

XPedite5473

NXP QorIQ P4080 Eight-Core Processor-Based Conduction- or Air-Cooled 3U VPX-REDI Module

- ▶ NXP QorIQ P4080 processor with eight Power Architecture® e500mc cores at up to 1.5 GHz
- ▶ Alternate NXP QorIQ processors: P3041, P4040, P5010, P5020
- ▶ 3U VPX (VITA 46) module
- ▶ Ruggedized Enhanced Design Implementation (REDI)
- ▶ Conduction or air cooling
- ▶ Up to 8 GB (4 GB each) of DDR3-1333 ECC SDRAM in two channels
- ▶ Up to 512 MB of NOR flash (with redundancy)
- ▶ Up to 32 GB of NAND flash
- ▶ Hardware write protection for NVRAM
- ▶ XMC interface
- ▶ x4 PCI Express or Serial RapidIO 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)
- ▶ Up to two RS-232/422/485 serial ports to P2
- ▶ Two USB 2.0 ports to P1 (one can be optionally routed to front panel via plugover module)
- ▶ Front I/O available via plugover module
- ▶ Linux BSP
- ▶ Wind River VxWorks BSP
- ▶ Green Hills INTEGRITY-178 tuMP BSP



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The XPedite5473 is a high-performance 3U VPX-REDI single board computer supporting NXP (formerly Freescale) QorIQ P3, P4, and P5 processors. X-ES offers a number of processor options to choose from and can provide a product to meet the specific power and performance requirements of today's embedded computing applications.

The P4080 processor brings the raw power of eight e500mc cores running at up to 1.5 GHz and dual-channel DDR3 memory, delivering unparalleled multi-core performance. For applications that are more power conscious, the P3041 processor offers four e500mc cores running at up to 1.5 GHz with a single channel of DDR3 memory, all within a significantly reduced power envelope. Applications requiring the performance of a true 64-bit processor are satisfied by the P5020 processor, which offers dual e500mc cores running at up to 2 GHz and beyond with high-performance, Floating-Point Units, and dual-channel DDR3 memory. Additional reduced-function processors are available to meet any power and performance budget.

The XPedite5473 provides a ruggedized, high-performance, feature-rich solution to support the next generation of rugged embedded applications. Wind River VxWorks, Linux, and Green Hills INTEGRITY-178 tuMP Board Support Packages (BSPs) are available.

X-ES

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...Always Fast

Extreme Engineering Solutions

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Processor

- NXP (formerly Freescale) QorIQ P4080 processor
- Eight Power Architecture® e500mc cores at up to 1.5 GHz
- 128 kB L2 cache per core
- 1 MB L3 cache per channel
- IEEE 754 Floating-Point Unit (FPU) support

Alternate Processor Configurations

- P3041 processor with four Power Architecture® e500mc cores at up to 1.5 GHz
- P4040 processor with four Power Architecture® e500mc cores at up to 1.5 GHz
- P5010 processor with one 64-bit Power Architecture® e5500 core at up to 2 GHz
- P5020 processor with two 64-bit Power Architecture® e5500 cores at up to 2 GHz

Memory

- Up to 8 GB (4 GB each) of DDR3-1333 ECC SDRAM in two channels
- Up to 512 MB of NOR flash (with redundancy)
- Up to 32 GB of NAND flash

VPX (VITA 46) P1 I/O

- x4 PCI Express or Serial RapidIO Fat Pipe to P1.A
- x4 PCI Express or Serial RapidIO Fat Pipe to P1.B
- Two SerDes Gigabit Ethernet ports (or two 10/100/1000BASE-T ports out P1)
- One 10/100/1000BASE-T port (when two SerDes Gigabit Ethernet P1 ports are not used)
- Up to two USB 2.0 ports
- 3.3 V GPIO signals (optional)

VPX (VITA 46) P2 I/O

- Up to two RS-232/422/485 serial ports
- X12d P16 I/O support
- X8d P16 I/O support
- X24s P16 I/O support

XMC Site

- x4 PCI Express port

Front Panel I/O

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

Software Support

- Linux BSP
- Wind River VxWorks BSP
- Green Hills INTEGRITY-178 tuMP BSP

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

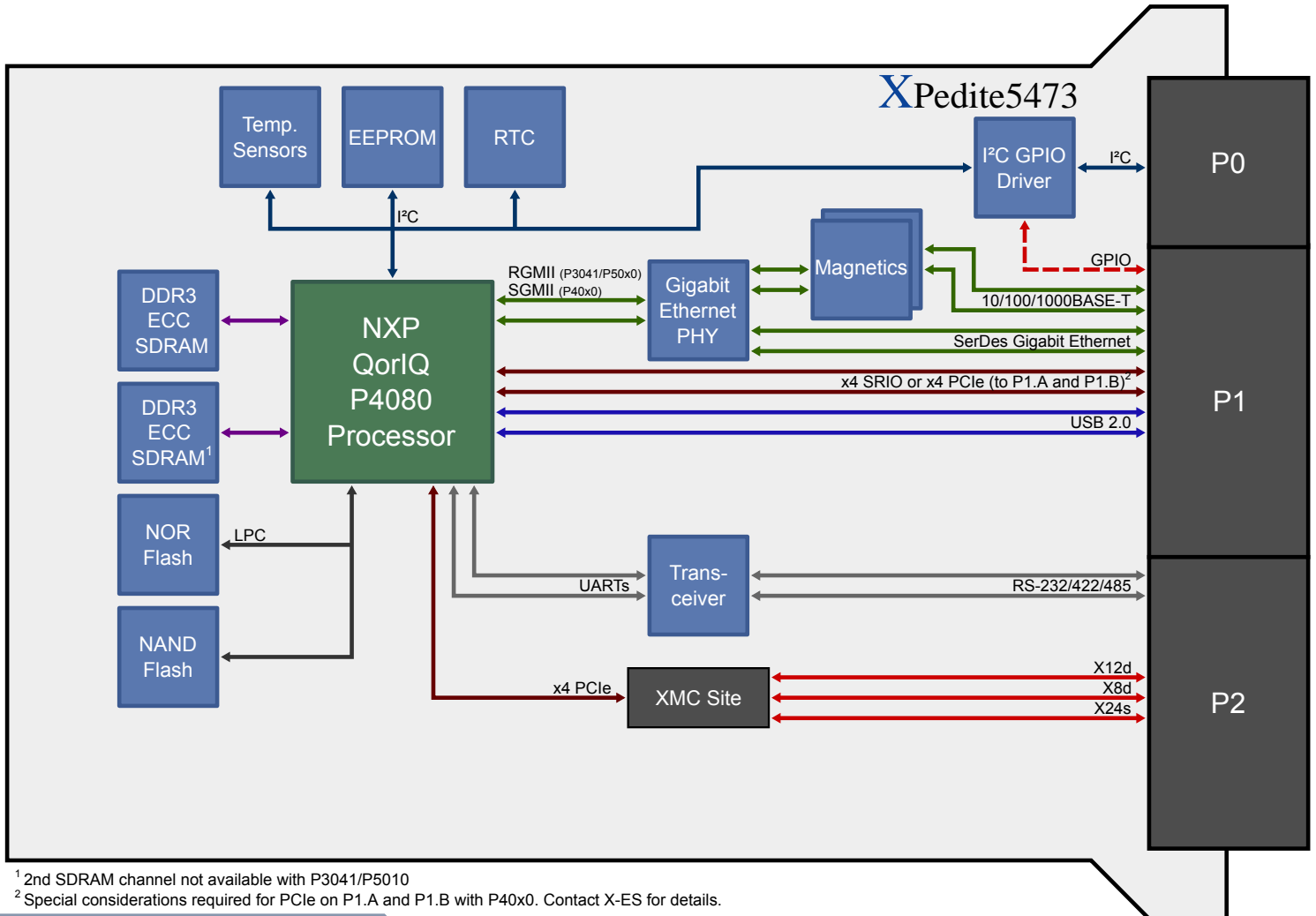
Contact factory for appropriate board configuration based on environmental requirements.

- 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 g ² /Hz (maximum), 5 to 2000 Hz	0.04 g ² /Hz (maximum), 5 to 2000 Hz	0.1 g ² /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



¹ 2nd SDRAM channel not available with P3041/P5010
² Special considerations required for PCIe on P1.A and P1.B with P40x0. Contact X-ES for details.