

# General Standards Corporation

*High-Performance Bus Interface Solutions*

August 2009

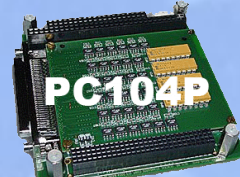
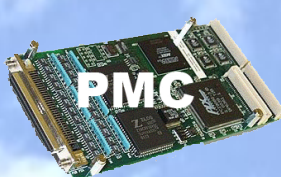
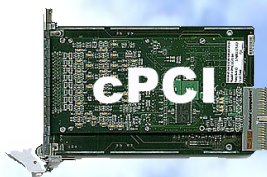
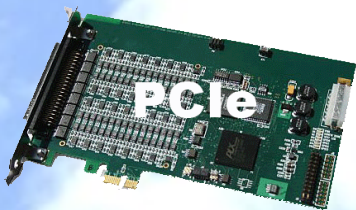


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All products are available on all form factors

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## NEW Low Drift Inputs!

### PMC66-18AI32SSC1M

**18-Bit, 32-Channel, Differential, 1.0 MSPS, Simultaneous Sampling PMC Analog Input Board**

The 18-bit PMC66-18AI32SSC1M analog input board has 32 differential analog inputs with a dedicated 1.0 MSPS SAR 18-Bit ADC per channel. This PMC Analog Input board provides an exceptional combination of precision with throughput and channel density. The board features simultaneous sampling of all inputs with minimum data skew, 256 K-Sample FIFO data buffer, continuous, burst, and single-sample clocking modes. True differential inputs minimize input noise and system interference. Input ranges are software selectable as  $\pm 10V$ ,  $\pm 5V$  or  $\pm 2.5V$ .

The PMC66-18AI32SSC1M now has a new feature—low drift inputs. The low drift feature periodically performs an autocalibration, so the inputs are always calibrated, negating any of drift due to temperature fluctuations.

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### PCI66-18AISSA08

**18-Bit, 8-Input, 8-Output High-Precision Wideband 500KSPS PCI Analog Input/Output Board With Selectable Current-Loop Input Terminators**

The 18 bit PCI66-18AISSA08 analog I/O module provides 8 differential input channels with 500KSPS sample rates per channel. Inputs are software-configurable with or without 0-20ma current-loop input termination (500 Ohms, 0.05%, 0.4 Watt, individually selectable for each input channel). A continuous time 4-pole lowpass filter is available and selectable as FC= 80kHz or 200kHz (Custom frequencies also available). The PCI66-18AISSA08 also provides a hardware sync and clock I/O for multiboard synchronization.

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### PMC66-16AISS16A02

**16-Bit, 18-Channel, 1.0-MSPS PMC Analog Input/Output Board With 16 Simultaneously Sampled Analog Inputs, Two Analog Outputs, and Input Sampling Rates to 1.0 MSPS per channel**

The 16-Bit PMC66-16AISS16A02 analog I/O module samples and digitizes 16 input channels simultaneously at rates up to 1.0 million samples per second per channel, and the resulting 16-bit sampled data is available to the PCI bus through a 256K-Sample FIFO buffer. Sampling can be controlled in groups of 1 through 16 channels, and the sample clock can be generated either from an internal rate generator, or by software or an external source. Both burst and continuous sampling modes are supported, and input ranges are software-selectable as  $\pm 10V$ ,  $\pm 5V$  or  $\pm 2.5V$ . The inputs are divided into two channel groups, with an independent software-controlled range assignable to each group.

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### PCIe-16AI64SSC

**64-Channel, 16-Bit Simultaneous Sampling PCIe Analog Input Board with Large FPGA**

The 16-bit PCIe-16AI64SSC analog input board samples and digitizes 64 input channels simultaneously at rates up to 200,000 samples per second for each channel. Each input channel contains a dedicated 16-bit sampling ADC, and the resulting 16-bit sampled data is available to the PCI bus through a 1 MByte FIFO buffer. Input ranges are software selectable as  $\pm 10V$ ,  $\pm 5V$  or  $\pm 2.5V$ .

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### CCPMC66-16AI32SSA

**Conduction-Cooled, 32 Differential Channels, 16-Bit Simultaneous Sampling, 200 KSPS Sample Rate**

The 16-Bit CCPMC66-16AI32SSA analog input board samples and digitizes up to 32 input channels simultaneously at rates up to 200,000 samples per second for each channels. Each input channel contains a dedicated 16 Bit sampling ADC, and the resulting 16 bit sampled data is available to the PCI bus through a 1 MByte FIFO buffer. The 32-Bit local data path supports full D32 local-bus data packing. Throughput capacity is further enhanced with 66MHz PCI support. All operational parameters are software configurable. **For more information on this board, see page 22.**

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## NEW Time Stamping!

### PMC66-16AI32SSC

Time stamping is used to detect changes in the input sample. Since only the changes and relative time of each change are recorded, time stamping greatly reduces the amount of data that needs to be transferred to the host. The 48-bit time stamp is incremented via a selectable internal/external clock.

## New Products

# General Standards

All products are available on all form factors

### PC104P-24DSI6LN

#### Low-Noise 24-Bit Delta-Sigma PC104+ Analog Input Board with 200 KSPS Sample Rate per Channel

The six channel PC104P-24DSI6LN analog input board provides high-precision 24-bit analog input resources on a standard PC104+ module. Each of the six analog input channels contains a low-pass image filter and a delta-sigma A/D converter that provides digital antialias filtering. The board features a 256 K-sample FIFO buffer, synchronous or independent ADC clocking, and is software-compatible with the PC104P-24DSI12 board.

### PMC66-SIO4BXR

#### High-performance Multi-Protocol Serial I/O with Software Configurable Cable Transceivers (RS422, RS485, RS423, RS232, V.35 and others) with PMC Rear I/O

The four channel PMC66-SIO4BXR board serial interface card provides high speed, full-duplex, multi-protocol serial capability for PMC applications with Rear I/O. The SIO4BX combines two multi-protocol Dual Universal Serial Controllers (USC®), 8 external FIFOs, and multi-protocol transceivers to provide four fully independent asynchronous or synchronous serial channels. Multiprotocol Transceivers support RS422 (V.11)/RS485, RS423 (V.10), RS232 (V.28), V.35, RS530, as well as other Mixed Protocol modes.

### PMC64C-HPDI40C2L-LVDS

#### High-Speed, 40-Bit Parallel Digital I/O PMC Board

The PMC64C-HPDI40C2L-LVDS is a high-speed digital board with 400 Mbytes per second I/O transfer rate via LVDS transceivers. It features deep FIFO buffers (4 Megabytes) that allow data bursts to be transferred over the PCI bus plus 8 bi-directional signals that can be used as clocks and/or for handshaking protocol. It has an on-board cable controller, FIFOs, and a DMA engine that provides for continuous 64-bit data transfers on the PCI bus.

### PCIe4 to PMC Adapter

The PCIe4 to PMC Adapter supports a 32/64 bit PCI/PCI-X Bus, both 3.3v and 5v PCI signaling, 33/66Mhz PCI Bus, 66/133Mhz PCI-X Bus, and PMC Rear I/O. It adapts a single-width PMC form factor to a 4 lane PCI Express (x4 link) interface operating at 2.5 Gbps per lane. The adapter can be ordered with an optional fan for additional cooling.

### NEW GPS Synchronization!

#### PC104P-24DSI12

GPS Synchronization allows the analog board to synchronize to a precision external  
See page 23 for more information on GPS.

### Custom Board Development

Our claim to fame is our ability to develop custom boards as well as new products quickly and efficiently. We place emphasis on making product designs as simple and portable as possible. This approach results in faster time-to-market of new standard products as well through the re-use of core designs on alternate form factors.

The time span to develop a new product is typically 8 to 14 weeks.

The challenge of doing a high quality design in the shortest time possible is an important part of our company's culture.

We have a winning team focused on high quality, state-of-the-art products, and excellent customer service.

Give us a call. We will help you any way we can.



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## The Choice is Clear for Sonar, Seismic, and Recording Studio Applications

Now your choice is easy. General Standards Data Acquisition Boards are more precise, use less power, less noise, and are lower in price than the closest competitor. See the comparison table below and visit our website for full technical specs:

[www.generalstandards.com/delta-sigma.php](http://www.generalstandards.com/delta-sigma.php)

The following is a comparison of Delta-Sigma Data Acquisition Board Characteristics of General Standards PCI-24DSI32 and the leading competitor:

Key Features	General Standards PCI-24DSI32	Leading Competitor
Power Dissipation/32-Channel	12 watts typical	35 Watts
Phase Skew	55ns (0.1deg at 5KHz)	Not specified
Crosstalk	96dB	90dB
SINAD	93dB	90dB
Gain Accuracy	+/-0.1mV, +/-0.1 percent	Not specified
Sample Rate	200K per Channel	108K per Chan
Commercial Temp Range	0 to 65	0 to 50
Industrial Temp Range	-40 to 85	-40 to 85
Cost for 32-Channel	\$5,995 (Qty 1)*	\$9,000

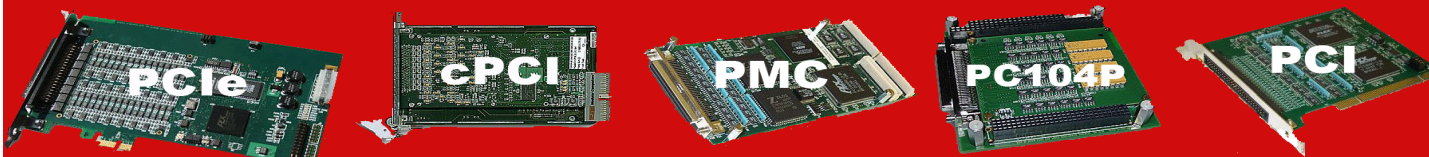
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\* Cost is for 32-Channel Commercial Temp Version. Quantity discounts available. Conformal coating available.  
\*\*Power is for the 32-channel version of the board. Power dissipation for other versions is 6 Watts typical.

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## Advantages and Features of General Standards' Sigma-Delta and Delta-Sigma Products

### Precision 8K Sampling Rate Combined with Integral Filters Make Sigma-Delta A/D Ideal for Telecom Applications.

Oversampling provides effective sampling rates equal to many times the corresponding rates for successive-approximation converters. Our Sigma-Delta boards provide precision 8K antialiased input sampling up to 1.1M Samples/Sec.

### No External Filters Required:

You always have the maximum input bandwidth available for any selected sampling rate. Integral antialiasing uses both digital and analog filters to adjust the bandwidth automatically to just under one-half of the selected sampling rate. Out-of-band interference is stopped in its tracks and never reaches your data arrays.

### Large Data Buffers:

Data loss is unacceptable. General Standards designs integrate large data FIFO buffers to cope with operating system latencies and prevent the loss of your valuable data.

### Flexible Sample Rate Control:

Sampling rates can be adjusted individually for each channel, or all channels can be sampled at a single common rate. Sampling rates are adjustable from 5 KSPS to 1.1 MSPS in increments of 0.2 percent. Custom oscillator frequencies are available to provide the exact set of sampling rates required for specific applications.

### EMI Shields on PMC Boards:

The PMC environment allows for repositioning of sensitive analog components to within a fraction of a millimeter of high-energy digital devices and busses. To minimize induced noise, General Standards provides an essential EMI shield between the analog section of our PMC board and the host board.

### Extremely Low Noise Levels:

Experience superior low-noise performance with a 1.5 LSB RMS typical noise specification, corresponding to just 57 microvolts on a +1.25 Volt range, or a signal-to-noise ratio of 93dB from 10Hz to 100kHz.

### Applications:

- Acoustic Analysis
- Precision Voltage Measurement
- Audio and Sonar
- Sonograms, Ocean and Underground
- Radar
- Target Locator (VHF & UHF)
- Analog Inputs
- Audio Spectral Analysis
- Harmonic Sampling
- Telephony
- Telecom (8K Samples/sec)



## Distinct Features and Advantages of General Standards Products

### Advantages of Sigma-Delta and Delta-Sigma Boards

- Multiple, adjustable high-resolution clocks
- Independent sample rate control per channel
- Asynchronous or synchronous inter-channel operation
- Programming of harmonic sampling rates
- Image filters
- Software sampling rates from 5 KSPS to 1.1 MSPS
- Software-selectable input voltage ranges from +1.25 Volts to +10 Volts

### Advantages of Analog I/O Boards

- Hardware Autocalibration; no missing codes introduced
- Autonomous operation; no host overhead
- Integrated EMI Shield for analog components reduces radiated EMI from host CPU
- Includes absolute Analog accuracies in spec
- Lo-Profile 5-Volt DC/DC converters. Clean power and maximum efficiency with no +12 Volt power requirement
- Autonomous built-in test (Autocal)—No host involvement
- No field jumpers—Completely configurable via software
- Pluggable firmware—easy to upgrade. Custom features available
- Individually buffered Analog inputs; minimizes cross-talk and input leakage

### Advantages of Digital I/O Boards

- Fastest general purpose Digital I/O board on the market (HPDI32 family)
- Deepest Buffer storage (Up to 2 Mbyte total FIFO)
- Most Flexible parallel I/O interface (Able to meet most peripheral requirements)
- We change our cable interface to meet customer requirements
- We routinely modify and ship custom handshake modifications in 3-4 weeks

### Advantages of Serial I/O Boards

- High-end Universal Serial Controller supports Asynchronous, Bisync, HDLC, SDLC, & 9-Bit protocols
- Up to 10 Mbits/sec operation on all four channels simultaneously
- Serial I/O protocol (RS-232, RS-422/485, V.35, EIA-530) is software selectable on some models
- Deep FIFO Buffers (32 Kbyte deep) for both Transmit and Receive on each channel

### Advantages of Working with General Standards Corporation

- Customization to meet your requirements on most boards
- Quick-turn custom and new product developments
- Explicit Specifications
- Include Absolute Accuracies
- Comprehensive Documentation
- Talk directly to an application design engineer
- Commitment to continued growth and support
- Expanding Product Line

### Software Drivers:

- Linux, VxWorks, Vista, XP/XPE, Win2k, NT, ME, 98, & LabView drivers available. Call for Solaris and others.

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## Custom Board Design Service

### Your Competitive Edge in Custom Designed Board Products

How do you select a business partner in custom-designed board products? If quality, service, and value are important to you—not to mention leading-edge design, engineering, and manufacturing capabilities—General Standards Corporation is tough to beat. In short, we give you the edge you deserve.

Founded in 1990, we have been a stable, professionally managed, customer-driven organization. You can trust us as your partner in custom-designed High Performance Bus Interface Solutions.

### The General Standards Advantage: Meeting Your Most Demanding Challenges Fast

The speed of the engineers in our design department, and the turnaround time of those who build our prototypes, is unsurpassed. Combine that with the quality of our customer service resources, and you begin to understand how General Standards can ship even your largest order so quickly. That's a competitive edge you can use to your advantage in today's hurry-up marketplace. Another way General Standards gives you an edge is by constantly staying abreast of new technologies. If there is a better way to do something, we will find it or invent it. Many of General Standards' processes are innovative and a direct result of our employees and clients collaborating, recognizing, and then acting on new opportunities.

### Responsive General Standards Service Before, During, and After Your Order

To General Standards, customer service actually starts before you are a customer. It starts with our listening and learning from you. Top management is accessible to every client, large or small, taking the time to understand your requirements up front. We are careful to build products that meet your needs in your specific application. Not only is your product custom-designed, but the process that creates it is too.

### When You Call General Standards, You Can Talk to an Engineer

Our thoroughly trained design engineers make sure you never have to wait for answers or more importantly, action. Why do we work so hard at customer service? To save you valuable time—it's an edge we think you deserve.

#### High-Performance Bus Interface Solutions



#### General Standards: The Comprehensive Source for ALL Your Custom I/O Needs

We think about quality, service, and value so you don't have to. We make sure things are done right, consistently, and predictably. We stake our reputation on our ability to work with customers to solve any problems that may arise without saying "it's not our problem." We help you explore new ways of doing things, so why not choose us to take your project to the next level. Besides, it just makes good sense.

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## Analog I/O

### 18-Bit Analog In:

Available Form Factor	Model Series	Input Channels	Input Max Sampling Rate	Input Range	ADC	Key Features
PMC66* PCI66 cPCI66 PC104+ PCIe	18AI32SSC1M	32 Diff	1.0 MSPS per Channel  32 MSPS Aggregate	±5V ±10V  <b>Optional:</b> ±1.25V ±2.5V	Simultaneous Sampling	256K Sample Buffer Pre-Trigger Mode Support 6, 8, 4 Channel Versions Available

### 16-Bit Analog In:

Available Form Factor	Model Series	Input Channels	Input Max Sampling Rate	Input Range	ADC	Key Features
PMC* PCI cPCI PC104+ PCIe	16AI64	64 SE or 32 Diff	500 KSPS (Single Channel)  350 KSPS (Scanning)	±2.5V ±5V ±10V	Scanning	64K Sample Buffer 32 Channel Version Available
PMC* PCI cPCI PC104+ PCIe	16AICS32	64 SE or 32 Diff	100 KSPS (Single Channel)  100 KSPS (Scanning)	±2.5V ±5V ±10V	Scanning	64K Sample Buffer Current Source Inputs 0.4mA - 10mA Excitation Current Source Versions Available
PMC66* PCI66 cPCI66 PC104+ PCIe	16AI64SSC	64 SE or 32 Diff	200 KSPS per Channel  12.8 MSPS Aggregate	±2.5V ±5V ±10V 0/+5V 0/+10V	Simultaneous Sampling	512K Sample Buffer 32 Channel Version Available
PMC66* PCI66 cPCI66 PC104+ PCIe	16AI32SSC	32 Diff	200 KSPS per Channel  6.4 MSPS Aggregate	±2.5V ±5V ±10V	Simultaneous Sampling	48-Bit (1ms) Time Stamping Option Available 512K Sample Buffer

\*Indicates true form factor. Other form factors available or supported via adapters.

## Analog I/O

### 14-Bit Analog In:

Available Form Factor	Model Series	Input Channels	Input Max Sampling Rate	Input Range	ADC	Key Features
PMC66* PCI66 cPCI66 PC104+ PCle	14HSAI4	4 Diff	50 MSPS (Single Channel)  100 MSPS (Scanning)	<b>High Level:</b> $\pm 2.5V$ $\pm 5V$ $\pm 10V$ <b>Wideband:</b> $\pm 0.625V$ $\pm 1.25V$ $\pm 2.5V$ <b>Transformer:</b> 2VPP 1VPP	Scanning	512K Sample Buffer  2 Channel Version Available

### 12-Bit Analog In:

Available Form Factor	Model Series	Input Channels	Input Max Sampling Rate	Input Range	ADC	Key Features
PMC* PCI cPCI PC104+ PCle	12AI64	64 SE or 32 Diff	1.5 MSPS (Single Channel)  1 MSPS (Scanning)	$\pm 2.5V$ $\pm 5V$ $\pm 10V$	Scanning	64K Sample Buffer

\*Indicates true form factor. Other form factors available or supported via adapters.

## Analog I/O

### 24-Bit Delta-Sigma Analog In:

Available Form Factor	Model Series	Input Channels	Input Max Sampling Rate	Input Range	Sample Buffer Size	Sample Clocks	Noise Level	Key Features
PCI* cPCI6U*	24DSI32	32 Diff	200 KSPS per Channel 6.4 MSPS Aggregate	±2.5V ±5V ±10V	256K	Optional	93dB (typical) to 10 kHz 88 dB (typical) to 40 kHz	cPCI Version w/ Rear I/O Digital Antialias Filtering Simultaneous Sampling 16 and 8 Channel Versions Available
PMC* PCI cPCI PC104+* PCIe	24DSI12	12 Diff	200 KSPS per Channel 2.4 MSPS Aggregate	±2.5V ±5V ±10V	256K	Optional	93dB (typical) to 10 kHz 86 dB (typical) to 40 kHz	Digital Antialias Filtering GPS Synchronization Low Power Version Available Synchronized or Independent Sampling 8 and 4 Channel Versions Available
PC104+*	24DSI6LN	6 Diff	200 KSPS per Channel 1.2 MSPS Aggregate	±2.5V ±5V ±10V (Fixed)	256K	Optional	112dB (typical) to 100 kHz	Digital Antialias Filtering Low Noise Input Filtering Synchronized or Independent Sampling 4 and 2 Channel Versions Available

### 16-Bit Sigma-Delta Analog In:

Available Form Factor	Model Series	Input Channels	Input Max Sampling Rate	Input Range	Sample Buffer Size	Sample Clocks	Noise Level	Key Features
PMC* cPCI PC104+* PCIe	16HSDI	6 Diff	1.1 MSPS per Channel 6.6 MSPS Aggregate	±1.25V ±2.5V ±5V ±10V	64K	2	0.4mVRMS (typical)	Antialiasing Input Filters Synchronized Sampling 2 or 4 Channel Versions Available
PCI*	16HSDI	8 Diff	1.1 MSPS per Channel 8.8 MSPS Aggregate	±1.25V ±2.5V ±5V ±10V	256K	4	3.0LSB-RMS on all ranges 10Hz-500KHz (typical)	Antialiasing Input Filters Synchronized Sampling 4 Channel Version Available DB50 I/O Connector Available

\*Indicates true form factor. Other form factors available or supported via adapters.

## Delta-Sigma / Sigma-Delta I/O

### 18-Bit Analog Out:

Available Form Factor	Model Series	DAC	Output Channels	Output Max Clock Rate	Output Range	Digital I/O Lines	Key Features
PMC66* PCI66 cPCI66 PC104+ PCIe	18AO8	Simultaneous Sampling	8 SE or 8 Diff	500 KSPS per Channel  4 MSPS Aggregate	±2.5V ±5V ±10V	8 (TTL)	256K Output Data Buffer

### 16-Bit Analog Out:

Available Form Factor	Model Series	DAC	Output Channels	Output Max Clock Rate	Output Range	Digital I/O Lines	Key Features
PMC* PCI cPCI PC104+ PCIe	16AO16	Simultaneous or Sequential Clocking	16 Diff (16 SE Option)	450 KSPS per Channel  7.2 MSPS Aggregate	±1.25V ±2.5V ±5V ±10V	0	256K Output Data Buffer  12 and 8 Channel Version Available  Output Filter Options
PCI66*	16AO16FLV	Simultaneous or Sequential Clocking	16 Diff (16 SE Option)	450 KSPS per Channel  7.2 MSPS Aggregate	<b>High Level:</b> ±5V, ±10V  <b>High Current:</b> ±2.5V, ±1.5V	0	Selectable Reconstruction Filters  256K Output Data Buffer  12 and 8 Channel Version Available  Output Filter Options
PC104+*	16AO20	Simultaneous or Sequential Clocking	20 SE	440 KSPS per Channel  8.8 MSPS Aggregate	±2.5V ±5V ±10V (fixed)	0	256K Output Data Buffer  12 and 6 Channel Version Available  Output Filter Options
PMC66* PCI66 cPCI66 PC104+ PCIe	16AO4MFS	Independent Clocking	4 Diff	400 KSPS per Channel  1.6 MSPS Aggregate	±5V ±10V ±12V (fixed)	0	Four Independent 32K Output Data Buffers  Waveform Sequencing Available  Output Filter Options
PMC* PCI cPCI PC104+ PCIe	16AO2MF	Independent Clocking	2 Diff	400 KSPS per Channel  800 KSPS Aggregate	±5V ±10V ±12V (fixed)	0	Two Independent 32K Output Data Buffers  Waveform Sequencing Available  Output Filter Options

\*Indicates true form factor. Other form factors available or supported via adapters.

## Analog I/O

### 18-Bit Analog I/O:

Available Form Factor	Model Series	Resolution Bits	Input Channels	Input Max Sampling Rate	Input Range	ADC
PCI66*	18AISS8AO8	18	8 Diff	500 KSPS per Channel 4 MSPS Aggregate	±2.5V ±5V ±10V 0 to ±5V 0 to ±10V	Simultaneous Sampling

### 16-Bit Analog I/O:

Available Form Factor	Model Series	Resolution Bits	Input Channels	Input Max Sampling Rate	Input Range	ADC
PMC66* PCI66 cPCI66 PC104+ PCIe	16AIO	16	32 SE or 16 Diff  <b>High Level:</b> 16 SE or 8 Diff	300 KSPS (Single Channel) 300 KSPS Aggregate	±2.5V ±5V ±10V  <b>High Level:</b> ±15V ±30V ±60V	Scanning
PMC* PCI cPCI PC104+* PCIe	16AIO168	16	16 SE or 8 Diff	300 KSPS (Single Channel) 150 KSPS (Scanning)	±2.5V ±5V ±10V	Scanning
PMC* PCI cPCI PC104+* PCIe	ADADIO	16	8 SE or 8 Diff	200 KSPS per Channel 1.6 MSPS Aggregate	±2.5V ±5V ±10V (Fixed)	Simultaneous Sampling
PMC* PCI cPCI PC104+ PCIe	16AIO88	16	8 SE or 4 Diff	73 KSPS (Single Ended) 66 KSPS (Differential)	±2.5V ±5V ±10V (Fixed)	Scanning
PMC* PCI cPCI PC104+ PCIe	16AISS8AO4	16	8 Diff	2.0 MSPS per Channel 16 MSPS Aggregate	±2.5V ±5V ±10V	Simultaneous Sampling
PMC66* PCI66 cPCI66 PC104+ PCIe	16AISS16AO2	16	16 Diff	1.0 MSPS per Channel 16 MSPS Aggregate	±2.5V ±5V ±10V	Simultaneous Sampling

\*Indicates true form factor. Other form factors available or supported via adapters.

For the latest up-to-date information: [www.generalstandards.com/tables.php](http://www.generalstandards.com/tables.php)

## Analog I/O

### 18-Bit Analog I/O (cont'd):

Output Channels	Output Max Clock Rate	Output Range	DAC	Digital I/O Lines	Key Features
8 SE 8 Diff	500 KSPS per channel 4 MSPS Aggregate	$\pm 2.5V$ $\pm 5V$ $\pm 10V$ 0 to $\pm 5V$ 0 to $\pm 10V$	Simultaneous Clocking	8 (TTL)	512K Input Sample Buffers 512K Output Data Buffers Selectable Current-Loop Input Terminators 4 Input / 4 Output Channel Version Available

### 16-Bit Analog I/O (cont'd):

Output Channels	Output Max Clock Rate	Output Range	DAC	Digital I/O Lines	Key Features
4 SE	300 KSPS per Channel 1.2 MSPS Aggregate	$\pm 2.5V$ $\pm 5V$ $\pm 10V$	Simultaneous Clocking	16 (TTL)	32K Input Sample Buffers 32K Output Data Buffers Zero Output Channel Version Available
8 SE	300 KSPS per Channel 2.4 MSPS Aggregate	$\pm 2.5V$ $\pm 5V$ $\pm 10V$	Simultaneous Clocking	4 (TTL)	32K Input Sample Buffers 32K Output Data Buffers Zero Output Channel Version Available
4 SE	250 KSPS Aggregate	$\pm 2.5V$ $\pm 5V$ $\pm 10V$ (Fixed)	Sequential Clocking	8 (TTL)	32K Input Sample Buffers Output Filter Options
8 SE	250 KSPS Aggregate	$\pm 2.5V$ $\pm 5V$ $\pm 10V$ (Fixed)	Sequential Clocking	0	Output Filter Options 32K Input Sample Buffer 32K Output Data Buffer
4 SE	1.0 MSPS per Channel 4 MSPS Aggregate	$\pm 2.5V$ $\pm 5V$ $\pm 10V$	Simultaneous Clocking	16 (TTL)	256K Input Sample Buffer 256K Output Data Buffer 4 Input Channel Version Available Zero Output Channel Version Available
2 SE	1.0 MSPS per Channel 2 MSPS Aggregate	$\pm 2.5V$ $\pm 5V$ $\pm 10V$	Simultaneous or Sequential Clocking	6	256K Input Sample Buffer 256K Output Data Buffer 8 Input Channel Version Available Zero Output Channel Version Available

For the latest up-to-date information: [www.generalstandards.com/tables.php](http://www.generalstandards.com/tables.php)

## Analog I/O

### 12-Bit Analog I/O:

Available Form Factor	Model Series	Resolution Bits	Input Channels	Input Max Sampling Rate	Input Range	ADC
PMC* PCI cPCI PC104+ PCIe	12AIO	12	32 SE or 16 Diff	1.5 MSPS (Single Channel)  1.0 MSPS (Scanning)	$\pm 2.5V$ $\pm 5V$ $\pm 10V$	Scanning
PMC* PCI cPCI PC104+ PCIe	12AISS8AO4	12	8 Diff	2 MSPS per Channel  16 MSPS Aggregate	$\pm 1V$ $\pm 10V$ $\pm 100mV$	Simultaneous Sampling
PMC* PCI cPCI PC104+ PCIe	12AISS44AO4	12	8 Diff	2 MSPS per Channel  16 MSPS Aggregate	$\pm 1V$ $\pm 10V$ $\pm 100mV$ (fixed)	Simultaneous Sampling

\*Indicates true form factor. Other form factors available or supported via adapters.

## Analog I/O

### 12-Bit Analog I/O (cont'd):

Output Channels	Output Max Clock Rate	Output Range	DAC	Digital I/O Lines	Key Features
4 SE	300 KSPS per Channel 1.2 MSPS Aggregate	$\pm 2.5V$ $\pm 5V$ $\pm 10V$	Simultaneous Clocking	16 (TTL)	Accelerated Scanning (1.5 MSPS Aggregate) Option  32K Input Sample Buffer 32K Output Data Buffer Zero Output Channel Version Available
4 SE	400 KSPS per Channel (Direct Register Access)	$\pm 2.5V$ $\pm 5V$ $\pm 10V$	Simultaneous Clocking	16 (TTL)	Software Selectable Input Ranges 64K Input Sample Buffer 4 Input Channel Version Available Zero Output Channel Version Available
4 SE	400 KSPS per Channel (Direct Register Access)	$\pm 2.5V$ $\pm 5V$ $\pm 10V$	Simultaneous or Independent Clocking	16 (TTL)	Two Fixed Input Range Groups 64K Input Sample Buffer 4 Input Channel Version Available Zero Output Channel Version Available

### Analog I/O Products in Development

Available Form Factor	Model Series	Res. Bits	Input Channels	Input Max Sampling Rate	Input Range	Output Channels	Output Max Clock Rate	Output Range	Digital I/O Lines	Key Features
PMC66 PCI66 cPCI66 PC104+ PCIe	16AO16M2	16	—	—	—	16 SE or 16 Diff	2 MSPS per Channel 32 MSPS Aggregate	±2.5V ±5V ±10V	—	Low-Glitch Outputs 256K Output Data Buffer
PMC66 PCI66 cPCI66 PC104+ PCIe	16AO32C500K	16	—	—	—	32 SE	500 KSPS per Channel 16 MSPS Aggregate	±2.5V ±5V ±10V	—	Low-Glitch Outputs 256K Output Data Buffer
PMC66 PCI66 cPCI66 PC104+ PCIe	16AI2O8	16	2 Diff	1.0 MSPS per Channel 2.0MSPS Aggregate	±2.5V ±5V ±10V 0 to +5V 0 to +10V	8 SE	1.0 MSPS per Channel 8.0MSPS Aggregate	±2.5V ±5V ±10V 0 to +5V 0 to +10V	8 (TTL)	64K Sample Buffer 64K Output Data Buffer Simultaneous Sampling/Clocking
PMC66 PCI66 cPCI66 PC104+ PCIe	16AISS16AO4	16	16 Diff	200 KSPS per Channel 3.2MSPS Aggregate	±2.5V ±5V ±10V 0 to +5V 0 to +10V	4 SE	400 KSPS per Channel 1.6MSPS Aggregate	±2.5V ±5V ±10V 0 to +5V 0 to +10V	8 (TTL)	32K Sample Buffer 32K Output Data Buffer Simultaneous Sampling/Clocking
PMC66 PCI66 cPCI66 PC104+ PCIe	16AI4O20	16	4 Diff	200 KSPS per Channel 800KSPS Aggregate	±2.5V ±5V ±10V 0 to +5V 0 to +10V	20 SE	400 KSPS per Channel 8.0MSPS Aggregate	±2.5V ±5V ±10V 0 to +5V 0 to +10V	8 (TTL)	32K Sample Buffer 32K Output Data Buffer Simultaneous Sampling/Clocking
PMC66 PCI66 cPCI66 PC104+ PCIe	16AI64SL	16	64 SE or 32 Diff	500 KSPS (Single Channel) 350 KSPS (Scanning)	±2.5V ±5V ±10V 0 to +5V 0 to +10V Or 4-20ma	—	—	—	—	Scanned Inputs Scan List control 64K Sample Buffer
PMC66 PCI66 cPCI66 PC104+ PCIe	16AI32O4	16	32 SE or 16 Diff	500 KSPS (Single Channel) 350 KSPS (Scanning)	±2.5V ±5V ±10V 0 to +5V 0 to +10V Or 4-20ma	4 SE	400 KSPS per Channel 8.0MSPS Aggregate	±2.5V ±5V ±10V 0 to +5V 0 to +10V	8 (TTL)	Scanned Inputs Scan List control 32K Sample Buffer
PMC66 PCI66 cPCI66 PC104+ PCIe	16AI1604CL	16	16 SE or 8 Diff	50 KSPS Aggregate	±2.5V ±5V ±10V 0 to +5V 0 to +10V	4 SE	400 KSPS per Channel 8.0MSPS Aggregate	±2.5V ±5V ±10V 0 to +5V 0 to +10V Or 4-20ma	8 (TTL)	Scanned Input Excitation Current Source 4-20ma Output Option
PMC66 PCI66 cPCI66 PC104+ PCIe	16AI16LV	16	16 Diff	50 KSPS Aggregate	±10mV ±100mV ±1.0V ±10V	—	—	—	—	Low-level Analog Inputs Expandable to 256 Channels
PMC66 PCI66 cPCI66 PC104+ PCIe	16AI8TC	16	8 Diff	50 KSPS Aggregate	±10mV ±100mV ±1.0V ±10V	—	—	—	—	Low-level Analog Inputs Thermo Couple Support Expandable to 128 Channels
PMC66 PCI66 cPCI66 PC104+ PCIe	SC16MX	N/A	16 Diff	50 KSPS Aggregate	±10mV ±100mV ±1.0V ±10V	—	—	—	—	Low-level Analog Input Expansion Board for 16AI16LV and 16AI8TC
PMC66 PCI66 cPCI66 PC104+ PCIe	16VSDI2	16	2 Diff	10 MSPS per Channel	±1.25V ±2.5V ±5V ±10V	—	—	—	—	Antialiasing 64K Sample Buffers 2 Sample Clocks

### Isolated Analog Products in Development

Available Form Factor	Model Series	Res. Bits	Input Channels	Input Max Sampling Rate	Input Range	Output Channels	Output Max Clock Rate	Output Range	Digital I/O Lines	Key Features
PMC66 PCI66 cPCI66 PC104+ PCle	MI-6AI4WR	16	4 Mutually Isolated	200 KSPS per Channel 800 KSPS Aggregate	±25mV to ±10V	—	—	—	—	Total Interchannel Isolation Wide Signal Range 240 VAC Isolation Simultaneous Sampling
PMC66 PCI66 cPCI66 PC104+ PCle	BI-16AI8WR	16	8 Bus Isolated	200 KSPS per Channel 1.6 MSPS Aggregate	±25mV to ±10V	—	—	—	—	Common Isolated Return Wide Signal Range 240 VAC Isolation Simultaneous Sampling
PMC66 PCI66 cPCI66 PC104+ PCle	MI-16AO4	16	—	—	—	4 Mutually Isolated	400 KSPS per Channel 1.6 MSPS Aggregate	±2.5V ±5V ±10V	—	Total Interchannel Isolation 240 VAC Isolation Simultaneous Clocking
PMC66 PCI66 cPCI66 PC104+ PCle	BI16AO8	16	—	—	—	8 Bus Isolated	400 KSPS per Channel 3.2 MSPS Aggregate	±2.5V ±5V ±10V	—	Common Isolated Return 240 VAC Isolation Simultaneous Clocking
PMC66 PCI66 cPCI66 PC104+ PCle	MI-16AIO24WR	16	16 Mutually Isolated	200 KSPS per Channel 3.2 MSPS Aggregate	±25mV to ±10V	8 Mutually Isolated	400 KSPS per Channel 3.2 MSPS Aggregate	±2.5V ±5V ±10V	—	Total Interchannel Isolation 240 VAC Isolation Simultaneous Sampling/Clocking
PMC66 PCI66 cPCI66 PC104+ PCle	14AISS16	14	16	2.8 MSPS per Channel 44.8 MSPS Aggregate	±2.5V ±5V ±10V 0/+10V or 0/5V <b>Wideband:</b> ±3V ±1.5V ±0.75	—	—	—	—	Simultaneous Sampling
PMC66 PCI66 cPCI66 PC104+ PCle	14AISS20	14	20	1.3 MSPS per Channel 26 MSPS Aggregate	±2.5V ±5V ±10V 0/+10V or 0/5V	—	—	—	8	Simultaneous Sampling
PMC66 PCI66 cPCI66 PC104+ PCle	14AISS32	14	32	1.3 MSPS per Channel 41.6 MSPS Aggregate	±2.5V ±5V ±10V 0/+10V or 0/5V	—	—	—	—	Simultaneous Sampling
PMC66 PCI66 cPCI66 PC104+ PCle	16HSAO2	16	—	—	—	2	40 MSPS	±3V ±1.5V ±0.75V <b>Optional</b> ±10V ±5V ±2.5V	0	
PMC66 PCI66 cPCI66 PC104+ PCle	16SAO64	16	—	—	—	64	3 MSPS per Channel	±2.5V ±5V ±10V or ±1.25V	0	Output Disconnect

For the latest up-to-date information: [www.generalstandards.com/tables.php](http://www.generalstandards.com/tables.php)

## Digital I/O:

Available Form Factor	Model Series & Transceiver Type	Cable Data Width	Control Lines	Max Cable Speed	Max "Buffer Size"	Key Features
PMC64C* PCI64 cPCI64 PC104+ PCle(4lane)	HPDI40C2L (LVDS)	32	Data Valid Up to 6 GPIO	150MHz 600 Mbytes per sec	512Kx64	64Bit PCI Interface
PMC PCI* cPCI PC104+ PCle	HPDI32B (RS422/RS485) (PECL) (MLVDS)	32	Data Valid Line Valid Status Valid Up to 6 GPIO	<b>PECL/LVDS:</b> 50MHz 200 Mbytes per sec <b>RS422/RS485:</b> 26MHz 104 Mbytes pre sec	256Kx32	Programmable Tx Clock Low Cost Version Available Line Valid/Status Valid for CCD Camera Interface
PCI64 PMC64* CPCI PC104+ PCle	HPLDI32ALT (LVDS) (TTL)	32	Data Valid Line Valid Status Valid Up to 6 GPIO	50MHz 200 Mbytes per sec	128Kx32	64Bit PCI Interface Line Valid/Status Valid for CCD Camera Interface
PCI*	DMI32 (LVDS)  (Call for Availability)	32	Data Valid Up to 14 GPIO	50MHz 200 Mbytes per sec	1Gx32	
PMC* PCI* cPCI PC104+ PCle	HPDI32A (RS422/RS485) (PECL)  (Use HPDI32B for New Designs)	32	Data Valid Line Valid Status Valid Up to 6 GPIO	25MHz 100 Mbytes per sec	128Kx32	Line Valid/Status Valid for CCD Camera Interface
PMC PCI* cPCI PC104+ PCle	HPDI32A-COS (RS422/RS485)	32	Up to 14 GPIO	25MHz 100 Mbytes per sec		Change-Of-State Detection Selectable Sample Rate
PCI64*	HPDI32AL (RS422/RS485) (LVDS)	32	Data Valid Line Valid Status Valid Up to 6 GPIO	25MHz 100 Mbytes per sec	128Kx32	Line Valid/Status Valid for CCD Camera Interface
PMC* PCI* cPCI PC104+ PCle	OPTO32A (Up to 100mA In) (Up to 80V Out)	24 in 8 out	N/A	PIO		Optically Isolated I/O Change-Of-State Interrupts
PMC* PCI cPCI PC104+ PCle	DIO24 (RS422/RS485)	24	24 GPIO	PIO		Flexible Cable Interface

\*Indicates true form factor. Other form factors available or supported via adapters.

## Serial I/O:

Available Form Factor	Model Series (Transceiver Type)	Number of Channels	Max Sync Data Speed	Max Async Data Speed	Max "Buffer Size" (per channel)	Key Features
PCI*	SIO8BXS (Multiprotocol)	8 Tx 8 Rx	10 Mbps	1 Mbps	32Kx8	Async, Bisync, SDLC, HDLC, IEEE 802.3, 9-Bit RS485, RS422, RS423, RS232, V.35, RS530 Low Cost Version Available
PCI*	SIO8BXS-SYNC (Multiprotocol)	8 Tx 8 Rx	10 Mbps	—	32Kx8	Simple Synchronous to Parallel Interface RS485, RS422, RS423, RS232 Low Cost Version Available
PMC66* PCI66 cPCI66 PC104+ PCIe	SIO4BXR (Multiprotocol)	4 Tx 4 Rx	10 Mbps	1 Mbps	32Kx8	PMC Rear I/O Async, Bisync, SDLC, HDLC, IEEE 802.3, 9-Bit RS485, RS422, RS423, RS232, V.35, RS530 Low Cost Version Available
PMC66* PCI66 cPCI66 PC104+ PCIe	SIO4BXR-SYNC (Multiprotocol)	4 Tx 4 Rx	10 Mbps	—	32Kx8	PMC Rear I/O Simple Synchronous to Parallel Interface RS485, RS422, RS423, RS232 Low Cost Version Available
PMC* PCI cPCI PC104+* PCIe	SIO4BX (Multiprotocol)	4 Tx 4 Rx	10 Mbps	1 Mbps	32Kx8	Async, Bisync, SDLC, HDLC, IEEE 802.3, 9-Bit RS485, RS422, RS423, RS232, V.35, RS530 Low Cost Version Available
PMC* PCI cPCI PC104+* PCIe	SIO4BX-SYNC (Multiprotocol)	4 Tx 4 Rx	10 Mbps	—	32Kx8	Simple synchronous to parallel interface RS485, RS422, RS423, RS232 Low Cost Version Available
PCI* PC104+*	SIO4B (RS422/RS485) (RS232)	4 Tx 4 Rx	10 Mbps	1 Mbps	32Kx8	Async, Bisync, SDLC, HDLC, IEEE 802.3, 9-Bit RS422/RS485 or RS232 (PCI only) Low Cost Version Available
PCI* PC104+*	SIO4B-SYNC (RS422/RS485)	4 Tx 4 Rx	10 Mbps	—	32Kx8	Simple synchronous to parallel interface RS422/RS485 Low Cost Version Available
VME*	SIO4A (RS422/RS485)	4 Tx 4 Rx	10 Mbps	1 Mbps	32Kx8	Async, Bisync, SDLC, HDLC, IEEE 802.3, 9-Bit RS422/RS485
PMC* PCI* cPCI PC104+ PCIe	HPDI32A-ASYNC (RS422/RS485)	1 Tx or 1 Rx	—	5 Mbps	128Kx8	Async RS422/RS485
PMC PCI* cPCI PC104+ PCIe	HPDI32A-DIPHASE (RS422/RS485)	1 Tx or 1 Rx	10 Mbps	—	128Kx8	DIPHASE RS422/RS485

\*Indicates true form factor. Other form factors available or supported via adapters.

### Serial I/O In Development

Available Form Factor	Model Series (Transceiver Type)	Number of Channels	Max Sync Data Speed	Max Async Data Speed	Buffer Size (per channel)	Key Features
PCIe*	SIO8BX (Multiprotocol)	8 Tx 8 Rx	10 Mbps	1 Mbps	32Kx8	Async, Bisync, SDLC, HDLC, IEEE 802.3, 9-Bit RS485, RS422, RS423, RS232, V.35, RS530 Low Cost Version Available
PMC66* PCI66 cPCI PC104+ PCIe	SIO4CXR (Multiprotocol)	4 Tx 4 Rx	10 Mbps	1 Mbps	256Kx8	Async, Bisync, SDLC, HDLC, IEEE 802.3, 9-Bit RS485, RS422, RS423, RS232, V.35, RS530 Low Cost Version Available
PMC66* PCI66 cPCI66 PC104+ PCIe	SIO4BXR-ASYNC (Multiprotocol)	4 Tx 4 Rx	—	20 Mbps	32Kx8	PMC Rear I/O Async RS485, RS422, RS423, RS232, V.35, RS530 Low Cost Version Available
PMC66* PCI66 cPCI66 PC104+66 PCIe	SIO4BXR-TELEM (Multiprotocol)	4 Tx 4 Rx	20 Mbps	—	32Kx8	PMC Rear I/O Bisync, Telemetry RS485, RS422, RS423, RS232, V.35, RS530 Low Cost Version Available
PMC* PCI cPCI PC104+ PCIe	HSCOM4	4 Tx 4 Rx	50 Mbps	—	32Kx8	

### Digital I/O In Development

Available Form Factor	Model Series & Transceiver Type	Cable Data Width	Control Lines	Max Cable Speed	PCI Size/Speed	Buffer Size	Key Features
PMC64* PCI64 cPCI64 PC104+ PCIe	HPDI40LS (LVDS) (Call for Availability)	32	Frame Valid Up to 6 GPIO	100MHz 400 Mbytes per second	64bit 66MHz	512Kx32	64Bit PCI Interface
PMC* PCI cPCI PC104+ PCIe	HPDI32C (RS422/RS485) (PECL) (MLVDS)	32	Frame Valid Up to 6 GPIO	100MHz 400M bytes per second	32bit 33MHz	256Kx32	Low Cost Available
PMC64 PCI64 CPCI64 PC104+64 PCIe	HPDI40LS-PIO (LVDS) (In Development; call for availability)	32	40 General Purpose I/O lines	50MHz 200M bytes per second	64bit 66MHz	128Kx32	64Bit PCI Interface

\*Indicates true form factor. Other form factors available or supported via adapters.

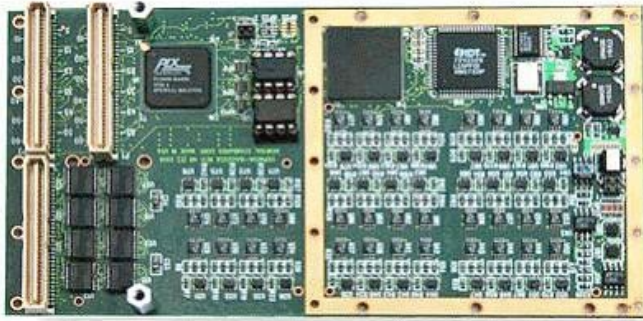
## Memory

Available Form Factor	Model Series	Max Flash Memory	Max battery-backed SRAM	Key Features
PMC* PCI* cPCI PC104+ PCIe	FLASH2	Up to 64M	512K	Useful for: Code-Storage Look-up Tables Data Logging

## Adapter Boards

Available Form Factor	Active/Passive	Key Features
PCIe4 to PMC Adapter	Active	Four Lane PCIe Interface 64/32Bit PMC Bus Width 33MHz / 66MHz PMC Bus Speed Cooling Fan Option I/O Connector for Rear I/O Forward Mode Only No External Power Required
PCIe1 to PMC Adapter	Active	One Lane PCIe Interface 32Bit PMC Bus Width 33MHz / 66MHz PMC Bus Speed Cooling Fan Option I/O Connector for Rear I/O Forward Mode Only No External Power Required
PCI to PMC Adapter	Passive	32Bit PMC Bus Width 33MHz / 66MHz PMC Bus Speed I/O Connector for PMC Rear I/O Option
cPCI to PMC Adapter	Active	3U cPCI Form Factor PMC Bus Width 32bit and 64bit Versions Available 33MHz and 66MHz PMC Bus Speed Versions Available PXI Option Available
PC104+ Spacer	Passive	Allows for Additional Space Between Two PC104+ Modules PCI Only and ISA Only Versions Available
PC104+ to PMC Adapter	Passive	180° Rotated Version with Connector for PMC Rear I/O Option Available Rotary Switch for PC104+ Slot Selection
PCIx to PMC Adapter	Active	Short Length PCIx Card Up to 133MHz PCIx Bus Speed Up to 66MHz PMC Bus Speed

\*Indicates true form factor. Other form factors available or supported via adapters.



## Conduction Cooled PMC 32 Differential Channels 16-Bit Simultaneous Sampling

**CCPMC66-16AI32SSA**

**32-DIFF INPUT CHANNELS**  
**16 BIT SIMULTANEOUS SAMPLING**  
**200 KSPS SAMPLE RATE**  
**66 MHz PCI SUPPORT**  
**PMC REAR I/O**

### Advanced Features of the 16AI32SSA:

- 32 Differential Analog Inputs
- 200 KSPS Sample Rate per Channel
- Simultaneous Sampling of all Inputs with Minimum Data Skew
- 512K Sample Buffer
- Compatible with Conduction-Cooled or Air-Cooled Hosts Without Faceplate
- PMC Rear-Panel I/O (PMC P4)
- Single-width PMC Form Factor

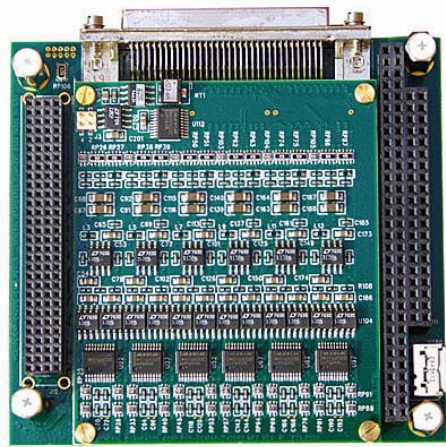
**1-year warranty**

**General Standards Corporation** announces the **CCPMC66-16AI32SSA**, a New Conduction-Cooled, 32 Differential Channels, 16-Bit Simultaneous Sampling; PMC Analog Input Board.

The 16-Bit **CCPMC66-16AI32SSA** analog input board samples and digitizes up to 32 input channels simultaneously at rates up to 200,000 samples per second for each channel. Each input channel contains a dedicated 16 Bit sampling ADC, and the resulting 16 bit sampled data is available to the PCI bus through a 1 MByte FIFO buffer. The 32-Bit local data path supports full D32 local-bus data packing. Throughput capacity is further enhanced with 66MHz PCI support. All operational parameters are software configurable.

Inputs can be sampled in groups of 2, 4, 8, 16, or 31/32 channels; or any single channel can be sampled continuously. The sample clock can be generated from an internal rate generator, or by software or external hardware. Input ranges are software-selectable as  $\pm 2.5V$ ,  $\pm 1.25V$  or  $\pm 0.625V$ .

An on-demand auto-calibration feature determines offset and gain correction values for each input channel, and applies the corrections subsequently during acquisition. A self-test switching network routes calibration reference signals to each channel through internal self-test switches, and permits board integrity to be verified by the host.



## GPS Synchronization

Precision Time Stamping  
NOW AVAILABLE!

### PC104P-24DSI12

**12-DIFF INPUT CHANNELS**  
**24 BIT DELTA-SIGMA**  
**COMPATIBLE WITH:**  
**PCI, PCI-X, PCIe**  
**PC104P & PMC**

Low noise, 24-bit resolution, low phase distortion and multi-board synchronization make the PC104P-24DSI12 board ideal for state-of-the-art sonar and noise monitoring applications.

The GPS Synchronization feature allows the 24DSI12 to synchronize to an external timing reference. The external sync input pins in the I/O connector can be configured to accept a 1PPS GPS clock (LVDS or TTL).

#### Background Information on GPS:

The GPS system (also called NAVSTAR) includes 24 satellites, each with three or four onboard atomic clocks. The US Naval Observatory monitors the satellite's clocks and sends control signals to minimize the differences between their atomic clocks and a master atomic clock for accuracy and traceable to national and international standards (known as UTC).

For time synchronizing a clock, the GPS signal is received and distributed by a master clock, time server, or primary reference source to a device, system, or network so the local clocks are synchronized to UTC. Typical accuracies range from better than 500 nanoseconds to 1 millisecond anywhere on earth.

The GPS clock synchronization eliminates the need for manual clock setting (an error-prone process). The benefits are numerous and include: legally validated time stamps, regulatory compliance, secure networking, and operational efficiency.

The GPS Synchronization Feature may be added to other General Standards Analog Input Boards. Call for availability.

#### Advanced Features of the 24DSI12:

- Supports GPS Synchronization through a 1PPS Input
- 12 Differential 24-Bit Analog Input Channels
- 200 KSPS Sample Rate per Channel
- Delta-Sigma Converter per Channel, with Linear Phase Digital Antialias Filtering
- Software-Selectable Input Ranges: 2.5V, 5V, 10V
- 256 K-sample FIFO Buffer
- Synchronous or Independent ADC Clocking
- Internal Sample Rate Generators

**1-year warranty**



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