XPedite5970

NXP QorIQ T2080 Processor-Based Conduction- or Air-Cooled 3U VPX Module

- NXP QorIQ T2080 processor with eight virtual Power Architecture® e6500 cores at up to 1.8 GHz
- 128-bit AltiVec technology-based SIMD engine
- Compatible with multiple VITA 65 OpenVPX™ slot profiles
- 3U VPX (VITA 46) module
- Ruggedized Enhanced Design Implementation (REDI)
- Conduction or air cooling
- Up to 8 GB of up to DDR3-1600 ECC SDRAM
- Up to 512 MB of NOR flash (with redundancy)
- Up to 64 GB of NAND flash
- Hardware write protection for non-volatile memory
- XMC/PrPMC interface
- x4 PCI Express or Serial RapidIO or 10 GbE XAUI fabric Fat Pipe P1.A fabric interconnect
- x4 PCI Express or Serial RapidIO Fat Pipe P1.B fabric interconnect
- Two SerDes Gigabit Ethernet Thin Pipe P1 fabric interconnects
- Two 10/100/1000BASE-T Ethernet ports (optional)
- Two SATA ports to P2 or to J16
- Up to two RS-232/422/485 serial ports to P2
- Two USB 2.0 ports to P2 (optionally, can route one port to front panel via plugover module)
- Front I/O available via plugover module
- NXP hypervisor support for secure partitioning
- Linux BSP
- Wind River VxWorks BSP
- Green Hills INTEGRITY BSP
- DDC-I's DO-178 Certifiable Deos BSP

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The XPedite5970 is a 3U OpenVPX™ REDI single board computer based on the NXP (formerly Freescale) QorIQ T2080 processor. The XPedite5970 provides a rugged, feature-rich processing solution that maximizes the performance-per-watt capabilities of a Power Architecture®-based processor module. The T2080 processor offers eight virtual (four dual-threaded) e6500 cores, running at up to 1.8 GHz, and integrates a 128-bit AltiVec technology-based SIMD engine per core. The integrated AltiVec SIMD engines enable the XPedite5970 to support DSP-level Floating-Point performance and an extensive inventory of software libraries.

The XPedite5970 also supports up to 8 GB of DDR3-1600 SDRAM and provides a plethora of I/O options to the backplane, including 10 Gigabit Ethernet, PCIe Gen3, and Gen2 SRIO. The XPedite5970 provides superior growth and expansion capabilities by including an XMC or PMC site with full 10 mm I/O envelope support while maintaining a 0.8 in. VPX slot pitch, providing the system integrator with a wide variety of COTS options for additional I/O, storage, or processing while minimizing total system SWaP-C.

Wind River VxWorks, Linux, Green Hills INTEGRITY, and DDC-I's DO-178 Certifiable Deos Board Support Packages (BSPs) are available. Wind River VxWorks and Linux BSPs may optionally be paired with the NXP hypervisor software to facilitate secure partitioning.

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Processor

- NXP (formerly Freescale) QorIQ T2080 processor
- Eight virtual (four dual-threaded) Power Architecture® e6500 cores at up to 1.8 GHz
- 2 MB L2 cache
- 512 kB platform cache
- IEEE 754 Floating-Point Unit (FPU) support
- 128-bit AltiVec technology-based SIMD engine

Memory

- Up to 8 GB of up to DDR3-2133 ECC SDRAM
- Up to 512 MB of NOR flash (with redundancy)
- Up to 64 GB of NAND flash

XMC/PrPMC Site

- 32-bit, 66 MHz PCI bus (PMC interface)
- x4 PCIe port (XMC interface)
- P64s P14 I/O support (optional)
- X12d P16 I/O support

Front Panel I/O

- Front panel RJ-45 Ethernet, micro-DB-9 RS-232 serial ports, and USB 2.0 available via optional plugover module

VPX (VITA 46) P0 I/O

- I²C port

VPX (VITA 46) P1 I/O

- x4 PCI Express, Serial RapidIO or 10 GbE XAUI Fat Pipe to P1.A
- x4 PCI Express or Serial RapidIO Fat Pipe to P1.B
- Two SerDes Gigabit Ethernet ports (or one 10/100/1000BASE-T port to P1 and one 10/100/1000BASE-T port to P2)
- X12d XMC P16 I/O

VPX (VITA 46) P2 I/O

- One 10/100/1000BASE-T port (when two SerDes Gigabit Ethernet P1 ports are not used)
- Two RS-232/422/485 serial ports
- Two USB 2.0 ports
- I²C port
- 3.3 V GPIO signals
- P64s PMC P14 I/O (optional)
- Two SATA ports capable of 6 Gb/s

Software Support

- Wind River VxWorks BSP with optional NXP hypervisor support for secure partitioning
- Linux BSP with optional NXP hypervisor support for secure partitioning
- Green Hills INTEGRITY-178 BSP
- DDC-I's DO-178 Certifiable Deos BSP
- Contact factory for availability of QNX Neutrino and LynuxWorks LynxOS BSPs

Physical Characteristics

- 3U VPX-REDI conduction- or air-cooled form factor
- Dimensions: 100 mm x 160 mm
- 0.8 in. pitch without solder-side cover
- 0.85 and 1.0 in. pitch with solder-side cover

Environmental Requirements

Contact factory for appropriate board configuration based on environmental requirements.

- Supported ruggedization levels (see chart below): 1, 3, 5
- Conformal coating available as an ordering option

Power Requirements

- Power will vary based on configuration and usage. Please consult factory.

Ruggedization Level	Level 1	Level 3	Level 5
Cooling Method	Standard Air-Cooled	Rugged Air-Cooled	Conduction-Cooled
Operating Temperature	0 to +55°C ambient (300 LFM)	-40 to +70°C (600 LFM)	-40 to +85°C (board rail surface)
Storage Temperature	-40 to +85°C ambient	-55 to +105°C ambient	-55 to +105°C (maximum)
Vibration	0.002 g²/Hz (maximum), 5 to 2000 Hz	0.04 g²/Hz (maximum), 5 to 2000 Hz	0.1 g²/Hz (maximum), 5 to 2000 Hz
Shock	20 g, 11 ms sawtooth	30 g, 11 ms sawtooth	40 g, 11 ms sawtooth
Humidity	0% to 95% non-condensing	0% to 95% non-condensing	0% to 95% non-condensing