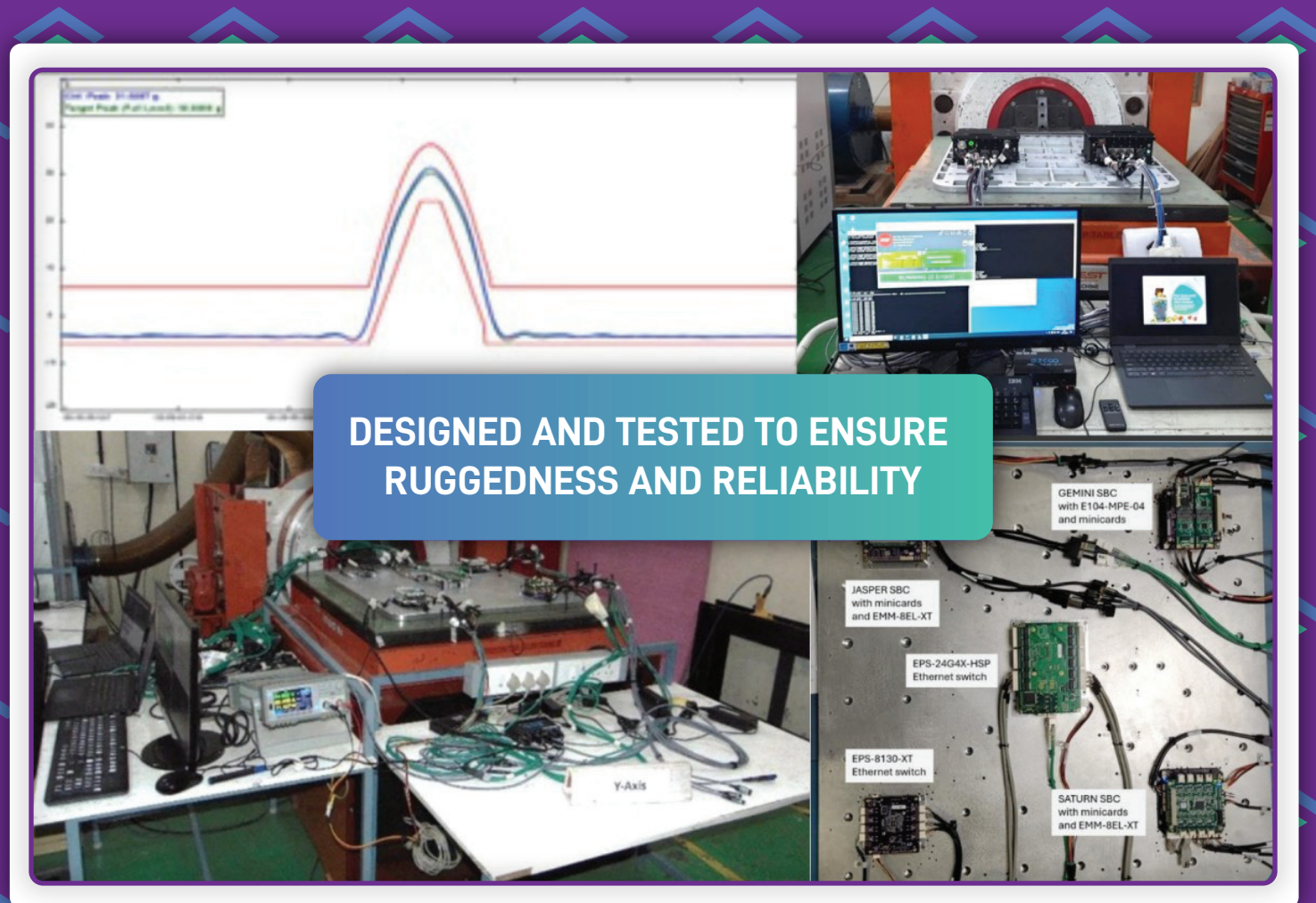


Diamond's products are **designed and tested** to ensure ruggedness and reliability when used in harsh environment applications.

- ◆ Component selection including latching connectors and wide temperature components, the use of thicker PCBs on larger size boards, and extensive use of heat spreaders instead of heat sinks go a long way toward improving ruggedness.
- ◆ All products undergo temperature testing, including power cycling at temperature extremes, to ensure reliable operation.
- ◆ Select products have been put through shock and vibration testing to assure their reliability in demanding applications such as military ground vehicles. Products are typically tested with most features active (i.e. all I/O ports active and all expansion sockets occupied) and at full processor load, to provide greater confidence in the test results.

The tables below list Diamond's SBC, Ethernet, Nvidia Jetson, and system-level products that have undergone shock and vibration testing. Tested temperature limits are also shown. Feel free to inquire with your Diamond sales representative about any product not listed here or if additional information is required.

\*All products tested to operate at -40 to +85C, except Osbourne / Geode-OSB tested to -25 to +80C.\*



## RUGGED SYSTEMS



### GEODE-OSB

Rugged system with Nvidia Jetson AGX Orin supporting up to 8 GMSL cameras  
**Test Standard: MIL-STD-810H**



### GEODE-JSP

Rugged System with Intel® 11th Gen Core i7 processor  
**Test Standard: MIL-STD-810H**



### SabreNet-12000-001

Rugged 12-Port Managed Layer 2 or 3 Ethernet Switch  
**Test Standard: MIL-STD-810G**

For More Details about products: [www.diamondsystems.com/umpages/ruggedproducts](http://www.diamondsystems.com/umpages/ruggedproducts)

## SINGLE-BOARD COMPUTERS



### Saturn

Rugged Apollo Lake X7-E3950 SBC with Data Acquisition and PCIe/104 Expansion  
**Test Standard: MIL-STD-202H**



### Gemini

Rugged COM Express Compact type 6 SBC with PCI/104-Express and miniCard I/O expansion  
**Test Standard: MIL-STD-202H**

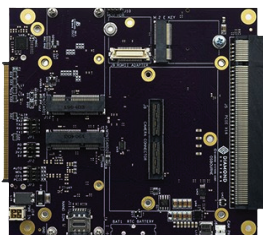


### Jasper

Rugged COM Express with PCI/104-Express and miniCard I/O expansion  
**Test Standard: MIL-STD-202H, MIL-STD-810H**

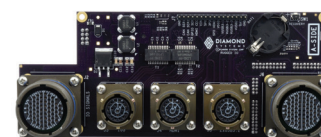
For More Details about products: [www.diamondsystems.com/umpages/ruggedproducts](http://www.diamondsystems.com/umpages/ruggedproducts)

## NVIDIA JETSON



### Osbourne

Carrier and Development Kit for NVIDIA Jetson AGX Orin  
**Test Standard: MIL-STD-810H**

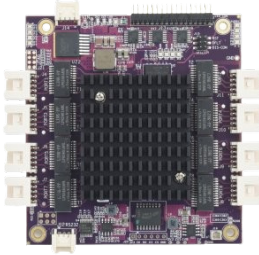


### Osbourne

Osbourne Rugged Panel I/O Board with MIL-DTL-38999 and SJT Connectors  
**Test Standard: MIL-STD-810H**

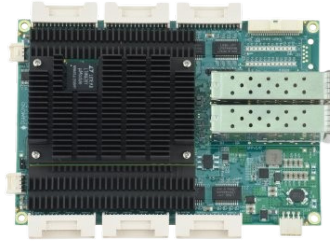
For More Details about products: [www.diamondsystems.com/umpages/ruggedproducts](http://www.diamondsystems.com/umpages/ruggedproducts)

## ETHERNET SWITCHES



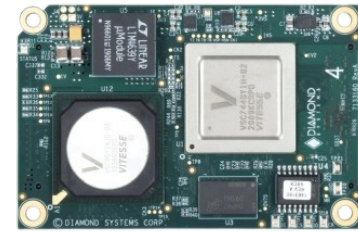
### EPS-8130-XT

Managed 8-Port Gigabit Ethernet switch with embedded layer 2 software  
**Test Standard: MIL-STD-202H**



### EPS-24G4X-HSP

EPS-24G4X Managed 28-Port Gigabit Ethernet Switch with 4 10G SFP+ Ports  
**Test Standard: MIL-STD-202H**



### EPSM-10GX4

Compact Managed 28-Port Rugged Gigabit Ethernet Switch Module  
**Test Standard: MIL-STD-202H**



### EPS-12000-CM

12-Port Managed Layer 2 or 3 Ethernet Switch Module  
**Test Standard: MIL-STD-810G**

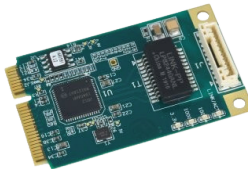


### EPSM-10GX

Compact Managed 26-Port Rugged Gigabit Ethernet Switch Module  
**Test Standard: MIL-STD-810G**

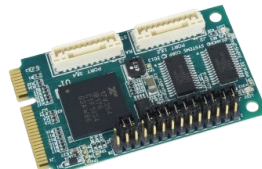
For More Details about products: [www.diamondsystems.com/umpages/ruggedproducts](http://www.diamondsystems.com/umpages/ruggedproducts)

## I/O AND POWER



### DS-MPE-GE210

PCIe MiniCard Gigabit Ethernet Module  
**Test Standard: MIL-STD-202H**



### DS-MPE-SER4M

4-Port High Speed Serial Port PCIe MiniCard Module  
**Test Standard: MIL-STD-202H, MIL-STD-810H**



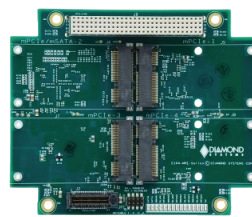
### DS-MPE-GPIO

36 Channel Digital I/O PCIe MiniCard  
**Test Standard: MIL-STD-810H**



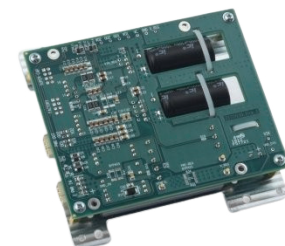
### EMM-8E-XT

PCI/104-Express 4/8-Port Serial Port Module with Opto-isolation  
**Test Standard: MIL-STD-202H**



### DS-MPE-SER4M

PCI/104-Express Quad PCIe MiniCard Carrier  
**Test Standard: MIL-STD-202H**



### JMM-7515-IF

80W DC/DC Power Supply, 9-36VDC In, 15VDC @ 5.33A Isolated Out, MIL-STD-461 / 704 / 1275 Filters  
**Test Standard: MIL-STD-810H**

For More Details about products: [www.diamondsystems.com/umpages/ruggedproducts](http://www.diamondsystems.com/umpages/ruggedproducts)

## MIL-STD-202H TEST DETAILS

All tests conducted with products operational.

Test	Description
Sine sweep vibration	Method 204, tested at x, y, z axes 10-57 Hz @ 0.06 inch pk-pk 57-2000Hz @ 10G Sweep rate: 7.5 Min/Sweep, 2 Sweeps
Random vibration	Method 214, Table-1 Test Condition A, B, C & D Tested at x, y, z axes Condition D- 11.95 Grms for 15min
Shock	Method 213, Condition J, tested at x, y, z axes Half sine waveform test, 30G, 11mSec 3 shocks/direction

## MIL-STD-810H TEST DETAILS

All tests conducted with products operational.

Test	Description
Random vibration	Method 514.8, Table 514.8 C-VII, Category 4 Tested at x, y, z axes and envelope 40 Minutes per axis @ 2.24 Grms
Shock	Method 516.8, tested at x, y, z axes and envelope; Terminal peak saw tooth, 40G, 11mSec 3 shocks/direction, operational; 40G, 6mSec, 2 shocks/direction, non-operational

## MIL-STD-810G TEST DETAILS

All tests conducted with products operational.

Test	Description
Random vibration	Method 514.7C, Table 514.7C-V, Category 4, Tested at x, y, z axes, 40 min/axis 2.24 Grms
Shock	1. Functional Shock Test: Method 516.7, Procedure I, 40G 11ms, 3 shocks/direction 2. Crash Hazard Shock Test: Method 516.7, Procedure V, 75G 6ms, 2 shocks/direction

For More Details about products: [www.diamondsystems.com/umpages/ruggedproducts](http://www.diamondsystems.com/umpages/ruggedproducts)

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