PPC11A

QorIQ T2081/T1042-based Rugged 6U VME Single Board Computer

The PPC11A is the latest QorIQ™-based product to join Abaco's PowerXtreme family of rugged 6U VME single board computers.

Technology insertion roadmap minimizes integration effort
The PPC11A supports the same technology insertion pin-out as previous members of the PowerXtreme family including popular boards such as the PPC4A, PPC7A, PPC9A and PPC10A, minimizing integration time and effort for legacy upgrades.

Power/performance options offer optimum application effectiveness
The PPC11A offers a high performance option based on the T2081 processor and a low power option based on the T1042 processor, allowing the user to select a solution tailored to the application.

· The T2081 brings the benefits of AltiVec™ co-processing to a 4-core platform, each of which is dual threaded, offering eight virtual cores, consuming up to 25W.
· The T1042 is optimized for lower power consumption applications, offering four single threaded cores consuming less than 7.5W.

Flexible I/O configurations satisfy a wide range of application requirements
Incremental system resource expansion is provided by two mezzanine sites, both of which are XMC/PMC capable, and offer the option of having XMC I/O (Site 1 only) and/or PMC I/O routed to the VME backplane connectors.

Combined with an extensive and flexible range of I/O options, including Gigabit Ethernet, serial COM ports, USB 2.0, SATA, MIL-STD-1553 and GPIO, the PPC11A is ideal for commercial, industrial, defense and aerospace applications.

Long term support
The PPC11A ensures long term support through an industry-standard Universe IID VME interface.

Fully rugged by design
Designed specifically for harsh environments, the PPC11A is ideal for applications where high reliability and survivability are a must. Available in five air- and conduction-cooled ruggedization levels, the PPC11A offers a straightforward upgrade path for both new customers and existing PowerXtreme users looking to modernize existing systems

Software and firmware support eases integration, guarantees high reliability
The PPC11A is fully supported by comprehensive Deployed Test Software (BIT and BCS) and operating system support for VxWorks™ 6.x, VxWorks 7 and Yocto Linux®. Other operating system support can be made available on request.

FEATURES:

· 6U VME single board computer
· Power Architecture™ AMP (advanced multiprocessing) CPUs
· T1042 (four e5500 cores)
· T2081 (eight e6500 virtual cores)
· DDR3L with ECC (up to 8 GB)
· 512 MB NOR Flash
· 32 GB NAND Flash solid-state drive
· 512 kB non-volatile nvSRAM
· Host/slave, VME64-compliant
· 2x independent PMC/XMC sites
· 2x 10/100/1000BASE-T Ethernet + 2x optional 10/100/1000BASE-T Ethernet
· 2x or 4x RS232 ports
· 4x RS232/422/485 async
· 2x serial ATA (1.5 Gb/s)
· 2x USB 2.0
· Up to 19x single-ended GPIO (5V tolerant)
· Baseboard Management Module (BMM)

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Specifications

Integrated Host Processor
- Support for T2081 or T1042 QorIQ AMP CPUs
- T2081 up to 1.8 GHz
  - Eight e6500 virtual cores (4 cores, dual threaded and with AltiVec co-processing)
  - Double-precision floating-point support
  - 2 MB banked L2 cache, 512MB platform cache
- T1042 up to 1.4 GHz
  - Four e5500 cores (single threaded)
  - Double-precision floating-point support
  - 256 kB per core L2 cache, 256 MB platform cache

DDR3 SDRAM
- Up to 8 GB DDR3 SDRAM with ECC Single Bank

Flash Memory
- 512MB NOR Flash memory
- Protected BANC Boot Area
- 32 GB NAND Flash SATA Solid State Drive

Backplane
- Fully VME64 Host/slave capable with support

Mezzanine Sites
- Two XMC/PMC sites with x4 PCI Express (Gen2) or 64-bit PCI-X at up to 133 MHz
- Available with VITA 42 connectors (contact factory for VITA 61 connectors)

Gigabit Ethernet
- 2x 10/100/1000BASE-T Ethernet
- Additional 2x 10/100/1000BASE-T Ethernet ports as a build option.

Rear I/O
- 2x/4x RS-232 UART ports
- 4x RS-232/422/485 async ports
- 2x USB 2.0
- 2x Serial ATA (1.5 Gb/s) to P0
- 2x dual redundant MIL-STD-1553
- Up to 19, 5V-tolerant GPIO, each capable of generating an interrupt.

Block diagram
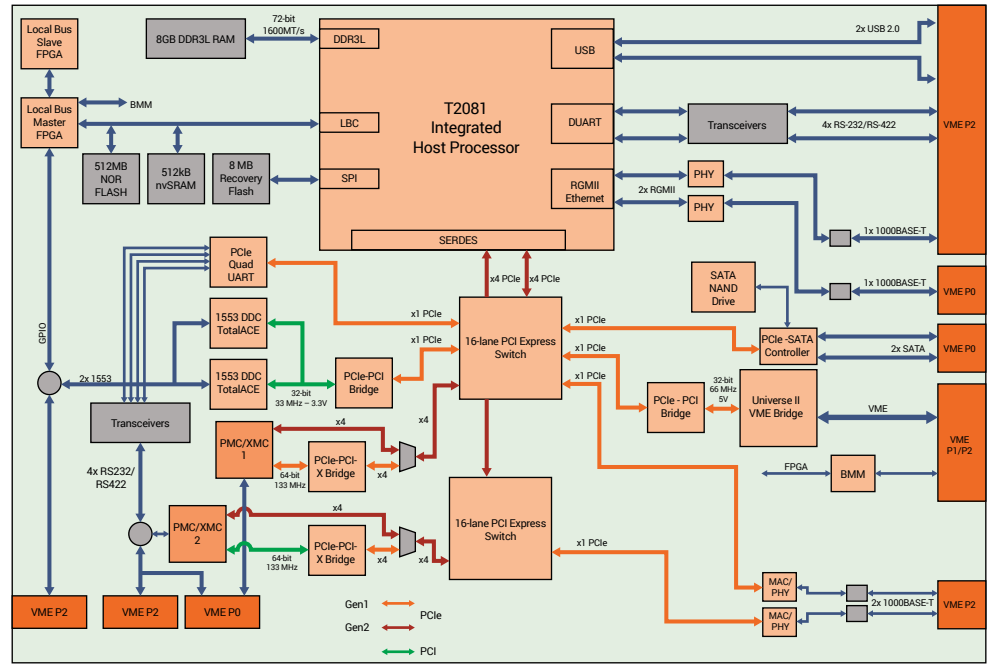
NVRAM / Real-Time Clock / Watchdog / ETI
- 512 kB non-volatile nvSRAM
- Real-time clock with 1 second resolution
- Avionics watchdog timer with windowed operation and independent clock
- Elapsed Time Indicator (records power cycles and on-time)

Transition Modules
- P25X605 (combined P0 and P2 RTM)

Temperature Sensors
- On-board ambient temperature and processor core temperature sensors

Power Requirements
- Operates from single +5V supply
- +5V stand-by optional, for RTC backup +/-12V only if required by mezzanine module

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