Industry Pack Module Carriers

APCe8650  PCI Express Carrier Cards for Industry Pack Modules

Description
This board interfaces standard Industry Pack (IP) mezzanine modules to a PCI Express bus on a PC-based computer system.

Four IP 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 hundreds of channels on a single card. Either way, the APCe8650 saves your precious card slots and reduces your costs.

Select I/O modules from Acromag’s offering of more than forty models or use any third-party ANSI/VITA 4 compliant IP modules.

Key Features & Benefits
- Four IP module slots (ANSI/VITA 4 mezzanine) support any combination of I/O functions
- Board resides in memory space
- Supports IP’s I/O, ID, INT, and MEM spaces
- Plug-and-play carrier configuration and interrupt support
- Two interrupt channels per IP module
- Supervisory circuit reset generation
- Individually filtered and fused power
- Full IP module register and data access for convenient configuration or control of the I/O modules through software
- Non-volatile ID register to identify carrier
- Software development tools for VxWorks, Linux, and Windows environments

Acromag offers more than 40 IP modules to perform analog I/O, digital I/O, serial communication, CAN bus, MIL-Std-1553, and configurable FPGA functions.
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Performance Specifications

- **IP Module Compliance**
  Meets or exceeds all written IP specifications per ANSI/VITA 4-1995 for 8MHz or 32MHz operation. Supports Type I and Type II ID space formats.

- **Electrical/mechanical interface**
  Supports four single-size IP modules (A-D).
  IP module I/O space, ID space, INT, and MEM space supported.

- **IP module I/O space**
  16 and 8-bit; supports 128 byte values per IP module.

- **IP module ID space**
  16 and 8-bit; supports Type I 32 bytes per IP (consecutive even byte addresses) and Type II 32 words per IP via D16 data transfers.

- **IP module memory space**
  16 and 8-bit; supports up to 8M bytes of memory space per IP module.

- **Interrupts**
  Supports two interrupt requests per IP and interrupt acknowledge cycles via access to IP INT space.

- **PCI Express Bus Compliance**
  This device meets or exceeds all written PCI local bus specifications per rev. 1.1 dated March 28, 2005.

- **System base address**
  This board operates in PCI memory space. It requires 256 bytes for mapping the PCI configuration registers and 64M bytes for IP module ID, IO, INT and memory space.

- **Data transfer bus**
  Slave with 32, 16, and 8-bit data transfer operation. 32-bit read or write accesses implemented as two 16-bit transfers to IP modules.

- **Interrupts (PCI bus INTA# interrupt signal)**
  Up to two requests sourced from each IP mapped to INTA#. Interrupt vectors come from IP modules via access to IP module INT space.

- **Physical**
  Physical Configuration
  PCIe x1 lane
  Length: 12.283 inches (312.0 mm)
  Height: 4.380 inches (111.25 mm)
  Board thickness: 0.062 inches (1.59 mm)
  Max. height under IP modules: 0.110 in. (2.80 mm).

- **Connectors**
  A-D (carrier field I/O): 50-pin male header.
  Power: Auxiliary +12V power

- **Environmental**
  **Operating temperature**
  0 to 70°C (APCe8650) or -40 to 85°C (APCe8650E model).

  **Storage temperature**
  -55 to 100°C.

  **Relative humidity**
  5 to 95% non-condensing.

  **Power**
  +3.3 Volts (+10%): 190mA, typical; 220mA max.
  +12 Volts (+5%): 130mA, typical; 150mA max.

  All IP module power is derived from the +12V power supply. +5V, +12V, and -12V are supplied to IP modules. The +12V power can be supplied from the PCIe bus or optionally from either of two auxiliary power connectors.

  **MTBF**
  Contact the factory.

Ordering Information

- **Carrier Card**
  APCe8650  PCI Express carrier card for Industry Pack modules

  APCe8650E  Same as APCe8650 plus extended temperature range

- **Accessories**
  5025-550-x  Flat ribbon cable, non-shielded, 50-pin connector at both ends. Specify x = length, in feet (12ft. max.)

  5025-551-x  Flat ribbon cable, shielded, 50-pin connector at both ends. Specify x = length, in feet (12ft. max.)

  5025-552  Termination panel, DIN rail-mount, 50 screw terminals, 50-pin ribbon cable connector

Industry Pack Modules

See www.acromag.com for more information.

Software Development Tools

See www.acromag.com for more information.

- IPSW-API-VXW  VxWorks® software support package
- IPSW-API-WIN32  32-bit Windows® DLL driver software support package
- IPSW-API-WIN64  64-bit Windows® DLL driver software support package
- IPSW-LINUX  Linux® support (website download only)