

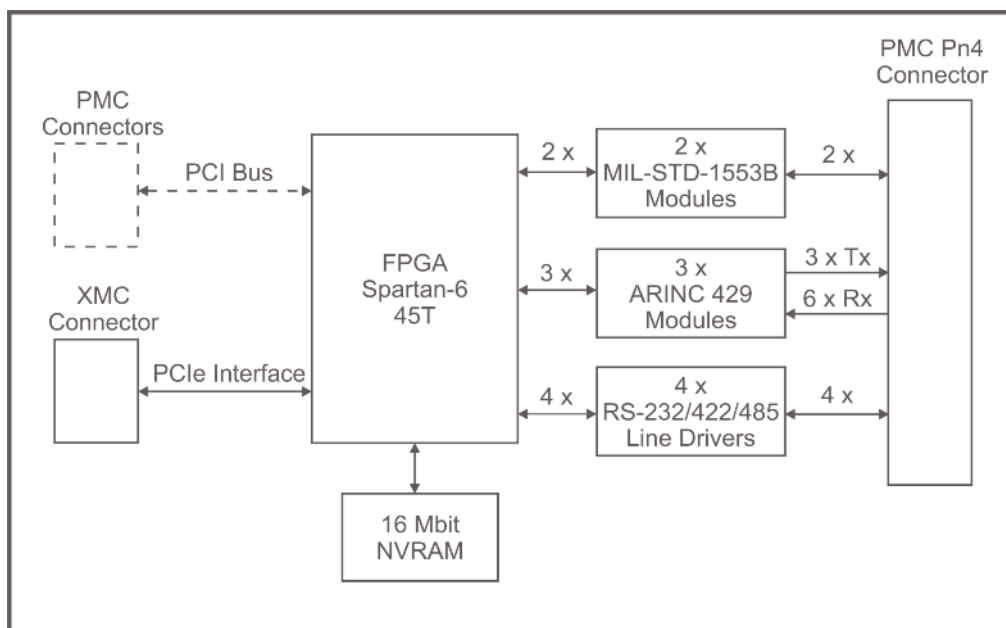
## ► Multi-Function Input / Output PMC / XMC Adapter

The Multi-Function Input / Output (I/O) PMC / XMC Adapter offers a number of I/O types of data interfacing requirements not normally available in such combination. As standard, the Multi-Function I/O Adapter provides two dual-redundant MIL-STD-1553B channels, three transmit and six receive ARINC 429 channels, 16 Mbit Non-Volatile Random-Access Memory (NVRAM) and four RS-232 or RS-422/485 channels.

The adapter design complies with the XMC specification (ANSI/VITA 42.3-2006) and the Conduction-Cooled PMC (CCPMC) specification (ANSI/VITA 20-2001) and is available in ruggedised, industrial and commercial versions.

### Architecture

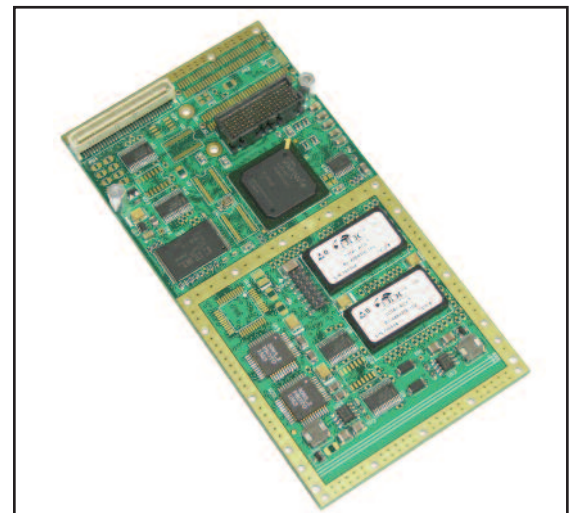
The Multi-Function I/O Adapter consists of a Xilinx Spartan-6 45T Field-Programmable Gate Array (FPGA) connected to the host by a single-lane PCIe link (standard) or a 32-bit PCI bus (optional) interfacing to two MIL-STD-1553B modules, three ARINC 429 modules, one NVRAM module and four RS-232 or RS-422/485 line drivers. The I/O channels are routed to the Backplane I/O PMC connector Pn4.



**Multi-Function I/O PMC / XMC Adapter Block Diagram**

### Features

- Xilinx Spartan-6 45T Series FPGA
- 1-Lane PCIe interface (XMC, standard)
- 32-bit, 33/66 MHz PCI Bus (PMC, optional)
- two Dual-Redundant MIL-STD-1553B channels (Bus Controller, Remote Terminal, Bus Monitor and combined Remote Terminal / Bus Monitor functionality)
- three transmit and six receive ARINC 429 channels
- 16 Mbit NVRAM
- four RS-232 or RS-422/485 channels



**Multi-Function I/O XMC Adapter**

## ► Multi-Function Input / Output PMC / XMC Adapter

Specifications	
<b>FPGA</b>	Xilinx Spartan-6 45T
<b>PCIe (XMC)</b>	1-Lane PCIe, 2,5 GHz Electrically : PCI Express Rev. 2.0
<b>PCI (PMC)</b>	32-bit, 33/66 MHz Electrically : PCI Rev. 2.2; 3,3 V or 5 V signalling
<b>MIL-STD-1553B</b>	2 x Dual-Redundant channels Bus Controller, Remote Terminal, Bus Monitor and combined Remote Terminal / Bus Monitor functionality
<b>ARINC 429</b>	3 x transmit channels 6 x receive channels
<b>NVRAM</b>	16 Mbit NVRAM
<b>Serial</b>	Build options (RS-232 standard) : 4 x RS-232 channels : TxD, RxD, CLK_OUT, CLK_IN, RTS, CTS and CD or 4 x RS-422/485 channels : TxD+, TxD-, RxD+, RxD-, CLK_OUT+, CLK_OUT-, CLK_IN+ and CLK_IN-

MTBF	Figures according to MIL-HDBK-217F, Parts Stress Method		
	Commercial Grade	Ground Benign, Controlled, 25 C	470 000 hours
	Industrial Grade	Ground, Mobile, 45 C	55 000 hours
		Naval, Sheltered, 40 C	135 000 hours
		Airborne, Inhabited Cargo, 55 C	60 000 hours
Airborne Uninhabited Cargo, 70 C		20 000 hours	
Airborne Rotary Wing, 55 C		20 000 hours	
Airborne, Inhabited Fighter, 55 C		49 000 hours	
Ruggedised Grade	Airborne, Uninhabited Fighter, 70 C	16 000 hours	
	Ground, Mobile, 45 C	60 000 hours	
	Naval, Sheltered, 40 C	145 000 hours	
	Airborne, Inhabited Cargo, 55 C	65 000 hours	
	Airborne Uninhabited Cargo, 70 C	20 000 hours	
	Airborne Rotary Wing, 55 C	22 000 hours	
Airborne, Inhabited Fighter, 55 C	50 000 hours		
Airborne, Uninhabited Fighter, 70 C	17 000 hours		

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



► **Multi-Function Input / Output PMC / XMC Adapter**

<b>Physical Characteristics</b>		
<b>Formfactor</b>	<b>Dimensions</b>	<b>Mass</b>
<b>CCPMC (ANSI/VITA 20-2001)</b>	143,75 mm x 74,00 mm (+0,0 / -0,5 mm), conforming to VITA 20 height envelope	65 g +/- 10 g

<b>Part Selector</b>			
<b>Part Designation</b>	<b>Cooling</b>	<b>Formfactor</b>	<b>Grade</b>
CCII/MFIO/PMC/001/BP/COM	Air	PMC	Commercial
CCII/MFIO/PMC/001/BP/IND	Air	PMC	Industrial
CCII/MFIO/PMC/001/BP/RGD	Air	PMC	Ruggedised
CCII/MFIO/PMC/001/BP/CC	Conduction	PMC	Ruggedised
CCII/MFIO/XMC/001/BP/COM	Air	XMC	Commercial
CCII/MFIO/XMC/001/BP/IND	Air	XMC	Industrial
CCII/MFIO/XMC/001/BP/RGD	Air	XMC	Ruggedised
CCII/MFIO/XMC/001/BP/CC	Conduction	XMC	Ruggedised