AcroPack® Carriers

APCe7022 PCI Express Carrier Cards for AcroPack® Modules

Two AcroPack or mini-PCIe mezzanine module slots ◆ Non-Intelligent carrier card ◆ PCIe x4 interface

Model
APCe7022E-LF

Description
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 modules.

This board interfaces two AcroPack mezzanine modules to a PCI Express bus on a PC-based computer system.

Two AcroPack module slots give you the freedom to mix a variety of I/O functions (A/D, D/A, digital in, digital out, serial I/O, etc.) on a single board. Or, combine modules of the same type for almost one hundred channels on a single card. Either way, the APCe7022 saves your precious card slots and reduces your costs.

Select I/O modules from Acromag’s offering or use most third-party mPCIe compliant modules.

Key Features & Benefits
- Two AcroPack or mini-PCIe module slots support any combination of I/O functions
- PCI Express compliant
- Plug-and-play carrier configuration and interrupt support
- 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 68-pin CHAMP 0.8mm connectors for field I/O signals
- Extended temperature range
- DIP switch card identification
- Standard 14-pin Xilinx JTAG programming header
- Software development tools for VxWorks®, Linux®, and Windows® environments.

Order I/O modules separately

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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 two 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.

- **I/O Interface**
  Connectors
  P1 (PCIe Bus): PCIe V2.1 x4 lane (PCIe Gen 2 Switch).
  J3 (Carrier Field I/O): 68-pin, stacked, CHAMP (TE Connectivity 5787962).
  P2, 3 (AcroPack Field I/O): 100-pin socket (Samtec SS5-50-3.00-L-D-K-RT).
  J1, 2 (Mini-PCIe): 52-pin socket (TE Connectivity 1759547-1).
  P6 (JTAG): 14-pin header (Molex 87832-1420).
  Gold plating in the connection area, M2.5 screws and spacers provide excellent connection integrity and stability for harsh environments.

- **Ease of Use**
  A unique carrier and site number can be set for each AcroPack site by a DIP switch. 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.

- **Physical**
  Physical Configuration
  PCIe x4 lane.
  Length: 6.3 inches (160.02 mm).
  Height: 4.375 inches (111.12 mm).

- **Environmental**
  Operating temperature
  -40 to +85°C with 200 LFM airflow.
  Storage temperature
  -55 to +125°C.
  Relative humidity
  5 to 95% non-condensing.
  Power
  +3.3 Volts (±5%): 0.5 A typical.
  ±12 Volts (±8%): 27mA Typical.
  The APCe7022E-LF has three 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 +3.3 Volt host power. The +5 Volt and -12 Volt supply is sourced from +12 Volt host power.

Ordering Information

- **Carrier Card**
  APCe7022E-LF: AcroPack carrier card for AcroPack or mPCIe modules, plus extended temperature range.
  See Acromag.com/AcroPacks for a full list of I/O modules.

- **Accessories**
  5025-288: Termination panel, DIN-rail mountable, SCSI-3 connector, 68 screw terminals.
  5028-420: Round cable, shielded, male SCSI-3 connector to 68-pin CHAMP. 0.8mm, 2 meters long.
  5028-615: Cable, 68-pin CHAMP to pigtail, 36 inches long.
  5028-616: Cable, 68-pin CHAMP to pigtail, 70 inches long.

- **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).