

MVME8100

Freescale P5020 QorIQ VME64x/VXS SBC

Data Sheet

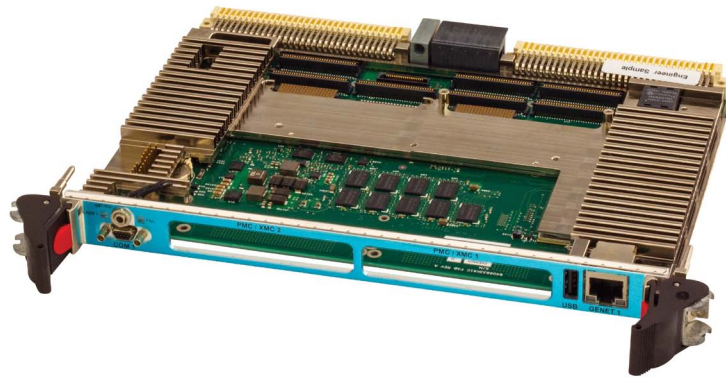
- Freescale QorIQ P5020 1.8/2.0GHz
- Up to 8 GB DDR3-1333 MHz ECC Memory
- 512 KB FRAM
- 2 PMC/XMC sites
- Embedded NAND Flash (8GB eMMC)
- 2 x 4 PCIe or 2 x 4 SRIO connectivity to VXS backplane P0
- Up to 3 USB 2.0 ports
- Up to 5 Ethernet ports
- Up to 5 Serial ports
- 4 GPIO
- Extended Temperature and Conduction Cooled variants



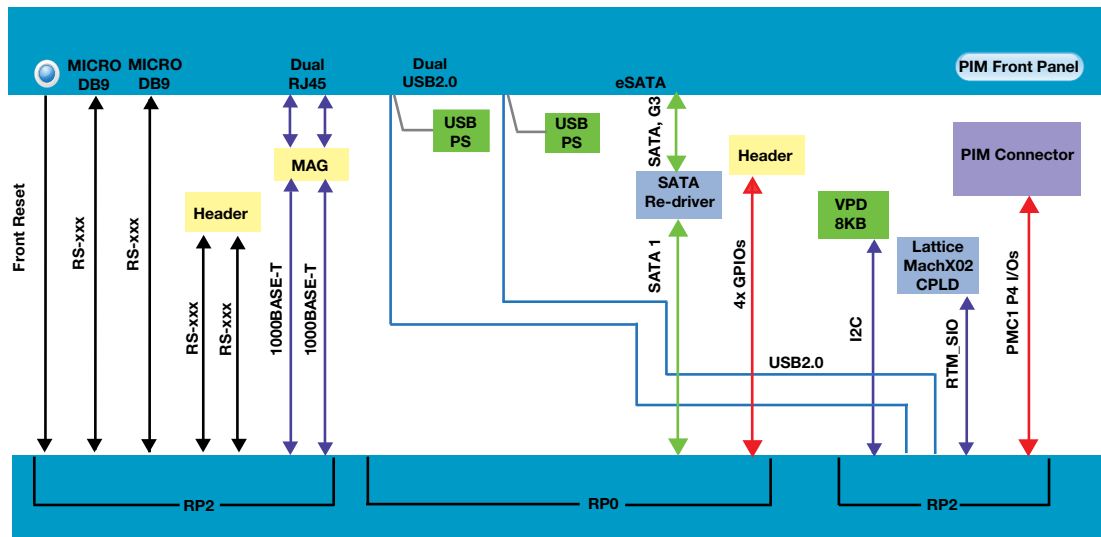
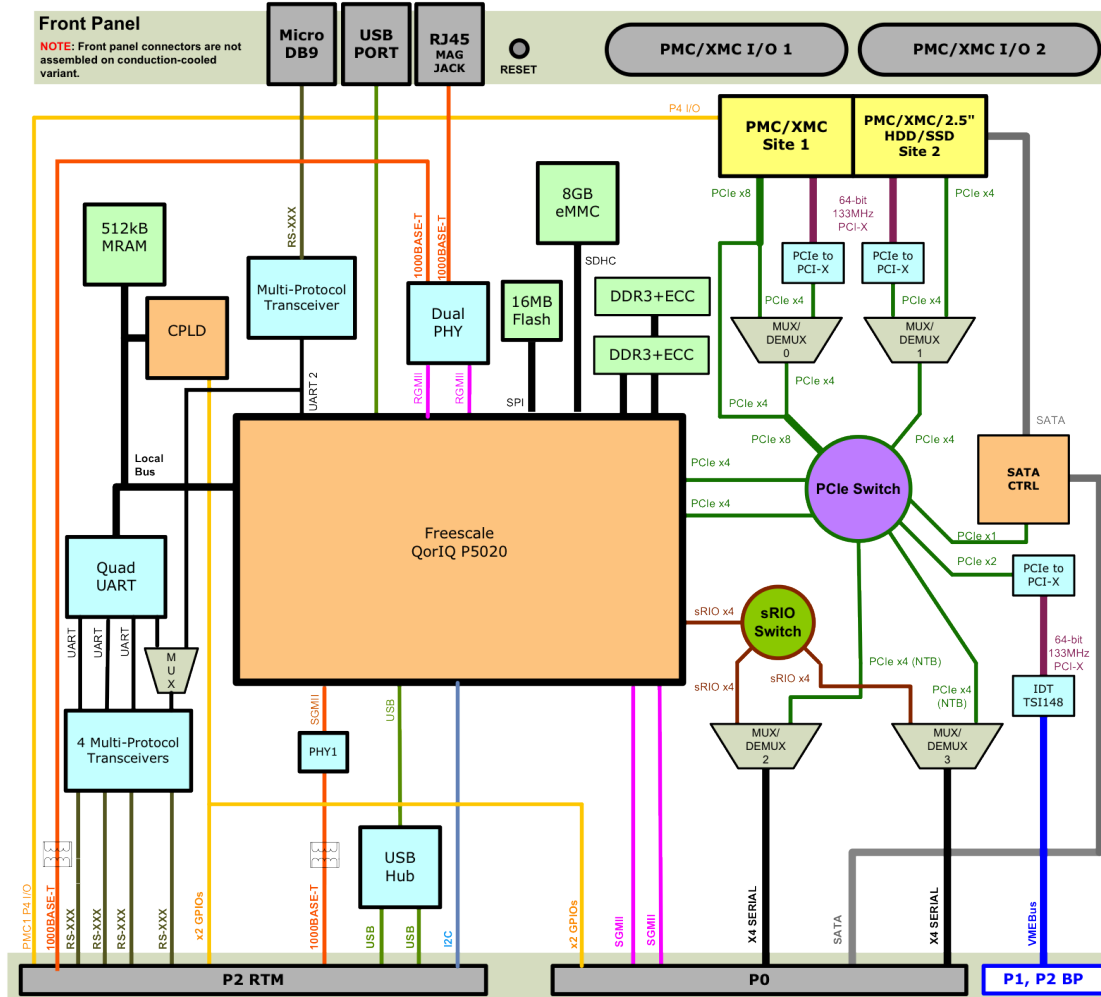
The Artesyn Embedded Technologies MVME8100 is a high performance 6U VME/VXS SBC featuring the Freescale P5020 QorIQ processor supporting high speed DDR3-1333 MHz with ECC. It offers expanded IO and memory features with PCIe and SRIO fabric connectivity and multiple USB, Serial and Ethernet ports. Memory includes up to 8 GB DDR3, 512 K FRAM non-volatile memory, and 8 GB eMMC NAND Flash.

The MVME8100 is offered in commercial and fully rugged variants for extreme environments with extended shock, vibration, temperatures and conduction cooling. It is designed for a range of high end industrial control such as SPE and photo lithography and C4ISR, including Radar/Sonar. It will provide technology insertion to prolong current programs while providing more computing performance and data throughput.

The MVME8100 supports a full range of BSPs including Linux, Wind River VxWorks, and Green Hills Integrity.



MVME8100 Block Diagram



Hardware Specifications

PROCESSOR

- Freescale QorIQ P5020
- 1.8GHz: ENP4 variant
- 2.0GHz: ENP1 variants

MEMORY

- Designed for 8GB of 64 bit DDR3-1333 ECC SDRAM soldered down
- 16MB SPI ROM for boot code (in 1+1 redundant 8MB banks/devices)
- 512 kB MRAM for data storage
- 8GB NAND Flash with SD/EMMC interface

BACKPLANE I/O

- P0
 - Two SERDES GigE (VITA 41.6) (dedicated)
 - Up to two SRIO x4 links (VITA 41.2)
 - Up to two PCIe x4 links (VITA 41.4); root or end-point
 - One SATA 6 GB
 - Two GPIO
- P1
 - VME64x & 2eSST
- P2
 - PMC1 I/O (64 signals)
 - Two USB 2.0
 - VME64x & 2eSST
 - Four RS232/422/485
 - Two 10/100/1000BaseT Ethernet
 - Two GPIO

OTHER FEATURES

- Real Time Clock with battery backup
- Real time counters
- Watchdog

EXPANSION MODULE

- Site 1 supports PMC or XMC (PCI-X/PCIe x8)
- Site 2 supports PMC or XMC (PCI-X/PCIe x4) or alternatively supports a mounting kit for a 2.5" SATA HDD or SSD
A: Contact Artesyn or consult installation/use manual for requirements for rugged (ENP4) SSD modules.

FRONT PANEL CONNECTIVITY

- One GigE (RJ45)
- One RS232/422/485 console (Micro-BD9)
- One USB 2.0 (Type A)

REAR TRANSITION MODULE

- VXS1-RTM1
 - Two USB 2.0 ports (Type A)
 - Two RS232/422/485 ports (Micro-DB9)
 - One port is switchable between a console and standard COM port
 - Two RS232/422/485 ports (internal headers)
 - Two 10/100/1000BASE-T Ethernet ports (RJ45)
 - One PMC Interface Module (PIM) site
 - 4 GPIO to (internal header)
 - Reset switch
 - One eSATA port

POWER REQUIREMENTS

- ENP1: 38 W idle, 42 W typical, 54 W max
- ENP4: 65 W @ 85 °C card edge

Software and Firmware Specifications

BOOT

- UBoot binary and source code

BOARD SUPPORT PACKAGES

- Wind River VxWorks
- Linux

MTBF

Calculated per Telcordia SR-332, issue 2 and based on a ground fixed, controlled environment assuming an inlet air temperature of 40 °C. 357,143 hours.

All Modules

ENVIRONMENTAL

Ruggedization Level3	ENP1	ENP4
Cooling Method:	Forced Air	Conduction
Operating Temperature:	0 °C to +55 °C	-40 °C to +85 °C
Storage Temperature:	-40 °C to +85 °C	-55 °C to +105 °C ³
Vibration Sine: (10min/axis)	2G, 5 - 500 Hz	10G, 15 to 2000 Hz
Vibration Random: (1hr/axis)	.002 g ² /Hz, 15 to 2000 Hz ¹	0.1 g ² /Hz, 15 to 2000 Hz (12 GRMS) ²
Shock:	20 g/11 mS	4 g/11 mS
Humidity:	to 95% RH	to 100% RH
Conformal Coating:	No	Acrylic

Note 1: Flat 15-1000 Hz, -6 db/octave 1000 Hz – 2000 Hz [MIL-STD 810F Figure 514.5C-17]

Note 2: +3 db/octave 15-300 Hz, Flat .1g² 300-1000Hz, -6 db/octave 1000 Hz – 2000 Hz [MIL-STD 810F Figure 514.5C-8]

Note 3: ENP4 storage temperatures exceed NAND flash limits of -40° to -85°C. Data degradation can occur.

RoHS (reduction of hazardous substances) status— ENP1: RoHS II, ENP4: RoHS 5/6 lead solder

ELECTROMAGNETIC COMPATIBILITY (EMC)

- Artesyn board products are tested in a representative system to the following standards:
 - U.S.: FCC Part 15, Subpart B, Class A (non-residential)
 - Canada: ICES-003, Class A (non-residential)
 - CE Mark per European EMC Directive 2004/108/EC with Amendments; Emissions: EN55022 Class A; Immunity: EN55024
 - KCC Mark (ENP1)

DOCUMENTATION

- Installation and Use Manuals
- Programmers Reference Manual
- Release Notes
- OS Release Notes and User Guide

Ordering Information

Part Number	Description
Boards	
MVME8100-202200401E	P05020 2.0GHz, 4GB DDR3, 2PMC/XMC, ENP1 IEEE
MVME8100-202200401S	P05020 2.0GHz, 4GB DDR3, 2PMC/XMC, ENP1 SCANBEE
MVME8100-202180404	P05020 1.8GHz, 4GB DDR3, 2PMC/XMC, ENP4
MVME8100-04CC	P05020 1.8GHz, 4GB DDR3, 2PMC/XMC, ENP4, conformal coated
Rear Transition Modules	
VXS1-RTM1	RTM for MVME8100
Accessories	
MVME8100-HDMTKIT4	MVME8100 hard drive mounting kit for ENP1 and ENP4
MVME8100-HDMTKIT4-CC	MVME8100 hard drive mounting kit for ENP1 and ENP4, conformal coated

SOLUTION SERVICES

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