

## MVME8100

### NXP® QorIQ® P5020 VME64x/VXS SBC

#### Data Sheet

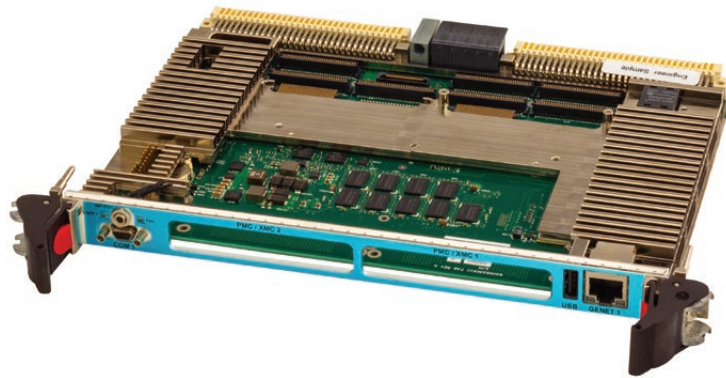
- NXP QorIQ P5020 1.8/2.0GHz
- Up to 8 GB DDR3-1333 MHz ECC Memory
- 512 KB FRAM
- 2 PMC/XMC sites
- Embedded NAND Flash (8GB eMMC)
- 2 x 4 PCIe or 2 x 4 SRIO connectivity to VXS backplane P0
- Up to 3 USB 2.0 ports
- Up to 5 Ethernet ports
- Up to 5 Serial ports
- 4 GPIO
- Extended temperature and conduction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



The Artesyn Embedded Technologies MVME8100 is a high performance 6U VME/VXS SBC featuring the NXP QorIQ P5020 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.





## Hardware Specifications

### PROCESSOR

- NXP 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 GbE (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 GbE (RJ-45)
- 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 (RJ-45)
  - 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

## Estimated MTBF

MTBF estimated per Telcordia SR-332, issue 2, ground fixed, controlled environment, unit ambient air temperature of 40 °C is 564,000 hours (ENP1 version), 577,000 hours (ENP4 version) at 60% confidence level. Contact Artesyn for alternative environments or temperatures.

## All Modules

### ENVIRONMENTAL

Ruggedization Level 3	ENP1	ENP4
<b>Cooling Method</b>	Forced Air	Conduction
<b>Operating Temperature</b>	0 °C to +55 °C	-40 °C to +85 °C
<b>Storage Temperature</b>	-40 °C to +85 °C	-55 °C to +105 °C <sup>3</sup>
<b>Vibration Sine (10min/axis)</b>	2G, 5 - 500 Hz	10G, 15 to 2000 Hz
<b>Vibration Random (1hr/axis)</b>	.002 g <sup>2</sup> /Hz, 15 to 2000 Hz <sup>1</sup>	0.1 g <sup>2</sup> /Hz, 15 to 2000 Hz (12 GRMS) <sup>2</sup>
<b>Shock</b>	20 g/11 mS	4 g/11 mS
<b>Humidity</b>	to 95% RH	to 100% RH
<b>Conformal Coating</b>	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 .1g<sup>2</sup> 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

<i>Part Number</i>	<i>Description</i>
<b>Boards</b>	
<b>MVME8100-202200401E</b>	P05020 2.0GHz, 4GB DDR3, 2PMC/XMC, ENP1 IEEE
<b>MVME8100-202200401S</b>	P05020 2.0GHz, 4GB DDR3, 2PMC/XMC, ENP1 SCANBEE
<b>MVME8100-202180404</b>	P05020 1.8GHz, 4GB DDR3, 2PMC/XMC, ENP4
<b>MVME8100-04CC</b>	P05020 1.8GHz, 4GB DDR3, 2PMC/XMC, ENP4, conformal coated
<b>Rear Transition Modules</b>	
<b>VXS1-RTM1</b>	RTM for MVME8100
<b>Accessories</b>	
<b>MVME8100-HDMTKIT4</b>	MVME8100/8105/8110 hard drive mounting kit for ENP1 and ENP4
<b>MVME8100-HDMTKIT4-CC</b>	MVME8100/8105/8110 hard drive mounting kit for ENP1 and ENP4, conformal coated

## SOLUTION SERVICES

Artesyn Embedded Technologies provides a portfolio of solution services optimized to meet your needs throughout the product lifecycle. Design services help speed time-to-market. Deployment services include global 24x7 technical support. Renewal services enable product longevity and technology refresh.

## WORLDWIDE OFFICES

<b>United States</b>	+1 888 412 7832	<b>China</b>	+86 400 8888 183
<b>Germany</b>	+49 89 9608 2552	<b>Japan</b>	+81 3 5403 2730
<b>Hong Kong</b>	+852 2176 3540	<b>Korea</b>	+82 2 6004 3268

Artesyn Embedded Technologies, Artesyn and the Artesyn Embedded Technologies logo are trademarks and service marks of Artesyn Embedded Technologies, Inc. NXP and QorIQ are trademarks of NXP B.V. All other names and logos referred to are trade names, trademarks, or registered trademarks of their respective owners. © 2016 Artesyn Embedded Technologies, Inc. All rights reserved. For full legal terms and conditions, please visit [www.artesyn.com/legal](http://www.artesyn.com/legal).



[www.artesyn.com](http://www.artesyn.com)

MVME8100-DS 18Nov2016