

DATASHEET

3U VPX 6 SLOT "DESERT GECKO" CHASSIS



Features:

- 6, 8 or 10 Slots
- VPX
- Modular Backplane
- Switching
- Field Transport Case

CONDUCTION COOLED

Conduction cooling conducts heat away from the hot spots of the board and transfers the heat to the card edges and to the system chassis. The heat frame layer transfers heat and integrated wedge locks stiffen the carrier, enabling the board to resist high shock and vibration.

WHAT WE DO

PCI-SYSTEMS manufactures a variety of COTS modular designed conduction cooled chassis for VPX and CPCI applications, including ATR and ARINC 600 enclosures.

VPX 3U Conduction Cooled 6 slot instrumentation chassis Rev 0.4

The proposed chassis is a **OpenVPX COTS** product for **3U VPX instrumentation** and can be used for multiple applications by changing the switch mezzanine to customer needs.

PCIe Gen 2 "noStub" routing is used throughout the system to maximize data throughput. Inter slot high speed communication connections are done on this mezzanine PCB. Also it is possible to use a Gb Ethernet switch and a serial Rapid I/O switch on this mezzanine, if needed. On this mezzanine card a 3D shock sensor IC is integrated and the values can be read over a I2C bus which is connected to all applicable slots as per VITA specification.

The rear I/O PCB is equipped with connectors (MIL-C-38999 series 3) and also holds a GPS module that can be connected to an active or passive antenna. The GPS module is connected to serial ports on the switch mezzanine through PCIe and does not need any other serial port in the system. A GPS 1Hz clock from this module is connected to the appropriate pins on the VPX slots.

RF coax cables from the front of add-on cards are securely fastened into a duct and are connected to the rear I/O PCB or are directly connected to a **panel mounted connector**, to bring the signals to the outside of the chassis.

High speed **ERNI 10Gig** connectors connect the backplane and the mezzanine cards and all active components are conduction cooled. The backplane and the mezzanine cards are held in place using a special rubber type insert, therefore it dampens the backplane/mezzanine assembly against vibrations. The cards **do not** experience stress on the connectors as it is usually the case in traditional backplanes which are screwed down at different points and apply stress during assembly, during wedgelock screw down and during extended temperature ranges as well as shock and vibration to all parts on those PCBs.

The chassis is chromatized on all surfaces before applying custom primary and secondary coatings. EMI is therefore minimized and can be further minimized by using SSC on all slots in the system.

Repair time is very short because the outside metal armor is screwed to the chassis and the chassis itself can be opened on top, the backplane assembly is removed and reinserted very quickly, no screws are used.

Different mounting options are available.



Carrying Case

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PLXtech PEX 8696 General Features:

- 96-lane, 24-port PCIe Gen2 switch
- Integrated 5.0 GT/s SerDes
- Typical Power: 10.2 Watts
- Standards Compliant
- PCI Express Base Specification, r2.0 (backwards compatible w/ PCIe r1.0a/1.1)
- PCI Power Management Spec, r1.2
- Supports Access Control Services
- Dynamic link-width control
- Dynamic SerDes speed control
- High Performance
- performancePAK
- Read Pacing (bandwidth throttling)
- Multicast
- Dynamic Buffer/FC Credit Pool
- Full line rate on all ports
- Packet Cut-Thru with 176ns max packet latency (x16 to x16)
- Flexible Configuration
- Ports configurable as x1, x2, x4, x8, x16
- Lane and polarity reversal
- Compatible with PCIe 1.0a PM
- Reliability, Availability, Serviceability
- visionPAK
- Per Port Performance Monitoring
- Per port payload & header counters
- SerDes Eye Capture
- Error Injection and Loopback
- All ports hot plug capable thru I2C (Hot Plug Controller on every port)
- Memory (RAM) Error Correction
- INTA# and FATAL_ERR# signals
- Advanced Error Reporting
- Per port error diagnostics
- JTAG AC/DC boundary scan

IDT Tsi578 Features of Serial Rapid I/O Interface:

- 80 Gbits/s aggregate bandwidth
- Low latency with cut-through capability
- Enhanced SerDes for low power solution
- RapidIO Interconnect Specification (Revision 1.3) compliant
- High performance hardware multicast
- Error management extensions
- Port flexibility fulfills multiple I/O bandwidth requirements:
- Up to eight 4x mode ports or sixteen 1x mode ports
- Port frequency configuration to 1.25, 2.5, and 3.125 Gbits/s
- Support for mixed speed and width configurations
- Integrated high-speed, full-duplex SerDes with 8b/10b encoding
- Receiver equalization, transmit preemphasis, transmit voltage swing
- IEEE 1149.6 support
- Lane swap to ease signal layout routing
- Supports packet routing tables for 64,000 endpoints
- Technology: 0.13u
- Voltage: 1.2V and 3.3V
- Low power consumption
- Rated for industrial temperatures

Marvell 88E6185 Features:

- Single-chip integration of a 10 port Gigabit Ethernet QoS switch and memory in a 14x20 mm
- 128-pin LQFP package
- QoS determined by Port, IEEE 802.1p tagged frames, IPv4 TOS and Diff-Serv, IPv6 Traffic Class.
- 802.1Q VLAN ID, Destination MAC address, Source MAC address
- 802.1X MAC based authentication
- Each port works at 10 Mbps or 100 Mbps, full or half-duplex mode, or 1000 Mbps full-duplex mode
- Port States & BPDU handling for Spanning Tree
- 28 32-bit and two 64-bit RMON Counters per port
- Ports 7, 8, and 9 can optionally be configured as fiber ports (1000BASE-X) with direct connection
- to lasers
- Port 9 can support GMII Mode (full-duplex), MIIMAC Mode (Forward) or MII-PHY Mode (Reverse -
- full-duplex) interface options for management and firewall applications
- Shared 1 Mbit on-chip memory-based switch fabric with true non-blocking switching performance
- High-performance lookup engine with support for up to 8K MAC address entries with automatic learning and aging
- Low power dissipation PAVG = approximately 1.5W
- Supports Distributed Switching Architecture (DSA) for STP, up to 32 cascaded devices, and
- CPUdirected packet processing
- Maximum frame size of 1632 bytes
- Industrial grade

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Dimensions 6 slot version shown:

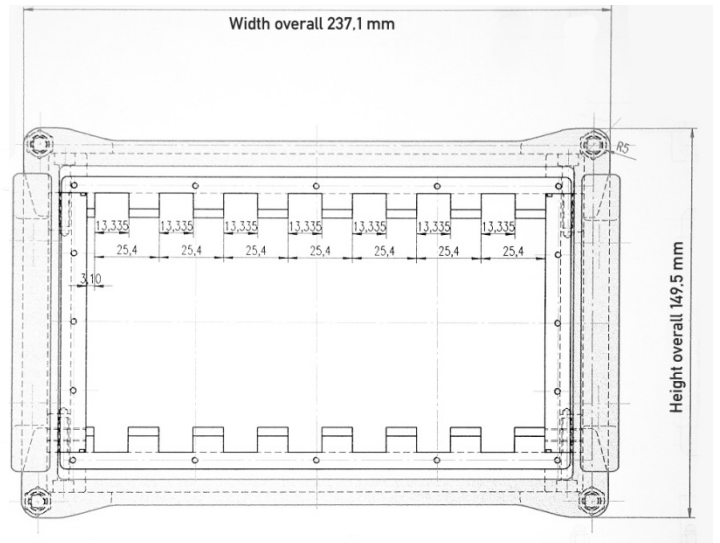
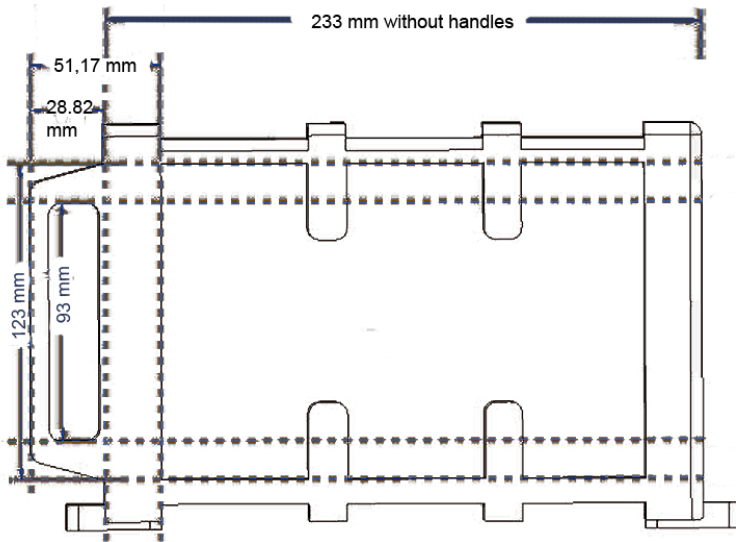
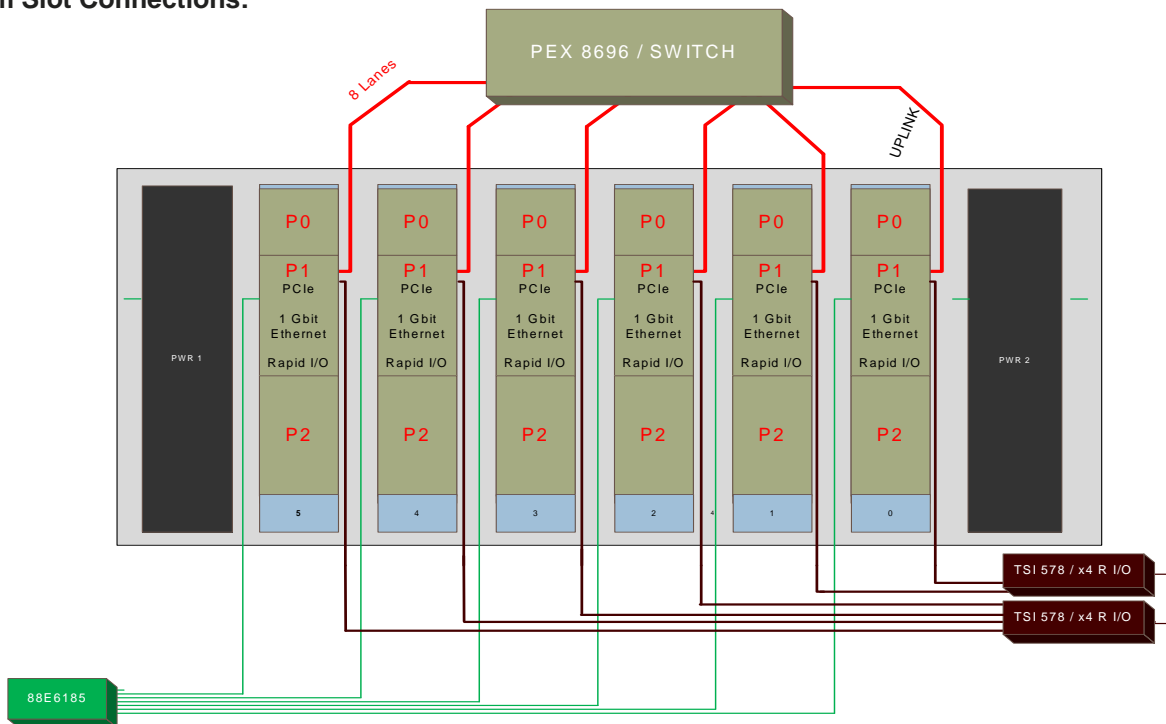


Diagram Slot Connections:



1 GBit Ethernet + 1 GBit Ethernet

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PCI-SYSTEMS INC. Modular Backplane System

