

► Dual 10 Gigabit Ethernet XMC Adapter

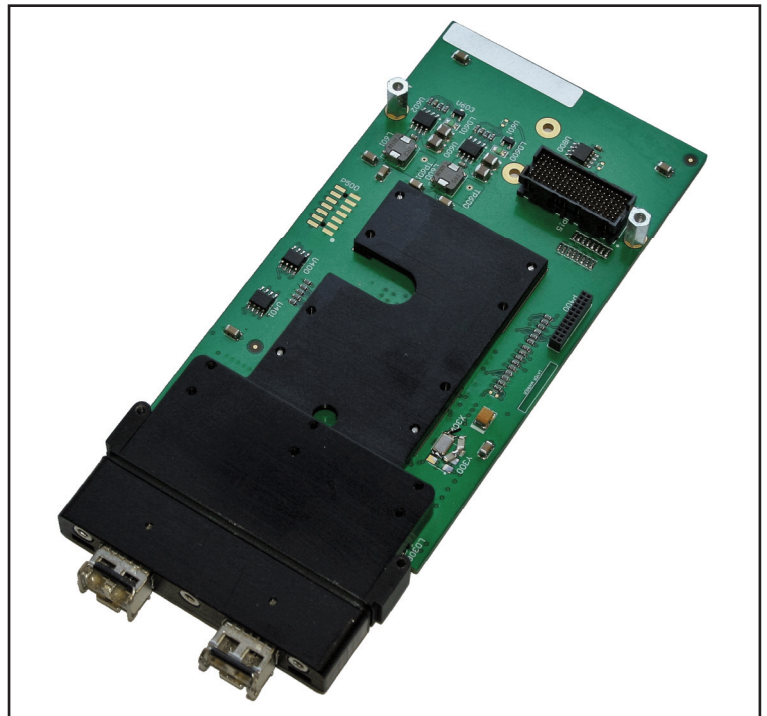
The Dual 10 Gigabit Ethernet XMC (PCI-Express Mezzanine Card) Adapter provides dual 10 Gigabit Ethernet communication channels over multimode or singlemode fibre optic media. It is well suited for ultra high-speed communications in mission-critical, real-time systems and is ideal for bandwidth-intensive networked applications such as the streaming of multiple high-definition digital video feeds.

The adapter design complies with the XMC specification (ANSI/VITA 42.3-2006) and is available in ruggedised, industrial and commercial versions.

Architecture

The Dual 10 Gigabit Ethernet XMC Adapter uses an Intel 82599 10GE Controller which removes protocol processing overhead from the host system, thus providing higher net data throughput.

Interfacing on the host carrier side is done via the Single Board Computer's PCI-Express system bus which is an efficient, high bandwidth peripheral interconnect medium.



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I/O Media Interface

The adapter utilises front panel SFP+ (Small Form Factor Pluggable) transceivers to connect externally via multimode / singlemode fibre optic media or over copper twinax direct-attach cables.

The SFP+ transceivers are housed in a rugged, thermally conductive aluminium cage which conforms to the mechanical specifications set forth in the XMC specification. The aluminium cage is designed to minimise radiated Electromagnetic Interference (EMI). SFP+ transceivers are hot-pluggable and can easily be replaced or interchanged in the field.

Features

- dual 10 Gigabit Ethernet channels
- Intel 82599 10GE Controller design for enhanced performance and host CPU offload
- channel data throughput of up to 10 GBit/s
- backward-compatible with 1000BASE-X networks
- PCI-Express host XMC interface
- operating system software driver support for :
 - Linux
 - WindRiver VxWorks V6.x (costed)
 - Windows

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I/O Media Types

The adapter supports all of the following I/O media types :

- 10GBASE-SR : 10 Gigabit Ethernet using multimode fibre media and a 850 nm wavelength, over distances of up to 300 m
- 10GBASE-LR : 10 Gigabit Ethernet using singlemode fibre media and a 1 310 nm wavelength, over distances of up to 10 km
- SFP+ Direct Attach : 10 Gigabit Ethernet using copper twinax direct-attach cables, over distances of up to 15 m

Applications

- Distributed real-time applications in harsh environments
- Mission-critical applications
- Avionics, Vetronics
- High-speed sensor integration
- High-performance multimedia applications
- Distributed digital voice and video applications

Specifications	
Bus Interface	8 lane; 2,5 GHz PCIe Electrically : PCI Express Rev. 2.0
Controller	Intel 82599
Interfaces	2 x 10GBASE-SR/LR fibre full duplex; 2 x copper twinax direct-attach
Power	10 Watts maximum ($V_{PWR} = +12\text{ V}$ or $+5\text{ V}$)
Software	Software driver support for Windows and Linux. VxWorks is a costed option.

Characteristics			
Formfactor		Dimensions	Mass
XMC	without SFP+ transceiver	169,6 mm x 74,0 mm x 12,9 mm	165 g +/- 10 g
	with SFP+ transceiver	179,6 mm x 74,0 mm x 12,9 mm	200 g +/- 10 g

Reliability			
MTBF	Figures according to MIL-HDBK-217F, Parts Stress Method		
	Commercial and Industrial Grades	Ground Benign, Controlled, 25 C	125 000 hrs
	Ruggedised Grade	Ground, Mobile, 45 C Naval, Sheltered, 40 C Airborne, Inhabited Cargo, 55 C	33 000 hrs 42 000 hrs 29 000 hrs



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Environmental Specifications			
	Commercial Grade	Industrial Grade	Ruggedised
Temperature - Operating - Storage	0 C to +55 C -40 C to +85 C	-15 C to +75 C -50 C to +85 C	-40 C to + 85 C -60 C to +125 C
Humidity	0% - 90%	0% - 95%	0% - 95%
Shock	N/A	30 g peak for 11 ms	40 g peak for 11 ms
Vibration - Sine - Random	2 g (peak) 10 Hz to 100 Hz 0,04 g²/Hz at 15 Hz to 2 kHz	10 g (peak) 5 Hz to 2 kHz 0,1 g²/Hz at 15 Hz to 2 kHz	10 g (peak) 5 Hz to 2 kHz 0,1 g²/Hz at 15 Hz to 2 kHz

Part Selector				
Part Designation	Formfactor	Grade	I/O Connector Type	I/O Media Type
CCII/10GEI/XMC/2P/SR/FP/COM CCII/10GEI/XMC/2P/SR/FP/IND CCII/10GEI/XMC/2P/SR/FP/RGD	XMC XMC XMC	Commercial Industrial Ruggedised	Duplex LC Duplex LC Duplex LC	Fibre, Multimode Fibre, Multimode Fibre, Multimode
CCII/10GEI/XMC/2P/LR/FP/COM CCII/10GEI/XMC/2P/LR/FP/IND CCII/10GEI/XMC/2P/LR/FP/RGD	XMC XMC XMC	Commercial Industrial Ruggedised	Duplex LC Duplex LC Duplex LC	Fibre, Singlemode Fibre, Singlemode Fibre, Singlemode
CCII/10GEI/XMC/2P/NOTX/FP/COM CCII/10GEI/XMC/2P/NOTX/FP/IND CCII/10GEI/XMC/2P/NOTX/FP/RGD	XMC XMC XMC	Commercial Industrial Ruggedised	SFP+ Cage SFP+ Cage SFP+ Cage	No Tranceivers No Tranceivers No Tranceivers