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.

## SINGLE-BOARD COMPUTERS



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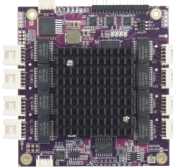**Test Standard: MIL-STD-202H**



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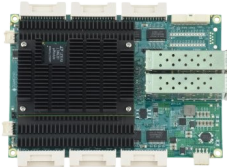**Test Standard: MIL-STD-202H**



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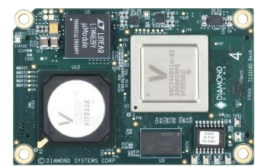
## ETHERNET SWITCHES



**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**

## 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**

sales@esaindia.com
www.esaindia.com

**ELECTRO SYSTEMS ASSOCIATES**

## Mil-Grade Rugged Systems

Diamond Systems delivers military-grade rugged embedded computing systems and Ethernet switches with breakthrough pricing and delivery times. Common features and benefits of these systems include:

- Solid-body aluminum CNC construction
- MIL-DTL-38999 connectors
- -40 to +85 deg. C or similar wide operating temperature
- MIL-STD-461, -704, and -1275 compliant power supply with isolation option

- IP67 environmental protection
- Impressive I/O features
- High degree of configurability and customizability
- Short leadtimes and competitive prices

## MIL-GRADE 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**

## 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 |