

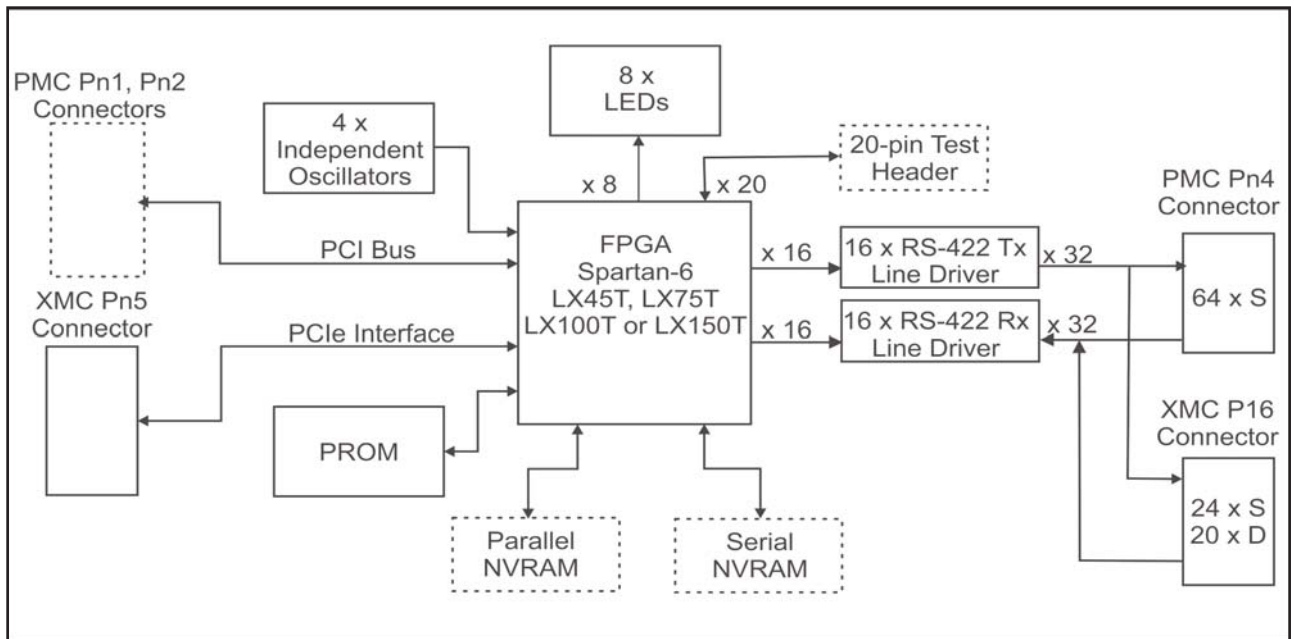
Serial and Digital I/O XMC / PMC Adapter

The Serial and Digital I/O XMC / PMC Adapter offers a user-programmable, multi-channel Serial and Digital I/O Adapter on a single XMC or PMC adapter. The Serial and Digital I/O XMC / PMC Adapter can be supplied with a range of Xilinx Artix-7 series FPGAs, including the XC7A15T, XC7A35T, XC7A50T, XC7A75T, XC7A100T and the XC7A200T. The Serial and Digital I/O XMC / PMC Adapter has customisable I/O options such as sixteen duplex RS-422/485 channels and eight onboard LED indicators. The Serial I/O and Digital I/O XMC / PMC Adapter also offers optional Serial and Parallel Non-Volatile Random-Access Memory (NVRAM) and four onboard oscillators.

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. A version with front panel I/O is available as an option.

Architecture

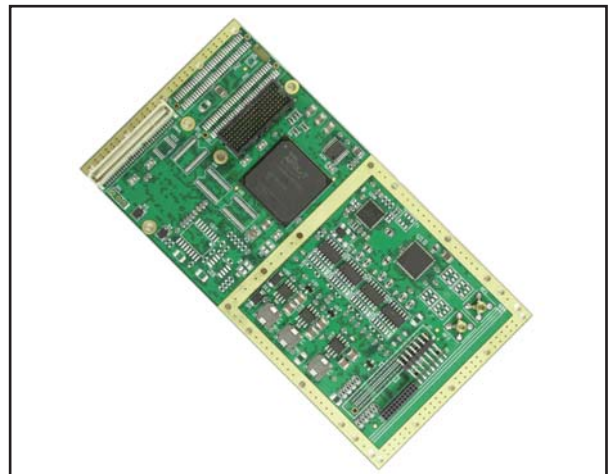
The Serial and Digital I/O XMC / PMC Adapter consists of a user-programmable Xilinx Artix-7 FPGA, with the PMC PCI signals and the XMC PCIe signals routed to the FPGA. Serial and Parallel NVRAM are routed to the FPGA. The Parallel NVRAM can be replaced with Error-Correcting Code (ECC) Memory on request. Sixteen RS-422 line drivers are connected to the FPGA and are routed to either the front panel or backplane I/O connector. Four independent oscillators for use with the FPGA can be fitted.



Serial and Digital I/O XMC / PMC Adapter Block Diagram

Features

- Xilinx Artix-7 FPGA
- 4-Lane PCIe interface (XMC)
- 32-bit, 33/66 MHz PCI Bus (PMC, optional)
- 16 x RS-422/485 Duplex Serial I/O channels
- 8 x LEDs
- 4 x independent oscillators routed to FPGA
- up to 16 Mbit Parallel NVRAM (optional)
- up to 1 Mbit Serial NVRAM (optional)
- 20 x Test Signals (optional)



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Specifications	
FPGA	Xilinx Artix-7 FPGA : XC7A15T, XC7A35T, XC7A50T, XC7A75T, XC7A100T or XC7A200T
PCIe Interface	4-Lane PCIe, 2,5 GHz PCIe Electrically : PCI Express Rev. 2.0
PCI Interface	32-bit, 33/66 MHz Electrically : PCI Rev. 2.2; 3,3 V or 5 V signalling
Parallel NVRAM	up to 16 Mbit (optional)
Serial NVRAM	up to 1 Mbit (optional)
LEDs	8 x LEDs
Serial I/O	16 x RS-422 line drivers routed to Pn4
Clocks	4 x independent oscillators routed to FPGA
Test Signals	20 x Test Signals routed to header or Flat Flexible Cable (FFC) connector (optional)

MTBF	Figures according to MIL-HDBK-217F, Parts Stress Method		
	Commercial Grade	Ground Benign, Controlled, 25 C	650 000 hours
	Industrial Grade	Ground, Mobile, 45 C	95 000 hours
		Naval, Sheltered, 40 C	225 000 hours
Airborne, Inhabited Cargo, 55 C		103 000 hours	
Airborne Uninhabited Cargo, 70 C		33 000 hours	
Airborne Rotary Wing, 55 C		32 000 hours	
Airborne, Inhabited Fighter, 55 C		82 000 hours	
Ruggedised Grade	Airborne, Uninhabited Fighter, 70 C	27 000 hours	
	Ground, Mobile, 45 C	100 000 hours	
	Naval, Sheltered, 40 C	245 000 hours	
	Airborne, Inhabited Cargo, 55 C	110 000 hours	
	Airborne Uninhabited Cargo, 70 C	37 000 hours	
	Airborne Rotary Wing, 55 C	36 000 hours	
	Airborne, Inhabited Fighter, 55 C	88 000 hours	
	Airborne, Uninhabited Fighter, 70 C	29 000 hours	

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Environmental Specifications			
Grade	Commercial	Industrial	Ruggedised
Temperature - Operating - Storage	0 C to +55 C -40 C to +85 C	-15 C to +75 C -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 - Random	2 g (peak) at 10 Hz to 100 Hz 0,04 g²/Hz at 15 Hz to 2 kHz	10 g (peak) at 5 Hz to 2 kHz 0,1 g²/Hz at 15 Hz to 2 kHz	10 g (peak) at 5 Hz to 2 kHz 0,1 g²/Hz at 15 Hz to 2 kHz

Physical Characteristics		
Formfactor	Dimensions	Mass
CCPMC (ANSI/VITA 20-2001)	143,75 mm x 74,00 mm (+ 0,0 / -0,5 mm), conforming to VITA 20 height envelope	55 g +/- 10 g

Power Characteristics	
Power Consumption	Typical : 5 Watt Maximum : 10 Watt

Part Selector				
Part Designation	Formfactor	I/O	Cooling	Grade
CCII/SDIO/PMC/001/BP/COM CCII/SDIO/PMC/001/BP/IND CCII/SDIO/PMC/001/BP/RGD CCII/SDIO/PMC/001/BP/CC	PMC PMC PMC PMC	Backplane Backplane Backplane Backplane	Air Air Air Conduction	Commercial Industrial Ruggedised Ruggedised
CCII/SDIO/PMC/001/FP/COM CCII/SDIO/PMC/001/FP/IND CCII/SDIO/PMC/001/FP/RGD	PMC PMC PMC	Front Panel Front Panel Front Panel	Air Air Air	Commercial Industrial Ruggedised
CCII/SDIO/XMC/001/BP/COM CCII/SDIO/XMC/001/BP/IND CCII/SDIO/XMC/001/BP/RGD CCII/SDIO/XMC/001/BP/CC	XMC XMC XMC XMC	Backplane Backplane Backplane Backplane	Air Air Air Conduction	Commercial Industrial Ruggedised Ruggedised
CCII/SDIO/XMC/001/FP/COM CCII/SDIO/XMC/001/FP/IND CCII/SDIO/XMC/001/FP/RGD	XMC XMC XMC	Front Panel Front Panel Front Panel	Air Air Air	Commercial Industrial Ruggedised