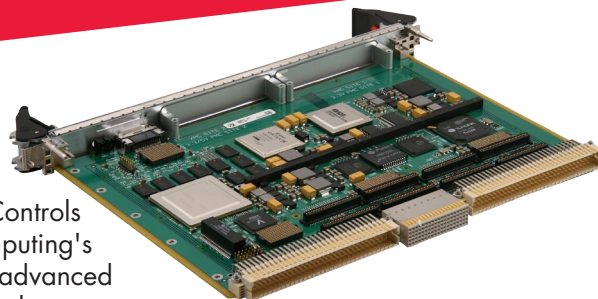


# SVME/DMV-186

## Freescal<sup>®</sup> QorIQ<sup>™</sup>

### P4040/4080-based VME

### Single Board Computer



- ◆ Powerful general-purpose SBC with Freescal<sup>®</sup> QorIQ<sup>™</sup> P4040/4080 Processor
- ◆ 4 or 8 e500mc cores up to 1.5 GHz
- ◆ Up to 4 GB DDR3 SDRAM controlled by dual 64-bit controllers
- ◆ Full complement of I/O capability (Ethernet, serial, USB 2.0, MIL-STD-1553, SATA, TTL and differential discretes...), including front panel GbE connection
- ◆ 2eSST-capable VME interface
- ◆ Onboard 8 GB NAND Flash for integrated mass storage capability
- ◆ Continuum Software Architecture (CSA) VxWorks<sup>®</sup> 6.8+ BSP and Driver Suite supporting Workbench<sup>®</sup> 3.x IDE, Wind River<sup>®</sup> Linux<sup>®</sup> 4.x from Curtiss-Wright, and INTEGRITY<sup>®</sup> from Green Hills<sup>®</sup> Software
- ◆ Continuum Software Architecture (CSA) firmware providing a comprehensive suite of system debug, exerciser, and update functions, BIT, and non-volatile memory sanitization function
- ◆ Designed for harsh environment applications, both air- and conduction-cooled
- ◆ Latest VME version of Curtiss-Wright's popular 17x and 18x series of SBC
  - Pin compatible with 182, 183 and 184

Curtiss-Wright Controls Embedded Computing's VME-186 is an advanced VME single board computer (SBC) harnessing the power and performance of Freescal's QorIQ P4040/4080 Communications Processor. The P4080's has up to eight Power Architecture<sup>™</sup> processor cores and associated high-performance data-path acceleration logic, network and peripheral bus interfaces provide the ultimate platform for a wide range of embedded harsh environment.

The VME-186 provides two powerful PMC/XMC sites supporting the acquisition, processing, and distribution of sensor data such as video, radar, and sonar data. A rich I/O compliment of three GbE ports, options for multifunction EIA-232/422/485 serial ports, MIL-STD-1553, SATA, and TTL and differential discretes provides connectivity integration with other system elements without using up PMC/XMC sites. With pinout compatibility with previous generations of Curtiss-Wright's SBCs, the VME-186 makes it easy to upgrade to the next generation of processors.

The VME-186 is supported by a wealth of software including Curtiss-Wright's standard CSA firmware, Wind River VxWorks and Wind River Linux Board Support Package (BSP) and Driver Suites supporting both AMP and SMP operating modes. An INTEGRITY BSP is available from Green Hills Software.

#### Features

- ◆ Freescal Power Architecture QorIQ P4040/P4080:
  - 4 or 8 e500mc processors up to 1.5 MHz
  - 128 KB L2 Cache per processor
  - 2 MB L3 Front side Cache
  - Classic Double Precision floating point unit
  - Extensive debug features
- ◆ Two independent 64-bit DDR3 SDRAM controllers integrated into the P4080 processor
- ◆ Up to 4GB of DDR3 SDRAM with ECC

#### Learn More

Sales Info: [sales.cwembedded.com](mailto:sales.cwembedded.com)

Sales Email: [sales@cwembedded.com](mailto:sales@cwembedded.com)

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WRIGHT** Controls  
Embedded Computing  
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## Features continued

- ◆ 512 MB of contiguous direct-mapped flash memory
- ◆ 8 GB SATA NAND Flash
- ◆ Permanent Alternate Boot Site (PABS) provides back-up boot capability
- ◆ 512 KB FRAM (NVRAM)
- ◆ 2eSST-capable ("VME320") VME interface
- ◆ Two PMC/XMC sites, both with VITA 42.3 XMC capability
- ◆ Each site provides:
  - Either a 133 MHz PCI-X capable interface via 4-lane PCI-to-PCIe bridge or an 8-lane PCIe interface, auto-selected
  - 64-bits of I/O to P0 or P2 connector for which the routing to the backplane is done via controlled-impedance and controlled-length pairs
  - One is 5V tolerant
- ◆ Conduction-cooling of PMC/XMC sites optimized with secondary thermal interfaces and mid-plane thermal shunt
- ◆ Up to three Ethernet interfaces:
  - One GbE to front panel connector on air-cooled cards
  - One GbE to P0 connector
  - One Ethernet to P2, either gigabit or 10/100-capable depending on I/O mode
- ◆ Two asynchronous EIA-232 serial ports
- ◆ Two USB 2.0 ports
- ◆ Factory-installed Interface Personality Module (IPM) allows for combinations of the following:
  - Two SATA ports
  - Four EIA-232/422/485 serial channels
  - 14 LVTTTL discretes
  - Two MIL-STD-1553 channels
- ◆ Six general-purpose 32-bit user timers provided by core functions FPGA
- ◆ Eight general-purpose DMA controllers provided by the P4080
- ◆ Two avionics-style watchdog timers with software programmable upper and lower bounds, with external watchdog event indicator discrete
- ◆ Real-time Clock with automatic switch-over from 5 V to 5 V Standby
- ◆ Four onboard temperature sensors, with alarm interrupts
- ◆ Red Fail LED and two green user LEDs
- ◆ +5 V - only operation
- ◆ Available in a range of ruggedization levels, air-cooled and conduction-cooled
- ◆ CSA firmware providing a comprehensive suite of system debug, exerciser, and update functions, BIT, and non-volatile memory sanitization function
- ◆ Available software packages
  - CSA VxWorks 6.8 BSP and Driver Suite supporting Workbench 3.x IDE
  - Wind River Linux 4.0 from Curtiss-Wright Controls
  - Green Hills INTEGRITY BSP available from Green Hills Software
- ◆ Standard conformal coating is acrylic
- ◆ PWB meets UL 94 V-0 flammability rating
- ◆ Circuit card assembly is done to class 3 standards of IPC-A-610C, Acceptability of Electronic Assemblies

Figure 1: SVME/DMV-186 Core Processing Architecture

