

# XPedite5470

NXP QorIQ Eight-Core P4080 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
- 3U VPX (VITA 46) module
- Ruggedized Enhanced Design Implementation (REDI)
- Conduction or air cooling
- Up to 8 GB (4 GB each) of DDR3 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/PrPMC 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)
- Two SATA ports to P16 or P2 (optional)
- Up to two RS-232/422/485 serial ports to P2
- Two USB 2.0 ports to P2 (one optionally can be 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



## XPedite5470

The XPedite5470 is a high-performance 3U VPX-REDI single board computer supporting NXP (formerly Freescale) QorIQ P3 and P4 processors. With a number of processor options to choose from, X-ES 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. Additional reduced function-processors are available to meet any power and performance budget.

The XPedite5470 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

Extreme Engineering Solutions

*...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

**Memory**

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

**Front Panel I/O**

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

**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 one 10/100/1000BASE-T port out P1 and one 10/100/1000BASE-T port out 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)
- Up to two RS-232/422/485 serial ports
- Up to two USB 2.0 ports
- I<sup>2</sup>C port
- 3.3 V GPIO signals
- P64s PMC P14 I/O (optional)
- Two SATA ports capable of 3 Gb/s (optional)

**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
- Two SATA ports capable of 3 Gb/s to P16 (optional)

**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.

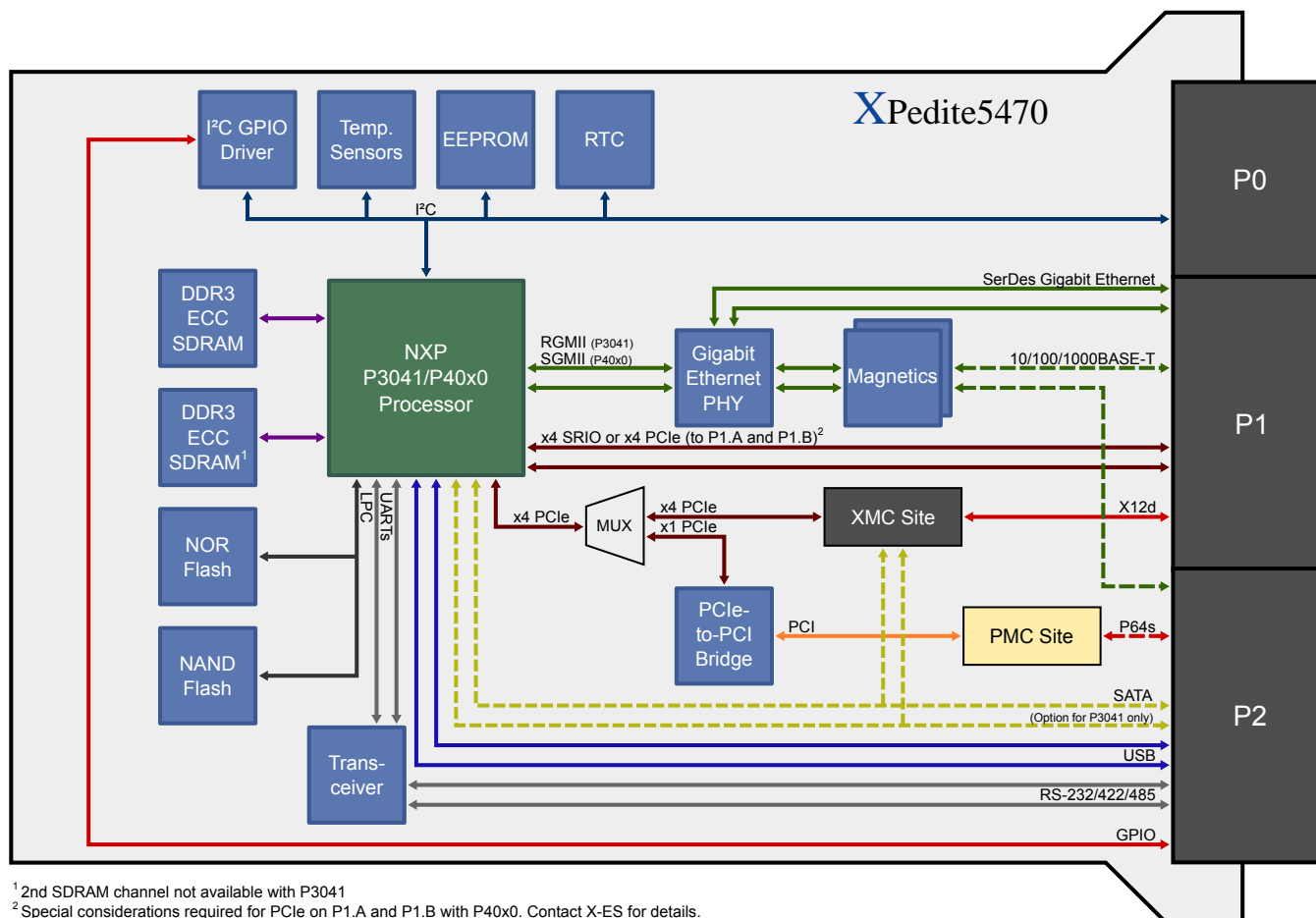
- Supported ruggedization levels (see chart below): 3, 5
- Conformal coating available as an ordering option

**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 †	-40 to +70°C ambient †	-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 <sup>2</sup> /Hz (maximum), 5 to 2000 Hz	0.04 g <sup>2</sup> /Hz (maximum), 5 to 2000 Hz	0.1 g <sup>2</sup> /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

† Contact factory for airflow rate details.



<sup>1</sup> 2nd SDRAM channel not available with P3041

<sup>2</sup> Special considerations required for PCIe on P1.A and P1.B with P40x0. Contact X-ES for details.