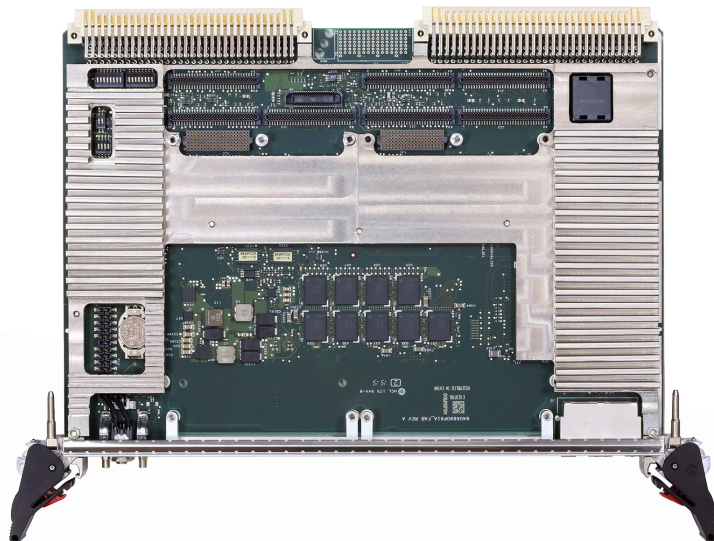


- ▶ NXP QorIQ P5020 2.0GHz
- ▶ 4GB DDR3-1333MHz ECC memory soldered down
- ▶ 512KB MRAM
- ▶ Two PMC/XMC sites
- ▶ Embedded NAND Flash (8GB eMMC)
- ▶ Up to two USB 2.0 ports
- ▶ Up to three Ethernet ports (two ports on front panel)
- ▶ Up to five Serial ports
- ▶ Two GPIO
- ▶ BSP support including Wind River VxWorks, Linux and Green Hills Integrity

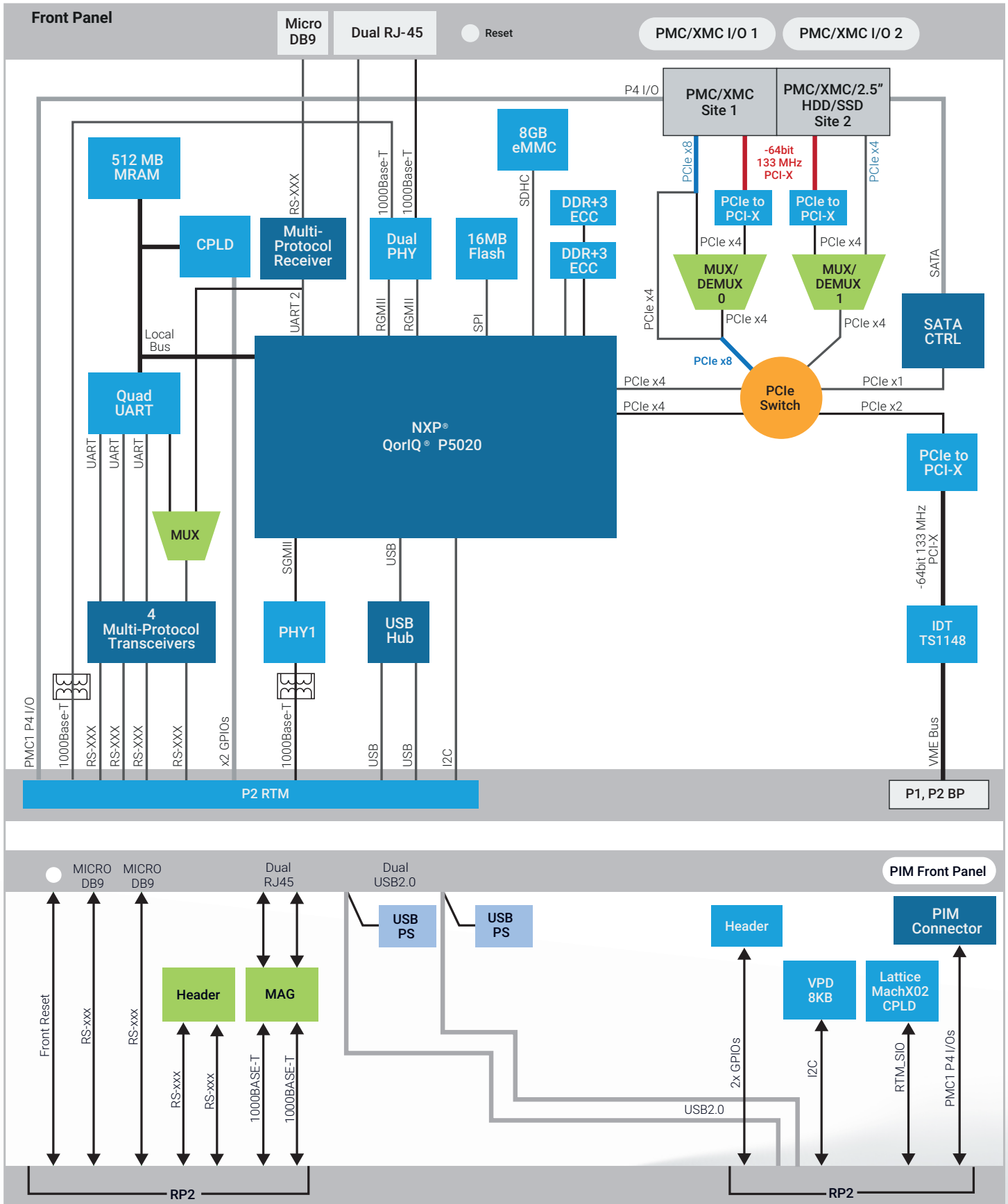
The Penguin Edge[™] MVME8105 is a high performance 6U VME SBC featuring the NXP[®] QorIQ[®] P5020 2.0GHz processor supporting high speed DDR3-1333MHz with ECC. It offers expanded IO and memory features with multiple USB, Serial and Ethernet ports. Memory includes up to 4GB DDR3, 512KB MRAM non-volatile memory, and 8GB eMMC NAND Flash.

The MVME8105 provides an expansion to the Penguin Edge VMEbus product family to prolong current programs while providing more computing performance and data throughput. Compared to other variants of the MVME8100 series, the MVME8105 is designed to match the highest computing power with an elimination of the VXS interface. In addition, it increases the number of Gigabit Ethernet ports to two (2) on the front panel, which is suitable for applications requiring higher Ethernet connection capacities.

Supporting a full range of BSPs including Wind River VxWorks, Linux and Green Hills Integrity, the MVME8105 is suitable for a range of high end industrial control such as SPE and photo lithography, and C4ISR (including Radar/Sonar) and it is also an ideal SBC solution for the high performance mission/safety critical applications.



MVME8105 Block Diagram



Hardware Specifications

Processor

- ▶ NXP QorIQ P5020
- ▶ 2.0GHz: ENP1 variants (28W)

Memory

- ▶ Designed for 4GB of 64-bit DDR3-1333 ECC SDRAM soldered down
- ▶ 16MB SPI ROM for boot code (in 1+1 redundant 8MB banks/devices)
- ▶ 512KB MRAM for data storage
- ▶ 8GB NAND Flash with eMMC interface

Backplane I/O

- ▶ P1
 - VME64x & 2eSST
- ▶ P2
 - VME64x & 2eSST
 - PMC1 I/O (64 signals)
 - Two USB 2.0
 - Four RS-232/422/485
 - One 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

<https://www.penguinsolutions.com/edge/products/bladed-computers/vme/mvme3100-vme-board-with-freescale-mpc8540-system-on-chip-processor/>

Front Panel Connectivity

- ▶ Two Gigabit Ethernet (RJ-45)
- ▶ One RS-232/422/485 console (Micro-DB9)
- ▶ Two PMC/XMC

Rear Transition Module

- ▶ MVME8110-RTM (or VXS1-RTM1)
 - Two USB 2.0 ports (Type A)
 - Two RS-232/422/485 ports (Micro-DB9)
 - One port is switchable between a console and standard COM port
 - Two RS-232/422/485 ports (internal headers)
 - Two 10/100/1000BASE-T Ethernet ports (RJ-45)
 - One PMC Interface Module (PIM) site
 - Two GPIO (internal headers)
 - Reset switch

Power Requirements

- ▶ ENP1: 38 W idle, 42 W typical, 54 W max

Software and Firmware Specifications

Boot

- ▶ UBoot binary and source code

Board Support Packages

- ▶ VxWorks (available from Wind River)
- ▶ Linux

Estimated MTBF

MTBF estimated per Telcordia SR-332, issue 2, ground fixed, controlled environment, unit ambient air temperature of 40°C is 600,000 hours at 60% confidence level. Contact Penguin Solutions for alternative environments or temperatures.

All Modules

Environmental

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

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

Electromagnetic Compatibility (EMC)

- ▶ Penguin Edge 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 ((in process)

Ordering Information

| Part Number | Description |
|----------------------|---|
| Boards | |
| MVME8105-01E | P5020 2.0GHz, 4GB DDR3, 2PMC/XMC, ENP1, IEEE |
| Accessories | |
| SERIAL-MINI-D2 | Serial cable - Micro D sub connector to standard DB-9 |
| ACC/CABLE/SER/DTE/6E | Serial cable, RD 009, 2M, 2 DTE MD/D, RJ-45 to DB-9 |

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About Penguin Solutions

Penguin Solutions accelerates customers' digital transformation with the power of emerging technologies in HPC, AI, and IoT with solutions and services that span the continuum of edge, core, and cloud. The company designs highly advanced infrastructure, machines and networked systems that enable the world's most innovative enterprises and government institutions to build the autonomous future, drive discovery and amplify human potential. The Penguin Edge portfolio covers system on modules, single board computers and application-ready platforms that extend insight, intelligence, and analytical capabilities closer to where the data is generated - optimizing a range of use cases across industries and rugged environments.



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