**Description**

**Models**
- **VPX4500E-LF**: Air-cooled
- **VPX4500-CC-LF**: Conduction-cooled

The VPX4500 is a 3U VPX carrier for Acromag AcroPack (AP) mezzanine modules.

The carrier board provides a modular approach to system assembly since each carrier can be populated with any combination of analog input/output, digital input/output, communication, AcroPack or some third-party mPCIe compliant modules.

The modularity allows the user to create a board which is customized to the application. This saves money and space; a single carrier board populated with AP modules may replace several dedicated function VPX boards. The VPX4500 carrier board provides impressive functionality at low cost.

Model **VPX4500E-LF** is an air-cooled product that supports three AcroPack sites. Two of the sites provide field I/O connections through front panel mounted 50 pin shielded connectors. The third site provides field I/O connections through the VPX backplane.

Model **VPX4500-CC-LF** is a conduction-cooled product that supports three AcroPack sites. Two of the sites provide field I/O connections through 50 pin ribbon cable connectors. The third site provides field I/O connections to the VPX backplane.

Model **VPX4500-RTM-LF** is a rear transition module used with both the VPX4500E-LF and the VPX4500-CC-LF carriers to provide access to the slot C AcroPack field I/O signals.

The AcroPack® product line updates our popular Industry Pack I/O modules with a PCIe interface format. This tech-refresh design offers a compact size, low-cost I/O, the same functionality and memory map of the existing Industry Pack mezzanine modules.

**Key Features & Benefits**

- Three AcroPack or mini-PCIe module slots support any combination of I/O functions.
- PCI Express version 2.1 compliant.
- Fused +1.5V, +3.3V, +5V, +12V, and -12V DC power is provided. A fuse is present on each supply line serving each AcroPack module.
- Front panel SCSI-2 connectors for the field I/O signals using VPX4500E-LF.
- Extended temperature range.
- Standard 14-pin Xilinx JTAG programming header.
- Software development tools for VxWorks®, Linux®, and Windows® environments.
**Performance Specifications**

- **PCI Express Bus Compliance**
  - This device meets or exceeds all written PCI Express specifications per revision 2.1.
  - Includes a PCIe Gen 2 switch to expand the single host PCIe port to three ports, one to each device. (AcroPack or mini-PCIe).
  - The host port consists of four PCIe lanes, each of the mini-PCIe sites have one lane each.

- **Ease of Use**
  - A unique carrier and site number is set via slot address.
  - This provides the capability to distinguish a particular AcroPack module from others when multiple instances of the same module are used in a system.
  - A standard 14-pin Xilinx JTAG programming header is provided for programming and debugging the FPGA on some AcroPack modules. The JTAG ports of the two AcroPack modules are daisy-chained.

- **General**
  - **Form Factor**
    - 3U VPX bus 6.299” (160mm) x 3.937” (100.0mm).
  - **Pitch**
    - VPX4500-LF (air-cooled): 1” pitch.
  - **VPX Carrier Interface**
    - Compatible VITA 65 module / slot profiles: FRU EEPROM with temperature monitor.
  - **AcroPack Interface**
    - One AcroPack module in single VPX slot.
    - 3.3V, 5V and ±12V provided for AcroPack modules via the VPX backplane.

- **Power Requirements**
  - **Power**
    - +3.3 Volts (±10%): 0.55mA typical.
    - +12 Volts (±5%): 25mA Typical.
  - The VPX4500 has two DC/DC converters to provide the power supply voltages to the AcroPack modules that are not present at the host interface. The +1.5 Volt supply is sourced from the 5 Volt host power. The +12 Volt supply is sourced from +12 Volt host power.

- **Physical**
  - **Physical Configuration**
    - **PCIe Switch**
    - **Field I/O Connector**
      - VPX4500-CC-LF: Two 50-pin male headers.
      - VPX4500-LF: Two 50-pin Champ 0.8mm connectors.
  - **Environmental**
    - **Operating temperature**
      - -40 to +85°C.
    - **Storage Temperature Range**
      - -55 to 125°C.
    - **Relative Humidity**
      - 5 to 95% non-condensing.
    - **Vibration**
      - 0.05g RMS (20 - 2000Hz) random, operating 6g RMS per Hz spectrum.
    - **Shock**
      - 30g each axis, 11ms.

- **Ordering Information**
  - **Carrier Cards**
    - VPX4500-LF: VPX carrier card, 3U, three AcroPack slots.
    - VPX4500-CC-LF: Conduction-cooled version of VPX-4500.
  - **Accessories**
    - See Acromag.com/AcroPacks for a full list of I/O modules.

- **Software**
  - (see software documentation for details)
    - APSW-API-VXW: VxWorks software support package
    - APSW-API-WIN: Windows DLL driver software support pkg
    - APSW-API-LNX: Linux support (website download only)

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**Box Diagram**

- **Power:** +1.5, +3.3, +5, +12, -12
  - **AcroPack Site A**
    - Slot Address
  - **Power:** +1.5, +3.3, +5, +12, -12
    - **AcroPack Site B**
      - Slot Address
  - **Power:** +1.5, +3.3, +5, +12, -12
    - **AcroPack Site C**
      - Slot Address

- **FUSES**
  - x1 PCIe
  - x1 PCIe
  - x1 PCIe

- **DC/DC Converter**
  - +12V
  - +3.3V

- **PCIe Switch**
  - x4 PCIe

- **CPLD**
  - Global Address

- **JTAG**

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**Contact Information**

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