

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Visit our website - *Click HERE*

X3-2M

v1.3

Innovative Integration
... real time solutions!

PCI Express XMC Module with 12 simultaneous channels of 10 MSPS 16-bit A/D, and 1.8M FPGA

FEATURES

- 12 channels of 10 MSPS, 16-bit simultaneously sampling A/D
- -110 dB noise floor, 91 dB SFDR
- Low latency SAR converters
- 50 ohm, differential inputs
- Continuously acquire 12 simultaneous channels at 10 MSPS to system memory
- Stream to system memory at up to 220MB/s
- Xilinx Spartan3A DSP, 1.8M gate FPGA
- 4MB SRAM
- Sample clock is external or programmable, low jitter PLL
- Framed, software or external triggering
- Log acquisition timing and events
- 6 LVDS digital IO pairs on Front Panel
- 44 bits digital IO on P16
- Power Management features
- PCI Express XMC Module (75x150 mm)
- Use in any PCI Express desktop, compact PCI/PXI, or cabled PCI Express application

APPLICATIONS

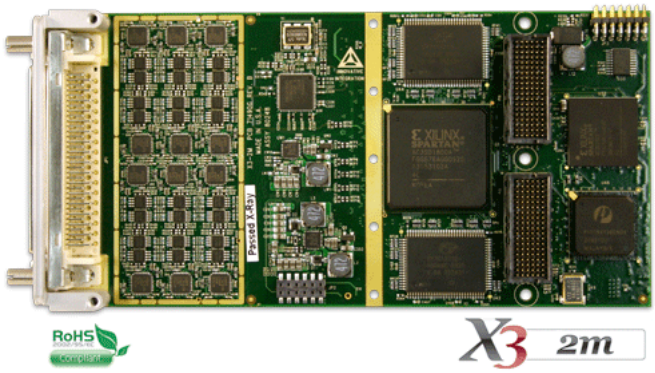
- Multichannel sensor interface
- Neuro-physical instrumentation
- RADAR

SOFTWARE

- Data Acquisition, Logging and Analysis applications provided
- Windows/Linux Drivers
- C++ Host Tools
- VHDL/MATLAB Logic Tools

MATLAB®

XILINX®



DESCRIPTION

The X3-2M is a PCI Express XMC IO module featuring 12 simultaneously sampling 16-bit, 10 MSPS A/D channels and an FPGA processing core. It is designed for high speed instrumentation and analysis for neuro-physical, RADAR, and high speed data acquisition applications.

Flexible trigger methods include counted frames, software triggering and external triggering. The sample rate clock is either an external clock or on-board programmable PLL clock source.

Data acquisition control, signal processing, buffering, and system interface functions are implemented in a Xilinx Spartan3A DSP FPGA, 1.8M gate device. Two 512Kx32 memory devices are used for data buffering and FPGA computing memory.

The logic can be fully customized using VHDL and MATLAB using the FrameWork Logic toolset. The MATLAB BSP supports real-time hardware-in-the-loop development using the graphical, block diagram Simulink environment with Xilinx System Generator.

The PCI Express interface supports continuous data rates up to 220 MB/ s between the module and the host. A flexible data packet system implemented over the PCIe interface provides both high data rates to the host that is readily expandable for custom applications.

Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Innovative Integration products and disclaimers thereto appears at the end of this data sheet. All trademarks are the property of their respective owners.

PRODUCTION DATA information is current as of publication date. Products conform to specifications per the terms of the Innovative Integration standard warranty. Production processing does not necessarily include testing of all parameters.

12/14/16

© 2007 Innovative Integration • phone 805.578.4260 • fax 805.578.4225 • www.innovative-dsp.com

X3-2M



This electronics assembly can be damaged by ESD. Innovative Integration recommends that all electronic assemblies and components circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage. ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

ORDERING INFORMATION

Product	Part Number	Description
X3-2M	80248-0	XMC module with 12 channels of 10 MSPS A/Ds, 1.8M gate FPGA, 4MB SRAM
Logic		
X3-2M FrameWork Logic	55031	X3-2M FrameWork Logic board support package for RTL and MATLAB. Includes technical support for one year.
Cables		
MDR68 cable	65057	IO cable with MDR68 plug on each end, 3 feet length (0.92m)
MMCX to SMA cable	67048G	MMCX to SMA cable
PCIe cable	67057	Single Lane PCI Express Cable - 5m
PCIe cable	67058	Single Lane PCI Express Cable - 3m
PCIe cable	67059	Single Lane PCI Express Cable - 1m
MMCX to SMA cable	67084-G	MMCX to SMA cable
Breakout	80112-1	MDR68-female to screw terminal block
MDR68 breakout	80116-0	Breakout module with MDR68 Connector and screw terminal connection
MDR cable	80116-1	68-pin and screw terminal block
Coax Breakout Cable	67102	Front panel breakout cable with coax cables and BNC terminations for analog, clock and trigger inputs, ribbon cable for front panel digital IO. 1 meter length.
Adapters		
XMC-PCIe x1 Adapter	80172-0	PCI Express Carrier card for XMC PCI Express modules, x1 lanes
PCIe X1 Cable Adapter	80181-0	Desktop PCI Express X1 Cable Adapter
PCIe X1 Cable Adapter	80186-0	Laptop PCI Express X1 Cable Adapter
XMC to CompactPCI Adapter	80207-0	CompactPCI to XMCe Adapter Board

cPCI-XMCe Adapter	80207-1-L4	cPCI-XMCe Adapter 3U Conduction Cooled
CPEX4	80246-0	X4 PCI Express Cable adapter card
XMC Adapter for 3U OpenVPX	80260-3	VPX-XMC 3U ADAPTER, conduction cooled, without REDI covers for X3 modules
XMC Adapter for 3U OpenVPX	80260-3RC	VPX-XMC 3U ADAPTER, conduction cooled, with REDI covers for X3 modules
XMC Adapter for 3U OpenVPX	80260-3RCA	VPX-XMC 3U ADAPTER, conduction cooled, with REDI covers for X3 modules & assembly
XMC-PCI Adapter	80167	PCI Carrier card for XMC PCI Express modules, 64-bit PCI-X
XMC-cPCI Adapter	80207	3U Compact PCI/PXI Carrier card for XMC PCI Express modules, 64-bit PCI-X
XMC-Cabled PCIe Adapter	90181	Cabled PCI Express Carrier card for XMC PCI Express modules, single-lane.
eInstrument-DAQ Node	90181-0	XMC module carrier with 2.5 Gbps cabled PCI Express link to Host Computer housed in a rugged aluminum enclosure.
CPEX4 Hub	90241-0	Cabled PCI Express 4-port Hub including chassis
Embedded PC Host		
eInstrument PC	90199	Embedded PC XMC host with support for two XMC modules for standalone applications.
Custom Engineering and Consulting Services		
Engineering Services	56004	Software/hardware/firmware development
Technician Services	56005	Mechanical fabrication - Electronics prototyping
Premium Services	56006	Rapid turnaround premium, Engineering or Technician Services (add to base rate)
Visit	56009	Engineer Visit On Site for installation, application assistance, in-house training, custom SW
IP Blocks		
IP-TINY DDS	58003-0	1/3 size of Xilinx DDS with equal SFDR. Net version
IP-TINY DDS	58003-1	1/3 size of Xilinx DDS with equal SFDR, source version
IP-XLFFT	58011-0	Core for 64K to 1M points FFT for 1-D, 2-D signal Netlist undle with hardware
IP-XLFFT	58011-1	Core for 64K to 1M points FFT for 1-D, 2-D signal Netlist
IP-WINDOWING	58012-0	Run-time configurable Hann, Blackman, and Boxcar data windowing functions Netlist bundle with hardware
IP-WINDOWING	58012-1	Run-time configurable Hann, Blackman, and Boxcar data windowing functions Netlist
IP-WINDOWING	58525-0	Netlist version
IP-WINDOWING	58525-1	Source version

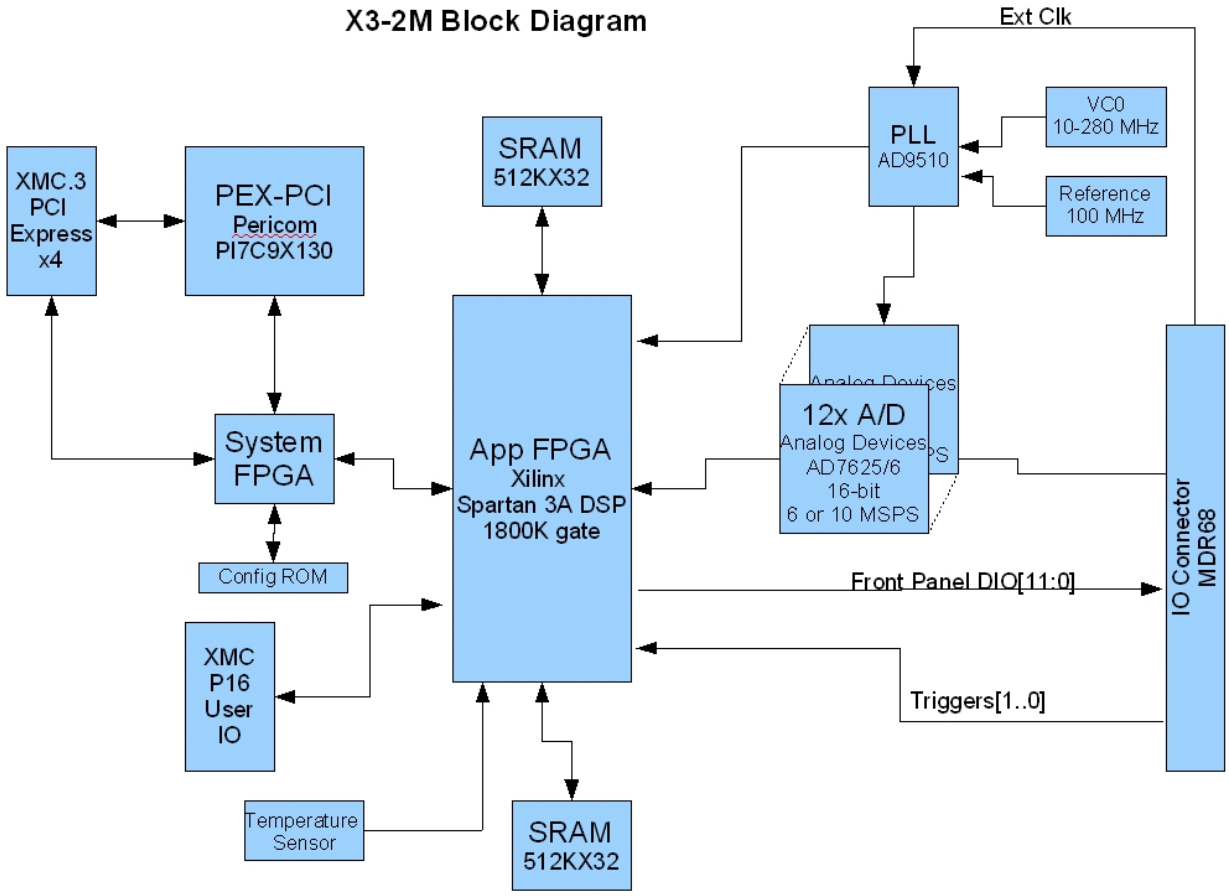
X3-2M

VPX		
VPX-COMEX	80271-0	3U VPX CPU Card, Spartan6 Forced Air Cooling, no REDI covers
VPX-COMEX	80271-0-L1	3U VPX CPU Card, Spartan6 Conduction Cooling, no REDI covers
VPX-COMEX	80271-0-L2	3U VPX CPU Card, Spartan6 Conduction Cooling, no REDI covers
VPX-COMEX	80271-0-L3	3U VPX CPU Card, Spartan6 Conduction Cooling, no REDI covers
VPX-COMEX	80271-0R-L0	Intel I7 @ 2.53 GHz, 128GB SSD Card with REDI covers
VPX-COMEX	80271-0R-L1	Intel I7 @ 2.53 GHz, 128GB SSD Card with REDI covers
VPX-COMEX	80271-0R-L3	Intel I7 @ 2.53 GHz, 128GB SSD Card with REDI covers
RTM-ComEx	80276-0	Rear terminal module for VPX-ComEx
RTM-ComEx	80276-0-L1	Rear terminal module for VPX-ComEx
RTM-ComEx	80276-0-L3	Rear terminal module for VPX-ComEx
VPXI-Extension	90277-0	VPXI-Extension
Media		
DVD	57001	Innovative Integration Installation DVD
Recorders		
Andale Turnkey Logging System	90036-1	2.4 TB RAID0 Array, 700 MB/s
Andale Turnkey Logging System	90036-11	Sustained rates limited to 1600 MB/s
Andale Turnkey Logging System	90036-12	14.4 TB RAID0 Array, 1600 MB/s
Andale Turnkey Logging System	90036-13	9.6 TB RAID0 Array, 1200 MB/s
Andale Turnkey Logging System	90036-14	48 TB RAID0 Array, 2400 MB/s
Andale Turnkey Logging System	90036-2	Sustained rates limited to 300 MB/s
Andale Turnkey Logging System	90036-4	4.8 TB RAID0 Array, 850 MB/s
Andale Turnkey Logging System	90036-5	Sustained rates limited to 850 MB/s
Andale Turnkey Logging System	90036-6	Sustained rates limited to 1000 MB/s

Andale Turnkey Logging System	90036-7	Sustained rates limited to 500 MB/s
Andale Turnkey Logging System	90036-8	14.4 TB RAID0 Array, 2400 MB/s
Andale Turnkey Logging System	90036-9	Sustained rates limited to 1600 MB/s
Systems		
Mezzanine Card	80208-1	Mezzanine card for SBC-ComEx
Mezzanine Card	80242-0	Mezzanine card for eInstrumentPC and SBC-ComEx exposing J16 signals from XMC sites 0 and 1, plus SBC-ComEx baseboard digital I/O signals, 1 ppb stability clock with GPS
Precision GPS Option	80247-0	Precision GPS Option for eInstrument PC and Atom. Includes Trimble Mini-T GPS receiver, Bullet III antenna and 10 M cable
eInstrument-PC	90199-1	Rackmount Adapter Kit
Low-Power eInstrument-PC	90200-0	90190-0+AC supply+chassis+boot SSD
Performance eInstrument-PC	90200-1	90190-1+AC supply+chassis+boot SSD
Performance ePC	90200-1A	90190-1+AC supply+chassis+boot SSD+VCO 350-460 MHz
Extreme eInstrument-PC	90200-2	90190-2+AC supply+chassis+boot SSD
Extreme eInstrument-PC	90200-3	90190-4+AC supply+chassis, 10-280 MHz SI570 VCO
Extreme eInstrument-PC	90200-5	90190-4+AC supply+chassis, 10-945 MHz SI570 VCO
Extreme eInstrument-PC	90200-6	Extreme eInstrument PC with SBC-ComEx carrier, DC supply, (10-945 MHz SI570 VCO range) I7 dual core at 2.5 Ghz, 4GB RAM and Enclosure for SBC-ComEx and SBC COMEX Power Supply, AC (110-240) input, 125W, USA/Japan/Korea/Taiwan power cord.
Low Power eInstrument ATOM PC	90201-0	90191-0+AC supply+chassis+Flash boot
Extreme eInstrument ATOM PC	90201-1	90191-2+AC supply+chassis+Flash boot
Low Power eInstrument ATOM PC	90201-3	Low-power eInstrument-PC ATOM PC with SBC-ComEx carrier, DC supply, ATOM CPU, 1GB RAM and Enclosure for SBC-ComEx and SBC COMEX Power Supply, DC (12V) input, 125W.
Extreme eInstrument ATOM PC	90201-4	90191-2+AC supply+chassis

Extreme eInstrument ATOM PC	90201-5	Extreme eInstrument ATOM PC with SBC-ComEx carrier, DC supply I7 dual core, 4GB RAM and enclosure for SBC-ComEx plus SBC COMEX power supply, DC (12V) input, 125W.
VPXI-ePC	90271-0	VPXI-ePC
VPXI-ePC	90271-0	VPXI-ePC conduction cooled cooled 3U 1/2 rack OpenVPX 5 expansion slots Rugged Level 1
VPXI-ePC	90271-0	VPXI-ePC conduction cooled cooled 3U 1/2 rack OpenVPX 5 expansion slots Rugged Level 2
VPXI-ePC	90271-0	VPXI-ePC conduction cooled cooled 3U 1/2 rack OpenVPX 5 expansion slots Rugged Level 3
Storage		
Hitachi HTS722020K9A300	306019	200GB 7200 RPM SATA 3.0Gb/s Hard Drive
Disk Drive	36028	Solid state disk drive for SBC ComEx - 160 GB
Flash Drive	49016	4 Gigabytes memory USB Embedded
Western Digital Scorpio WD800BEVS	49017-0	80GB 5400 RPM SATA 1.5Gb/s Hard Drive
Flash Drive	49018	16 Gigabytes memory USB Embedded
Hard Disk	80212-0	Hard Disk Drive for SBC COMEX, eInstrument-PC; 200 GB
Hard Disk	80212-1	High Performance Hard Disk Drives for SBC COMEX, eInstrument-PC; two drives, 200 GB each
VelociRaptor WD6000HLHX	80212-3	600GB 10000 RPM 32MB Cache 2.5" Hard Drive
Disk Drive	80263	INTEL SOLID STATE DRIVE V SERIES SNV125-S2BD/30GB 2.5"
GPS		
Tyco A1029-D GPS antenna	68013G	Active, +25dB, 3.3V, SMA cable
GPS RECEIVER MODULE	68015G	Trimble Mini-T, high accuracy, 10 MHz output
GPS Antenna	68016G	Trimble Bullet III, 5V
NavSync CW25	80261	GPS Module for SBC-ComEx
GPS receiver and active antenna	90196-0	GPS receiver and active antenna (P/Ns 68013G + 80261)
GPS receiver and active antenna	90198-0	Trimble Mini-T GPS receiver and active antenna (P/Ns 68015G + 68013G

External Clocks & Triggering		
External Clocks/Trigger	80234-4	X3-Timing, 1 ppm crystal, no GPS, LVCMOS outputs
External Clocks/Trigger	80234-5	X3-TIMING 1 ppm crystal, w/GPS, LVCMOS outputs



X3-2M

Standard Features

Analog	
Inputs	12
Input Range	+/-1V (other ranges may be special ordered)
Input Type	Differential, DC coupled
Input Impedance	50 ohm
A/D Device	Analog Devices AD7626 SAR low-latency A/D
A/D Resolution	16-bit
A/D Sample Rate	312.5 kHz to 10 MHz ** Decimation feature in logic is used for lower data rates
Data Format	2's complement, 16-bit integer
Front Panel Connector	MDR68
Calibration	Factory calibrated. Gain and offset errors are digitally corrected in the FPGA. Non-volatile EEPROM coefficient memory.

FPGA	
Size	1.8M gate equivalent (standard device)
Flip-Flops	33,280
DSP48A Elements	84
CLB	4160
Block RAMs	84 (1512K bits)
FPGA Device	Xilinx Spartan3A DSP XC3SD1800A-4FGG676C
Configuration	SelectMAP from PCIe interface JTAG during development
Clock Rate	132 MHz
Utilization	18%

Memory	
Size	4 MB total 2 devices @ 512Kx32 each
Type	Synchronous ZBT SRAM
SRAMs	Cypress CY7C1371D-133AXC
Uses	FPGA Buffer Memory FPGA computation memory

X3-2M

Host Interface	
Type	PCI Express; 4 lanes
Sustained Data Rate	220 MB/s
Protocol	Packet data
Connector	XMC P15
Interface Standard	PCIe 1.0a; VITA 42.3
Logic Update	In-system reconfiguration

Clocks and Triggering	
Clock Sources	PLL or External
PLL Output	312.5MHz to 140 MHz
PLL Tuning Resolution	100 kHz
PLL Jitter	<500 fs RMS
PLL Programming	Host programmed via PCIe
PLL Reference	Internal: 100 MHz clock External reference : J16 input
Triggering	External, software, acquire N frame
Decimation	1:1 to 1:4095 in FPGA
Channel Clocking	All channels are synchronous
Multi-card Synchronization	External triggering, clock, and PLL reference are supported.

Acquisition Monitoring	
Alerts	Trigger, Queue Overflow, Channel Over-range, Timestamp Rollover, Temperature Warning, Temperature Failure, PLL Unlocked
Alert Timestamping	15 ns resolution, 32-bit counter

P16 Digital IO	
Total Number of Bits	44
Balanced Pairs	22
Signal Standard	LVTTL Configurable as LVDS 2.5V
Drive	+/-12 mA (LVTTL)
Connector	XMC P16

Front Panel Digital IO	
Total Number of Bits	12
Balanced Pairs	6
Signal Standard	LVTTL Configurable as LVDS 2.5V
Drive	+/-12 mA (LVTTL)
Connector	Front Panel MDR68

Power Management	
Temperature Monitor	May be read by the host software
Alarms	Software programmable warning and failure levels
Over-temp Monitor	Disables analog IO power supplies
Power Control	Channel enables and power up enables
Heat Sinking	Conduction cooling supported. (subset of VITA20)

Physicals	
Form Factor	Single width IEEE 1386 Mezzanine Card
Size	75 x 150 mm
Weight	100g
Hazardous Materials	Lead-free and RoHS compliant

ABSOLUTE MAXIMUM RATINGS

Exposure to conditions exceeding these ratings may cause damage!

Parameter	Min	Max	Units	Conditions
Supply Voltage, 3.3V to GND	+3.0	+3.6	V	
Analog Input Voltage, Vin+ or Vin- to GND	-0.3	+6	V	
Operating Temperature	0	70	C	Non-condensing environment.
Storage Temperature	-65	+150	C	
ESD Rating	-	1k	V	Human Body Model
Vibration	-	5	g	9-200 Hz, Class 3.3 per ETSI EN 300 019-1-3 V2.1.2 (2003-04)
Shock	-	40	g peak	Class 3.3 per ETSI EN 300 019-1-3 V2.1.2 (2003-04)

RECOMMENDED OPERATING CONDITIONS

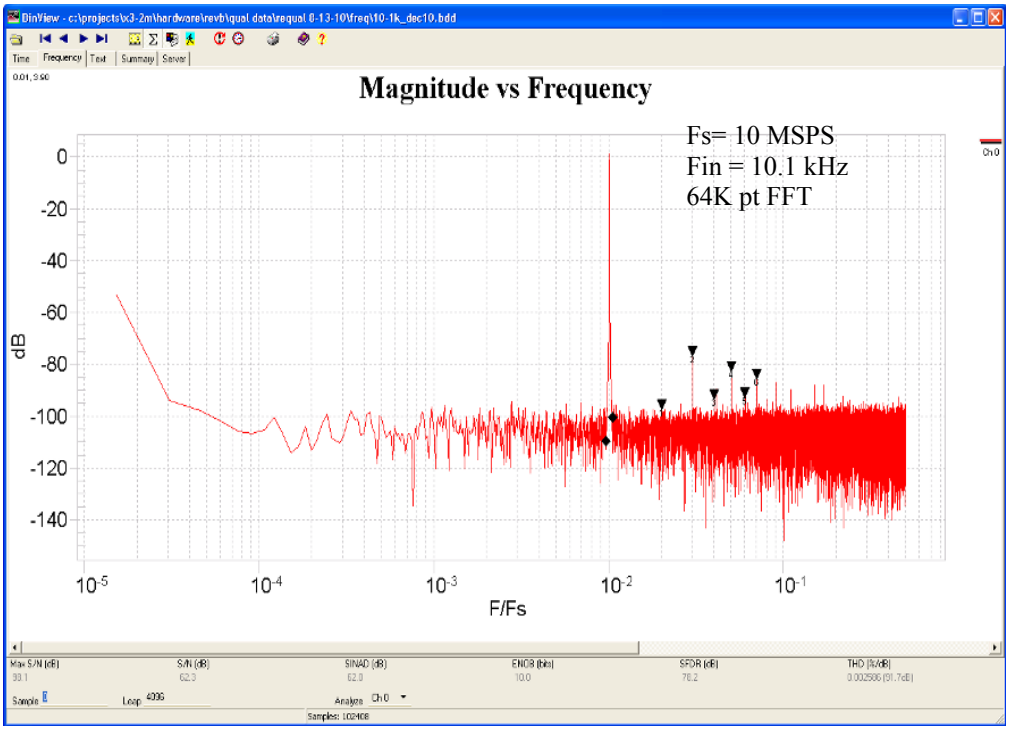
Parameter	Min	Typ	Max	Units
Supply Voltage	+3.15	+3.3	+3.45	V
Operating Temperature	0		60	C

X3-2M

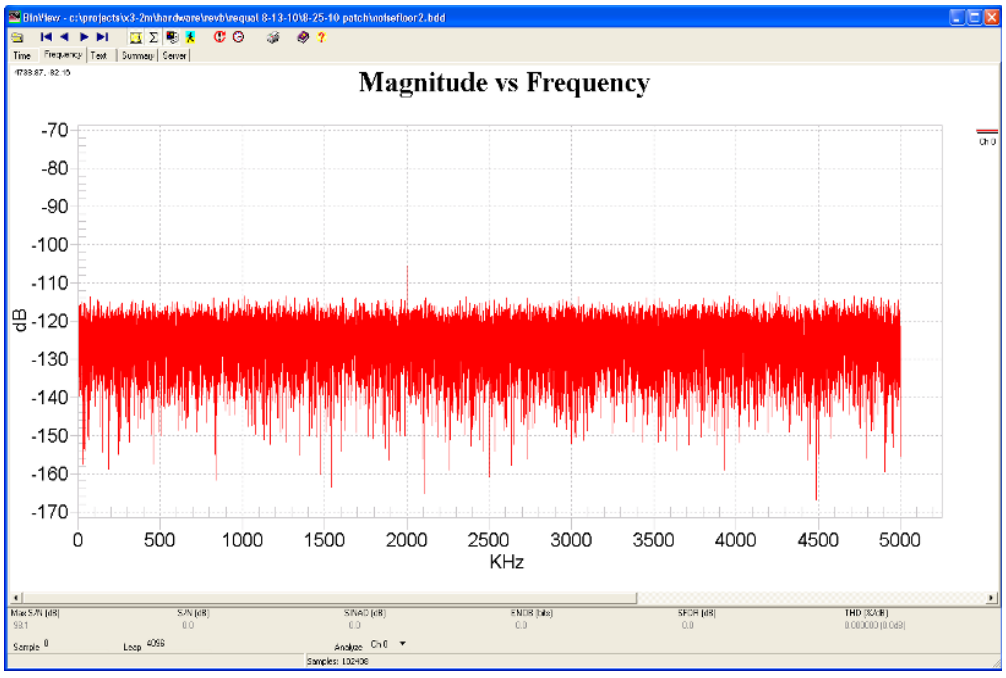
ELECTRICAL CHARACTERISTICS

Over recommended operating free-air temperature range at 0°C to +70°C, unless otherwise noted.

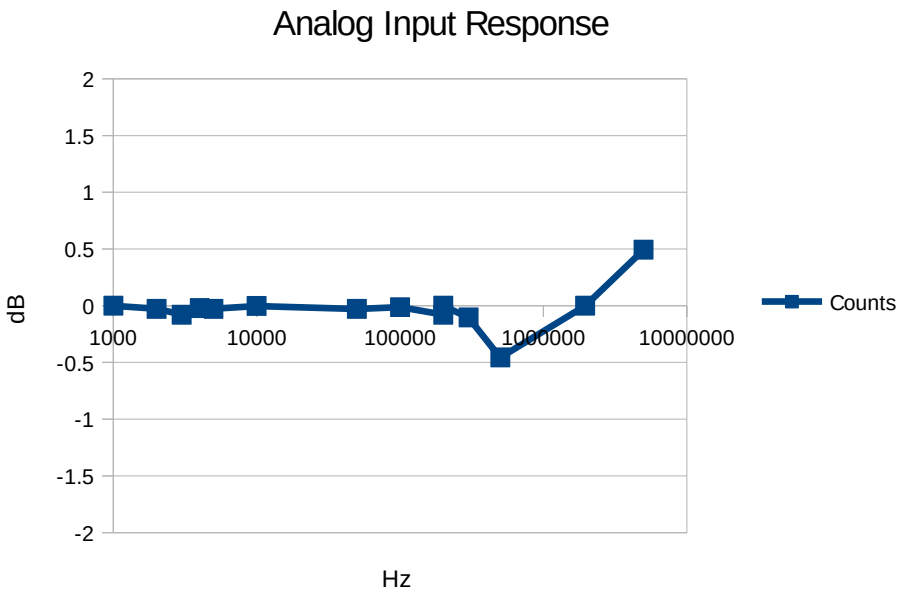
Parameter	Typ	Units	Notes
Analog Input			
Analog Input Bandwidth	25	MHz	-3dB; for standard filter
SFDR	91	dB	10.1 kHz sine input, 2Vp-p differential, 64K point FFT avg of 10
S/N	73.3	dB	10.1 kHz sine input, 2Vp-p differential, 64K point FFT avg of 10
THD	-92.7	dB	10.1 kHz sine input, 2Vp-p differential, 64K point FFT avg of 10
ENOB	11.8	dB	10.1 kHz sine input, 2Vp-p differential, 64K point FFT avg of 10
Channel Crosstalk	-85	dB	100 kHz, 2Vp-p with MDR68 cable and screw terminal board
Noise	628	uV	Grounded input, one standard deviation.
Calibration			
Gain Error	<0.02	% of FS	Calibrated
Offset Error	<500	µV	Calibrated
Calibration Interval	1	year	
Power			
Supply Current	1.98	A	3.3V supply, all channels sampling at 10 MSPS, 27C ambient
Operating Temperature	48	C	No forced air in 27C ambient.



Note: no signal source filtering. Noise floor limited by signal source.



Noise Floor, Fs = 10MSPS, no input



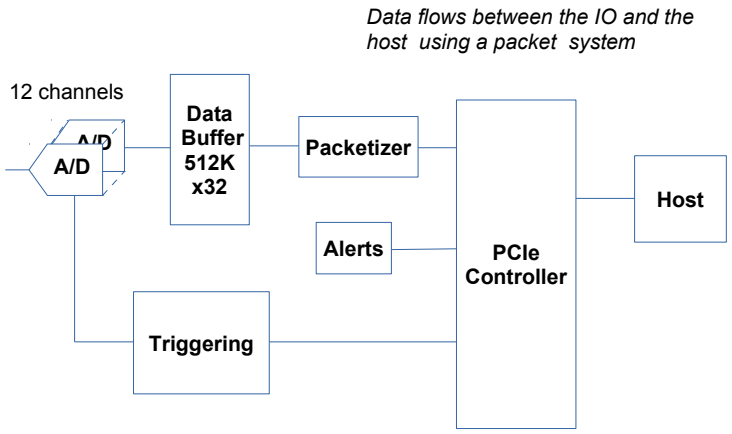
Amplitude Variation vs Input Frequency, Fs = 10 MSPS

X3-2M

Architecture and Features

The analog front end of the X3-2M module has 12 simultaneously sampling channels of 16-bit, 10 MSPS A/D input. The A/D is low-latency SAR architecture. The A/D channels are 50 ohm differential inputs with a wide analog bandwidth suitable for many digitizer applications.

Controls for triggering and clocks allow precise control over the collection of data. Trigger modes include frames of programmable size, external and software. Multiple X3-2M cards can sample simultaneously using external trigger input synchronized to the sample clock. The sample clock may be external or generated from the on-card PLL. The PLL can either use the on-card 100 MHz reference, or can use an external reference. With the external reference, multiple cards can be synchronized to a common time reference such as GPS.



X3-10M Architecture

The X3 architecture has data buffering and a packet system to the host that provides an efficient and flexible host interface. The data buffer is a 2 MB SRAM that is used as a data queue. Data to the buffer is transferred to the host using the PCIe controller interface as data packets. The packet data system controls the flow of packets to the host, or other recipient, using a credit-based system managed in cooperation with the host software. The packets may be transmitted continuously for streams of data from the A/Ds, or as occasional packets for status, controls and analysis results. The data buffering and flow control system delivers high throughput with low latency and complete flexibility for data types and packet sizes to match the application requirements for all types of applications.

The data acquisition process can be monitored using the X3 alert mechanism. The alerts provide information on the timing of important events such as triggering, overranges and thermal overload. Packets containing data about the alert including an absolute system timestamp of the alert, and other information such as current temperature. This provides a precise overview of the card data acquisition process by recording the occurrence of these real-time events making the X3 modules easier to integrate into larger systems.

Software Tools

Software for data logging and analysis are provided with every X3 module. Data can be logged to system memory at full rate or to disk at rates supported by the drive and controller. Triggering, sample rate controls, and data logging features allow you to use X3 modules in your application without ever writing code. Innovative software applications include *Binview* which provides data viewing, analysis and export data to MATLAB for large data files, as well as support applications for logic loading, firmware updates and system configuration.

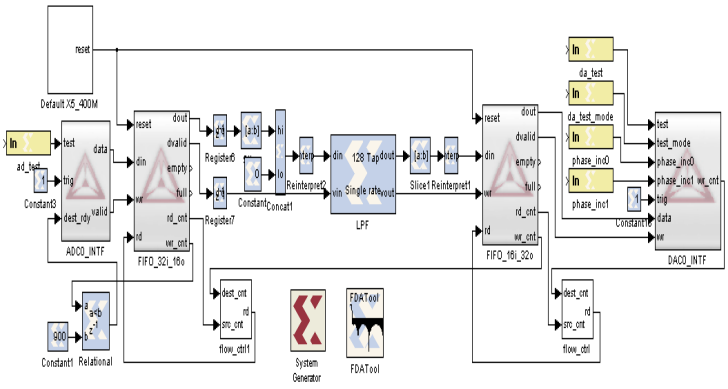
Software development tools for the X3 modules provide comprehensive support including device drivers, data buffering, card controls, and utilities that allow developers to be productive from the start. At the most fundamental level, the software tools deliver data buffers to your application without the burden of low-level real-time control of the cards. Software classes provide C++ developers a powerful, high-level interface to the card that makes real-time, high speed data acquisition easier to integrate into applications.

Support for MS Visual C++ is provided. Supported OS include Windows and Linux. For more information, the software

tools and on-line help may be downloaded.

Logic Tools

High speed DSP, analysis, customized triggering and other unique features may be added to the X3 modules by modifying the logic. The FrameWork Logic tools support RTL and MATLAB developments. The standard logic provides a hardware interface layer that allows designers to concentrate on the application-specific portions of the design. Designer can build upon the Innovative components for packet handling, hardware interfaces and system functions, the Xilinx IP core library, and third party IP. RTL source for the FrameWork Logic is provided for customization. Each design is provided as a Xilinx ISE project, with a ModelSim testbench illustrating logic functionality.



The MATLAB Board Support Package (BSP) supports logic development using Simulink and Xilinx System Generator. These tools provide a graphical design environment that integrates the logic into MATLAB Simulink for complete hardware-in-the-loop testing and development. The MATLAB tools are an extremely powerful design methodology that can be used to generate, analyze and display the signals in the logic real-time in the system. Once the development is complete, the logic can be embedded in the FrameWork logic using the Xilinx ISE tools.

The FrameWork Logic User sales brochure and User Guide more fully detail the development tools.

Applications Information

Maximum A/D Sample Rates

For the standard FrameWork logic, the A/D sample rates are limited by the destination of the data as shown in the following table.

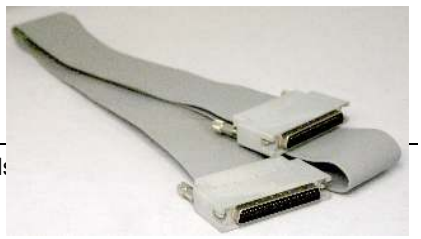
A/D Sample Destination	Maximum Sample Rate
FPGA logic	10 MSPS per channel
On-module data buffer	12 channels at 10 MSPS
Host PCIe system memory	12 channels at 10 MSPS each, subject to system performance.

Maximum Data Rates

Continuous data transfer to the host system memory may not support full data rate in all cases, depending on the system performance, software loading and hardware limitations. The PCI Express transfer rate may vary according to the host computer, operating system, and other system activity that may compete for bandwidth. The X3 modules support 250 MB/s full duplex during bursts, but actual sustained throughput is 220 MB/s in typical desktop PCs.

It is important to qualify systems for performance when data rates exceeding 200 MB/s are required.

Cables





X3-2M

X3 modules uses a shielded, jacketed 68-wire cable assembly for the front panel IO. This a pleated copper foil shield cable with “near coax” performance. This cable, plus the use of differential signals and use of ground signals as shields, results in good performance. A screw terminal assembly is available.

A cable with coax for each input is also offered.

XMC Adapter Cards

XMC modules can be used in standard desktop system or compact PCI/PXI using an adapter card. The adapter cards are software transparent.

The X3 modules use the auxiliary P16 connector for digital IO and additional clock inputs. A total of 44 bits of digital IO, directly connected to the application FPGA, are routed to the rear edge MDR connector as 22 balanced differential pairs supporting LVDS or lower speed single-ended LVCMOS signals. The X3 modules also have a sample clock input and PLL reference input to J16. The cPCI/PXI adapter uses these to connect to system clocks, while the PCIe desktop adapter provides SMB input connectors for system clock inputs.

PCIe-XMC Adapter (80172) x1 PCIe to XMC SMB Clock and trigger inputs 	**PCI-XMC Adapter (80167)** 64-bit, 133 MHz PCI-X host x4 PCIe to XMC 	**Compact PCI-XMC Adapter (80207)** 64-bit, 133 MHz PCI-X host x4 PCIe to XMC PXI triggers and clock support 

Applications that need remote or portable IO can use either the eInstrument PC or eInstrument Node with X3 modules.

X3-2M

eInstrument PC with Dual PCI Express XMC Modules (90199)

Windows/Linux embedded PC
8x USB, GbE, cable PCIe, VGA
High speed x8 interconnect between modules
GPS disciplined, programmable sample clocks and triggers to XMCs
Up to 400MB/s data logging using FLASH HDD
9-18V operation



eInstrument DAQ Node – Remote IO using cabled PCI Express (90181)

PCI Express system expansion
Up to 7 meter cable
electrically isolated from host computer
software transparent



X3-2M

IMPORTANT NOTICES

Innovative Integration Incorporated reserves the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All products are sold subject to Innovative Integration's terms and conditions of sale supplied at the time of order acknowledgment.

Innovative Integration warrants performance of its hardware products to the specifications applicable at the time of sale in accordance with Innovative Integration's standard warranty. Testing and other quality control techniques are used to the extent Innovative Integration deems necessary to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

Innovative Integration assumes no liability for applications assistance or customer product design. Customers are responsible for their products and applications using Innovative Integration products. To minimize the risks associated with customer products and applications, customers should provide adequate design and operating safeguards.

Innovative Integration does not warrant or represent that any license, either express or implied, is granted under any Innovative Integration patent right, copyright, mask work right, or other Innovative Integration intellectual property right relating to any combination, machine, or process in which Innovative Integration products or services are used. Information published by Innovative Integration regarding third-party products or services does not constitute a license from Innovative Integration to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from Innovative Integration under the patents or other intellectual property of Innovative Integration.

Reproduction of information in Innovative Integration data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. Reproduction of this information with alteration is an unfair and deceptive business practice.

Innovative Integration is not responsible or liable for such altered documentation. Resale of Innovative Integration products or services with statements different from or beyond the parameters stated by Innovative Integration for that product or service voids all express and any implied warranties for the associated Innovative Integration product or service and is an unfair and deceptive business practice. Innovative Integration is not responsible or liable for any such statements.

For further information on Innovative Integration products and support see our web site:

www.innovative-dsp.com

Mailing Address: Innovative Integration, Inc.

2390A Ward Avenue, Simi Valley, California 93065

Copyright ©2007, Innovative Integration, Incorporated

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP