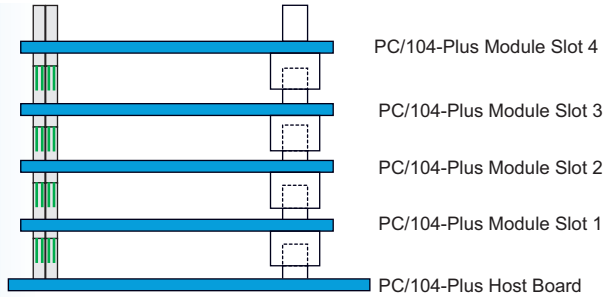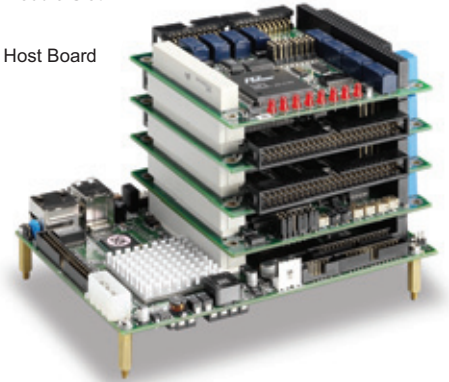# PC/104-Plus Overview and Selection Guide

Overview

The original PC/104 bus has done a great job of supporting the 16-bit ISA standard. However, certain applications require greater throughput. Therefore, PC/104-Plus was defined and standardized. It is the 32-bit standard migrated from the desktop to the embedded world while still offering the same functionalities.

PC/104-Plus is a PCI implementation on a stackable board while maintaining the 3.6" x 3.8" form factor. PC/104-Plus modules can also include original PC/104 connectors to allow the most system configuration flexibility. A third connector opposite the PC/104 connectors supports the PCI bus. Basically the electrical specifications of the PC/104-Plus bus are compliant with the PCI signals, except 64-bit extensions, JTAG, PRSNT or CLKRUN signals. According to the specifications of PC/104-Plus, PC/104-Plus modules are installed and configured by switching CLK, IDSEL, INT, REQ and GNT signals through multiplexers to the appropriate connections. Rotary switch on ADLINK PCM-xxxx+ is used for these signals switching.

PC/104-Plus Module Slot 4

PC/104-Plus Module Slot 3

PC/104-Plus Module Slot 2

PC/104-Plus Module Slot 1

PC/104-Plus Host Board

PC/104-Plus module stack
ADLINK provides typical DAQ and DIO modules for PC/104-Plus computers, as well as a choice of PC/104-Plus motherboard.

	Multi-Function DAQ Module	Analog Output Module
Model Name	**PCM-9112+**	**PCM-6308V+**
3.3 V or 5 V PCI	5 V	5 V
Bus-mastering DMA	●	–
Auto Calibration	–	–
Analog Input		
Analog Inputs	16 SE/ 8 DI	–
Max. Sampling Rate (S/s)	110 k	–
AD Resolution (bits)	12	–
FIFO Size (samples)	8	–
Bipolar Input Ranges	±10 V ±5 V ±2.5 V ±1.25 V ±0.625 V	–
Unipolar Input Ranges	0-10 V 0-5 V 0-2.5 V 0-1.25 V	–
Analog Output		
Voltage Outputs	2	8
Update Rate (S/s)(1)	33 k	11 k (Isolated)
Simultaneous Update	–	●
DA Resolution (bits)	12	12
FIFO Size (samples)	–	–
Settling Time	30 µs	16 µs
Analog Output Ranges	0-5 V 0-10 V 0-EXTREF	±10 V 0-10 V 0-EXTREF
Digital I/O, Timer/Counter, and Externel Trigger		
Digital I/O	–	4 DI, 4 DO (Isolated)
Timer/Counter	16-bit	–
Analog Trigger	–	–
Digital Trigger	●	–

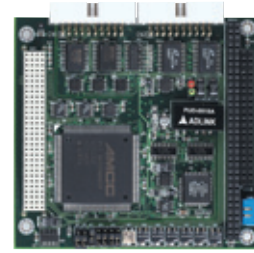|	Digital I/O Modules		
	PCM-7250+	**PCM-7230+**	**PCM-7248+**
3.3 V or 5 V PCI	5 V	5 V	5 V
Bus-mastering DMA	–	–	–
Isolation	●	●	–
High Speed Digital I/O			
No. of Channels	–	–	2 x 24-bit 8255 PIO
Transfer Rate (Byte/s)	–	–	500 k(1)
FIFO Size (words)	–	–	–
Logic Standard	–	–	5 V/TTL
Handshaking Transfer	–	–	–
Dedicated Inputs			
No. of Channels	8	16	–
Max. Sampling Rate (Hz)(1)	10 k	10 k	–
Logic Standard	V_{IH} = 3-24 V V_{IL} = 0-1 V	V_{IH} = 3-24 V V_{IL} = 0-1 V	– –
Dedicated Outputs			
No. of Channels	8	16	–
Max. Update Rate (Hz)(1)	125	10 k	–
Output Type	Relay	Darlington	–
Timer/Counter			
	-	–	WDT

Legend: ● Supported   – Not available
Note:
(1) Actual maximum update rate is dependent on system performance.

PCM-9112+

PC/104-Plus 16-CH 12-Bit 110 kS/s Multi-Function DAQ Module
• PC/104-Plus specifications Rev. 1.2 compliant
• 12-bit A/D resolution
• Up to 110 kS/s sampling rate
• 16-CH single-ended or 8-CH differential inputs
• Onboard A/D FIFO
• Bipolar or unipolar analog input ranges
• Programmable gains of x0.5, x1, x2, x4, x8
• Automatic analog inputs scanning

PCM-6308V+
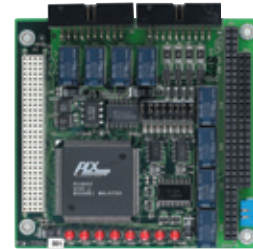
PC/104-Plus 8-CH 12-Bit Isolated Analog Output Module
• PC/104-Plus specifications Rev. 1.2 compliant
• 12-bit D/A resolution
• Bipolar or unipolar output ranges
• Isolated 8-CH 12-bit voltage outputs
• External reference input for user-defined ranges
• 4-CH isolated digital outputs and 4-CH isolated digital inputs
• 2500 V$_{RMS}$ optical isolation voltage

PCM-7250+

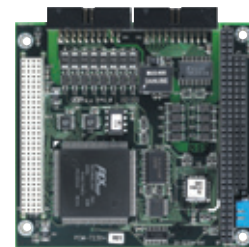**PC/104-Plus 8-CH Relay Outputs & 8-CH Isolated DI Module**
• PC/104-Plus specifications Rev. 1.2 compliant
• 4-CH SPDT and 4-CH SPST relays
• Non-latching relays
• Onboard LED indicators for relay status
• Onboard relay driving circuits
• Relay output status read back
• 8-CH isolated digital inputs
• Onboard low-pass filtering for digital inputs

PCM-7230+

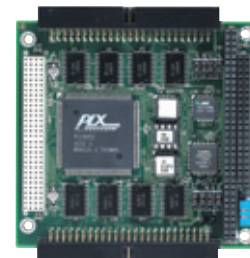**PC/104-Plus 16-CH Isolated DI & 16-CH Isolated DO Module**
• PC/104-Plus specifications Rev. 1.2 compliant
• 16-CH isolated digital inputs and 16-CH isolated digital outputs
• Non-polarity digital input range
• Isolated input voltage up to 24 V
• 2500 V$_{RMS}$ optical isolation
• Sink current up to 500 mA on each isolated output
• Two external interrupt sources

PCM-7248+

PC/104-Plus 48-CH Opto-22 Compatible DIO Module
• PC/104-Plus specifications Rev. 1.2 compliant
• 48-CH TTL/DTL digital inputs/outputs
• Emulates 2 industry standard 8255 PPI (mode 0)
• Buffered circuits for higher driving capacity
• Direct interface with OPTO-22 compatible I/O modules
• Known power-up states
• Output port status read back
• 1-CH 32-bit timer for timed interrupt generation