XPort3200

Freescale QorIQ P1020 Processor-Based Conduction- or Air-Cooled XMC/PMC IEEE 1588v2 Grandmaster Clock Module

- Freescale QorIQ P1020 processor with dual PowerPC e500v2 cores at 800 MHz
- Conduction or air cooling
- Extended shock and vibration tolerance
- 1 GB of DDR3-667 ECC SDRAM
- x4 PCI Express or serial RapidIO interface to P15
- PCI PrPMC interface
- Two Gigabit Ethernet ports to P14 or P16
- Two RS-232/422/485 serial ports to P14 or P16
- One USB 2.0 port
- 256 MB of NOR flash (with redundancy)
- 16 GB of NAND flash
- IEEE 1588v2 ordinary clock
- IEEE 1588v2 boundary clock
- 1 PPS and configurable frequency output
- 1 PPS and reference frequency input (optional)
- High-precision oven-controlled oscillator (OCXO)
- GPS support (optional)
- Linux BSP

XPort3200

The XPort3200 is a rugged, IEEE 1588v2 Precision Time Protocol (PTP) ordinary clock with grandmaster capabilities. Hardware options range from commercial/air-cooled to full-military conduction-cooled solutions.

The XPort3200 is capable of providing nanosecond-level time and frequency synchronization for Ethernet networks. Support for multicast and optional unicast packets, along with grandmaster and slave operation, provide a complete IEEE 1588v2 solution.

1 PPS and input clock synchronization, as well as configurable clock and 1 PPS outputs, allow for synchronizing the grandmaster to an external time reference or providing a frequency reference to an external device.

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**Technical Specifications**

**Processor**
- Freescale QorIQ P1020 processor
- Dual PowerPC e500v2 cores at 800 MHz
- 256 kB of shared L2 cache

**IEEE 1588v2**
- Ordinary clock support
- Boundary clock support
- Grandmaster support
- Multicast synchronization support
- Unicast synchronization support (optional)
- Nanosecond-level resolution
- Oncard GPS time synchronization (optional)

**Memory**
- 1 GB of DDR3-667 SDRAM
- 256 MB of NOR flash (with redundancy)
- 16 GB of NAND flash

**Synchronous Ethernet**
- Support for distributing clock over Ethernet
- Support for recovering Ethernet clock connection

**PrPMC Interface**
- 66/23 MHz PCI
- 32-bit bus interface

**P15 XMC Interface**
- x4 configurable PCI Express or Serial RapidIO

**P14/P16 XMC/PMC Interface**
- Two Gigabit Ethernet ports
- Two RS-232/422/485 ports
- 3.3 V GPIO
- One USB 2.0 port
- 1 PPS and reference frequency input (optional)
- 1 PPS and configurable clock output

**Software Support**
- Linux BSP

**Physical Characteristics**
- Conduction- or air-cooled XMC/PMC form factor
- Dimensions: 143.75 mm x 74 mm, 10 mm stacking height

**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.

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**Ruggedization Level**

<table>
<thead>
<tr>
<th>Cooling Method</th>
<th>Level 1</th>
<th>Level 3</th>
<th>Level 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temperature</td>
<td>Standard Air-Cooled (300 LFM)</td>
<td>Rugged Air-Cooled (600 LFM)</td>
<td>Conduction-Cooled (board rail surface)</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>0 to +55°C ambient</td>
<td>-40 to +70°C (600 LFM)</td>
<td>-40 to +85°C (board rail surface)</td>
</tr>
<tr>
<td>Vibration</td>
<td>-40 to +85°C (ambient)</td>
<td>-55 to +105°C (maximum)</td>
<td>-55 to +105°C (maximum)</td>
</tr>
<tr>
<td>Shock</td>
<td>0.002 g²/Hz (maximum), 5 to 2000 Hz</td>
<td>0.04 g²/Hz (maximum), 5 to 2000 Hz</td>
<td>0.1 g²/Hz (maximum), 5 to 2000 Hz</td>
</tr>
<tr>
<td>Humidity</td>
<td>0% to 95% non-condensing</td>
<td>0% to 95% non-condensing</td>
<td>0% to 95% non-condensing</td>
</tr>
</tbody>
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