

CMX09A

9-SLOT 3U PXI EXPRESS CHASSIS | UP TO 8GB/S



FEATURES

- 9-slot PXI Express chassis with 1 system controller slot, 7 PXIe peripheral/hybrid slots and 1 PXIe timing slot
- High bandwidth PCle Gen 2 backplane with 2 GB/s slot bandwidth and 8 GB/s system bandwidth
- IEEE 1588 distributed instrument synchronization
- Rack mount, custom front panels



Overview

Slot Configurations

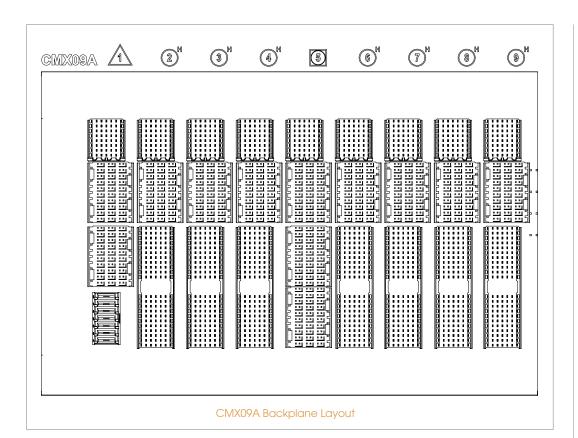
The CMX09A is a 9-slot PXI Express mainframe with 1 system controller slot, 7 PXIe Peripheral/Hybrid slots, and 1 PXIe timing slot. The PXI Express hybrid slot delivers connectivity to either a x4 PCI Express link or to the 32-bit, 33 MHz PCI bus on the backplane. This allows PXI Express, hybrid-compatible, or 32-bit cPCI/PXI-1 modules (without J2 connector) to be used in this slot. The PXIe timing slot accepts either a PXI Express module or a PXI Express system timing controller for advanced timing and synchronization.

Unmatched Speed, Flexibility and Performance

Best in class Bandwidth

The CMX09A uses a 4-lane Gen 2 PCle backplane to achieve unmatched data rates of up to 2 GB/s per slot and 8 GB/s system. This is especially useful when using high-speed instruments like digitizers, oscilloscopes, and signal generators.





IEEE-1588 Distribution

The CMX09A backplane contains a built-in mechanism for distributing an IEEE-1588 time source to the plugin modules. This mechanism is only supported when using the EMX-2500 Gigabit Ethernet LXI controller, and allows timestamping of data from all plugin modules on a common time-base for advanced timing and synchronization. In addition, it also provides the capability to synchronize PXI systems with LXI instruments.

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Intelligent Chassis Management

The CMX09A has a built-in system monitoring controller that monitors and manages full chassis status, including internal temperature, fan speed, and DC voltages.

IO/Switch on Rear Panel

- BNC connectors for 10MHz clock input/output
- Fan speed selector switch
- Inhibit mode selector switch
- D-SUB9 for voltage monitoring and remote inhibit

Rugged Design

Table-top Option

A rugged, compact and light-weight design makes the CMX09A ideal for portable applications. The CMX09A is available with optional handles which makes it convenient to lift and move. There are no air-holes on the front of the chassis, which protects the instruments from spills when used in industrial environments.

Rack-mount Option

Traditional rack-mount options with custom front panels are also available.

External Clock

The CMX09A includes a pair of IN/OUT BNC connectors in the rear to bring in an external 10 MHz reference clock. When a 10 MHz clock signal is detected on the IN connector, the internal clock is phase locked to the external clock. This reference clock may also be driven by a system timing module in slot 5. System timing controllers provide a high-stability clock source and the ability to drive the PXI star and PXIe differential star triggers. In addition timing controllers typically have the ability to import and export the PXI trigger lines on the backplane. The OUT BNC connector provides a buffered, non-TTL version of the 10 MHz reference clock.



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General Specifications

SLOTS Total Slots PXI Express System Controller PXI Express Peripheral / Hybrid PXI Express Timing Nodule Size BANDWIDTH Slot 2 GB/s Mainframe 8 6B/s Standards Compliance PXI-5 PXI Express Hardware Specifications PXI-1 hardware specifications Rev 2.2 SYSTEM SYNCHRONIZATION CLOCKS 10 MHz System Reference Clock: PXI-CLK10 Max Slot-To-Slot Skew Accuracy 100 MHz System Reference Clock: PXIE_CLK100 Max Slot-To-Slot Skew 100 ps Accuracy +/- 50 ppm Max 100 ps Accuracy +/- 25 ppm Max 100 Mhz Reference Out (From BNC Out) Accuracy	Specifications	
PXI Express System Controller PXI Express Peripheral / Hybrid PXI Express Peripheral / Hybrid PXI Express Timing PXI Express Hardware Specifications PXI Express Hardware Specifications PXI Express Hardware Specifications Rev 2:2 PXI Express Hardware Specifications	SLOTS	
PXI Express Peripheral / Hybrid PXI Express Timing Nodule Size 3U BANDWIDTH Slot 2 GB/s Mainframe Standards Compliance PXI-5 PXI Express Hardware Specifications PXI-1 hardware specifications Rev 2.2 SYSTEM SYNCHRONIZATION CLOCKS 10 MHz System Reference Clock: PXI_CLK10 Max Slot-To-Slot Skew Accuracy 100 MHz System Reference Clock: PXI_CLK10 Max Slot-To-Slot Skew 100 ps Accuracy 100 MHz System Reference Clock: PXI_CLK100 Max Slot-To-Slot Skew 100 ps Accuracy 100 Mhz System Reference Clock: PXI_CLK100 Max Slot-To-Slot Skew 100 ps Accuracy 100 Mhz System Reference Clock: PXI_CLK100 Max Slot-To-Slot Skew 100 ps Accuracy 100 Mhz System Reference Clock: PXI_CLK100 Max Slot-To-Slot Skew 100 ps Accuracy 100 mbz Sudare wave into 50Ω 2 Vpp unloaded 0 utput Amplitude 1 Vpp. ±20% sauare wave into 50Ω 2 Vpp unloaded 0 utput Impedance 50Ω ± 5Ω EXTERNAL CLOCK SOURCE Frequency Input Amplitude 100 mVpp to 5 Vpp squre-wave or sine-wave (Rear panel BNC) 5V or 3.3V TTL Signal (System timing slot) Rear Panel Bnc Input Impedance Maximum Jitter Introduced By Backplane MECHANICAL	Total Slots	9 slots
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BANDWIDTH Slot 2 GB/s Mainframe 8 GB/s Standards Compliance PXI-5 PXI Express Hardware Specifications PXI-1 hardware specifications Rev 2.2 SYSTEM SYNCHRONIZATION CLOCKS 10 MHz System Reference Clock: PXI_CLK10 Max Slot-To-Slot Skew 300ps Accuracy +/- 50 ppm Max 100 MHz System Reference Clock: PXIe_CLK100 Max Slot-To-Slot Skew 100 ps Accuracy +/- 25 ppm Max EXTERNAL 10 Mhz Reference Out (From BNC Out) Accuracy +/- 50 ppm Max Output Amplitude 1 Vyp, ±20% square wave into 50Ω 2 Vpp unloaded Output Impedance 50Ω ± 5Ω EXTERNAL CLOCK SOURCE Frequency 10 MHz ± 100 ppm Input Amplitude 50Ω ± 5Ω Rear Panel Bnc Input Impedance 50Ω ± 5Ω Rear Panel Bnc Input Impedance 1 ps RMS Phase Jitter (10 Hz - 1 MHz range) MECHANICAL	PXI Express Timing	1 slot (slot 5)
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$ \begin{array}{lll} 10 \text{ Mhz Reference Out (From BNC Out)} \\ \textbf{Accuracy} & +/-50 \text{ ppm Max} \\ \textbf{Output Amplitude} & 1 \text{ Vpp, } \pm 20\% \text{ square wave into } 50\Omega \\ 2 \text{ Vpp unloaded} \\ \textbf{Output Impedance} & 50\Omega \pm 5\Omega \\ \hline \textbf{EXTERNAL CLOCK SOURCE} \\ \hline \textbf{Frequency} & 10 \text{ MHz} \pm 100 \text{ ppm} \\ \hline \textbf{Input Amplitude} & 100 \text{ mVpp to 5 Vpp squre-wave or sine-wave (Rear panel BNC)} \\ \textbf{5V or } 3.3 \text{V TTL Signal (System timing slot)} \\ \hline \textbf{Rear Panel Bnc Input Impedance} & 50\Omega \pm 5\Omega \\ \hline \textbf{Maximum Jitter Introduced By Backplane} & 1 \text{ ps RMS Phase Jitter (10 Hz - 1 MHz range)} \\ \hline \textbf{MECHANICAL} \\ \hline \end{array} $,	+/- 25 ppm Max
Accuracy $+/-50 \text{ ppm Max}$ Output Amplitude $1 \text{ Vpp, } \pm 20\% \text{ square wave into } 50\Omega$ 2 Vpp unloaded Output Impedance $50\Omega \pm 5\Omega$ EXTERNAL CLOCK SOURCE Frequency $10 \text{ MHz} \pm 100 \text{ ppm}$ Input Amplitude $100 \text{ mVpp to } 5 \text{ Vpp squre-wave or sine-wave (Rear panel BNC)}$ $5 \text{ Vor } 3.3 \text{ V TTL Signal (System timing slot)}$ Rear Panel Bnc Input Impedance $50\Omega \pm 5\Omega$ Maximum Jitter Introduced By Backplane $1 \text{ ps RMS Phase Jitter (} 10 \text{ Hz} - 1 \text{ MHz range)}$		
$\begin{array}{lll} \text{Output Amplitude} & \begin{array}{ll} 1 \text{ Vpp, } \pm 20\% \text{ square wave into } 50\Omega \\ 2 \text{ Vpp unloaded} \end{array} \\ \text{Output Impedance} & 50\Omega \pm 5\Omega \\ \hline \text{EXTERNAL CLOCK SOURCE} \\ \hline \text{Frequency} & \begin{array}{ll} 10 \text{ MHz} \pm 100 \text{ ppm} \\ 100 \text{ mVpp to 5 Vpp squre-wave or sine-wave (Rear panel BNC)} \\ 5V \text{ or } 3.3 \text{ V TTL Signal (System timing slot)} \\ \hline \text{Rear Panel Bnc Input Impedance} & 50\Omega \pm 5\Omega \\ \hline \text{Maximum Jitter Introduced By Backplane} & 1 \text{ ps RMS Phase Jitter (10 Hz - 1 MHz range)} \\ \hline \text{MECHANICAL} \end{array}$,	
Output Impedance $50\Omega \pm 5\Omega$ EXTERNAL CLOCK SOURCE Frequency $10 \text{ MHz} \pm 100 \text{ ppm}$ Input Amplitude $100 \text{ mVpp to 5 Vpp squre-wave or sine-wave (Rear panel BNC)}$ Rear Panel Bnc Input Impedance $50\Omega \pm 5\Omega$ Maximum Jitter Introduced By Backplane $1 \text{ ps RMS Phase Jitter (10 Hz - 1 MHz range)}$	Accuracy	
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Frequency 10 MHz \pm 100 ppm 100 mVpp to 5 Vpp squre-wave or sine-wave (Rear panel BNC) 5V or 3.3V TTL Signal (System timing slot) Fear Panel Bnc Input Impedance 50 Ω \pm 5 Ω Maximum Jitter Introduced By Backplane 1 ps RMS Phase Jitter (10 Hz – 1MHz range)	Output Impedance	$50\Omega \pm 5\Omega$
	EXTERNAL CLOCK SOURCE	
The imputation of the imputat	Frequency	10 MHz ± 100 ppm
Maximum Jitter Introduced By Backplane 1 ps RMS Phase Jitter (10 Hz - 1MHz range) MECHANICAL	Input Amplitude	
MECHANICAL	Rear Panel Bnc Input Impedance	$50\Omega \pm 5\Omega$
	Maximum Jitter Introduced By Backplane	1 ps RMS Phase Jitter (10 Hz - 1MHz range)
200 mm (A) : 100 mm (B) : 4/5 mm (D) (10 55" 7 A" 10 0")	MECHANICAL	
DIMENSIONS 322 mm (W) X 190 mm (H) X 465 mm (D) (12.55" X 7.4" X 18.3")	Dimensions	322 mm (W) x 190 mm (H) x 465 mm (D) (12.55" x 7.4" x 18.3")
Weight: 9 kg (19.8 lbs)	Weight	Weight: 9 kg (19.8 lbs)

 $^{^{\}rm 1}$ There will be power derating at > 55 °C. Refer to the detailed specifications.

(continued next page)

General Specifications (continued)

Specifications					
POWER SUPPLY					
	Input Voltage Range: 100 to 240 VAC				
AC Input *Guaranteed by power supply design	Operating Voltage Range*: 85 to 264 VAC				
	Input Voltage Frequency: 50 to 60 Hz				
	Operating Voltage Frequency*: 47 to 63 Hz				
Input Current Rating	115 VAC, 13 A 230 VAC, 10 A				
	VDC	Maximum	Load Regulation	Maximum Ripple and Noise	
	+5 V	23.0 A	±3%	50 mV	
DC Output	+12 V	27.0 A	±3%	50 mV	
DC Output	+3.3 V	33.0 A	±3%	50 mV	
	-12 V	1.75 A	±3%	50 mV	
	Maximum Total Usable Power is 400 W				
COOLING					
Fans	Two 185.9 CFM fans				
Chassis Cooling Intake	Bottom of front bezel, bottom panel of chassis				
Chassis Cooling Exhaust	Rear of chassis				
Slot Airflow Direction	Bottom of module to top of module				
ENVIRONMENTAL SPECIFICATI	IONS				
Operating Environment	Ambient Temperature: 0°C to 55°C (32°F to 131°F)				
	Relative Humidity: 10% to 90%, Non-condensing				
Storage Environment	Ambient Temperature: -20°C to 70°C (-4°F to 158°F)				
	Relative Humidity: 10% to 90%, Non-condensing				
Shock and Vibration	Functional Shock: 30 G, Half-sine, 11 ms Pulse Duration				
		ion: to 500 Hz, 0.3 Grms g: 5 to 500 Hz, 2.46			
SAFETY AND EMC					
Emissions Compliance	EN 61326-1 FCC Class A				
CE Compliance	Safety: EN 61010-1 Immunity: EN 61326-1				

Specifications subject to change without notice.

Ordering Information		
Model	Configuration	
70-0698-000R	Chassis, CMX09A, 9-slot 3U PXI-e, 8 GB/s, All Hybrid	
70-0698-100R	F/A CMX09A Rackmount Kit	
70-0698-200R	PXI/PXIe Filler Panel Kit, Qty 9 3U 1 Slot panels	
70-0463-901R	Kit,Blnk Pnls,CMX09,Qty 5	

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