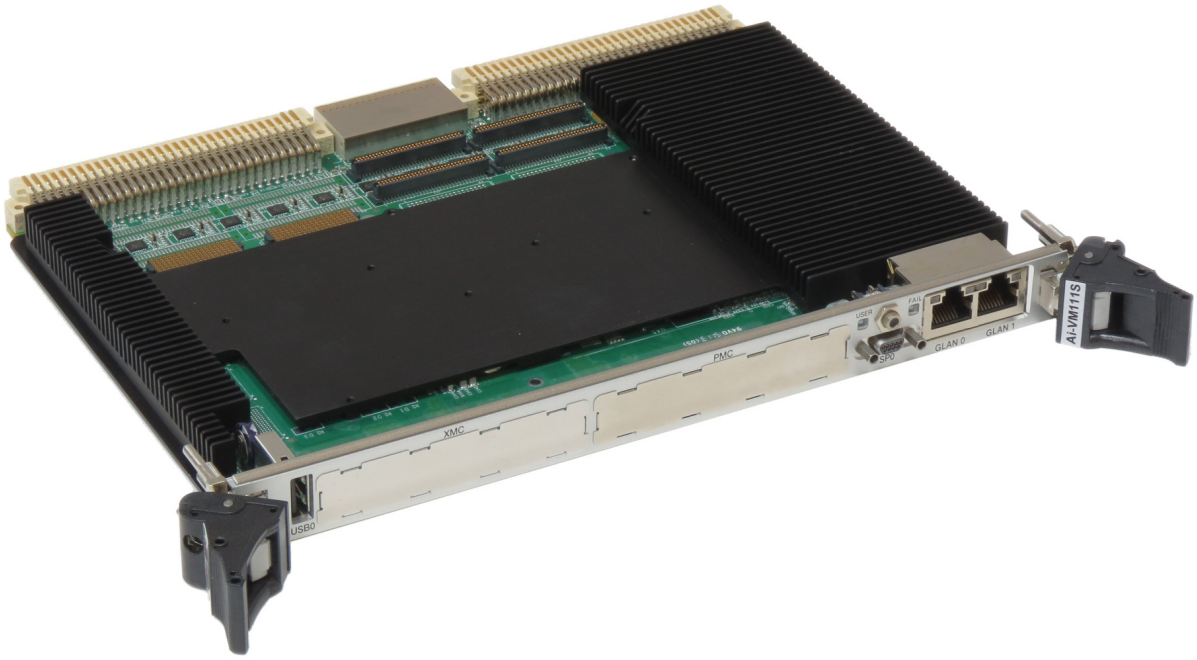
Ai-VM111S

Freescale™ QorIQ™ T4 6U VME SBC

Aitech
Embedded Computing *without* Compromise



- **T4080 QorIQ™ SoC Processor**
  - Quad e6500 Dual-Thread Cores @ 1.5 GHz
  - Altivec Unit
- **4 GB DDR3L with ECC**
- **128 MB NOR Flash**
- **1 PMC Slot + 1 XMC Slot**
- **WDT, ETR, RTC, Temp. Sensors**
- **Versatile Board I/O**
  - USB
  - SATA
  - GbE
  - Serial
  - Discrete
- **VxWorks®, Linux®, INTEGRITY® Support**
- **Air-Cooled VME Board**

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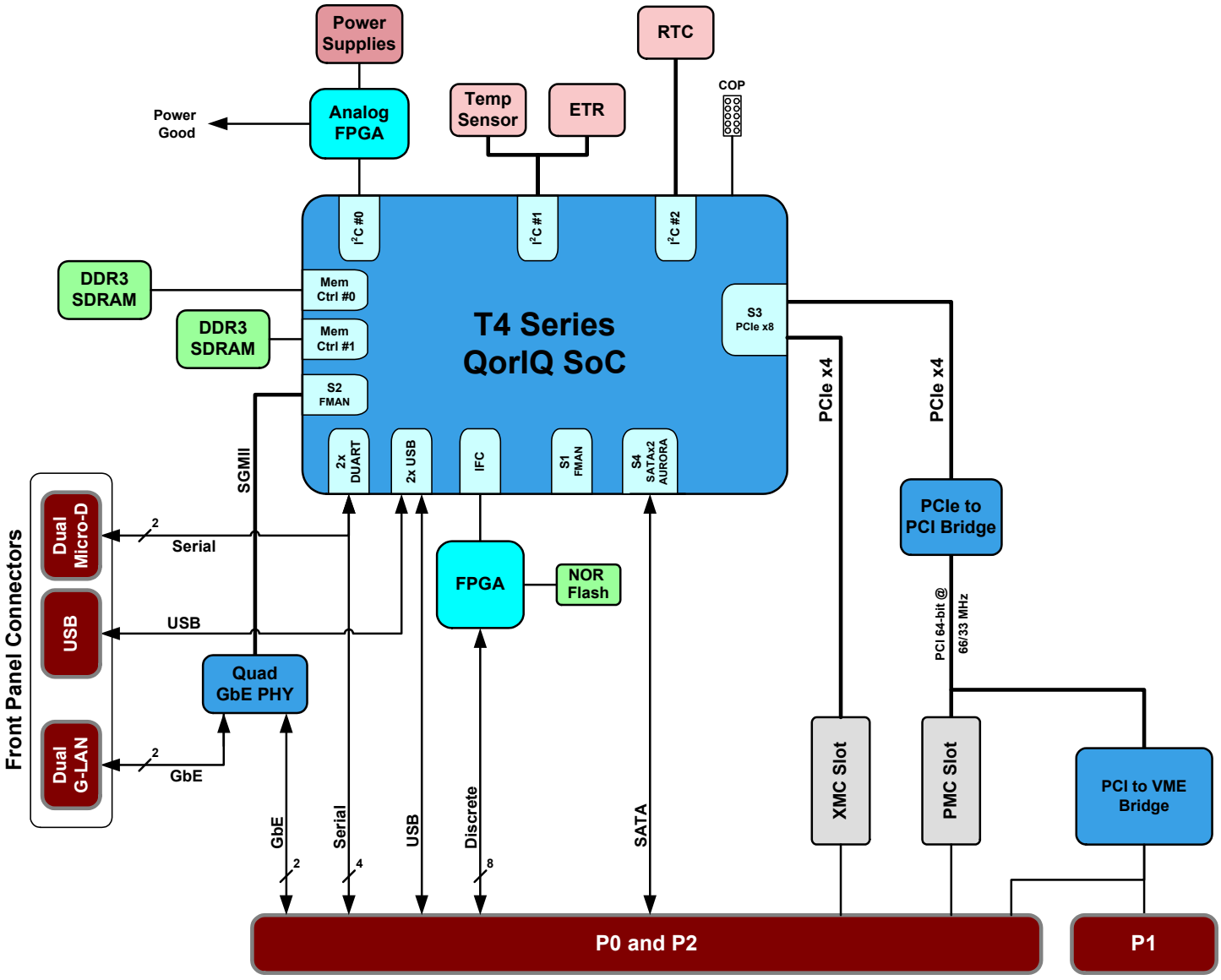
The Ai-VM111S is Aitech's latest generation VME PowerPC SBC, based on Freescale's new T4 Series QorIQ System-on-Chip (SoC) multi-core, multi-thread processors, with on-chip high speed L1 and L2 caches, and numerous integrated bus, memory, and I/O controllers.

The wide variety of on-board I/O and large memory resources, including on-board mass storage, in combination with the powerful SOC processor, make the Ai-VM111S the right VME SBC for many applications, right out of the box. The two industry standard mezzanine slotes (one PMC and one XMC) provide flexibility and expandability, along with the availability, convenience, and cost benefits of COTS.



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Board Architecture

Processor	Freescale T4080 Quad-Core Dual-Threaded QorIQ SoC @ 1.5 GHz • Integrated memory, bus, and I/O controllers • 128-bit Altivec Unit • 12 MB L2 cache • 32 kB/32 kB L1 Data/Instruction Cache
VMEbus	VME64x per VITA 1
Board Resources	• Watchdog Timers (Windowed + Standard) • Elapsed Time Recorder • Real Time Clock • 8 Counters/Timers • Temperature Sensors • Power Monitoring

Memory Resources

RAM	4 GB of DDR3L SDRAM with ECC operates at 1600 MT/s, configured in dual channels
Boot Flash	128 MB NOR Flash - 64 MB allocated for Boot; 64 MB available to user

I/O

	Quantity	
	Backplane I/O	**Front Panel I/O**
Ethernet - Gigabit: 10Base-T/100Base-TX/1000Base-T	2	2
USB 2.0	1	1
SATA 2.0	1	0
Serial Ports – Standard: RS-232/422 Asynchronous UARTs. Software configurable as RS-232/422 *	4	2
Discrete I/O Lines – Single-Ended	8	0
PMC I/O Pins Routed per VITA 35	40	0
XMC I/O Pins: Diff Pairs + SE	6 + 26	0

* Front panel serial ports are parallel to backplane ports and are RS-232 only

Expansion Slots

1 PMC Slot	64-bit PCI @ 66/33 MHz, supports 5 V PCI I/O signaling levels
1 XMC Slot	Connects to CPU subsystem through PCIe x4 port, supporting x4, x2, and x1 bus widths

Software

Operating Systems	WindRiver VxWorks®, Linux®, and Green Hills INTEGRITY® are supported
Drivers	Operating system specific device drivers for board resources are available

Mechanical

Form Factor	Air-cooled 6U VME per IEEE Std 1101.10-1996
Dimensions	Per IEEE Std 1101.10-1996
Weight	< 675 g (1.5 lbs)

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Power Consumption

Typical	33 W
Maximum	45 W

Environmental

	Ai-VM111S	Ai-VM111S-E
Operating Temp.	0 to +50 °C	-20 to +60 °C
Non-Operating Temp.	-40 to +85 °C	
Vibration	5 - 100 Hz, 0.04 g^2/Hz	
Operating Shock	20 g/11 ms half-sine	
Relative Humidity	0 - 90%	

Accessories

TM102	Rear Transition Module (RTM) providing convenient access to Ai-VM111S I/O interfaces via standard connectors and to all PMC/XMC I/O via headers. Refer to the TM102 datasheet for further information.

Contact Aitech

Contact your Aitech sales representative for additional product information, and for inquiries regarding customized configurations of the Ai-VM111S and additional software support.

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