

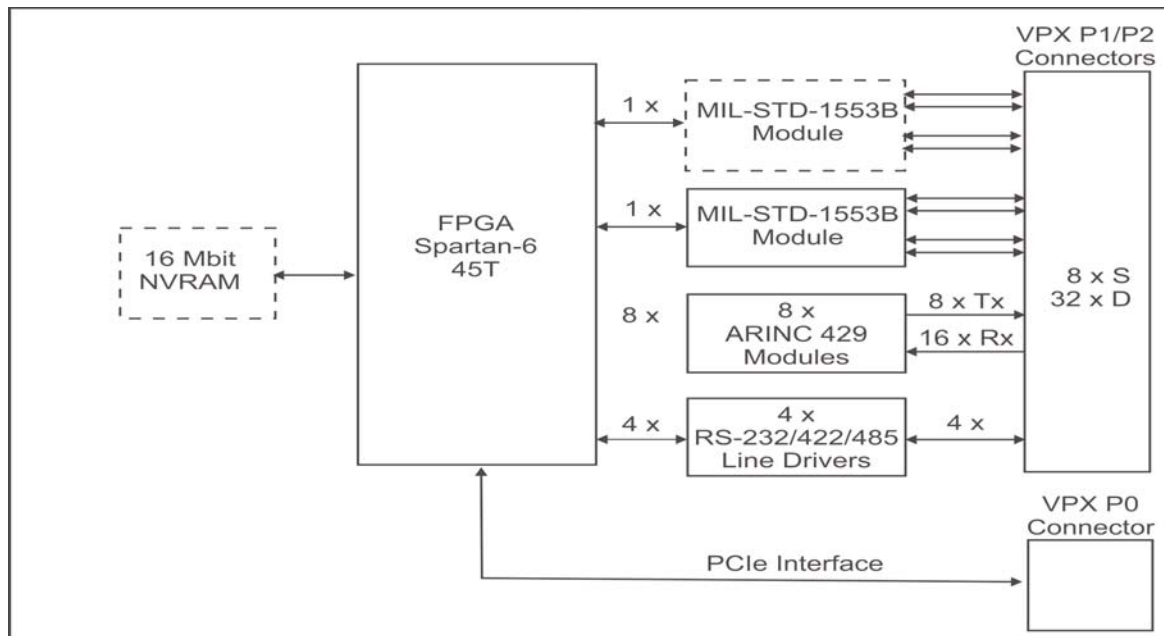
► Multi-Function Input / Output 3U VPX Board

The Multi-Function Input / Output (I/O) 3U VPX Board 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 one dual-redundant MIL-STD-1553B channel, eight transmit (Tx) and sixteen receive (Rx) 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 the MIL-STD-1553B module, eight ARINC 429 modules, one NVRAM module and four RS-232 or RS-422/485 line drivers. The I/O channels are routed to the 3U VPX Backplane I/O connectors P1 and P2.



Multi-Function I/O 3U VPX Board Block Diagram

Features

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



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Specifications	
FPGA	Xilinx Spartan-6 45T
PCIe (XMC)	1-Lane PCIe, 2,5 GHz Electrically : PCI Express Rev. 2.0
PCI (PMC)	32-bit, 33/66 MHz Electrically : PCI Rev. 2.2; 3,3 V or 5 V signalling
MIL-STD-1553B	1 x Dual-Redundant channel Bus Controller, Remote Terminal, Bus Monitor and combined Remote Terminal / Bus Monitor functionality 2 x Dual-Redundant channels (optional)
ARINC 429	8 x transmit channels 16 x receive channels
NVRAM	16 Mbit NVRAM
Serial	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-
Software Drivers	Support for Linux 32-bit and 64-bit VxWorks V653 and V7.x are costed options

MTBF	Figures according to MIL-HDBK-217F, Parts Stress Method		
	Commercial Grade	Ground Benign, Controlled, 25 C	450 000 hours
	Industrial Grade	Ground, Mobile, 45 C	50 000 hours
		Naval, Sheltered, 40 C	100 000 hours
Airborne, Inhabited Cargo, 55 C		50 000 hours	
Airborne Uninhabited Cargo, 70 C		20 000 hours	
Airborne Rotary Wing, 55 C		25 000 hours	
Airborne, Inhabited Fighter, 55 C		40 000 hours	
Ruggedised Grade	Airborne, Uninhabited Fighter, 70 C	7 000 hours	
	Ground, Mobile, 45 C	65 000 hours	
	Naval, Sheltered, 40 C	140 000 hours	
	Airborne, Inhabited Cargo, 55 C	60 000 hours	
	Airborne Uninhabited Cargo, 70 C	24 000 hours	
	Airborne Rotary Wing, 55 C	30 000 hours	
Airborne, Inhabited Fighter, 55 C	40 000 hours		
Airborne, Uninhabited Fighter, 70 C	10 000 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

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Physical Characteristics		
Formfactor	Dimensions	Mass
3U VPX	100,0 mm x 160,0 mm conforming to VITA 20 height envelope	< 350 g

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

Part Selector			
Part Designation	Cooling	Formfactor	Grade
CCII/MFIO/3UVPX/001/BP/COM	Air	3U VPX	Commercial
CCII/MFIO/3UVPX/001/BP/IND	Air	3U VPX	Industrial
CCII/MFIO/3UVPX/001/BP/RGD	Air	3U VPX	Ruggedised
CCII/MFIO/3UVPX/001/BP/CC	Conduction	3U VPX	Ruggedised