

PPC9A

6U VME Single Board Computer

The PPC9A is the latest member of the PowerXtreme family of 6U VME single board computers targeted at some of the most demanding applications in embedded computing. By preserving the same hardware and software interfaces as previous PowerXtreme family members, the PPC9A provides an ideal opportunity for state of the art technology insertion into both upgrade programs and new platforms alike.

The PPC9A's processor node features Freescale's latest 8641D dual core integrated processor supported by up to 4 Gbytes DDR2 SDRAM and 1 Gbyte Flash memory. The processor node is coupled to an extensive PCI Express architecture, offering significantly higher data bandwidth than previously possible – making the PPC9A the most performant PowerXtreme single board computer ever.

In addition to leading edge raw compute performance, the PPC9A also features impressive I/O flexibility with two PMC / XMC sites and an AFIX site for plug-on system expansion. The AFIX site not only allows access to the current range of standard AFIX modules (graphics, SCSI,

1553, digital I/O, Flash memory) but also offers the opportunity to add customer-specific features at minimum cost and in the shortest timescales.

The PPC9A provides a number of high speed interfaces for off-board communication, including two Gigabit Ethernet ports, two USB 2.0 ports and a Serial ATA disk interface. In addition, there is support for legacy interfaces, including six serial ports, and sixteen general purpose I/O lines.

Available in five air- and conduction cooled build levels, the PPC9A is fully supported by comprehensive Deployed Test Software (BIT and BCS) and OS support for VxWorks®, VxMILS, LynxOS®, Open Source Linux®, with support for Integrity planned.

The PPC9A is also supported by AXIS (Advanced Multiprocessor Integrated Software), a performance-optimized software environment designed to accelerate the development and production deployment of complex processing applications. AXIS integrated tools and libraries include AXISFlow, AXISview and AXISLib.

FEATURES:

- PowerPC® 8641D (dual cores at 1.33 GHz)
- Freescale 8640/8640D ready
- Up to 4 Gbytes DDR2 SDRAM
- Up to 1 Gbyte user Flash memory
- Two PMC/XMC Sites
 - PCI-X 133Mhz
 - 8-lane PCI Express
 - I/O to P2/P0
- AFIX (Additional Flexible Interface Xtension) site for plug-on AFIX modules
- VME (2eSST capable)
- Two USB 2.0 ports
- Two Serial ATA Ports
- Two Gigabit Ethernet ports
- Six serial ports
- Air- and conduction cooled versions
- Comprehensive Deployed Test software
- Fully supported by AXIS integrated tools and libraries
- Comprehensive operating system support

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Specifications

Processor

- PowerPC 8641D @ 1.33 GHz (dual core)
- 1 Mbyte L2 full speed on-chip cache per core

DDR2 SDRAM

- Up to 4 Gbytes DDR2 SDRAM with ECC

Flash Memory

- Up to 1 Gbyte Flash memory
- Write-protection options

VME Interface

- VME 64x (2eSST capable)

Gigabit Ethernet

- Two 10/100/1000 Base-T ports

Serial I/O

- COM 1,2 (RS232)
- COM 3,4 (RS232/422/485 sync / async)
- COM 5,6 (RS232/422/485 async only)

General-Purpose I/O

- Sixteen General-Purpose I/O (Gbit/second) lines each capable of generating an interrupt

USB

- Two USB2.0 ports

SATA

- Two Serial ATA disk interfaces (Up to 1.5 Gbit/second)

Mezzanine Sites

- Two IEEE 1386/1386.1-2001 compatible extension slots
- PMC - up to 64bit / 133MHz PCI-X
- XMC - PCI Express x8 support
- I/O pins to P2/P0

NVRAM / Real-Time Clock / Watchdog / ETI

- 128 Kbytes non-volatile RAM with autostore
- Real-time clock
- Watchdog timer
- Elapsed time indicator (records cycles and on-time)

Temperature Sensors

- CPU die and ambient temperature

Power Requirements

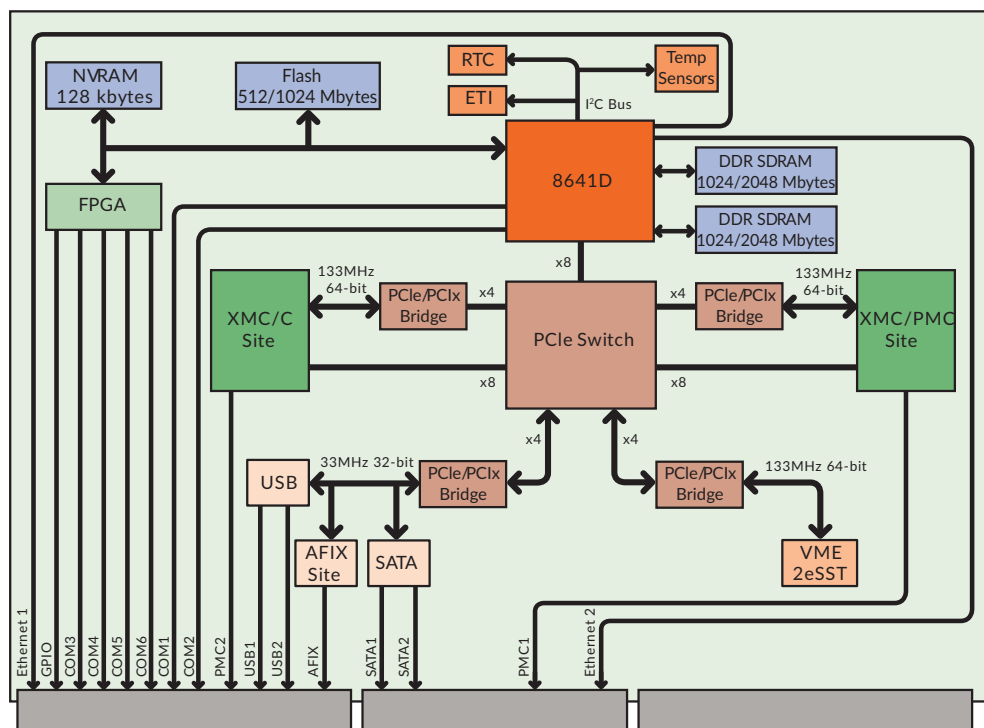
- +5 V - required
- ±12 V - only if required by mounted PMC module

AXIS Multicomputer

Open Architecture, COTS Multiprocessor Solutions

| |
|--|
| Customer Application |
| AXIS Advanced Multiprocessor Integrated Software |
| Universal Interface Layer (UIL) |
| Board Support Package (BSP) |
| Built-in-Test (Configurable POST) |
| I/O, SBCs, Multiprocessors, Fabric Switches |

Block diagram



Environmental

| | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|-------------------|-------------|--------------|--------------|--------------|--------------|
| Cooling Method | Convection | Convection | Convection | Conduction | Conduction |
| Conformal Coating | Optional | Standard | Standard | Standard | Standard |
| High/Low Temp | 0 to 55°C | -20 to +65°C | -40 to +75°C | -40 to +75°C | -40 to +85°C |
| Operational | (300 ft/m) | (300 ft/m) | (600 ft/m) | At cold wall | At cold wall |
| Random Vibration | 0.002g2/Hz* | 0.002g2/Hz* | 0.04g2/Hz** | 0.1g2/Hz** | 0.1g2/Hz** |
| Shock | 20g*** | 20g*** | 20g*** | 40g*** | 40g*** |

* From 10 to 2000 HZ ** With a flat response to 1000 Hz, 6 dB/Oct roll-off from 1000 to 2000 Hz ***Peak sawtooth 11 ms duration

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