



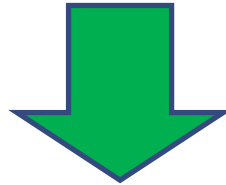
reliability with smart composite products

CPS Technologies Corporation

May 2018

Why Invest?

- High-growth Markets
- Strong value propositions
- Ability to Execute
- Timing
We now have a portfolio of opportunities on the continuum from “early adopters” to “mainstream market”



Attractive base business with multiple
“breakout” opportunities

Electrification Revolution has Begun

Electricity versus fossil fuel

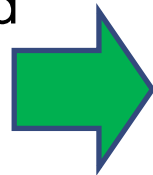
- Hybrid and electric cars
- Electric trains and subway cars
- Green energy – wind and solar

Electric versus hydraulic

- Fly by wire
- Actuate by wire

Green generation of electricity

- Wind, solar



Growth in Power Electronics

What are power electronics?

Control the power used by electric motors and electrical systems, converting from one voltage level to another, from DC to AC, etc.

Driving growth of companies like Cree and Infineon

... and the Digital Revolution Continues

Increased and faster bandwidth and signal processing

- Mobile communications 3G, 4G, 5G
- Internet bandwidth and speeds (video, etc.)
- Airborne and space communications



- Growth in High Performance Signal Processing

- Smaller, faster, lighter – microprocessors, graphics systems, RF communications

- Driving growth of companies like Microchip, and Acacia Communications

All of these applications face a similar set of constraints – thermal management.

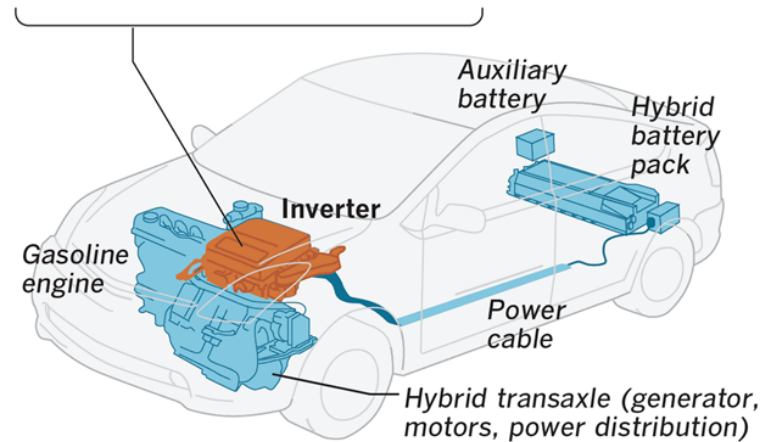
See article at right from April 23, 2018 Los Angeles Times

Prius inverter defect

Toyota issued a recall in 2016 that was intended to fix overheating problems in the 2010 to 2014 Prius inverter, which controls the power flowing between the battery and the electric motors.

How the inverter should work

The inverter boosts the 200 volts from the battery to about 500 volts needed by the car's two electric motors. When the driver puts on the brakes, the process is reversed and the battery is charged.



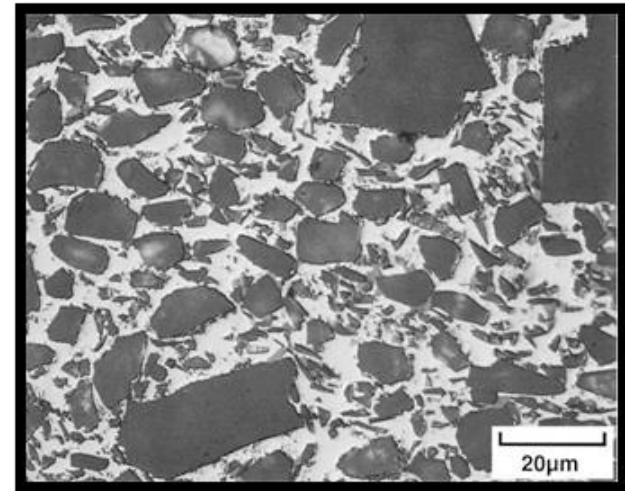
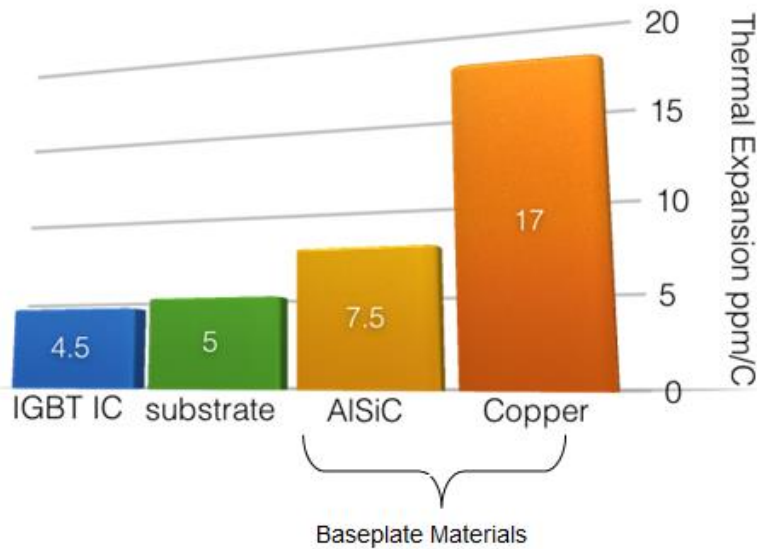
The problem and failed fix

The inverter had a history of overheating. The recall was issued to fix software problems. But dealer Roger Hogan says in a lawsuit that Priuses still show up with damaged inverters.

Correcting the fix

Hogan said the correct fix would involve putting in new inverters, which cost about \$2,000 each.

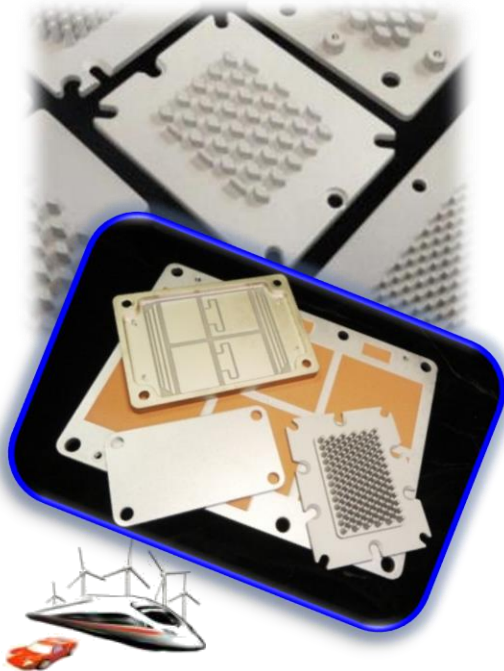
Thermal Expansion Matching – we solve the problem and do so cost effectively



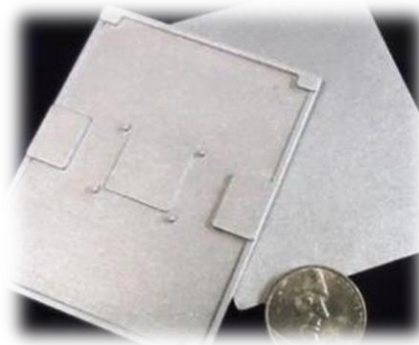
What are CPS' Products?

We "interconnect" active electronics

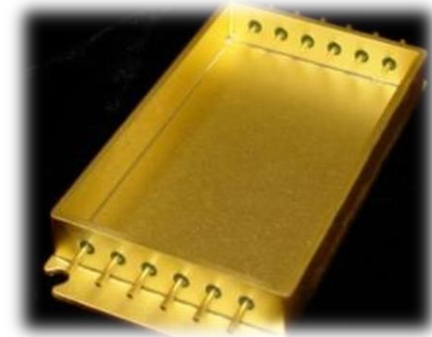
Base
(Trains, Evs HEVs)



Lid
(Thermal Spreaders –
Computers, Digital
Switches)



Complete Housing
(Sensitive Electronic Protective
Enclosures - Telecom,
Aerospace)



Where are CPS products used?

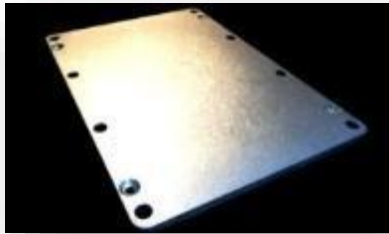
- High speed trains, subway cars
- Hybrid and electric automobiles
- Wind turbines
- Routers, switches, fiber optic modules in the internet backbone
- GPS, communications, military and other satellites
- High performance electronics: lasers, infrared cameras, avionics, medical equipment

“We are in there”

CPS Products and End Use

Power Conversion

Thermal Management



Baseplates



...our customer assembles electronics on CPS Part



...then our customer packages the device that they sell to their customer



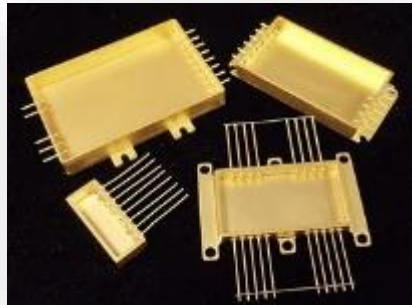
...which is finally put into the following products

Pin Fin Coolers

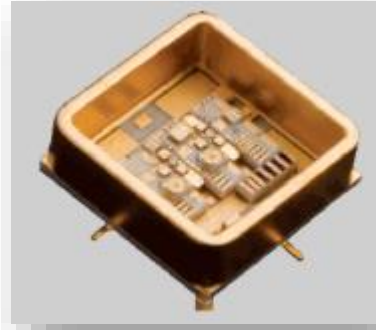


Above shown 1505 assembled. And the final housings that go into which connects to the car's water cooling system.

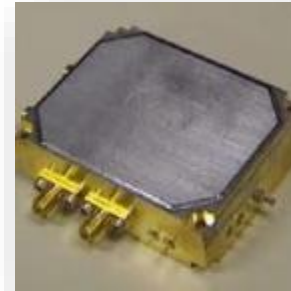




Hermetic Packages



.....our customer assembles electronics on CPS Part....

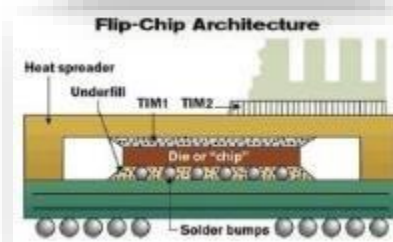
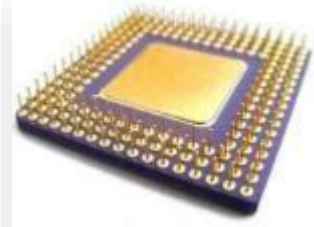
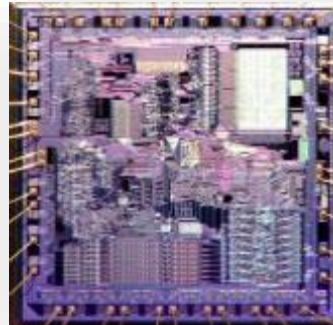


....then our customer packages the device that they sell to their customer



...which is finally put into the following products

Microprocessor Lids



Who Buys from CPS?

- Major electronics and automotive OEMs worldwide.



Infineon awarded CPS
2016 Supplier Award
for:

- Innovation
- Delivery
- Quality
- Price



Armor – Changing Defense Needs

New and greater threats

- Long-rod penetrators
- IEDs

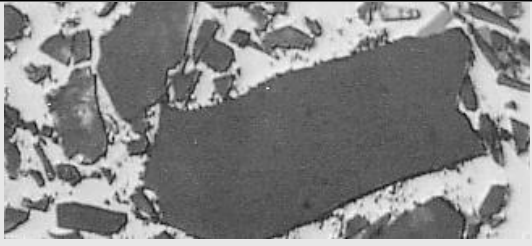
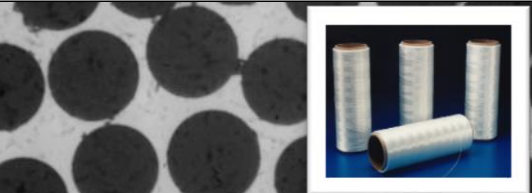

More dispersed battlefields



Growing need for
Lighter weight vehicle
armor capable of
defeating greater
threats

CPS HybridTech Armor is Based On Our Core Intellectual Property

MMCs are made by reinforcing aluminum with ceramic particles, fibers, bubbles, sintered ceramics or other reinforcements (*analogous to rebar in cement*).

Ceramic Reinforcement Examples	Composite	Key Properties
Particles (SiC)		Thermal Expansion match (CTE) to electronic components (ICs, substrates, etc.)
Continuous Fiber (Al ₂ O ₃)		Greater strength and stiffness
Sintered Ceramics (SiC)		Greater strength and stiffness, etc.

CPS Armor Products and End Use HybridTech[®] Armor

Cutting edge ballistic threat protection with CPS metal encapsulated solutions

Advanced Threat Defense: Defeats STANAG Level III through Level VI threats

Superior Durability and Lighter Weight: Exceeds 20 year life & remarkably lighter than RHS offerings

**Ballistic shields protect Crew
Served Weapon Stations (CSWS)**



**Ballistic washers strengthen
armor attach points**

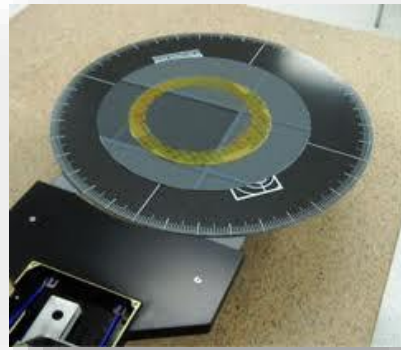


AAV-7 Amphibious

CPS Products and End Use Structural Applications



Structural

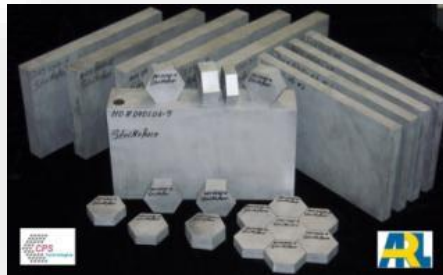


.....our customer assembles the CPS product into system....

...then our customer packages the device that they sell to their customer....

...which is finally put into the following products or gets shot at....

Armor





reliability with smart composite products

Senior Management / Directors

CEO / Pres./ Director	Grant Bennett	M.S. Sloan/MIT; 30+ yrs at CPS.
CFO	Ralph Norwood	CPA/M.B.A Darden School/UVa; 6 yrs at CPS. (Former VP Controller & VP Treasurer of Polaroid Corp.)
SVP Sales & Marketing	Tom Breen	BSEE, MBA; 25+ yrs in defense/aero electronics
VP Marketing	Mark Occhionero	Ph.D. Case Western/M'tls Science; 30+ yrs at CPS
VP Sales	Cheryl Oliveira	12 yrs at CPS; 30+ years in related sales
VP Operations	Charles DaRosa	7 yrs at CPS; 30+ yrs in lean operations management

Independent Director	Frank Hughes	Pres. American Research & Development (M.B.A-HBS)
Independent Director	Daniel Snow	Professor Brigham Young (Ph.D. Berkeley)
Independent Director	Thomas Culligan	Former Senior Vice President Raytheon Company