therein.
  - o Plan to develop and provide training throughout the organization on revenue recognition principles relating to the Company's business, including specific training on issues discovered in the review.
  - o Assessed, enhanced, and promoted the use of the whistleblower hotline, including making the hotline available to external parties
- Initiated an assessment and plan to enhance controls for corporate oversight of third-party manufacturers.
- Initiated a review and plan to assess the sufficiency of internal audit resources.
- Completed a review of all incentive and bonus compensation.

To address certain control activities related to *material weakness in Revenue Recognition*:

- Initiated a review and plan to improve internal controls and processes related to capturing and managing changes to transaction terms, including required documentation and approvals.
- Plan to evaluate the adequacy of internal controls related to warehousing provided in connection with product sales.
- Initiated a review and plan to improve internal controls and processes for customer refusal of delivery or indication of intent to return an order, including timely notification to designated accounting personnel.
- Plan to assess and enhance process for use of freight forwarders to address specific risks.
- Plan to assess and enhance corporate oversight of regional finance and accounting personnel.
- Plan to assess the adequacy of staffing in the accounting function.
- Plan to assess and enhance the contract review process to address financial reporting risk, including those related to inconsistencies in terms between the contract and transaction documents and non-standard transaction terms.

In addition to the remedial actions planned and undertaken under the oversight of the Audit Committee, we are in the process of, and continue to focus on, strengthening our internal controls over financial reporting to remediate the material weaknesses. Management's additional initiated and completed remediation efforts for each identified material weakness include the following:

- *Asia Region*

  On April 5, 2024, the Company consummated the sale of its Asia operations to Korea-based DASAN Networks Inc. (DNI) and therefore, no longer needs to maintain internal controls over financial reporting for operations in the Asia region.

- *Revenue Recognition*

  Subsequent to the discovery of the revenue recognition material weakness, we initiated or completed the following remedial actions starting in the third quarter of 2023:

  - o Initiated the design and implementation of enhanced internal controls surrounding identification, review and analysis of key transaction terms including documentation and approvals affecting revenue recognition for product sales orders to ensure that transactions are recorded in accordance with Company's policies and GAAP.

- o Initiated an evaluation of the adequacy and efficacy of controls related to warehousing provided in connection with product sales.
- o Initiated an evaluation of the adequacy and efficacy of controls and processes for customer refusal of delivery or indication of intent to return an order, including timely notification to designated accounting personnel.
- o We have enhanced our quarterly contract review process by implementing a quarterly certification program to ensure timely communication of modification of transaction terms by sales and operations personnel to identify inconsistencies between the contract and transaction documents and non-standard transaction terms.
- o We implemented participation in revenue recognition training programs by Company personnel.

- *Information Produced by the Entity*
  - o Completed a review of controls over reports as part of the Company's Q1 2023 implementation of Oracle Cloud.
  - o Initiated a plan to enhance documentation retention policies around report parameters
  - o Initiated a review of all reports used in controls in order to fully identify the control owners and provide training on appropriate control performance and documentation.
- *Income Tax Controls*
  - o Initiated our review of remedial actions to be taken to address the lack of sufficient and accurate support used in the preparation of the tax provision.
  - o Initiated our review of remedial actions to be taken to address the lack of timeliness in the performance of existing controls over the preparation of the tax provision.

***Previously Identified Material Weakness in Internal Control over Financial Reporting***

Management has initiated a remediation plan to address the material weakness previously identified in our Annual Report on Form 10-K for the year ended December 31, 2023 to reassess the design of our controls and modify our processes related to the accounting for significant revenue transactions as well as enhancing monitoring and oversight controls in the application of accounting guidance related to such transactions. Management has initiated the following remedial actions:

- Initiated a review and plan to provide mandatory training to operational personnel to ensure potential unique revenue transactions are identified and communicated to accounting personnel in advance so the accounting for such transactions can be evaluated and business terms addressed as necessary;
- Initiated a plan to implement specific review procedures designed to enhance our revenue recognition controls; and
- Initiated a plan to strengthen our revenue recognition controls with improved documentation standards, technical oversight and training.

The material weaknesses will not be considered remediated until the applicable remedial controls operate for a sufficient period of time and management has concluded, through testing, that these controls are operating effectively. Additional remediation measures may be required, which may require additional implementation time. We will continue to assess the effectiveness of our remediation efforts in connection with our evaluations of internal control over financial reporting.

We can give no assurance that the measures we take will remediate the material weaknesses that we identified or that any additional material weaknesses will not arise in the future. We will continue to monitor the effectiveness of these and other processes, procedures and controls and will make any further changes management determines appropriate.

**Changes in Internal Control over Financial Reporting**

Except for the material weaknesses described above, no other change in the Company's internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act) occurred during the year ended December 31, 2023, that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting.

**Inherent Limitations on Effectiveness of Controls**

Our management, including our principal executive officer and principal financial officer, does not expect that our disclosure controls and procedures or our internal control over financial reporting will prevent or detect all error and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. The design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Further, because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, within the Company have been detected. These inherent limitations include the realities that judgments in decision-making can be faulty and that breakdowns can occur because of simple error or mistake. Controls can also be circumvented by the individual acts of some persons, by collusion of two or more people, or by management override of the controls. The design of any system of controls is based in part on certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions. Projections of any evaluation of controls effectiveness to future periods are subject to risks. Over time, controls may become inadequate because of changes in conditions or deterioration in the degree of compliance with policies or procedures.

## Report of Independent Registered Public Accounting Firm

Shareholders and Board of Directors
DZS Inc.

Plano, Texas

**Opinion on Internal Control over Financial Reporting**

We have audited DZS Inc.'s (the "Company's") internal control over financial reporting as of December 31, 2023, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (the "COSO criteria"). In our opinion, the Company did not maintain, in all material respects, effective internal control over financial reporting as of December 31, 2023, based on the COSO criteria. We do not express an opinion or any other form of assurance on management's statements referring to any corrective actions taken by the Company after the date of management's assessment.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) ("PCAOB"), the consolidated balance sheet of the Company as of December 31, 2023, the related consolidated statements of comprehensive income (loss), stockholders' equity, and cash flows for the year ended December 31, 2023, and the related notes (collectively referred to as "the financial statements")" and our report dated August 13, 2024 expressed an unqualified opinion thereon.

**Basis for Opinion**

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Item 9A, Management's Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit of internal control over financial reporting in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the company's annual or interim financial statements will not be prevented or detected on a timely basis. A material weakness regarding management's failure to design and maintain controls over (1) entity-level controls impacting the control environment and effective monitoring controls to prevent or detect material misstatements to the consolidated financial statements (2) revenue recognition process relating to proper application of Accounting Standards Codification ("ASC") 606, (3) adequate testing of completeness and accuracy of reports and schedules used in controls, (4) ineffective controls surrounding deferred tax assets and tax liabilities and timeliness of performance of controls, (5) ineffective information technology general controls ("ITGC's") in the areas of user access and segregation of duties related to certain information technology systems that support the Company's 2023 financial reporting process have been identified and described in management's assessment and (6) substantially all of the Asia region's business processes. These material weaknesses were considered in determining the nature, timing, and extent of audit tests applied in our audit of the 2023 financial statements, and this report does not affect our report dated August 13, 2024 on those financial statements.

**Definition and Limitations of Internal Control over Financial Reporting**

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ BDO USA, P.C.

Dallas, Texas

August 13, 2024

**ITEM 9B. OTHER INFORMATION**

None.

**ITEM 9C. DISCLOSURE REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS.**

None.

## PART III

## ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

### INFORMATION ABOUT OUR EXECUTIVE OFFICERS

Set forth below is information concerning our executive officers as of December 31, 2023.

| Name | Age | Position |
|---|---|---|
| Charles Daniel Vogt | 61 | Chief Executive Officer, President |
| Miguel Alonso | 56 | Chief Product Officer |
| Justin Ferguson | 46 | Chief Legal Officer and Corporate Secretary |
| Norman Foust | 59 | SVP of Global Supply Chain |
| Misty Kawecki | 51 | Chief Financial Officer |
| Gunter Reiss | 54 | Chief Marketing Officer |
| Deon Yeon Won | 61 | Chief Operating Officer, Asia |

*Charlie Vogt* was appointed as the President and Chief Executive Officer of the DZS Inc., effective August 1, 2020. In addition, Mr. Vogt was elected as a member of the Board of Directors, also effective August 1, 2020. Prior to joining the Company, Mr. Vogt was most recently President and Chief Executive Officer of ATX Networks, a leader in broadband access and media distribution. From July 2013 to January 2018, Mr. Vogt served as President and Chief Executive Officer of Imagine Communications, where he directed the company through change as it evolved its core technology, including large-scale restructuring and rebranding and multiple technology acquisitions as he implemented a vision and growth strategy. Before joining Imagine Communications, Mr. Vogt was President and Chief Executive Officer of GENBAND (today known as Ribbon Communications), where he transformed the company from a startup to a global leader in voice over IP and real-time IP communications solutions. His professional career has also included leadership roles at Taqua (Tekelec), Lucent Technology (Nokia), Ascend Communications (Lucent), ADTRAN, Motorola and IBM.

*Miguel Alonso* joined DZS in October 2020 and served as Vice President, Global Product Management until his promotion to Chief Product Officer of DZS in February 21, 2023. In this role, Mr. Alonso is responsible for product strategy, product management, technology, quality and engineering across the Access Edge, Home Edge, Mobile & Optical Edge and Cloud Software teams. Prior to joining DZS, from 2018 to 2020, he served as Vice President of Product Management of Nortek Control. He also served as Vice President of Cloud Products at Calix, where he led the company's transformation from hardware products to cloud, software, and systems platforms. In addition, Mr. Alonso has also served in multiple senior product management, marketing, and sales executive positions at mandal.ai, and Advanced Fibre Communications (AFC). Mr. Alonso holds an Engineering Degree in Telecommunications from the Universitat Politècnica de Catalunya (Spain).

*Justin K. Ferguson* has served as Chief Legal Officer and Corporate Secretary since September 2020. Prior to joining DZS, from 2018 to 2020, Mr. Ferguson was the Executive Vice President, General Counsel and Corporate Secretary of Ribbon Communications Inc., a Nasdaq listed company that provides real time communications software and packet and optical transport solutions. Prior to joining Ribbon, from 2015 to 2018, Mr. Ferguson was the Vice President, General Counsel and Corporate Secretary of Zix Corporation, a Nasdaq listed company that provides email security solutions. From 2011 to 2015, Mr. Ferguson served as Senior Vice President—Director of Legal for GENBAND. Prior to GENBAND, he was an attorney at the law firms of Weil, Gotshal & Manges LLP and Baker Botts L.L.P. Mr. Ferguson received a Juris Doctorate degree from Texas Tech University School of Law and a Bachelor's degree in Business Administration from Texas Tech University. He is a member of the State Bar of Texas.

*Norman L. Foust* joined DZS in February 2022 and served as Vice President, Strategic Operations until his promotion to Senior Vice President of Global Supply Chain in February 2023. As Senior Vice President of Global Supply Chain, Mr. Foust was responsible for the strategic direction, transformation and execution of vendor procurement, supply chain management, manufacturing and logistics. Mr. Foust's operations expertise in the telecom industry spans more than three decades, pioneering the evolution of manufacturing and supply chain through automation and AI Robotics technology. Mr. Foust has spent 20 years in leadership positions with trend-setting access networking companies scaling manufacturing and supply chain. Prior to joining DZS, in 2021, Mr. Foust was the Vice President of Operations at Vicarious FPC, an A.I. Robotics Automation company. Prior to Vicarious, from 2017 to 2020, he served as Vice President of Operations at Tidbit Communications, Inc. (acquired by Ciena). Additionally, he previously led operations at Calix, AFC and DSC Communications. On January 19, 2024, Mr. Foust departed from the Company, including his position as Senior Vice President of Global Supply Chain of the Company.

*Misty Kawecki* has served as Chief Financial Officer of DZS since August 2021, bringing over 24 years of finance and accounting experience to the CFO role. Prior to joining DZS , from 2020 to 2021, Ms. Kawecki provided consulting services and from 2018 to 2020, Ms. Kawecki served as CFO and Head of Operations for MediaKind. She also served as VP, Finance and Corporate Controller at Imagine Communications, Senior Vice President, Finance and Corporate Controller at GENBAND and Senior Director, WW Revenue Controller at McAfee (Intel). She started her career at Big 4 accounting firm EY. Ms. Kawecki has a Master of Science degree in Accounting from Texas Tech University. She is a Certified Public Accountant in the state of Texas.

*Gunter Reiss* has served as Chief Marketing Officer and Business Development Leader at DZS since February 2022. Prior to joining DZS, Mr. Reiss served as an advisor to MobileComm Professionals, Inc., EigenX.ai, and Webomates- from 2020 to 2021. Mr. Reiss also previously served, from 2014 to 2020, as Vice President of Worldwide Marketing at A10 Networks where he positioned the company as a technology leader in 5G, cloud, and cybersecurity solutions. Prior to A10, he held business development, strategy, M&A, and strategic sales leadership roles at Ericsson, IPC, and DAMOVO Group. Mr. Reiss brings in-depth expertise in could, SaaS, AI, cybersecurity, and application networking to DZS.

*Deok Yeon Won* has served as Chief Operating Officer for Asia since his appointment on July 12, 2023. Mr. Won previously served as the Company's Chief Customer Officer for Asia and Chief Product Officer. Mr. Won served as President of DASAN Network Solutions prior to the merger in 2016 creating the current Company. Prior to DZS, he held various executive positions at LG and Cisco Systems. Mr. Won has more than thirty years of experience in the communications industry that spans several disciplines, including executive management, sales, operations and engineering. On April 5, 2024, Mr. Won departed from the Company, including his position as Chief Operating Officer for Asia in conjunction with the Asia Sale.

**INFORMATION ABOUT OUR DIRECTORS**

The following table sets forth (a) the name of each director, (b) the age of each director, (c) the Company position(s) currently held by each director, and (d) the year in which each director's current term will expire. The information provided in the following table is as of December 31, 2023.

| Name | Class | Age | Position | Term Expires |
|---|---|---|---|---|
| Barbara Carbone | I | 65 | Director | 2026 |
| Joon Kyung Kim | I | 65 | Director | 2026 |
| Matt W. Bross | II | 63 | Director | 2024 |
| David Schopp | II | 75 | Lead Independent Director | 2024 |
| Choon Yul Yoo | II | 63 | Director | 2024 |
| Charles D. Vogt | III | 61 | President, CEO and Director | 2025 |

*Barbara Carbone* has served as a director of DZS since January 1, 2021. Ms. Carbone is a recognized business leader and audit partner with deep expertise across the software, media, consumer products, manufacturing and financial spaces. For nearly 40 years, in addition to serving clients, she held several leadership roles at KPMG, including as the leader of a large business unit, the global software practice leader and as the national partner in charge of human resources for the audit practice. Ms. Carbone's experience transforming businesses through mergers and acquisitions, workforce management, divestitures, spinoffs, IPOs, and navigation of public and private markets has given her a diverse and valuable perspective. She is currently a board member for TrueCar Inc. (NASDAQ: TRUE), Limoneira, Inc. (NASDAQ: LMNR), and Bob's Discount Furniture. We believe Ms. Carbone is well suited to serve on our Board of Directors given her extensive experience in financial and accounting matters, her extensive experience in advising other organizations and her experience as a director of a public company.

*Joon Kyung Kim* has served as a director of DZS since January 6, 2020. Mr. Kim brings to DZS's board more than 36 years of experience in audit and advisory services with KPMG. Prior to joining DZS, Mr. Kim served as the National Partner in Charge of KPMG's Korean practice, a role to which he was appointed in 2005. During his career at KPMG, he progressed through various financial statement audit roles, developing expertise in financial statement audits, operational reviews and special audits of specified areas of operations, regulatory supervisory advice, credit reviews, performance improvement, and internal control related advisory services, and in 1999 was promoted to Partner. Mr. Kim serves on the board of directors of Hope Bancorp, Inc. (NASDAQ: HOPE), the holding company for Bank of Hope, a super-regional bank with over $17 billion in assets. Mr. Kim holds a Bachelor of Science degree in Business Administration from the University of California, Berkeley and is a Certified Public Accountant. We believe Mr. Kim is well suited to serve on our Board of Directors given his extensive experience in financial and accounting matters, his leadership experience and his experience as a director of a public company.

*Matt W. Bross* has served as a director of DZS since January 1, 2021. Mr. Bross has led a long and distinguished career in the global telecom and technology industries – having previously served as CEO of BT Innovate, Global CTO and President of Huawei Technologies, CTO of Williams Communications (Lumen) and CEO and Director of Rift.io. Today, he serves on the board of Axellio Inc., a provider of high-performance network packet capture, storage, and analysis solutions, is the Chairman of the Global Information Infrastructure Commission (GIIC) and general partner in Cloud Scale Capital Partners. Mr. Bross has previously served on the board of Sonus Networks (Ribbon Communications), the East West Institute, the Alliance for Telecommunications Industry

Solutions (ATIS), and CTIA, the trade association representing the U.S. wireless communications industry. He is a Cambridge University Pembroke College, William Pitt Fellow, and a global advisor regarding 5G, IoT, Blockchain, AI, and Virtualization. Mr. Bross is also a Member of IEEE Future Technology Committee, and he formerly led the World Economic Forum "Technology Pioneer Program." We believe Mr. Bross is well suited to serve on our Board of Directors given his extensive knowledge and experience in the telecommunications industry.

*David Schopp* served as a director of DZS from 2018 until his resignation on May 27, 2024. Mr. Schopp has served as the Operating Partner for the private equity firm Stonebridge Partners since 2004 and is also a General Partner in Stonebridge Partners Equity Fund IV, L.P. Mr. Schopp was previously President and Chief Executive Officer of Orbis Corporation, a division of Menasha Corp., a manufacturer of plastic returnable containers and logistics management. Prior to Orbis, he was Vice President and General Manager of Promo Edge, also a division of Menasha Corp. Mr. Schopp has built and sold several of his own portfolio companies including US Sample Company, Bates Inc., and Congress Packaging. He was previously a consultant with Booz Allen Hamilton Inc. Mr. Schopp is currently Chairman of the Board of Directors of Specialty Bakers, a commercial bakery, and has held numerous prior board positions, including as Chairman of the Board of Directors of Cast-Crete, American Dryer Corporation, Inland Pipe Rehabilitation, Alpine Engineering, Corbi Plastics and Hydraulex Global. Mr. Schopp holds both a B.S. and M.S. in Aeronautical Engineering from Rensselaer Polytechnic Institute. We believe that Mr. Schopp is a superior business leader who understands our company's vision to empower global advancement and his experience building companies and advising Fortune 500 companies is valuable to DZS as we lead the way to the new generation of broadband and mobile transport solutions.

*Choon Yul Yoo* has served as a director of DZS since August 8, 2019. Since March 1999, Mr. Yoo has served as the Chief Operating Officer of DNI. Additionally, Mr. Yoo previously served as the Chief Executive Officer of DMC Co., Ltd., an auto parts manufacturing company and affiliate of DNI, and served as the Chief Executive Officer and director of Solueta Co., Ltd., a provider of electromagnetic interference and electromagnetic compatibility solutions. Mr. Yoo also previously served as Chief Executive Officer of DNS Korea from April 2015 until September 2016, when DNS Korea was acquired by the Company. Mr. Yoo holds a Bachelor of Science degree in Mechanical Engineering from Dongyang Technical College.  We believe that Mr. Yoo is well suited to serve on our Board of Directors given his extensive leadership experience and his knowledge of DNS Korea's operations.

## CORPORATE GOVERNANCE

As of December 31, 2023 our Board of Directors was comprised of six members. In accordance with our certificate of incorporation, we divide our Board of Directors into three classes, with Class I consisting of two members, Class II consisting of three members, and Class III consisting of one member. One class of directors is elected by the stockholders to serve a three-year term at each annual meeting.

### *Board Leadership Structure*

Different individuals serve as Chairman of the Board of Directors, Lead Independent Director and Chief Executive Officer. Mr. Min Woo Nam, served as Chairman until his resignation on September 15,2023. The Chairman presides over meetings of the Board of Directors and the stockholders, reviews and approves meeting agendas, meeting schedules and other information, as appropriate, consults on stockholder engagement and governance matters, and performs such other duties as the Board of Directors requires from time to time. Mr. David Schopp, served as Lead Independent Director until his resignation on May 27, 2024. The Lead Independent Director presides over meetings of the Board of Directors at which the Chairman is not present, serves as the principal liaison between the Chairman and the independent directors, reviews and approves meeting agendas, meeting schedules and other information, recommends for selection to the membership and chairman positions for each Board committee and interviews all director candidates, and, as appropriate, consults on stockholder engagement matters. The Chief Executive Officer is Mr. Charles D. Vogt, who focuses on operating and managing the Company. Our Board of Directors believes that this separation of the positions of Chairman, Lead Independent Director and Chief Executive Officer reinforces the independence of the Board of Directors in its oversight of the business and affairs of the Company, leverages the Chairman's and Lead Independent Director's experience and perspectives, and enhances the effectiveness of the Board of Directors as a whole.

The Board believes that maintaining a healthy mix of qualified independent, non-management, and management directors on the Board is an integral part of effective corporate governance and management of the Company. The Board also believes that the current leadership structure strikes an appropriate balance between independent directors, management directors, and directors affiliated with DNI, the Company's largest stockholder, which allows the Board to effectively represent the best interests of the Company's entire stockholder base.

*Board Independence*

The Board of Directors has affirmatively determined that each of Matt W. Bross, Barbara Carbone, Joon Kyung Kim, and David Schopp are independent under the criteria established by Nasdaq, for independent board members. At the conclusion of the regularly scheduled Board of Directors meetings, the independent directors have the opportunity to and regularly meet outside of the presence of our management. In addition, each member of the Audit Committee, the Compensation Committee and the Corporate Governance and Nominating Committee is currently an independent director in accordance with Nasdaq standards.

*Board Diversity*

The Board utilizes a thoughtful approach to board composition to ensure that the composition of the Board reflects the Company's efforts and commitment to achieving diversity, including with respect to age, gender, race and ethnicity. The table below provides certain information regarding the composition of our Board. Each of the categories listed in the table below has the meaning given it in Nasdaq Rule 5605(f).

**Board Diversity Matrix (as of December 31, 2023**

| | | | | |
|---|---|---|---|---|
| **Total Number of Directors** | **6** | | | |
| | **Female** | **Male** | **Non-Binary** | **Did Not Disclose Gender** |
| **Part I: Gender Identity** | | | | |
| Directors | 1 | 5 | | |
| **Part II: Demographic Background** | | | | |
| African American or Black | | | | |
| Alaskan Native or Native American | | | | |
| Asian | | 2 | | |
| Hispanic or Latinx | | | | |
| Native Hawaiian or Pacific Islander | | | | |
| White | 1 | 3 | | |
| Two or More Races or Ethnicities | | | | |
| LGBTQ+ | | | | |
| Did Not Disclose Demographic Background | | | | |

*Committee Composition*

Our Board of Directors has the following four standing committees: (1) Audit Committee, (2) Compensation Committee, (3) Corporate Governance and Nominating Committee and (4) Strategy Committee. As of December 31, 2023, the membership and the function of each of the committees are described below. Each of the committees operates under a written charter that can be found on the "Governance" section of our website at https://investor.dzsi.com/governance/governance-documents/default.aspx.

| Director | Independence | Financial Expert | Audit Committee | Compensation Committee | Corporate Governance and Nominating Committee | Strategy Committee |
|---|---|---|---|---|---|---|
| Matt W. Bross | Independent | — | — | M | M | M |
| Barbara Carbone | Independent | FE | M | C | — | — |
| Joon Kyung Kim | Independent | FE | C | M | M | — |
| David Schopp | Independent | — | M | — | C | M |
| Choon Yul Yoo | — | — | — | — | — | — |
| Charles D. Vogt | — | — | — | — | — | — |
| | | | | | | |
| Number of Meetings in 2023 | | | 32 | 8 | 1 | 12 |

*FE - Financial Expert*

*C - Chairperson*

*M - Member*

*Audit Committee*

The Audit Committee reviews the professional services provided by our independent registered public accounting firm, the independence of such independent registered public accounting firm from our management, and our annual and quarterly financial statements. The Audit Committee also reviews such other matters with respect to our accounting, auditing and financial reporting practices and procedures as it may find appropriate or may be brought to its attention. In addition, the Audit

Committee reviews and approves any related-party transactions. The responsibilities and activities of the Audit Committee are described in greater detail in the section entitled “Audit Committee Report.”

Each member of the Audit Committee is an independent director under the criteria established by Nasdaq and SEC rules. Our Board of Directors has also determined that each of Barbara Carbone and Joon Kyung Kim qualifies as an “audit committee financial expert,” as that term is defined in the rules and regulations established by the SEC. Stockholders should understand that this designation is a disclosure requirement of the SEC related to the experience and understanding of our Audit Committee members with respect to certain accounting and auditing matters. The designation does not impose upon them any duties, obligations or liabilities that are greater than are generally imposed on them as a member of the Audit Committee and the Board of Directors, and their designation as audit committee financial experts pursuant to this SEC requirement does not affect the duties, obligations or liability of any other member of the Audit Committee or the Board of Directors.

*Compensation Committee*

The Compensation Committee is responsible for reviewing all components of executive officer and director compensation and benefits and establishing and monitoring policies governing the compensation of executive officers and directors. In carrying out these responsibilities, the Compensation Committee is responsible for reviewing and approving the performance objectives relevant to compensation, determining salary, bonus and other incentive-based compensation, and approving equity-based compensation for executive officers. The Compensation Committee may delegate its authority to others so long as it is acting within the scope of the powers and responsibilities delegated to it by the Board of Directors. The objectives of the Compensation Committee are to correlate executive officer compensation with our business objectives and financial performance, and to enable us to attract, retain and reward executive officers who contribute to the long-term success of the Company. The Compensation Committee seeks to reward executive officers in a manner consistent with our annual and long-term performance goals, and to recognize individual initiative and achievement among executive officers.

*Corporate Governance and Nominating Committee*

The Corporate Governance and Nominating Committee develops and reviews corporate governance principles applicable to the Company, identifies individuals qualified to serve as directors, selects or recommends nominees to the Board of Directors for the election of directors, and advises the Board of Directors with respect to Board of Directors and committee composition. The Corporate Governance and Nominating Committee is also responsible for reviewing with the Board of Directors from time to time the appropriate skills and characteristics required of Board of Directors members in the context of the current size and make-up of the Board of Directors.

In selecting or recommending nominees for election to the Board of Directors, the Corporate Governance and Nominating Committee conducts inquiries into the background and qualifications of any potential nominees, including, but not limited to, professional experience, viewpoint, age, education, skills (such as understanding of manufacturing, technology, finance and marketing) and international background. The Corporate Governance and Nominating Committee recognizes the value of cultivating a Board of Directors with a diversity of backgrounds and experiences for a more balanced and wide-ranging discussions in the boardroom, which we believe enhances the decision-making process. Our stockholders also recognize the value of having diverse representation and a variety of viewpoints on the Company’s Board of Directors.

The Corporate Governance and Nominating Committee may engage consultants or third-party search firms to assist in identifying and evaluating potential nominees. The same criteria are used by the Corporate Governance and Nominating Committee to evaluate all candidates, whether he or she was recommended by a director, management or a stockholder. To recommend a prospective nominee for the Corporate Governance and Nominating Committee’s consideration, stockholders should submit the candidate’s name and qualifications to our Corporate Secretary in writing at the following address: DZS Inc., Attention: Corporate Secretary, 5700 Tennyson Parkway, Suite 400, Plano, Texas 75024. When submitting candidates for nomination to be elected at the annual meeting of stockholders, stockholders must also follow the notice procedures and provide the information required by our bylaws.

In evaluating the qualification of candidates for potential nomination to the Board of Directors, the Corporate Governance and Nominating Committee reviews the background and qualification of each candidate, engages in internal discussions, interviews with selected candidates and assesses such candidate’s potential to make positive contributions that are responsive to the needs of DZS. In addition, the Corporate Governance and Nominating Committee is committed to consideration of qualified directors of diverse gender, race, age, color, religion, national origin, sexual orientation, genetic information, marital status, disability or covered veterans’ status. There is no specific criteria or minimum qualifications that a nominee must possess; our Corporate Governance and Nominating Committee reviews each candidate in the context of the current and anticipated needs of the Board of Directors and our business at a particular point in time. As a result, the priorities and emphasis of the Corporate Governance and Nominating Committee and of the Board of Directors may change from time to time to take into account changes in business and other trends, and the portfolio of skills and experience of current and prospective Board of Directors members. Therefore, while the Corporate Governance and Nominating Committee is focused on the achievement and the ability of potential nominees to make a positive contribution with respect to such factors, it has not established any specific minimum criteria or qualifications that a nominee must possess. Upon the identification of a qualified candidate, the Corporate Governance and Nominating Committee would select, or recommend for consideration by the full Board of Directors, such candidate as a nominee for election to the Board of Directors.

*Strategy Committee*

The Strategy Committee assists and advises in the strategic planning process for the Company and in developing long-term strategic plans for the Company. The Strategy Committee also evaluates strategic actions, including strategic investments, acquisitions, divestitures, financing strategies and assesses such actions for strategic alignment and short and long-term impact on the Company's objectives and stockholder value, among other things. The Strategy Committee reviews the Company's performance and progress with respect to the execution of its strategies and related impacts on the Company's objectives and stockholder value.

***Director Attendance at Board Meetings and Annual Meetings of Stockholders***

During the fiscal year ended December 31, 2023, the Board of Directors of DZS held 14 meetings. Each director attended or participated in at least 75% of the meetings of the Board of Directors and the total number of meetings held by all committees of the Board of Directors on which he/she served, in each case during the period for which he/she was a director or a committee member. In addition to meetings, the Board of Directors and its committees sometimes took action by unanimous written consent in lieu of a meeting, which is permitted under Delaware corporate law.

We endeavor to schedule our annual meeting of stockholders at a time and date to maximize attendance by directors taking into account the directors' schedules. Three of our directors attended last year's annual meeting of stockholders.

***Board of Directors' Role in Risk Oversight***

The Board of Directors has an active role, as a whole and also at the committee level, in overseeing management of the Company's risks. The Compensation Committee is responsible for overseeing the management of risks relating to our executive compensation plans and arrangements. The Audit Committee oversees management of financial risks and discusses our policies with respect to risk assessment and risk management. The Corporate Governance and Nominating Committee manages risks associated with the independence of the Board of Directors and potential conflicts of interest. The Strategy Committee is responsible for overseeing the Company's business strategy and make recommendations to the Board on the Company's strategic direction and objectives.

The Board of Directors' role in our risk oversight process includes receiving regular reports from members of senior management on areas of material risk to the Company, including operational, financial, legal and regulatory, and strategic and reputational risks. The full Board of Directors (or the appropriate committee in the case of risks that are under the purview of a particular committee) receives these reports from the appropriate "risk owner" within the organization to enable it to understand our risk identification, risk management and risk mitigation strategies. When a committee receives the report, the Chairman of the relevant committee reports on the discussion to the full Board of Directors during the committee reports portion of the next Board of Directors meeting. This enables the Board of Directors and its committees to coordinate the risk oversight role, particularly with respect to risk interrelationships.

***Communications with the Board of Directors***

Any stockholder wishing to communicate with any of our directors regarding corporate matters may write to the director, c/o Corporate Secretary, DZS Inc., 5700 Tennyson Parkway, Suite 400, Plano, Texas 75024. The Corporate Secretary will forward these communications directly to the director(s). However, certain correspondence such as spam, junk mail, mass mailings, product complaints or inquiries, job inquiries, surveys, business solicitations or advertisements, or patently offensive or otherwise inappropriate material may be forwarded elsewhere within the Company for review and possible response.

***Insider Trading Policy; No Hedging or Pledging***

Directors, officers (including our NEOs) and employees must comply with our Insider Trading Policy and may not engage in any transaction in our securities without first obtaining pre-clearance of the transaction from our Chief Legal Officer. We believe this plan is reasonably designed to promote compliance with the insider trading laws, rules and regulations, as well as the Nasdaq listing standards. No director, executive officer or other employee is permitted to (i) engage in short sales, transactions in put options, call options or other derivative securities on an exchange or in any other organized market, or in any other inherently speculative transactions with respect to our stock, (ii) transact through mechanisms that hedge against our securities, or (iii) hold our securities in a margin account or otherwise pledging our securities as collateral for a loan. These provisions are part of our overall program to prevent any of our directors, officers or employees from trading on material non-public information.

***Code of Ethics***

We have adopted a Code of Conduct and Ethics applicable to all of our employees, directors and officers (including our principal executive officer, principal financial officer, principal accounting officer and controller). The Code of Conduct and Ethics is designed to deter wrongdoing and to promote honest and ethical conduct and compliance with applicable laws and regulations. The full text of our Code of Conduct and Ethics is published on our website at https://investor.dzsi.com/governance/governance-documents. We intend to disclose any future amendments to certain provisions of our Code of Conduct and Ethics, or waivers of such provisions granted to executive officers and directors, on our website within four business days following the date of such amendment or waiver.

***Section 16(a) Reports***

Section 16(a) of the Exchange Act requires the Company's directors, officers, and greater than 10% shareholders to file with the SEC initial reports of ownership and reports of changes in ownership of common stock and other equity securities of the Company. Officers, directors, and greater than 10% shareholders are required by SEC regulation to furnish the Company with copies of all Section 16(a) forms they file. To the Company's knowledge, based solely on a review of the copies of such reports furnished to the Company and written representations that no other reports were required, all Section 16(a) filing requirements applicable to its officers, directors, and greater than 10% shareholders were complied with during the fiscal year ended December 31, 2023.

## ITEM 11. EXECUTIVE COMPENSATION

As a smaller reporting company, we have opted to comply with the executive compensation disclosure rules applicable to "smaller reporting companies" as such term is defined in the rules promulgated under the Securities Act of 1933, as amended (the "Securities Act"). The following disclosure concerns the compensation arrangements of our current named executive officers for the fiscal years ended December 31, 2023 and 2022.

## COMPENSATION DISCUSSION AND ANALYSIS

***Executive Summary***

Our compensation and benefits programs are designed to reward and retain employees, including our named executive officers ("NEOs") in a manner that best aligns employees' interests and stockholders' interests. We accomplish this goal by a combination of cash compensation, including a base salary and performance bonuses, and equity awards, which create significant upside potential for strong performance, as well as downside exposure for underperformance. NEOs with greater responsibilities and ability to directly impact our long-term results have a greater participation in these equity awards, and therefore have more risk based on the achievement of the Company's goals and results.

The following discussion describes and analyzes our compensation objectives and policies as well as the material components of our compensation program for our NEOs during 2023. Our NEO's for 2023 were:

- Charles D. Vogt, President and Chief Executive Officer
- Justin K. Ferguson, Chief Legal Officer
- Deok Yeon Won, Chief Operating Officer, Asia

***Compensation Philosophy***

We strive to find the best talent, resources and infrastructure to serve our customers and key stakeholders, and execute on our strategy as a global provider of access and optical networking infrastructure and cloud software solutions. Our goal is to attract and retain highly qualified executives to manage and oversee each of our business functions. We seek out individuals who we believe will be able to contribute to our business, long-term success, culture, principles and values and who will promote the long-term interests and growth of our Company. Our compensation philosophy is intended to create a high-performance, outcome-driven and principled culture by holding leaders accountable for delivering results. In addition, we believe that our compensation policies and programs are appropriately balanced, reinforcing both short-term and long-term results, and as such they do not incentivize behavior that could have a material adverse effect on the Company. Our executive compensation program is designed to be market competitive, emphasize pay for performance, share risks and rewards with our stockholders, and reflect our principles and values.

Our executive compensation program includes the following components:

- base salary;
- incentive-based cash compensation;
- grants of long-term equity awards; and
- health, welfare and retirement benefits.

***Role of Our Compensation Committee***

Our Compensation Committee approves our executive compensation and all of our executive benefit plans and policies. The Compensation Committee is appointed by the Board of Directors and consists entirely of directors who are non-employee directors for purposes of Rule 16b-3 of the Exchange Act. In 2023, our Compensation Committee approved the compensation for all of our NEOs. Our Chief Executive Officer assesses NEO individual performance and compensation, excluding his own performance and compensation, each year and makes recommendations regarding each element of NEO compensation to the Compensation Committee. The Compensation Committee evaluates the performance of the Chief Executive Officer and determines and approves his compensation based on such evaluation. The Compensation Committee also has oversight over compensation of senior management and the effectiveness of our executive compensation and benefits programs.

***Competitive Market Review***

Our Compensation Committee determines compensation for our NEOs in large part based upon its assessment of competitive market data and individual executive roles and responsibilities to pursue our short and long-term strategy. In setting executive compensation for 2024, our Compensation Committee engaged Aon to review our NEOs' compensation, as well as the mix of elements used to compensate our NEOs, and compared that to a peer group and survey data from global technology companies with revenues of $200 million to $500 million. The Compensation Committee determined that Aon is independent and that there is no conflict of interest in retaining their services. Based on its review, the Compensation Committee concluded that our executive compensation program is consistent with market practices.

***Peer Group***

The criteria for determining the peer group in the Aon report consisted of comparable companies within the communications equipment industry, and with revenue between $100 million and $1.0 billion and market capitalizations between $150 million and $1.7 billion. Our 2024 peer group consisted of the following companies:

- Adtran Inc.;
- Applied Optoelectroncis Inc.;
- Aviat Networks, Inc.;
- Calix, Inc.;
- Casa Systems, Inc.;
- Digi International Inc.;
- Extreme Networks Inc.;
- Harmonic Inc.;
- Infinera Corp.;
- Inseego;
- KVH Industries;
- Lantronix;
- NetScout Systems;
- NetGear;
- Optical Cable;
- PCTel
- Ribbon Communications, Inc.; and
- Viavi Solutions.

***Base Salary***

Base salaries for our NEOs are established based on the scope of their responsibilities, individual contribution, prior experience, sustained performance and anticipated level of difficulty of replacing the employee with someone of comparable experience and skill. Decisions regarding salary increases take into account the executive's current salary and the amounts paid to the NEOs' peers outside the Company. In addition to considering the competitive pay practices of our peer group of companies, we also consider the amounts paid to a NEO's peers internally by conducting an internal pay equity analysis which compares the pay of each NEO to other members of the management team. Base salaries are reviewed periodically, but are not automatically increased if the Compensation Committee believes that other elements of compensation are more appropriate in light of our stated objectives. This strategy is consistent with our intent of offering compensation that is contingent on the achievement of performance objectives.

As of December 31, 2023, the base salaries for our named executive officers were as follows: Charles D. Vogt $600,000, Justin K. Ferguson $325,000, and Deok Yeon Won $300,000.

***Annual Bonus Plan***

Mr. Vogt, Mr. Ferguson, and Mr. Won are eligible to participate in a DZS annual bonus program, to be earned and paid quarterly. The Compensation Committee evaluates and approves bonus payments, if any, on a quarterly basis by reviewing the Company's overall results against the annual budget as approved by the Board of Directors with respect to various financial metrics as well as individual key performance goals. As of December 31, 2023, Mr. Vogt's target quarterly bonus is $150,000, Mr. Ferguson's target quarterly bonus is $40,625, and Mr. Won's target quarterly bonus is $75,000. For 2023, the Compensation Committee determined that the financial metrics under the annual bonus program would be based on two metrics – 50% weighted on the Company's revenue and 50% weighted on the Company's adjusted earnings before interest, taxes, depreciation and amortization ("Adjusted EBITDA").

We define Adjusted EBITDA as net income (loss) plus (i) interest expense, net, (ii) other income and expense, (iii) provision (benefit) for taxes, (iv) depreciation and amortization, (v) stock-based compensation, and (vi) the impact of material transactions or events that we believe are not indicative of our core operating performance, such as acquisition costs, impairment of goodwill, intangibles or long-lived assets, loss on debt extinguishment, legal costs related to certain litigation, restructuring and other charges, including termination related benefits, headquarters and facilities relocation, executive transition, and provision for credit losses primarily related to a large customer in India, any of which may or may not be recurring in nature.

Following completion of each quarter, the Compensation Committee determined the quarterly cash bonus payout for each executive officer. Such payout was calculated by multiplying the aggregate percentage achievement of the two financial metrics for each quarter by the bonus target for each such executive officer, subject to any adjustments determined appropriate by the Compensation Committee as described below. Any achievement for an applicable quarter in excess of 100% is not paid out until the end of the year.

The performance targets relating to the Company's revenues and Adjusted EBITDA under the annual bonus plan for each of the executive officers, as well as the actual results of these financial measurements for 2023, were as follows:

| | ANNUAL BONUS PLAN Target Bonus Metrics (in millions USD) | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Company Payout Performance Metric** | **Minimum 25%** | **Target 100%** | **Maximum 200%** | **'23 Results** | **Calculated Payout** | **Weighting** |
| First Quarter 2023 | Revenues | 86.4 | 96.0 | 108.0 | 69.8 | 0% | 12.5% |
| | Adjusted EBITDA | - | 0.1 | 4.1 | (11.3) | 0% | 12.5% |
| Second Quarter 2023 | Revenues | 91.0 | 101.2 | 113.8 | 60.3 | 0% | 12.5% |
| | Adjusted EBITDA | - | 1.3 | 5.2 | (14.9) | 0% | 12.5% |
| Third Quarter 2023 | Revenues | 97.0 | 107.8 | 121.3 | 49.4 | 0% | 12.5% |
| | Adjusted EBITDA | 8.0 | 11.9 | 17.3 | (20.6) | 0% | 12.5% |
| Fourth Quarter 2023 | Revenues | 103.9 | 115.4 | 129.9 | 64.9 | 0% | 12.5% |
| | Adjusted EBITDA | 12.5 | 16.9 | 23.0 | (25.1) | 0% | 12.5% |
| Total Year 2023 | **Revenues** | **378.4** | **420.4** | **473.0** | **244.5** | **0%** | **50.0%** |
| | **Adjusted EBITDA** | **20.5** | **30.1** | **49.7** | **(72.0)** | **0%** | **50.0%** |
| | **Total Weighted Payout :** | | | | | **0%** | |

As the Company's performance underachieved its revenue and Adjusted EBITDA targets, no amounts were paid under the annual bonus plan during 2023.

***Equity Awards***

To reward and retain employees in a manner that best aligns employees' interests with stockholders' interests, we use restricted stock units ("RSUs") and stock options as the primary incentive vehicle for long-term compensation opportunities. All of the equity awards incrementally vest over a period of years, in order to promote employee retention and focus on long-range goals. The Compensation Committee does not target specific percentiles for long-term incentive awards for our NEOs and uses a number of factors in establishing the long-term incentive award levels for each individual, including a review of each individual's accumulated vested and unvested awards, the current and potential realizable value over time using stock appreciation assumptions, vesting schedules, comparison of individual awards between executives and in relation to other compensation elements, market data, shareholder dilution and accounting expense. Should we perform well against our long-term goals, the long-term equity incentive awards will become a significant portion of the total compensation of each NEO. For more information on the 2023 long-term equity grants. During fiscal year 2023, no equity awards were granted to NEOs.

We do not have any program, plan, or practice to time equity grants to take advantage of the release of material information.

***Stockholder Advisory Vote on Executive Compensation***

We hold an advisory, non-binding stockholder vote on executive compensation every three years. At our 2023 Annual Meeting of Stockholders, our stockholders voted to approve the compensation of our NEOs, with approval of 56.91% of the votes cast. The Compensation Committee intends to continue to take into consideration the outcome of our stockholders' advisory "say-on-pay" votes along with market practices and the recommendations of its executive compensation advisor when making future compensation decisions for the NEOs. We also regularly engage in discussions with our largest institutional shareholders and solicit feedback on executive compensation as well as other areas.

***Health and Welfare Benefits***

Our NEOs are eligible to participate in all of our employee benefit plans, such as medical, dental, vision, group life and disability insurance, generally on the same basis as other employees. We believe that these health and welfare benefits help ensure that the Company has a productive and focused workforce.

***Other Benefits***

We provide our NEOs with other benefits when it is appropriate or necessary to incentivize them to join the Company or to retain them.

***Compensation Risk Assessment***

The Compensation Committee reviews the risks arising from our compensation policies and practices applicable to our NEOs and evaluates the policies and practices that could mitigate any such risk. Based on these reviews, the Compensation Committee does not believe that our compensation policies and practices create risks that are reasonably likely to have a material adverse effect on our Company.

***Tax And Accounting Considerations***

*Section 280G of the Internal Revenue Code*

Section 280G of the Internal Revenue Code disallows a tax deduction for "excess parachute payments" and Section 4999 of the Code imposes a 20% excise tax on any person who receives excess parachute payments. Our NEOs are not eligible to receive any tax gross-up payments in the event any payments made or that may be made to them become subject to this excise tax. The Compensation Committee will take into account the implications of Section 280G in determining potential payments to be made to our executives in connection with a change in control. Nevertheless, to the extent that certain payments upon a change in control are classified as excess parachute payments, such payments may not be deductible under Section 280G.

*Section 409A of the Internal Revenue Code*

Section 409A of the Internal Revenue Code, which governs the form and timing of payment of deferred compensation, imposes a 20% tax and an interest penalty on the recipient of deferred compensation that is subject to but does not comply with Section 409A. As a general matter, it is our intention to design and administer our compensation and benefits plans and arrangements for all of our employees and other service providers, including our NEOs, so that they are either exempt from, or satisfy the requirements of, Section 409A of the Code. The Compensation Committee will take into account the implications of Section 409A in determining the form and timing of compensation awarded to our executives and will strive to structure any nonqualified deferred compensation plans or arrangements to be exempt from or to comply with the requirements of Section 409A.

*Section 162(m) of the Internal Revenue Code*

*S*ection 162(m) disallows a tax deduction for any publicly held corporation for individual compensation exceeding $1 million in any taxable year for our CEO, our CFO, any employee who is one of the top three highest compensated executive officers for the tax year; or for any employee who was an NEO for any preceding taxable year beginning after December 31, 2016 referred to as “covered employees.” Further, since the enactment of tax reform legislation on December 22, 2017 (the “2017 Tax Reform Act”), “qualified performance-based compensation” is exempt from this $1 million limitation only if payable pursuant to a written binding contract in effect on November 2, 2017 (and that has not subsequently been materially modified). The Compensation Committee has not previously taken the deductibility limit imposed by Section 162(m) into consideration in setting compensation and as a result of the 2017 Tax Reform Act, a deduction for any compensation paid to our NEOs in excess of $1 million is disallowed.

***Severance and Change in Control Benefits***

We have employment, severance, change of control or release agreements with certain of the NEOs, as described below.

*Employment Agreement with Charles D. Vogt*

On July 30, 2020, the Company announced the appointment of Charles D. Vogt as the Company’s President and Chief Executive Officer, effective August 1, 2020. In connection with his appointment, Mr. Vogt entered into an employment agreement with the Company (such agreement, as subsequently amended, the “Vogt Employment Agreement”) that is discussed in greater detail below. The Vogt Employment Agreement provides that Mr. Vogt will have an annual base salary of $600,000, which will be reviewed on at least an annual basis by the Board of Directors or the Compensation Committee. Mr. Vogt will be eligible to participate in a performance-based annual bonus program approved by the Board of Directors, pursuant to which bonuses will be earned and paid, if at all, in equal quarterly installments. Mr. Vogt’s initial target quarterly bonus is $150,000, provided that Mr. Vogt’s actual bonus for each of the first four quarters following his commencement of employment (commencing with the quarter ending September 30, 2020) will be no less than $125,000, subject to his continued employment through the end of each applicable quarter. Mr. Vogt is also eligible to participate in all health benefits, insurance programs, pension and retirement plans and other employee benefit and compensation arrangements generally available to the Company’s other officers.

In connection with his appointment, the Board of Directors granted to Mr. Vogt: (i) an option to purchase 370,370 shares of the Company’s common stock (the “Special Option”), (ii) an option to purchase 148,148 shares of the Company’s common stock (the “Initial Option”), and (iii) an award of 44,444 restricted stock units (the “Initial RSUs”). The Special Option and the Initial Option have a ten-year term and an exercise price per share equal to the fair market value of the Company’s common stock on the date of grant. The Special Option vested on the third anniversary of Mr. Vogt’s commencement of employment, and the Initial Option vested with respect to 33% of the shares underlying the Initial Option on the first anniversary of Mr. Vogt’s commencement of employment, and the remainder vested ratably over 24 months thereafter. The Initial RSUs vest in three annual installments on June 10, 2021, 2022 and 2023. Vesting of the equity awards was immediately accelerated if, following a change in control, Mr. Vogt resigns for “good reason” (as defined below) or his employment is terminated by the Company for any reason other than by reason of death, disability or “cause” (as defined below). Future equity grants will be made at the discretion of the Board of Directors.

Under the Vogt Employment Agreement, Mr. Vogt will receive certain compensation in the event that he resigns for “good reason” or his employment is terminated by the Company for any reason other than by reason of death, disability or “cause” (each, a “Qualifying Termination”). In the event Mr. Vogt’s employment is terminated by reason of a Qualifying Termination, Mr. Vogt will be entitled to receive (i) his base salary through the date of termination, reimbursable business expenses in accordance with company policies, and any accrued, vested benefits, in each case to the extent not previously paid and (ii) a lump-sum payment equal to Mr. Vogt’s annual salary as in effect immediately prior to the date of termination. In addition, all unvested equity awards shall immediately vest (with the exception that the Special Option shall only vest if such termination occurs within twelve months of a change in control).

*Employment Agreement with Justin K. Ferguson*

On September 28, 2020, the Company announced the appointment of Justin K. Ferguson as the Company’s Chief Legal Officer, effective September 28, 2020. In connection with his appointment, Mr. Ferguson entered into an employment agreement with the Company (the “Ferguson Employment Agreement”) that is discussed in greater detail below. The Ferguson Employment Agreement provides that Mr. Ferguson will have an initial annual base salary of $300,000. The base salary will be reviewed on at least an annual basis by the Board of Directors or the Compensation Committee. Mr. Ferguson will be eligible to participate in a performance-based annual bonus program approved by the Board of Directors, pursuant to which bonuses will be earned and paid, if at all, in equal quarterly installments. Mr. Ferguson’s initial target annual bonus is $37,500 per quarter. Mr. Ferguson is eligible to participate in all health benefits, insurance programs, pension and retirement plans and other employee benefit and compensation arrangements generally available to the Company's other officers, including a cell phone allowance. Mr. Ferguson's base salary was increased to $325,000 effective January 1, 2022.

In connection with his appointment, the Board of Directors granted Mr. Ferguson stock options to purchase 37,500 shares of the Company's common stock and 37,500 restricted stock units under the Company's equity plan. Such options, which have a ten-year term and an exercise price per share equal to the fair market value of the Company's common stock on the date of grant, vested over a three-year period, with 33% vesting on the first anniversary of Mr. Ferguson's commencement of employment and the remainder vesting ratably over 24 months thereafter. The restricted stock units vested in three equal installments on June 10, 2021, 2022 and 2023. Vesting of the equity awards was immediately accelerated if Mr. Ferguson resigns for "good reason" (as defined below) or his employment is terminated by the Company for any reason other than by reason of death, disability or "cause" (as defined below).

Under the Ferguson Employment Agreement, Mr. Ferguson will receive certain compensation in the event that he resigns for "good reason" or his employment is terminated by the Company for any reason other than by reason of death, disability or "cause" (each, a "Qualifying Termination"). In the event Mr. Ferguson's employment is terminated by reason of a Qualifying Termination, Mr. Ferguson will be entitled to receive (i) his base salary through the date of termination, reimbursable business expenses in accordance with company policies, and any accrued, vested benefits, in each case to the extent not previously paid, (ii) a lump-sum payment equal to Mr. Ferguson's annual salary as in effect immediately prior to the date of termination and (iii) Mr. Ferguson's bonus for the quarter in which the termination occurs based on actual Company performance. Vesting of the equity awards will be immediately accelerated if Mr. Ferguson resigns for "good reason" (as defined below) or his employment is terminated by the Company for any reason other than by reason of death, disability or "cause" (as defined below). Future equity grants will be made at the discretion of the Board of Directors.

*Employment Agreement with Deok Yeon Won*

On August 21, 2023, the Company entered into an employment agreement with Deok Yeon Won (the "Won Employment Agreement") as the Company's Chief Operating Officer, Asia. Mr. Won has been with the Company since 2016 and previously held the position of Chief Customer Officer, Asia and Chief Product Officer. Under the terms of the Won Employment Agreement, Mr. Won receives a base salary of $300,000. The base salary will be reviewed on at least an annual basis by the Board of Directors or the Compensation Committee. Mr. Won will be eligible to participate in a performance-based annual bonus program approved by the Board of Directors, pursuant to which bonuses will be earned and paid, if at all, in equal quarterly installments. Mr. Won's initial target annual bonus is $75,000 per quarter. Mr. Won is eligible to participate in all health benefits, insurance programs, pension and retirement plans and other employee benefit and compensation arrangements generally available to the Company's other officers, including a cell phone allowance.

Under the Won Employment Agreement, Mr. Won will receive certain compensation in the event that he resigns for "good reason" or his employment is terminated by the Company for any reason other than by reason of death, disability or "cause" (each, a "Qualifying Termination"). In the event Mr. Won's employment is terminated by reason of a Qualifying Termination, Mr. Won will be entitled to receive (i) his base salary through the date of termination, reimbursable business expenses in accordance with company policies, and any accrued, vested benefits, in each case to the extent not previously paid, (ii) payment equal to six months of Mr. Won's annual salary as in effect immediately prior to the date of termination, and (iii) Mr. Won's bonus for the quarter in which the termination occurs based on actual Company performance. Vesting of the equity awards will be immediately accelerated if Mr. Won resigns for "good reason" (as defined below) or his employment is terminated by the Company for any reason other than by reason of death, disability or "cause" (as defined below). The Severance Payment will be made, at the sole discretion of the Company, by lump sum payment or over a six-month period in accordance with the Company's standard payroll practice. Future equity grants will be made at the discretion of the Board of Directors.

*Defined Terms in Employment Agreements*

For purposes of the employment agreements described above, "cause" is generally defined to include: (1) the executive's willful or continued failure to substantially perform his or her duties with the Company, or any failure to carry out, or comply with, in any material respect any lawful and reasonable directive of the Board of Directors (or, with respect to Mr. Ferguson, or Mr. Won, the Chief Executive Officer) consistent with the terms of his or her employment agreement, which failure continues for 15 days following the executive's receipt of written notice from the Board of Directors, (2) the executive's conviction of, guilty plea to, or entry of a nolo contendere plea to a felony or a crime of moral turpitude or commission of an act of fraud, embezzlement or misappropriation against us, (3) the executive's willful or reckless misconduct that has caused or is reasonably likely to cause demonstrable and material financial injury to the Company, or (4) the executive's willful and material breach of his or her employment agreement (with respect to Mr. Ferguson or Mr. Won), which breach remains uncured for 15 days following his or her receipt of written notice by the Board of Directors or the Chief Executive Officer.

For purposes of the employment agreements, "good reason" is generally defined to include the occurrence of any of the following events without his or her consent: (1) a material diminution in the executive's base compensation, (2) a material diminution in the executive's authority, duties or responsibilities, (3) a material change in the geographic location at which the executive must perform his or her duties, or (4) any other action or inaction that constitutes a material breach by the Company of its obligations under the employment agreement.

## 2023 SUMMARY COMPENSATION TABLE

The following table sets forth the compensation earned during the years ended December 31, 2023 and 2022 for our "named executive officers."

| Name and Principal Position | Year | Salary ($) (1) | Bonus ($) (2) | Stock Awards ($) (3) | Option Awards ($) (3) | Non-Equity Incentive Plan Compensation ($) (4) | Change in Pension Value and Non qualified Deferred Compensation on Earnings ($) | All Other Compensation ($) (5) | Total ($) |
|---|---|---|---|---|---|---|---|---|---|
| **Charles D. Vogt** | 2023 | 600,000 | - | - | - | - | - | 36,227 | 636,227 |
| President & CEO | 2022 | 600,000 | 80,000 | 3,520,008 | - | 450,000 | - | 52,521 | 4,702,529 |
| **Justin K. Ferguson** | 2023 | 325,000 | - | - | - | - | - | 33,417 | 358,417 |
| CLO & Corporate Secretary | 2022 | 325,000 | 24,000 | 895,997 | - | 121,875 | - | 33,332 | 1,400,204 |
| **Deok Yeon Won** | 2023 | 396,979 | - | - | - | - | - | 73,249 | 470,228 |
| Chief Operating Officer, Asia | 2022 | 410,528 | - | 479,100 | - | 100,195 | - | 74,086 | 1,063,909 |

(1) Represents the actual base salary payments made to the NEOs. See the employment agreements discussion above for further information.

(2) Represents discretionary performance bonuses paid to the NEOs. For 2022, these amounts include $80,000 and $24,000 ASSIA transaction close recognition bonuses paid to Charles Vogt and Justin Ferguson, respectively. There were no discretionary bonuses paid to the NEOs during 2023.

(3) Represents the grant date fair value of the stock and option awards granted during the applicable fiscal year to our named executive officers, calculated in accordance with FASB ASC Topic 718. Pursuant to SEC rules, the amounts shown exclude the impact of estimated forfeitures related to service-based vesting conditions. For additional information on the valuation assumptions used in the calculation of these amounts, refer to Part II - Item 8. Financial Statements - Note 9. Justin Ferguson, was provided an opportunity to exchange two stock options granted in 2021 under 2017 Incentive Award Plan for one restricted stock unit with the vesting period equal the remaining vesting period for options as of the exchange date. As a result of the transaction, a total of 10,000 stock options granted to the aforementioned NEO were cancelled and 5,000 restricted stock units were granted in exchange. The Company accounted for the exchange as a modification of share-based payments. No incremental expense was recorded in conjunction with the modification. Since restricted stock units issued represented an exchange transaction and not a new grant, these awards were not included into the Summary Compensation Table.

(4) Represents compensation earned as a performance-based incentive bonus, pursuant to the DZS Annual Bonus Plan.

(5) Represents the incremental cost to the Company of providing certain perquisites and other personal benefits. For 2023, these amounts include:

| | Company Contributions to 401(k) Plan | Medical and Other Insurance | Corporate Car | Other |
|---|---|---|---|---|
| **Charles D. Vogt** | 15,000 | 21,227 | - | - |
| **Justin K. Ferguson** | 7,557 | 25,860 | - | - |
| **Deok Yeon Won** | 35,619 | 22,480 | 11,950 | 3,200 |

## OUTSTANDING EQUITY AWARDS AT DECEMBER 31, 2023

The following table lists all outstanding equity awards held by our NEOs as of December 31, 2023.

| | Option Awards (1) | | | | | | Stock Awards (1) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Name** | **Number of Securities Underlying Unexercised Options (#) Exercisable** | | **Number of Securities Underlying Unexercised Options (#) Unexercisable (1)** | **Equity Incentive Plan Awards: Number of Securities Underlying Unexercised Unearned Options (#)** | **Option Exercise Price ($)** | **Option Expiration Date** | **Number of shares or units of stock that have not vested (#)** | **Market value of shares or units of stock that have not vested ($)** | **Equity incentive plan awards: number of unearned shares, units or other rights that have not vested (#)** | | **Equity incentive plan awards: market or payout value of unearned shares, units or other rights that have not vested ($)** |
| Charles D. Vogt | 518,518 | (2) | — | — | 10.11 | | — | — | 200,252 | (3) | 394,496 |
| Justin K. Ferguson | 37,500 | (4) | — | — | 9.52 | | — | — | 47,564 | (5) | 93,701 |
| Deok Yeon Won | 1,250 | (6) | — | — | 4.75 | | — | — | 27,500 | (8) | 54,175 |
| Deok Yeon Won | 16,676 | (7) | — | — | 9.63 | | — | — | — | | — |

(1) The vesting of the stock and option awards held by our named executive officers may accelerate under certain circumstances as described below under “Potential Payments Upon Termination.”

(2) Option to purchase 370,370 shares of the Company’s common stock (the “Special Option”) and an option to purchase 148,148 shares of the Company’s common stock (the “Initial Option”). The Special Option vested on the third anniversary of Mr. Vogt’s commencement of employment, and the Initial Option vested with respect to 33% of the shares underlying the Initial Option on the first anniversary of Mr. Vogt’s commencement of employment, and the remainder vested ratably over 24 months thereafter.

(3) Restricted stock units that vest in equal installments on the following dates:
- July 1, 2021 grant vests on July 1, 2022, 2023 and 2024
- July 1, 2022 grant vests on July 1, 2023, 2024 and 2025

(4) Option to purchase 37,500 shares of the Company's common stock. Thirty-three percent (33%) of the options vested on September 28, 2021 and the remainder vested in twenty-four (24) equal monthly installments thereafter.

(5) Restricted stock units that vest in equal installments on the following dates:
- July 1, 2021 grant vests on July 1, 2022, 2023, 2024, and 2025
- October 1, 2021 grant vests on October 1, 2022, 2023, and 2024
- July 1, 2022 grant vests on July 1, 2023, 2024 and 2025
- July 1, 2022 grant vests on June 30, 2023 and 2024 (this grant was issued in conjunction with the stock options to RSUs exchange discussed above)

(6) Option to purchase 1,250 shares of the Company's common stock. Thirty-three percent (33%) of the options vested on January 11, 2017 and the remainder vested in twenty-four (24) equal monthly installments thereafter.

(7) Option to purchase 16,676 shares of the Company's common stock. Thirty-three percent (33%) of the options vested on August 9, 2018 and the remainder vested in twenty-four (24) equal monthly installments thereafter.

(8) Restricted stock units that vest in equal installments on the following dates:
- July 1, 2021 grant vests on July 1, 2022, 2023, 2024, and 2025
- July 1, 2022 grant vests on July 1, 2023, 2024, and 2025

**POTENTIAL PAYMENTS UPON TERMINATION, CHANGE IN CONTROL OR CORPORATE TRANSACTION**

The following table shows the estimated value of the aggregate payments and benefits that would be paid to each NEO assuming an involuntary separation of service for other than cause effective as of the last day of fiscal 2023.

| Name | Salary and Bonus Payment | Equity Awards Acceleration (1) |
|---|---|---|
| Charles D. Vogt | 600,000 | 394,496 |
| Justin K. Ferguson | 325,000 | 93,701 |
| Deok Yeon Won | 150,000 | 54,175 |

(1) Represents fair value of stock and option awards as of the last day of fiscal 2023 that would be realized upon acceleration. The fair value was computed in accordance with the methodology used for financial reporting purposes.

The following table shows the estimated value of the aggregate payments and benefits that would be paid to each NEO assuming a termination upon a change in control effective as of the last day of fiscal 2023.

| Name | Salary and Bonus Payment | Equity Awards Acceleration (1) |
|---|---|---|
| Charles D. Vogt | 600,000 | 394,496 |
| Justin K. Ferguson | 325,000 | 93,701 |
| Deok Yeon Won | - | - |

(1) Represents fair value of stock and option awards as of the last day of fiscal 2023 that would be realized upon acceleration. The fair value was computed in accordance with the methodology used for financial reporting purposes.

## PAY VERSUS PERFORMANCE

As required by Section 953(a) of the Dodd-Frank Wall Street Reform and Consumer Protection Act and Item 402(v) of Regulation S-K, the following disclosure (the "Pay Versus Performance Disclosure") describes the relationship between executive compensation and the Company's performance with respect to select financial measures. For a complete description regarding the Company's compensation program, please see "Compensation Discussion and Analysis."

| Year (1) | Summary Compensation Table Total for PEO (Charles D. Vogt) (2) | Compensation Actually Paid to PEO (Charles D. Vogt) (3) | Average Summary Compensation Table Total for Non-PEO NEOs (2) | Average Compensation Actually Paid to Non-PEO NEOs (3) | Total Shareholder Return (4) | Peer Group Total Shareholder Return (5) | Net Loss (in thousands) | Revenue (in thousands) | Adjusted EBITDA (in thousands) (6) |
|---|---|---|---|---|---|---|---|---|---|
| 2023 | 636,227 | (3,164,355) | 414,323 | (1,065,757) | 12.73 | 87.97 | (135,218) | 244,541 | (72,001) |
| 2022 | 4,702,529 | 2,437,283 | 1,242,294 | 860,265 | 143.12 | 95.61 | (41,270) | 357,528 | (7,696) |
| 2021 | 5,308,073 | 4,929,066 | 2,117,939 | 1,223,767 | 183.07 | 127.87 | (34,683) | 350,206 | 10,605 |

(1) The Company's Principal Executive Officer ("PEO") and Non-PEO NEOs for the applicable years were as follows:

2023: Charles D. Vogt served as the Company's PEO for the entirety of 2023. Non-PEO NEOs included Justin K. Ferguson and Deok Yeon Won.

2022: Charles D. Vogt served as the Company's PEO for the entirety of 2022. Non-PEO NEOs included Misty Kawecki, Justin K. Ferguson, Miguel Alonso, and Norman L. Foust.

2021: Charles D. Vogt served as the Company's PEO for the entirety of 2021. Non-PEO NEOs included Misty Kawecki, Thomas Cancro, and Justin K. Ferguson. Misty Kawecki served as the Company's CFO starting her appointment effective July 29, 2021. Thomas Cancro served as the Company's CFO until then.

(2) Amounts reported in this column represent (i) the total compensation reported in the Summary Compensation Table for the applicable year for the PEOs, and (ii) the average of the total compensation reported in the Summary Compensation Table for the applicable year for the Company's Non-PEO NEOs. Since Mr. Cancro did not receive any equity-based awards in 2020, the stock awards compensation included into 2020 average. Since Mr. Cancro and Ms. Kawecki both served as the Company's CFO at certain period of time in 2021, we considered their compensation as one for the purposes of average compensation calculation.

(3) To calculate compensation actually paid, adjustments were made to the amounts reported in the Summary Compensation Table for the applicable year. A reconciliation of the adjustments is set forth following the footnotes to this table.

(4) Pursuant to rules of the SEC, the comparison assumes $100 was invested on December 31, 2019. Historic stock price performance is not necessarily indicative of future stock price performance.

(5) The Total Shareholder Return ("TSR") Peer Group consists of the Nasdaq Telecommunications (IXTC), an independently prepared index that includes companies in the telecommunication industry.

(6) We define Adjusted EBITDA as net income (loss) plus (i) interest expense, net, (ii) other income and expense, (iii) provision (benefit) for taxes, (iv) depreciation and amortization, (v) stock-based compensation, and (vi) the impact of material transactions or events that we believe are not indicative of our core operating performance, such as acquisition costs, impairment of goodwill, intangibles or long-lived assets, loss on debt extinguishment, legal costs related to certain litigation, restatement related costs, restructuring and other charges, including termination related benefits, headquarters and facilities relocation, executive transition, and provision for credit losses primarily related to a large customer in India, any of which may or may not be recurring in nature.

The following table summarizes adjustments used to calculate compensation actually paid to PEOs.

| | 2023 | 2022 | 2021 |
|---|---|---|---|
| | Charles D. Vogt | Charles D. Vogt | Charles D. Vogt |
| Total Compensation as reported in Summary Compensation Table (a) | $ 5,308,073 | $ 4,702,529 | $ 5,308,073 |
| - Grant Date Fair Value of Stock and Option Awards Granted in Fiscal Year (b) | - | (3,520,008) | (4,180,000) |
| + Fair Value at Fiscal Year-End of Outstanding and Unvested Stock and Option Awards Granted in Fiscal Year (c) | - | 2,773,966 | 3,244,000 |
| + Change in Fair Value of Outstanding and Unvested Stock and Option Awards Granted in Prior Fiscal Years (d) | (7,058,170) | (1,479,931) | 347,470 |
| + Fair Value at Vesting of Stock and Option Awards Granted in Fiscal Year that Vested During Fiscal Year (e) | - | - | - |
| + Change in Fair Value as of Vesting Date of Stock and Option Awards Granted in Prior years that Vested During Fiscal Year (f) | (1,414,258) | (39,273) | 209,523 |
| - Fair Value as of Prior Fiscal Year-End of Stock and Option Awards Granted in Prior Fiscal Years that Failed to Meet Applicable Vesting Conditions During Fiscal Year (g) | - | - | - |
| Compensation Actually Paid | $ (3,164,355) | $ 2,437,283 | $ 4,929,066 |

The following table summarizes adjustments used to calculate compensation actually paid to Non-PEO NEOs. See footnote 1 above for the Non-PEO NEOs included in the average for each year.

| | 2023 | 2022 | 2021 |
|---|---|---|---|
| Total Compensation as reported in Summary Compensation Table (a) | $ 414,323 | $ 1,242,294 | $ 414,323 |
| - Grant Date Fair Value of Stock and Option Awards Granted in Fiscal Year (b) | - | (826,850) | (1,526,579) |
| + Fair Value at Fiscal Year-End of Outstanding and Unvested Stock and Option Awards Granted in Fiscal Year (c) | - | 662,470 | 1,104,827 |
| + Change in Fair Value of Outstanding and Unvested Stock and Option Awards Granted in Prior Fiscal Years (d) | (1,413,973) | (194,413) | 30,902 |
| + Fair Value at Vesting of Stock and Option Awards Granted in Fiscal Year that Vested During Fiscal Year (e) | - | - | - |
| + Change in Fair Value as of Vesting Date of Stock and Option Awards Granted in Prior years that Vested During Fiscal Year (f) | (66,107) | (23,236) | 1,369 |
| - Fair Value as of Prior Fiscal Year-End of Stock and Option Awards Granted in Prior Fiscal Years that Failed to Meet Applicable Vesting Conditions During Fiscal Year (g) | - | - | (504,691) |
| Compensation Actually Paid | $ (1,065,757) | $ 860,265 | $ (479,849) |

(a) Represents Total Compensation as reported in the Summary Compensation Table for the indicated fiscal year. With respect to the Non-PEO NEOs, amounts shown represent averages.

(b) Represents the grant date fair value of the stock awards granted during the indicated fiscal year, computed in accordance with the methodology used for financial reporting purposes.

(c) Represents the fair value as of the indicated fiscal year-end of the outstanding and unvested stock awards granted during such fiscal year, computed in accordance with the methodology used for financial reporting purposes.

(d) Represents the change in fair value during the indicated fiscal year of each stock award that was granted in a prior fiscal year and that remained outstanding and unvested as of the last day of the indicated fiscal year, computed in accordance with the methodology used for financial reporting purposes.

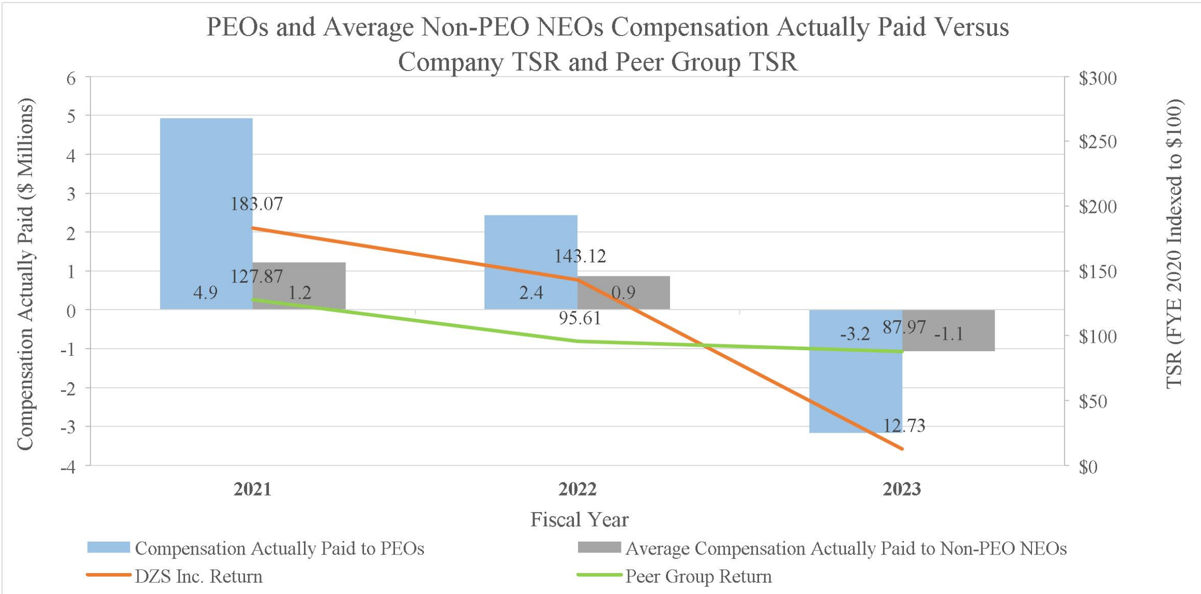
(e) Represents the fair value at vesting of the stock awards that were granted and vested during the indicated fiscal year, computed in accordance with the methodology used for financial reporting purposes.

(f) Represents the change in fair value, measured from the prior fiscal year-end to the vesting date, of each stock award that was granted in a prior fiscal year and which vested during the indicated fiscal year, computed in accordance with the methodology used for financial reporting purposes

(g) Represents the fair value as of the last day of the prior fiscal year of the stock awards that were granted in a prior fiscal year and which failed to meet the applicable vesting conditions in the indicated fiscal year, computed in accordance with the methodology used for financial reporting purposes.

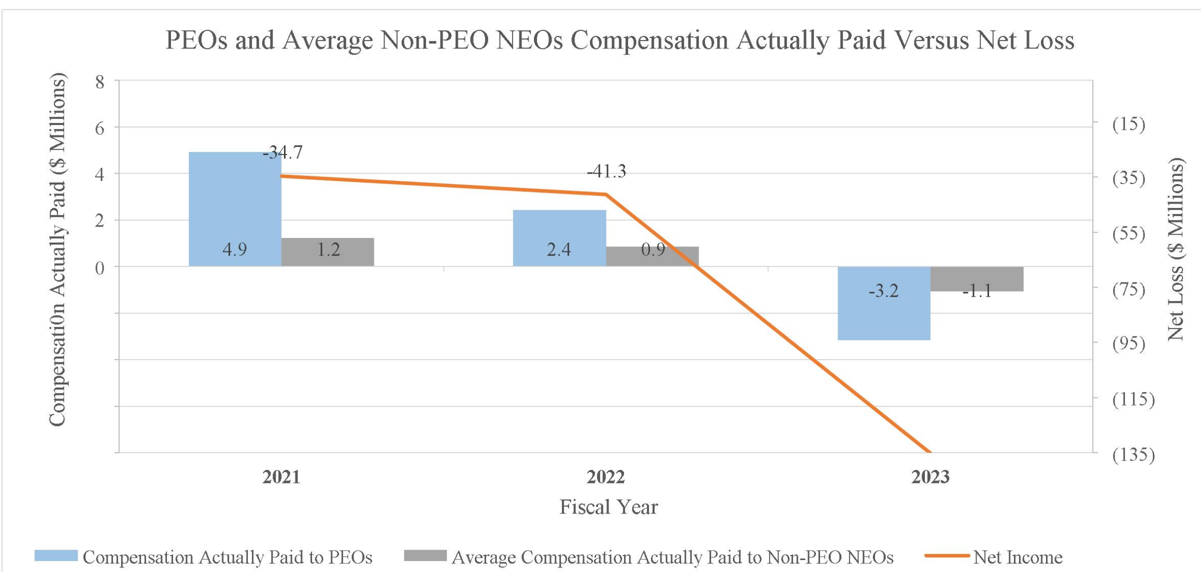
***Description of Relationship Between PEO and Non-PEO NEO Compensation Actually Paid, Company TSR and Peer Group TSR***

The following chart sets forth the relationship between Compensation Actually Paid to our PEOs, the average of Compensation Actually Paid to our Non-PEO NEOs, the Company's cumulative TSR over the three most recently completed fiscal years, and the peer group TSR for the same period.



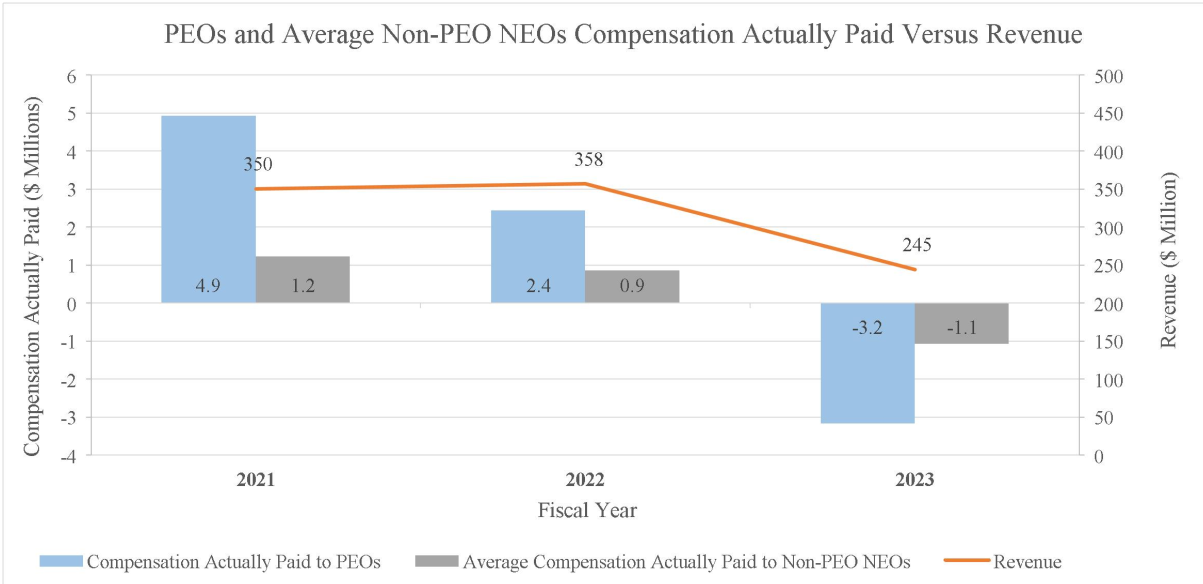

***Description of Relationship Between PEO and Non-PEO NEO Compensation Actually Paid and Net Loss***

The following chart sets forth the relationship between Compensation Actually Paid to our PEOs, the average of Compensation Actually Paid to our Non-PEO NEOs, and our net loss during the three most recently completed fiscal years.



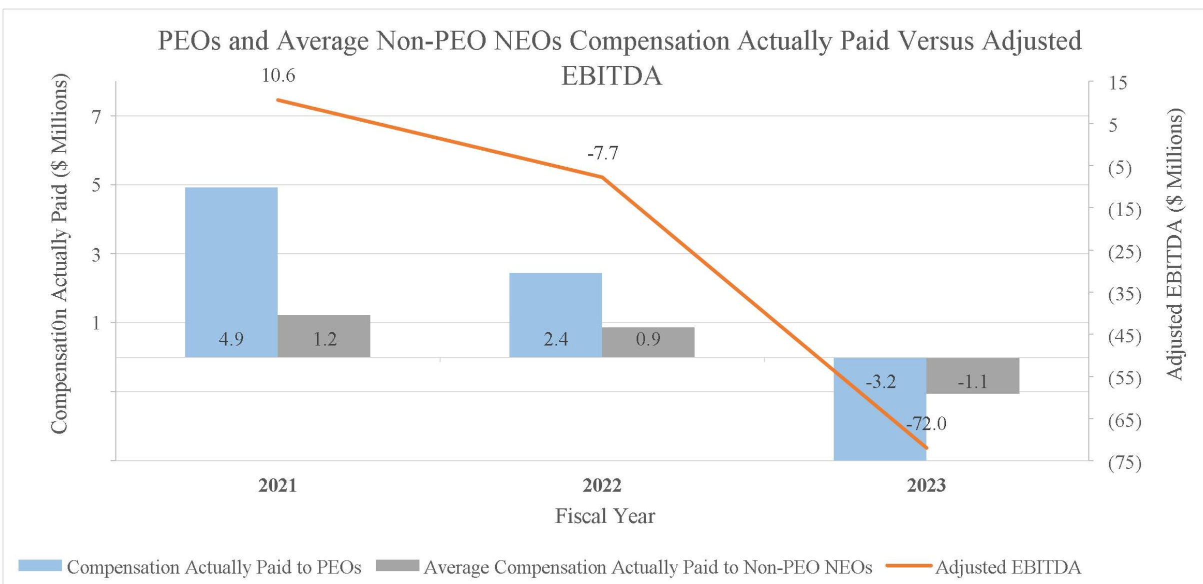

***Description of Relationship Between PEO and Non-PEO NEO Compensation Actually Paid and Revenue***

The following chart sets forth the relationship between Compensation Actually Paid to our PEOs, the average of Compensation Actually Paid to our Non-PEO NEOs, and Revenue during the three most recently completed fiscal years.




***Description of Relationship Between PEO and Non-PEO NEO Compensation Actually Paid and Adjusted EBITDA***

The following chart sets forth the relationship between Compensation Actually Paid to our PEOs, the average of Compensation Actually Paid to our Non-PEO NEOs, and Adjusted EBITDA during the three most recently completed fiscal years.




***Tabular List of Most Important Financial Performance Measures***

The following table presents the financial performance measures that the Company considers to have been the most important in linking Compensation Actually Paid to our PEOs and our Non-PEO NEOs for 2023 Company performance. The measures in this table are not ranked.

| |
|---|
| Revenue |
| Adjusted EBITDA |

**DIRECTOR COMPENSATION**

Charles D. Vogt, who also serves as an officer of the Company, does not receive any additional compensation for his service as a director.

Under our non-employee director compensation program, each non-employee director is entitled to receive an annual cash retainer of $35,000 (pro-rated for partial years) that is paid quarterly. Directors may elect to receive an equivalent amount of fully vested shares of our common stock in lieu of the annual cash retainer. To align the interests of directors with the long-term interests of stockholders, each non-employee director is also entitled to receive an annual equity grant in the form of restricted stock units. The restricted stock units are granted on the first trading day of each calendar year. The number of restricted stock units granted is determined by dividing $100,000 by the fair market value per share of our common stock on the date of grant. The annual equity grant of restricted stock units will vest in four equal installments at the end of each quarter over the course of one year following the grant date, assuming continued service as a director of the Company. In addition, (i) members of the Audit Committee receive an annual cash retainer of $15,000, (ii) members of the Compensation Committee receive an annual cash retainer of $10,000, (iii) members of the Nominating and Corporate Governance Committee and Strategy Committee receive an annual cash retainer of $5,000, (iv) the chairman of the Board is entitled to receive an annual cash retainer of $10,000, and (v) the chairs of the Audit Committee, the Compensation Committee, the Corporate Governance and Nominating Committee and the Strategy Committee are each entitled to receive an annual cash retainer of $5,000. All cash retainers are paid quarterly for continued service on the committees. Non-employee directors are also entitled to reimbursement of reasonable out-of-pocket expenses incurred attending Board and committee meetings, and in connection with Board related activities.

The following table sets forth the compensation earned during the year ended December 31, 2023 by each of our non-employee directors.

| Name (1) | | Fees Earned or Paid in Cash ($) | Stock Awards ($) (3) | Option Awards ($) | Non-Equity Incentive Plan Compensation ($) | Nonqualified Deferred Compensation Earnings ($) | All Other Compensation ($) | Total ($) |
|---|---|---|---|---|---|---|---|---|
| Min Woo Nam | (2) | 37,500 | 49,985 | - | - | - | - | 87,485 |
| Matt W. Bross | (1) | 60,000 | 99,995 | - | - | - | - | 159,995 |
| Barbara Carbone | (1) | 65,000 | 99,995 | - | - | - | - | 164,995 |
| Joon Kyung Kim | (1) | 72,500 | 99,995 | - | - | - | - | 172,495 |
| David Schopp | (1) | 65,000 | 99,995 | - | - | - | - | 164,995 |
| Choon Yul Yoo | (1) | 35,000 | 99,995 | - | - | - | - | 134,995 |

(1) As of December 31, 2023, there were no stock options or unvested stock awards held by these members of the board of directors

(2) Mr. Nam resigned from the Board effective September 15, 2023. Upon resigning, all unvested outstanding equity awards were cancelled.

(3) This column represents the grant date fair value of the equity awards granted in 2023 to the non-employee directors, as calculated in accordance with ASC Topic 718. For these awards, the grant date fair value is calculated using the closing price of our common stock on the grant date as if these awards were vested and issued on the grant date. Pursuant to SEC rules, the amounts shown exclude the impact of estimated forfeitures related to service-based vesting conditions. For additional information on the valuation assumptions used in the calculation of these amounts, refer to Part II - Item 8. Financial Statements - Note 9.

## ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The following table sets forth information known to us regarding ownership of our common stock on July 22, 2024 by (i) each person or entity, including any "group" as that term is used in Section 13(d)(3) of the Exchange Act, who or which was known to the Company to be the beneficial owner of more than 5% of the issued and outstanding common stock, (ii) the directors and director nominees of the Company, (iii) the executive officers of the Company named in the Summary Compensation Table above, and (iv) all directors, director nominees and executive officers of the Company as a group.

| Name of Beneficial Owner (1) | Number of Shares Beneficially Owned (2) | | Percent Owned (3) |
|---|---|---|---|
| DASAN Networks, Inc. | 9,093,015 | (4) | 23.9 % |
| IV Global Fund No. 4 | 5,434,783 | (5) | 14.3 % |
| EdgeCo, LLC | 12,200,000 | (6) | 24.3 % |
| Charles D. Vogt | 793,764 | (7) | 2.1 % |
| Matt Bross | 17,065 | (8) | * |
| Barbara Carbone | 17,065 | (9) | * |
| Joon Kyung Kim | 24,246 | (10) | * |
| Chon Yul Yoo | 26,925 | (11) | * |
| Justin K. Ferguson | 102,855 | (12) | * |
| All directors, named executive officers and their affiliates as a group (6 persons) | 981,920 | | 2.5 % |

* Denotes less than 1%.

(1) Under the rules of the SEC, a person is the beneficial owner of securities if that person has sole or shared voting or investment power. Except as indicated in the footnotes to this table and subject to applicable community property laws, to our knowledge, the persons named in the table have sole voting and investment power with respect to all shares of common stock beneficially owned. Unless otherwise indicated, the address for each person or entity named below is c/o DZS Inc., 5700 Tennyson Parkway, Suite 400 Plano, Texas, 75024.

(2) In computing the number of shares beneficially owned by a person named in the table and the percentage ownership of that person, shares of common stock that such person had the right to acquire within 60 days after July 22, 2024 are deemed outstanding, including without limitation, upon the exercise of options or vesting of restricted stock units. These shares are not, however, deemed outstanding for the purpose of computing the percentage ownership of any other person.

(3) For each person included in the table, percentage ownership is calculated by dividing the number of shares beneficially owned by such person by the sum of (a) 38,024,783 shares of common stock outstanding on July 22, 2024 plus (b) the number of shares of common stock that such person had the right to acquire within 60 days after July 22, 2024.

(4) The address of DASAN Networks, Inc. is DASAN Tower, 49, Daewangpangyo-ro 644 Beon-gil Budang-gu, Sungnam-si, Gyeonggi-do, 463-400, Korea. Consists

(5) The address of IV Global Fund No. 4 is 1218 Two IFC, 10 Gukjegeumyung-ro Yeongdeungpo-gu, Seoul, Republic of Korea.

(6) The address of EdgeCo, LLC is 3326 Aspen Grove Drive, Suite 400, Franklin, TN 37067 USA. Consists of 12,200,000 shares subject to warrants exercisable by EdgeCo, LLC.

(7) Consists of (a) 275,246 shares held by Mr. Vogt, and (b) 518,518 shares subject to stock options exercisable by Mr. Vogt.

(8) Consists of 17,065 shares held by Mr. Bross.

(9) Consists of 17,065 shares held by Ms. Carbone.

(10) Consists of 24,246 shares held by Mr. Kim.

(11) Consists of 26,925 shares held by Mr. Yoo.

(12) Consists of (a) 65,355 shares held by Mr. Ferguson, and (b) 37,500 shares subject to stock options exercisable by Mr. Ferguson.

## EQUITY COMPENSATION PLAN INFORMATION

The following table provides information as of December 31, 2023 with respect to shares of our common stock that may be issued under existing equity compensation plans. The table does not include information with respect to shares subject to outstanding options granted under equity compensation arrangements assumed by us in connection with mergers and acquisitions of the companies that originally granted those options.

| Plan Category | Number of securities to be issued upon exercise of outstanding options, warrants, and rights | | Weighted average exercise price of outstanding options, warrants and rights | | Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in the first column | |
|---|---|---|---|---|---|---|
| Equity compensation plans approved by security holders | 2,158,124 | (1) | $ 11.72 | (1) | 1,425,163 | (2) |
| Equity compensation plans not approved by security holders | 518,518 | (3) | 10.11 | | - | |

(1) Includes 1,396,621 shares of unvested or unissued restricted stock units outstanding as of December 31, 2023 and 761,503 shares underlying options under the 2017 Plan. The weighted average exercise price of those outstanding options is $11.72 per share.

(2) Includes shares available for future issuance under our 2017 Plan and the 2018 Employee Stock Purchase Plan. As of December 31, 2023, 729,053 shares of common stock were available for future issuance under the 2018 Employee Stock Purchase Plan.

(3) Includes 518,518 options issued in connection with the Non-Qualified Inducement Stock Option Grant Notices and Stock Option Agreements, each dated August 1, 2020 between the Company and Charles D. Vogt.

## ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

### *Related Party Debt*

On October 31, 2022, DNS Korea, the Company’s wholly-owned subsidiary, entered into a Loan Agreement with Dasan Networks, Inc. ("DNI") (the “November 2022 DNI Loan”). The November 2022 DNI Loan was negotiated and approved on behalf of the Company and its subsidiaries by the audit committee of the Board of Directors of the Company which consists of directors determined to be independent from DNI. The November 2022 DNI Loan consisted of a term loan in the amount of KRW 7.2 billion ($5.0 million USD), with interest payable monthly at an annual rate of 6.0%. The entire outstanding balance on the November 2022 DNI Loan was repaid in the first quarter of 2023.

On January 31, 2023, DNS Korea entered into another short-term loan arrangement with DNI (the “February 2023 DNI Loan”) and borrowed KRW 5.0 billion ($4.1 million USD), with interest payable monthly at an annual rate of 7.0%. The entire outstanding balance on the February 2023 was repaid in the second quarter of 2023.

On May 12, 2023, DNS Korea entered into another short-term loan arrangement with DNI (the “May 2023 DNI Loan”) and borrowed KRW 4.0 billion ($3.0 million USD), with interest payable monthly at an annual rate of 7.0%. The entire outstanding balance on the May 2023 DNI Loan was repaid in the third quarter of 2023.

On September 12, 2023 and September 22, 2023, DNS Korea entered into two long-term Loan Agreements (the “DNI Loan Agreements”) with DNI, as lender, DZS California, Inc., a California corporation, as collateral provider, and DZS Inc. Pursuant to the DNI Loan Agreements, DNS Korea received two three-year term loans in an aggregate principal amount equal to KRW 39.6 billion, the equivalent of $29.9 million as of the date of the transactions. The net proceeds under the DNI Loan Agreements were used to repay the outstanding obligations under the JPM Credit Agreement, and the JPM Credit Agreement was terminated on December 14, 2023.

The Loan Agreement contains certain financial covenants, including requiring DNS Korea to maintain (i) a maximum Leverage Ratio (as defined in the Loan Agreement) of (a) 6.00 to 1.00 at the end of each of the second and third quarter of 2024, (b) 5.00 to 1.00 from the fourth quarter of 2024 through the second quarter of 2025 and (c) 4.00 to 1.00 from the third quarter of 2025 until the DNI Loan is repaid in full, (ii) cash of at least KRW 1.3 billion and (iii) a combined total of cash, accounts receivable and inventory of at least KRW 33.0 billion.

In addition, the Loan Agreement contains various covenants that limit the ability of the Company, DNS Korea and DZS California to, among other things, (i) grant liens on the Collateral Assets to any third party, (ii) sell, donate, pledge, provide as collateral or otherwise dispose of the Pledged Shares to any third party, (iii) incur or assume indebtedness, (iv) make loans to affiliates or (v) engage in certain other transactions or make certain other fundamental changes.

The Company's debt obligation under the DNI Loan Agreements was KRW 39.6 billion ($30.6 million USD) as of December 31, 2023.

***Other Related Party Transactions***

The Company has entered into sales agreements with DNI to sell certain services and finished goods produced by the Company. The Company also has an agreement with DNI in which DNI acts as a sales channel to third party customers. The above transactions are included in sales and cost of revenue on the consolidated statements of comprehensive income (loss). Net revenue from DNI is recorded net of royalty fees for a sales channel arrangement.

DNS Korea has a lease agreement with DNI related to the lease of a warehouse facility. DNS Korea also had a separate office lease agreement with DNI. In the first quarter of 2022, DNI sold the office building to the unrelated third party, and the respective lease was reassigned to the new landlord. Operating lease cost related to DNI leases totaled $0.4 million and $0.5 million, for the years ended December 31, 2023 and 2022, respectively. Operating lease expense is allocated between cost of revenue, research and product development, and selling, marketing, general and administrative expenses on the consolidated statements of comprehensive income (loss). As of December 31, 2023, the right-of-use asset and operating lease liability related to DNI leases were $1.3 million. As of December 31, 2022, the right-of-use asset and operating lease liability related to DNI leases were $1.7 million.

The Company also pays a license fee under the Trademark License Agreement with DNI. The license fee is calculated as 0.4% of DNS Korea annual sales. For the years ended December 31, 2023 and 2022, license related expense were $0.5 million and $0.7 million, respectively, and were included into selling, marketing, general and administrative expenses on the consolidated statements of comprehensive income (loss).

Interest expense, net represents interest paid to DNI for the related party debt. Interest due to DNI was included in accrued and other liabilities on the consolidated balance sheets as of December 31, 2023 and 2022.

Other expenses, net to related parties represent expenses to DNI for its payment guarantees relating to the Company's performance obligations. The Company pays DNI a guarantee fee which is calculated as 0.9% of the guaranteed amount.

See Part II - Item 8. Financial Statements - Note 12 for additional information regarding related party transactions involving DNI and its affiliates.

Daniel Vogt is employed by the Company in the sales department. During the year ended December 31, 2023, Mr. Vogt’s total compensation received from the Company was $234,716. Mr. Vogt is the son of Charles D. Vogt, our Chief Executive Officer and a Director of the Company. The Company believes that the consideration paid to Daniel Vogt is consistent with the compensation paid to other similarly situated employees of the Company.

## ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

### PRINCIPAL ACCOUNTING FEES AND SERVICES

The following is a summary of EY’s fees for professional services rendered to the Company for the years ended December 31, 2023 and 2022, respectively:

| Fee Category | 2023 Fees | 2022 Fees |
|---|---|---|
| Audit Fees | $ 75,000 | $ 1,985,300 |
| Audit-Related Fees | 334,500 | 254,825 |
| Tax Fees | — | 124,710 |
| All Other Fees | — | 3,827 |
| Total | $ 409,500 | $ 2,368,662 |

*Audit Fees.* This category includes the audit of our annual financial statements, review of financial statements, audit of our internal control over financial reporting, review of our Form 10-Q quarterly reports, and services that are normally provided by the independent registered public accounting firm in connection with statutory and regulatory filings or engagements.

*Audit-Related Fees.* This category consists of assurance and related services provided by Ernst & Young that are reasonably related to the performance of the audit or review of our financial statements and are not reported above as “Audit Fees.” These services include accounting fees in connection with a registration statement.

*Tax Fees.* This category consists of professional services rendered by Ernst & Young, primarily in connection with tax compliance, tax planning and tax advice activities. These services include assistance with the preparation of tax returns, claims for refunds, value added tax compliance, and consultations on state, local and international tax matters.

*All Other Fees.* This category consists of fees for products and services other than the services reported above, principally including accounting tool subscription services and software implementation services.

**PRE-APPROVAL POLICY OF THE AUDIT COMMITTEE**

The Audit Committee’s policy is to pre-approve all audit and permissible non-audit services provided by the independent registered public accounting firm. These services may include audit services, audit-related services, tax services and other services. Pre-approval is generally provided for up to one year, is detailed as to the particular service or category of services and is generally subject to a specific budget. The independent registered public accounting firm and management are required to periodically report to the Audit Committee regarding the extent of services provided by the independent registered public accounting firm in accordance with this pre-approval, and the fees for the services performed to date. The Audit Committee may also pre-approve particular services on a case-by-case basis. All fees shown in the table above were pre-approved in accordance with the policies described above.

## PART IV

### ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

1. Financial Statements

The Index to Consolidated Financial Statements on page 36 is incorporated herein by reference as the list of financial statements required as part of this Annual Report on Form 10-K.

2. Exhibits

The exhibits required to be filed by Item 601 of Regulation S-K are listed in the "Index to Exhibits" immediately preceding the exhibits hereto and such listing is incorporated herein by reference.

### ITEM 16. FORM 10-K SUMMARY

None.

## INDEX TO EXHIBITS

| Exhibit Number | Exhibit Description | Incorporated by Reference Form | Exhibit | Filing Date | Filed or Furnished Herewith |
|---|---|---|---|---|---|
| 3.1 | Restated Certificate of Incorporation of DASAN Zhone Solutions, Inc., as amended through February 28, 2017 | 10-K | 3.1 | September 27, 2017 | |
| 3.1.1 | Certificate of Amendment to the Restated Certificate of Incorporation of DZS Inc. | 8-K | 3.1 | August 27, 2020 | |
| 3.2 | Amended and Restated Bylaws of DZS Inc. | 10-K | 3.2 | March 11, 2021 | |
| 3.3 | Certificate of Amendment to the Restated Certificate of Incorporation of DZS Inc. | | | | X |
| 4.1 | Description of Capital Stock | | | | X |
| 10.1# | DASAN Zhone Solutions, Inc. 2017 Incentive Award Plan | 8-K | 10.1 | January 10, 2017 | |
| 10.1.1# | Amendment to DASAN Zhone Solutions, Inc. 2017 Incentive Award Plan | 10-K | 10.1.1 | March 12, 2019 | |
| 10.1.2# | Form of Stock Option Agreement for the DASAN Zhone Solutions, Inc. 2017 Incentive Award Plan | 8-K | 10.2 | January 10, 2017 | |
| 10.1.3# | Form of Restricted Stock Unit Award Agreement for the DASAN Zhone Solutions, Inc. 2017 Incentive Award Plan | 10-K | 10.1 | September 27, 2017 | |
| 10.2# | DASAN Zhone Solutions, Inc. Amended and Restated 2001 Stock Incentive Plan, as amended | 8-K | 10.6 | September 13, 2016 | |
| 10.2.1# | Form of Stock Option Agreement for the DASAN Zhone Solutions, Inc. Amended and Restated 2001 Stock Incentive Plan, as amended | 8-K | 10.7 | September 13, 2016 | |
| 10.2.2# | Form of Restricted Stock Award Agreement for the DASAN Zhone Solutions, Inc. Amended and Restated 2001 Stock Incentive Plan, as amended | 8-K | 10.2 | May 17, 2007 | |
| 10.2.3# | Form of Restricted Stock Unit Award Agreement for the DASAN Zhone Solutions, Inc. Amended and Restated 2001 Stock Incentive Plan, as amended | 10-Q | 10.3 | November 14, 2016 | |
| 10.3# | DASAN Zhone Solutions, Inc. 2018 Employee Stock Purchase Plan | S-8 | 10.1 | November 8, 2018 | |
| 10.4# | DASAN Zhone Solutions, Inc. Non-Employee Director Compensation Program | 10-K | 10.4 | April 4, 2018 | |
| 10.5# | Form of Indemnity Agreement (directors and officers) | 10-Q | 10.20 | May 14, 2004 | |
| 10.6# | Employment Agreement dated August 1, 2020, by and between DASAN Zhone Solutions, Inc. and Charles Daniel Vogt | 10-Q | 10.2 | November 6, 2020 | |
| 10.6.1# | First Amendment to Employment Agreement dated as of June 1, 2021 by and between DZS Inc. and Charlie Vogt | 8-K | 10.1 | June 4, 2021 | |
| 10.7# | Stock Option Agreement dated August 1, 2020, by and between DASAN Zhone Solutions, Inc. and Charles Daniel Vogt | S-8 | 99.1 | August 14, 2020 | |
| 10.8# | Stock Option Agreement dated August 1, 2020, by and between DASAN Zhone Solutions, Inc. and Charles Daniel Vogt | S-8 | 99.2 | August 14, 2020 | |
| 10.9# | Employment Agreement dated as of August 2, 2021, by and between DZS Inc. and Misty D. Kawecki | 8-K | 10.1 | August 2, 2021 | |

| Exhibit Number | Exhibit Description | Incorporated by Reference Form | Exhibit | Filing Date | Filed or Furnished Herewith |
|---|---|---|---|---|---|
| 10.10# | Employment Agreement dated as of September 28, 2020 by and between DZS Inc. and Justin K. Ferguson | 10-K | 10.10 | March 11, 2021 | |
| 10.11 | Registration Rights Agreement, dated as of September 9, 2016, by and among DASAN Zhone Solutions, Inc., DASAN Networks, Inc. and the other parties thereto | 8-K | 10.3 | September 12, 2016 | |
| 10.12 | Credit Agreement, dated as of February 9, 2022, among DZS Inc., as Borrower, the other Loan Parties party thereto, the Lenders from time to time parties thereto and JPMorgan Chase Bank, N.A., as Administrative Agent. | 8-K | 10.1 | February 10, 2022 | |
| 10.13 | First Amendment to Credit Agreement, dated as of May 27, 2022, among DZS Inc., as Borrower, the other Loan Parties party thereto, the Lenders party thereto and JPMorgan Chase Bank, N.A., as Administrative Agent. | 8-K | 10.1 | June 1, 2022 | |
| 10.14 | Second Amendment to Credit Agreement, dated as of February 15, 2023, among DZS Inc., as Borrower, the other Loan Parties party thereto, the Lenders party thereto and JPMorgan Chase Bank, N.A., as Administrative Agent. | 8-K | 10.1 | February 16, 2023 | |
| 10.15 | Third Amendment to Credit Agreement, dated as of May 8, 2023, among DZS Inc., as Borrower, the other Loan Parties party thereto, the Lenders party thereto and JPMorgan Chase Bank, N.A., as Administrative Agent. | 10-Q | 10.4 | May 9, 2023 | |
| 10.16 | Loan Agreement, dated as of September 12, 2023, by and among Dasan Networks, Inc., as Lender, Dasan Network Solutions, Inc., as Borrower, DZS California, Inc., as Collateral Provider, and DZS Inc. (solely for the limited purposes stated therein) (English translation). | 8-K | 10.1 | September 13, 2023 | |
| 10.17 | Loan Agreement, dated as of September 22, 2023, by and among Dasan Networks, Inc., as Lender, Dasan Network Solutions, Inc., as Borrower, DZS California, Inc., as Collateral Provider, and DZS Inc. (English translation). | 8-K | 10.1 | September 27, 2023 | |
| 10.18 | Loan Agreement, dated as of December 29, 2023, by and between EdgeCo, LLC and DZS Inc. | 8-K | 10.1 | January 5, 2023 | |
| 10.19 | Warrant Agreement, dated as of December 29, 2023, by and between EdgeCo, LLC and DZS Inc. | 8-K | 10.2 | January 5, 2023 | |
| 10.20 | Registration Rights Agreement, dated as of December 29, 2023, by and between EdgeCo, LLC and DZS Inc. | 8-K | 10.3 | January 5, 2023 | |
| 10.21 | Securities Purchase Agreement, dated as of December 29, 2023, by and between DZS Inc. and IV Global Fund No. 4. | 8-K | 10.4 | January 5, 2023 | |
| 10.22 | Amended and Restated Registration Rights Agreement, dated as of January 3, 2024 by and between DZS Inc., and DASAN Networks, Inc. and IV Global Fund No. 4. | 8-K | 10.5 | January 5, 2024 | |
| 21.2 | List of Subsidiaries | | | | X |
| 23.1 | Consent of Independent Registered Public Accounting Firm | | | | X |
| 31.1 | Certification of Chief Executive Officer Pursuant to Rule 13a-14(a)/15d-14(a) | | | | X |

| Exhibit Number | Exhibit Description | Incorporated by Reference Form | Exhibit | Filing Date | Filed or Furnished Herewith |
|---|---|---|---|---|---|
| 31.2 | Certification of Chief Financial Officer Pursuant to Rule 13a-14(a)/15d-14(a) | | | | X |
| 32.1 | Section 1350 Certification of Chief Executive Officer and Chief Financial Officer | | | | X |
| 97.1 | Policy for the recovery of erroneously awarded compensation | | | | X |
| 101.INS | Inline XBRL Instance Document – the instance document does not appear in the Interactive Data File because XBRL tags are embedded within the Inline XBRL document | | | | X |
| 101.SCH | Inline XBRL Taxonomy Extension Schema With Embedded Linkbase | | | | X |
| 104 | Cover Page Interactive Data File (embedded within the Inline XBRL document and included in Exhibit 101) | | | | X |

**SIGNATURES**

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

DZS INC.

Date: August 13, 2024

By: /s/ Charles Daniel Vogt
Charles Daniel Vogt
President, Chief Executive Officer and Director

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

| Signature | Title | Date |
| --- | --- | --- |
| /s/ Charles Daniel Vogt<br>**Charles Daniel Vogt** | President, Chief Executive Officer (Principal Executive Officer) and Director | August 13, 2024 |
| /s/ Misty Kawecki<br>**Misty Kawecki** | Chief Financial Officer (Principal Financial Officer) | August 13, 2024 |
| /s/ Brian Chesnut<br>**Brian Chesnut** | Chief Accounting Officer (Principal Accounting Officer) | August 13, 2024 |
| /s/ Matt Bross<br>**Matt Bross** | Director | August 13, 2024 |
| /s/ Barbara Carbone<br>**Barbara Carbone** | Director | August 13, 2024 |
| /s/ Joon Kyung Kim<br>**Joon Kyung Kim** | Director | August 13, 2024 |
| /s/ Choon Yul Yoo<br>**Choon Yul Yoo** | Director | August 13, 2024 |
| /s/ Todd Jackson<br>**Todd Jackson** | Director | August 13, 2024 |
| /s/ Woong Ji Choi<br>**Woong Ji Choi** | Director | August 13, 2024 |

**CERTIFICATE OF AMENDMENT TO
THE
RESTATED CERTIFICATE OF INCORPORATION
OF DZS INC.**

**DZS Inc.,** a corporation organized and existing under and by virtue of the General Corporation Law of the State of Delaware (the "Corporation") does hereby certify:

FIRST: That a resolution was duly adopted by the Board of Directors of the Corporation setting forth a proposed amendment to the Restated Certificate of Incorporation of the Corporation, as amended, in the form set forth below (the "Amendment"), declaring the Amendment to be advisable and calling for consideration of said proposed Amendment by the stockholders of the Corporation.

"RESOLVED, that, having determined that an increase in the Corporation's authorized Common Stock to 72,000,000 shares is in the best interest of the Corporation and its stockholders, subject to the consideration and approval of the Corporation's stockholders, Article IV of the Restated Certificate of lncorporation of the Corporation, as amended, be, and it hereby is, amended in its entirety with the following:

"IV. (A) The total number of shares of all classes of capital stock which the Corporation shall have authority to issue is Ninety-Seven Million (97,000,000) shares, of which: Seventy-Two Million (72,000,000) shares, par value $.001 per share, shall be shares of common stock (the "Common Stock"); and Twenty-Five Million (25,000,000) shares, par value $.001 per share, shall be shares of preferred stock (the "Preferred Stock").

(B) Common Stock. Except as (1) otherwise required by law or (2) expressly provided in this Restated Certificate of Incorporation (as amended from time to time), each share of Common Stock shall have the same powers, rights and privileges and shall rank equally, share ratably and be identical in all respects as to all matters.

(1) Dividends. Subject to the rights of the holders of Preferred Stock, and to the other provisions of this Restated Certificate of Incorporation (as amended from time to time), holders of Common Stock shall be entitled to receive equally, on a per share basis, such dividends and other distributions in cash, securities or other property of the Corporation as may be declared thereon by the Board of Directors from time to time out of assets or funds of the Corporation legally available therefore.

(2) Voting Rights. At every annual or special meeting of stockholders of the Corporation, each holder of Common Stock shall be entitled to cast one (1) vote for each share of Common Stock standing in such holder's name on the stock transfer records of the Corporation.

(3) Liquidation Rights. In the event of any liquidation, dissolution or winding up of the affairs of the Corporation, whether voluntary or involuntary, after payment or provision for payment of the Corporation's debts and amounts payable upon shares of Preferred Stock entitled to a preference, if any, over holders of Common Stock upon such dissolution, liquidation or winding up, the remaining net assets of the Corporation shall be distributed among holders of shares of Common Stock equally on a per share basis. A merger or consolidation of the Corporation with or into any other corporation or other entity, or a sale or conveyance of all or any part of the assets of the Corporation (which shall not in fact result in the liquidation of the Corporation and the distribution of assets to its stockholders) shall not be deemed to be a voluntary or involuntary liquidation or dissolution or winding up of the Corporation within the meaning of this Paragraph (B)(3).

(C) Preferred Stock. The Board of Directors is authorized, subject to limitations prescribed by law, to provide by resolution or resolutions for the issuance of shares of Preferred Stock in one or more series, to establish the number of shares to be included in each such series, and to fix the voting powers (if any), designations, powers, preferences, and relative, participating, optional or other rights, if any, of the shares of each such series, and any qualifications, limitations or restrictions thereof. Irrespective of the provisions of Section 242(b)(2) of the DGCL, the number of authorized shares of Preferred Stock may be increased or decreased (but not below the number of shares thereof then outstanding) by the affirmative vote of the holders of a majority in voting power of the stock of the Corporation entitled to vote, without the separate vote of the holders of the Preferred Stock as a class."

(4) SECOND: That thereafter, pursuant to resolution of its Board of Directors, a special meeting of the stockholders of the Corporation was duly called and held upon notice in accordance with Section 222 of the General Corporation Law of the State of Delaware on May 30, 2023, at which meeting the necessary number of shares as required by statute were voted in favor of the Amendment.

(5) THIRD: That the Amendment was duly adopted in accordance with the provisions of Section 242 of the General Corporation Law of the State of Delaware.

(6) IN WITNESS WHEREOF, the Corporation has caused this Certificate of Amendment to the Restated Certificate of lncorporation of the Corporation to be signed this 31st day of May, 2023.

DZS Inc.

**BY:** /s/ Justin Ferguson
**Title**: Chief Legal Officer
**Name:** Justin Ferguson

**Exhibit 4.1**

# DESCRIPTION OF THE REGISTRANT'S SECURITIES REGISTERED PURSUANT TO SECTION 12 OF THE SECURITIES EXCHANGE ACT OF 1934

The following summary of the material terms of the common stock of DZS Inc. (the "Company") summarizes the material terms of, is subject to and qualified in its entirety by reference to the terms and provisions of our restated certificate of incorporation, as amended (the "Charter"), and our amended and restated bylaws (the "Bylaws"). For the complete terms of our common stock, please refer to the Charter and the Bylaws, each as may be amended from time to time. Our common stock is the only class of securities of the Company that is registered pursuant to Section 12 of the Securities Exchange Act of 1934, as amended.

## General

We have authorized 97,000,000 shares of capital stock, of which 72,000,000 are shares of common stock, par value $0.001 per share, and 25,000,000 are shares of preferred stock, par value $0.001 per share. As of July 22, 2023, there were 38,024,783 shares of common stock issued and outstanding and no shares of preferred stock issued and outstanding. The rights, preferences and privileges of holders of common stock are subject to the rights of the holders of any series of preferred stock that we may designate and issue in the future. Our common stock is listed on the Nasdaq under the symbol "DZSI". Until August 8, 2024, the Company's common stock was traded on Nasdaq under the symbol "DZSI". Since August 8, 2024, the Company's common stock has been suspended from trading on Nasdaq, and is traded on the OTC market under the symbol "DZSI".

## Board of Directors

The Board of Directors is divided into three classes of directors that are as nearly equal as possible, with no class having less than one director. Directors are elected for three-year terms with a different classes' term expiring at each annual meeting. Directors continue to hold office until their respective successors are elected and qualified.

## Dividends

We have never paid or declared any cash dividends on our common stock and do not anticipate paying cash dividends in the foreseeable future. Any future determination to pay cash dividends will be at the discretion of the Board of Directors, subject to any applicable restrictions under our debt and credit agreements, and will be dependent upon our financial condition, results of operations, capital requirements, general business condition and such other factors as the Board of Directors may deem relevant.

In the event the Board of Directors does issue a dividend, subject to the rights of the holders of any preferred stock, holders of our common stock are entitled to receive equally, on a per share basis, such dividends and other distributions in cash, securities or other property of the Company as may be declared by the Board of Directors.

## Voting Rights

Except as otherwise required by law or by the Charter, each holder of common stock is entitled to cast one vote for each share of common stock standing in such holder's name on the stock transfer records of the Company. A quorum of stockholders is necessary to hold a valid meeting of stockholders. The presence, in person or by proxy, of the holders of a majority of the issued and outstanding common stock entitled to vote at such meeting, is necessary to constitute a quorum at such meeting. Directors are elected by a plurality of votes.

For all other matters presented to stockholders, unless otherwise required by applicable law, the Bylaws or the Charter, a majority of the voting power of the issued and outstanding stock of the Company entitled to vote thereon, present and voting, in person or represented by proxy, shall decide the matter. Certain amendments to the Charter require 66-2/3% approval of the voting power of the Company that would be entitled to vote in the election of directors (i.e., Articles V (Board of Directors), VI (Limitation of Liability), VII (Indemnification), VIII (Stockholder Action) and IX (Amendment). The Bylaws may be amended by a majority vote of the Board of Directors or by 66-2/3% of the voting power of all shares of the Company entitled to vote generally in the election of directors, voting as a single class.

**No Preemptive or Similar Rights**

Our common stock is not entitled to preemptive rights and is not subject to conversion, redemption or sinking fund provisions. The rights, preferences and privileges of the holders of our common stock are subject to, and may be adversely affected by, the rights of the holders of any series of our preferred stock that we may designate and issue in the future.

**Liquidation and Distribution**

Upon the liquidation, dissolution or winding up of the Company, the holders of common stock are entitled to ratably receive our net assets remaining for distribution after the payment of all debts and other liabilities and subject to the prior rights of any outstanding preferred stock.

**Preferred Stock**

The Board of Directors is authorized to, subject to any limitations imposed by applicable law, provide for issuances of preferred stock. The Board of Directors is further authorized to fix the voting powers, designations, powers, preferences and other rights of each series of preferred stock. The number of authorized shares of preferred stock may only be increased or decreased by the affirmative vote of the holders of a majority in voting power of the Company entitled to vote, without the separate vote of the holders of preferred stock as a class.

**Transfer Agent and Registrar**

Our transfer agent and registrar for our capital stock is Computershare Trust Company, N.A. The transfer agent's address is P.O. Box 505000, Louisville, KY 40233, and its telephone number is (800) 942-5909.

## ANTI-TAKEOVER PROVISIONS OF THE CHARTER AND THE BYLAWS

**General**

The Charter and the Bylaws contain certain provisions that could have an effect of delaying, deferring or preventing a change in control of the Company in the event of a merger, reorganization, sale or transfer of substantially all of the Company's assets, or some other extraordinary corporate transaction involving the Company. Set forth below is a description of such provisions. The description is intended as a summary only and is qualified in its entirety by reference to the Delaware General Corporation Law (the "DGCL"), the Charter and the Bylaws.

**Advance Notice Requirements for Stockholder Proposals and Director Nominations**

The Bylaws establish an advance notice procedure for stockholder proposals to be brought before an annual meeting of stockholders, including proposed nominations of persons for election to the Board of Directors. Stockholders at an annual meeting may only consider proposals or nominations specified in the notice of meeting or brought before the meeting, by or at the direction of the Board of Directors or by a stockholder of record on the date of a stockholder's notice and on the record date for the determination of stockholders entitled to vote on the annual meeting, who is entitled to vote at the meeting and who has delivered timely written notice in proper form to the Secretary of the Company.

**Choice of Forum**

The Charter provides that the Court of Chancery of the State of Delaware is the sole and exclusive forum for (i) any derivative action or proceeding brought on behalf of the Company, (ii) any action asserting a claim of breach of a fiduciary duty owed by any director, officer, employee or agent of the Company to the Company or the Company's stockholders, (iii) any action asserting a claim against the Company arising pursuant to any provision of the DGCL, the Charter or the Bylaws, or (iv) any action asserting a claim against the Company governed by the internal affairs doctrine, in each such case subject to the Court of Chancery having personal jurisdiction over the indispensable parties named as defendants therein.

**Delaware Anti-takeover Law**

The Company is subject to Section 203 of the DGCL ("Section 203"), an anti-takeover law. In general, Section 203 prohibits a publicly held Delaware corporation from engaging in a business combination with an interested stockholder for a period of three years following the date such person became an interested stockholder, unless the business combination or the transaction in which such person became an interested stockholder is approved in a prescribed manner. Generally, a "business combination" includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the interested stockholder. Generally, an "interested stockholder" is a person that, together with affiliates and associates, owns, or within three years prior to the determination of interested stockholder status did own, 15% or more of a corporation's voting stock.

**Exhibit 21.2**

DZS Inc[1]
List of Subsidiaries
DZS Inc. had the following subsidiaries at December 31, 2023:

| | Organized under the laws of |
|---|---|
| DZS California Inc.[2] | California |
| DASAN Network Solutions, Inc. | Korea |
| DASAN India Private Limited | India |
| DZS Vietnam Company Limited[3] | Vietnam |
| D-Mobile Limited | Taiwan |
| DZS Japan Inc. | Japan |
| DZS Solutions India Private Limited | India |
| DZS Canada Inc.[4] | Canada |
| Optelian Mexico, S. de R.L. de C.V. | Mexico |
| Optelian Servicios Mexico, S. de R.L. de C.V. | Mexico |
| DZS GmbH[5] | Germany |
| DZS Ltd.[6] | United Kingdom |
| Keymile Ltda. | Brazil |
| Paradyne Corporation | Delaware |
| Paradyne Finance Corp. | Delaware |
| DZS Sweden AB[7] | Sweden |
| DZS International Ltd.[8] | Cayman Islands |
| Zhone Technologies B.V. | Netherlands |
| Zhone Technologies Campus, LLC | California |
| DZS Colombia Limitada[9] | Colombia |
| Dasan Zhone Solutions do Brasil[10] | Brazil |
| DZS International Inc.[11] | Delaware |
| DZS Solutions Limited[15] | Hong Kong |
| Zhone Technologies Pte. Ltd. | Singapore |
| DZS Mexico S. de R.L. de C.V.[12] | Mexico |
| DZS Italy S.R.L.[13] | Italy |
| DZS Services Inc.[14] | Delaware |
| Zhone Technologies, SA (PTY) LTD | South Africa |
| DZS Solutions Spain S.L.U. | Spain |

[1] Formerly known as DASAN Zhone Solutions, Inc., name change effective as of August 26, 2020.
[2] Formerly known as DASAN Network Solutions, Inc., name change effective as of December 10,2021.
[3] Formerly known as DASAN Vietnam Company Limited, name change effective as of June 22, 2022.
[4] Formerly known as Optelian Access Networks Corp., name change effective as of November 24, 2021.
[5] Formerly known as Keymile GMbH, name change effective as of November 23, 2020.
[6] Formerly known as Keymile Ltd., formerly known as DZSI Ltd., name change effective October 6, 2020.
[7] Formerly known as Zhone AB, name change effective as of November 25, 2021.
[8] Formerly known as Zhone International Ltd., name change effective as of January 14, 2022.
[9] Formerly known as Zhone Technologies de Colombia Limitada, name change effective as of November 15, 2022.
[10] Formerly known as Zhone Technologies do Brasil LTDA, name change effective as of August 13, 2018.
[11] Formerly known as Zhone Technologies International, Inc., name change effective as of October 23, 2020.
[12] Formerly known as Zhone Technologies S. de R.L. de C.V., name change effective as of May 26, 2022.
[13] Formerly known as Zhone Technologies S.R.L., name change effective as of March 8, 2022.
[14] Formerly known as ZTI Merger Subsidiary III, Inc., name change effective as of October 23, 2020.
[15] Formerly known as DZS Solutions Limited, name change effective as of March 14, 2023.

**Exhibit 23.1**

Consent of Independent Registered Public Accounting Firm

We hereby consent to the incorporation by reference in the Registration Statements of DZS Inc. (the Company) on Forms S-8 (File Nos. 333-263395, 333-254218, 333-246295, 333-230236, 333-228276, 333-221568, 333-202580, 333-194334, 333-180148, 333-172876, 333-165510, 333-158009, 333-155321, 333-149598, 333-141153, 333-132336, and 333-123369) of our report dated August 13, 2024, relating to the consolidated financial statements and the effectiveness of internal control over financial reporting, of the Company appearing in the Company's Annual Report on Form 10-K for the year ended December 31, 2023. Our report on the effectiveness of internal control over financial reporting expresses an adverse opinion on the effectiveness of the Company's internal control over financial reporting as of December 31, 2023.

/s/ BDO USA, P.C.

Dallas, Texas

August 13, 2024

**EXHIBIT 31.1**

**CERTIFICATION OF CHIEF EXECUTIVE OFFICER**
**PURSUANT TO**
**RULE 13a-14(a)/15d-14(a)**

I, Charles Daniel Vogt, certify that:

1. I have reviewed this Annual Report on Form 10-K of DZS Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: August 13, 2024

/s/ Charles Daniel Vogt

Charles Daniel Vogt
President, Chief Executive Officer

**EXHIBIT 31.2**

**CERTIFICATION OF CHIEF FINANCIAL OFFICER**
**PURSUANT TO**
**RULE 13a-14(a)/15d-14(a)**

I, Misty Kawecki, certify that:

1. I have reviewed this Annual Report on Form 10-K of DZS Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant’s other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and

5. The registrant’s other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant’s auditors and the audit committee of the registrant’s board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant’s ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant’s internal control over financial reporting.

Date: August 13, 2024

/s/ Misty Kawecki
Misty Kawecki
Chief Financial Officer
(Principal Financial and Accounting Officer)

**EXHIBIT 32.1**

**SECTION 1350 CERTIFICATIONS**

Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, Charles Daniel Vogt, President and Chief Executive Officer of DZS Inc. (the "Company"), and Misty Kawecki, Chief Financial Officer (Principal Financial and Accounting Officer) of the Company, each hereby certify that, to their knowledge:

1. The Company’s Annual Report on Form 10-K for the fiscal year ended December 31, 2023 (the “Report”) fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, and

2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: August 13, 2024

| | |
|---|---|
| /s/ Charles Daniel Vogt | /s/ Misty Kawecki |
| Charles Daniel Vogt | Misty Kawecki |
| President, Chief Executive Officer | Chief Financial Officer<br>(Principal Financial and Accounting Officer) |

**POLICY FOR THE RECOVERY OF ERRONEOUSLY AWARDED COMPENSATION**

1.Purpose. The purpose of this Policy is to describe circumstances in which the Company will recover Erroneously Awarded Compensation and the process for such recovery. This Policy is intended to comply with (a) Section 954 of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010, as codified in Section 10D of the Exchange Act, and implemented by Rule 10D-1 thereunder adopted by the Commission and (b) Rule 5608 of the Nasdaq Stock Market LLC Rules.

2.Administration. This Policy shall be administered by the Compensation Committee. Any determinations made by the Compensation Committee shall be final and binding on all affected individuals.

3.Definitions. For purposes of this Policy, the following capitalized terms shall have the meanings set forth below.

a. "***Audit Committee***" means the Audit Committee of the Board.

b. "***Board***" means the Board of Directors of the Company.

c. "***Commission***" means the United States Securities and Exchange Commission.

d. "***Company***" means DZS Inc., a Delaware corporation.

e. "***Compensation Committee***" means the Compensation Committee of the Board.

f. "***Compensation Eligible for Recovery***" means Incentive-based Compensation received by an individual:

i. after beginning service as an Executive Officer,

ii. who served as an Executive Officer at any time during the performance period for the applicable Incentive-based Compensation (regardless of whether such individual is serving as an Executive Officer at the time the Erroneously Awarded Compensation is required to be repaid to the Company),

iii. while the Company had a class of securities listed on a national securities exchange or a national securities association,

iv. during the applicable Recovery Period, and

v. on or after the Effective Date.

g. "***Effective Date***" means November 28, 2023.

h. "***Erroneously Awarded Compensation***" means the Compensation Eligible for Recovery less the amount of such compensation as it would have been determined based on the restated amounts, computed without regard to any taxes paid.

i. "***Exchange Act***" means the Securities Exchange Act of 1934, as amended.

j. "***Executive Officer***" means the Company's principal executive officer, principal financial officer, principal accounting officer (or if there is no such accounting officer, the controller), any vice president of the Company in charge of a principal business unit, division, or function (such as sales, administration or finance) and any other officer who performs a significant policy-making function, and any other person who performs similar policy-making functions for the Company. For purposes of this policy, Executive Officers would include, at a minimum, executive officers identified pursuant to 17 C.F.R. 229.401(b).

k. "***Financial Reporting Measure***" means measures that are determined and presented in accordance with the accounting principles used in preparing the Company's financial statements, and any measures that are derived wholly or in part from such measures. Stock price and total shareholder return are considered Financial Reporting Measures. For the avoidance of doubt, a Financial Reporting Measure need not be presented within the financial statements or included in a filing with the Commission.

l. "***Incentive-based Compensation***" means any compensation, including, for the avoidance of doubt, any cash bonus, cash award, option, equity award, or other non-equity incentive award, in each case, that is granted, earned, or vested based wholly or in part upon the attainment of a Financial Reporting Measure.

m. "***NASDAQ***" means the Nasdaq Stock Market LLC.

n. "***Policy***" means this Policy for the Recovery of Erroneously Awarded Compensation, as the same may be amended or amended and restated from time to time.

o. "***Recovery Period***" means the three completed fiscal years immediately preceding the Restatement Date and any transition period (that results from a change in the Company's fiscal year) of less than nine months within or immediately following those three completed fiscal years.

p. "***Restatement***" means an accounting restatement:

i. due to material noncompliance of the Company with any financial reporting requirement under the securities laws, including any required accounting restatement to correct an error in previously issued financial statements that is material to the previously issued financial statements, or

ii. that would result in a material misstatement if the error were corrected in the current period or left uncorrected in the current period.

q. "***Restatement Date***" means the earlier of:

i. the date the Audit Committee concludes, or reasonably should have concluded, that the Company is required to prepare a Restatement, or

ii. the date a court, regulator, or other legally authorized body directs the Company to prepare a Restatement.

4.Recovery of Erroneously Awarded Compensation.

a. The Principal Financial Officer and Chief Accounting Officer or Corporate Controller of the Company shall promptly report to the Audit Committee any instance in which the Company is required to prepare a Restatement.

b. Upon learning of a required Restatement, the Audit Committee shall determine the Restatement Date and shall promptly report to the Compensation Committee such determination.

c. The Principal Financial Officer and Chief Accounting Officer or Corporate Controller (or another appropriate officer or third party designated by the Compensation Committee) shall promptly (but in any event within 90 days following the Restatement) calculate the Erroneously Awarded Compensation for each affected individual, which calculation shall be subject to

Compensation Committee approval. For purposes of calculating Erroneously Awarded Compensation:

i. Incentive-based Compensation shall be deemed received in the Company's fiscal period during which the Financial Reporting Measure specified in the Incentive-based Compensation award is attained, even if the payment or grant of the Incentive-based Compensation occurs after the end of that period.

ii. Incentive-based Compensation based on (or derived from) stock price or total shareholder return, where the amount of Erroneously Awarded Compensation is not subject to mathematical recalculation directly from the information in a Restatement, shall be based on a reasonable estimate of the effect of the Restatement on the stock price or total shareholder return upon which the Incentive-based Compensation was received. The Company shall maintain documentation of the determination of such reasonable estimate and provide such documentation to NASDAQ.

d. Promptly following the Compensation Committee's approval of the Erroneously Awarded Compensation calculated by the Principal Financial Officer and Chief Accounting Officer or Corporate Controller (or another appropriate officer or third party designated by the Compensation Committee), the Company shall notify in writing each individual who received Erroneously Awarded Compensation of the amount of Erroneously Awarded Compensation received by such individual and shall demand payment or return, as applicable, of such Erroneously Award Compensation.

e. The Company shall demand recovery and recover Erroneously Awarded Compensation in compliance with this Policy except to the extent that the Compensation Committee determines that (I) recovery of the Erroneously Awarded Compensation would be duplicative of compensation recovered by the Company from the individual pursuant to Section 304 of the Sarbanes-Oxley Act or pursuant to other recovery obligations (in which case, the amount of Erroneously Awarded Compensation shall be appropriately reduced to avoid such duplication), or (II) recovery would be impracticable, and one of the following conditions applies:

i. the direct expense paid to a third party to assist in enforcing this Policy would exceed the amount to be recovered. Before concluding that it would be impracticable to recover any amount of Erroneously Awarded Compensation based on expense of enforcement, the Company must make a reasonable attempt to recover such Erroneously Awarded Compensation, document such reasonable attempt(s) to recover, and provide that documentation to NASDAQ;

ii. recovery would violate home country law where that law was adopted prior to November 28, 2022. Before concluding that it would be impracticable to recover any amount of Erroneously Awarded Compensation based on violation of home country law, the Company must obtain an opinion of home country counsel, acceptable to NASDAQ, that recovery would result in such a violation, and must provide such opinion to NASDAQ; or

iii. recovery would likely cause an otherwise tax-qualified retirement plan, under which benefits are broadly available to employees of the Company, to fail to meet the requirements of 26 U.S.C. 401(a)(13) or 26 U.S.C. 411(a) and regulations thereunder.

f. Except as provided in Section 4(e), in no event may the Company accept repayment from the affected individual of less than the full amount of the Erroneously Awarded Compensation received by such individual.

g. The Compensation Committee shall determine, in its sole discretion, the method of recovering any Erroneously Awarded Compensation pursuant to this Policy, taking into account all facts and circumstances (including the time value of money and the cost to shareholders of delayed recovery), so long as such method complies with the terms of Rule 5608 of the Nasdaq Stock Market LLC Rules. If the Compensation Committee determines that an appropriate method of recovery is one other than the prompt repayment by the affected individual in cash or property, the Company may offer to enter into a repayment agreement with the affected individual (in a form and with terms reasonably acceptable to the Compensation Committee).

h. If the affected individual fails to repay to the Company when due the full amount of the Erroneously Awarded Compensation received by such affected individual, the Company shall take all actions reasonable and appropriate to recover the full amount of the Erroneously Awarded Compensation from the affected individual.

5.Disclosure. The Company shall file all disclosures with respect to this Policy in accordance with the requirements of the securities laws, including the disclosure required by the applicable Commission filings.

6.No Indemnification. The Company shall not indemnify any current or former Executive Officer against the loss of Erroneously Awarded Compensation, and shall not pay, or reimburse any current or former Executive Officers for premiums for any insurance policy to fund such Executive Officer's potential recovery obligations.

7.Effective Date. This Policy shall be effective as of the Effective Date.

8.Amendment and Interpretation. The Compensation Committee may amend this Policy from time to time in its discretion and shall amend this Policy as it deems necessary or advisable to reflect the regulations adopted by the Commission and to comply with any rules or standards adopted by NASDAQ. The Compensation Committee may at any time in its sole discretion, supplement, amend or terminate any provision of this Policy in any respect as the Compensation Committee determines to be necessary or appropriate. The Compensation Committee shall interpret and construe this Policy and make all determinations necessary or advisable for the administration of this Policy. It is intended that this Policy be interpreted in a manner that is consistent with the requirements of Section 10D of the Exchange Act and Rule 10D-1 thereunder and Rule 5608 of the Nasdaq Stock Market LLC Rules and any other applicable rules adopted by the Commission.

9.Other Recoupment Rights. The Compensation Committee intends that this Policy will be applied to the fullest extent of the law. The Compensation Committee may require that any employment agreement, equity award agreement or similar agreement entered into on or after the Effective Date shall, as a condition to the grant of any benefit thereunder, require the party thereto to agree to abide by the terms of this Policy or implement arrangements designed to facilitate the administration hereof. Any right of recovery under this Policy is in addition to, and not in lieu of, any other remedies or rights of recovery that may be available to the Company pursuant to the terms of any employment agreement, equity award agreement, or similar agreement and any other legal remedies available to the Company.

10.Successors. This Policy shall be binding and enforceable against all current and former Executive Officers and their beneficiaries, heirs, executors, administrators or other legal representatives.