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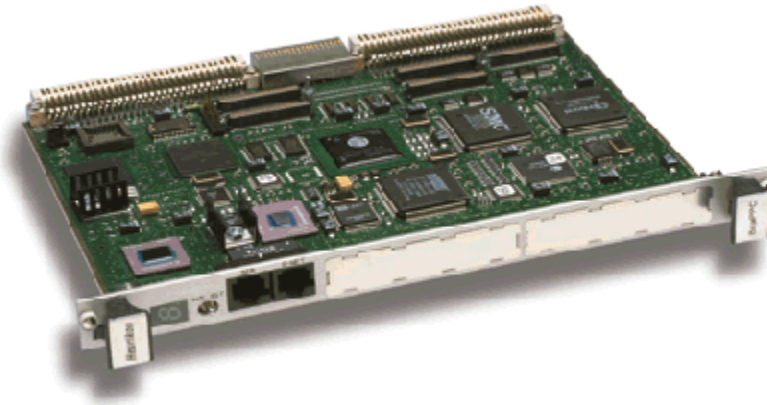
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PowerPC-Based I/O Platform for Real-Time Communication Applications



- Choice of [PowerPC](#) processors: 200 MHz 603 or 233 MHz 740
- Two 32-bit [PMC](#) expansion interfaces, accepts 2 single-width or 1 double-width PMC module with front or rear access I/O
- Optimized [VME interface](#) for high performance multi-processing applications
- Up to 256 MB Synchronous [DRAM](#) (SDRAM) with optional parity
- Up to 4 MB user [Flash Memory](#)
- On-board [Fast Ethernet](#) interface for high-performance DMA supported I/O
- Support for [VxWorks](#) and [pSOS](#) (future) real-time operating systems
- Implementation of [VME64](#) Extensions subset (including the P0 connector) for increased flexibility and reliability

Targeting compute and I/O intensive applications like telecom switching, Advanced Intelligent Network switching, network control, LAN to WAN bridging and video-on-demand, the BajaPPC features a [VME64 interface](#), on-card [Ethernet](#), two [serial ports](#) 512 Kbytes of secondary cache and up to 256 Mbytes of [DRAM](#). It also features a pair of 32-bit [PMC](#) expansion interfaces, which make it easy for designers to add custom and off-the-shelf third-party PMC cards.

For protocol processing and other telecompute functions, BajaPPC features a choice of the [PowerPC](#) 603 or 740 processors. BajaPPC is optimized to take full advantage of the PowerPC's computer power.

The BajaPPC's [PMC \(PCI Mezzanine Card\)](#) interface features two 32-bit expansion connectors. The two interfaces can accept either

two single-wide or one double-wide module. I/O can be routed either to the front panel or out the P2 connector. Because it supports two PMC modules, the Baja is ideally suited to communications applications requiring support for multiple protocols or interfaces. By mixing PMC modules the Baja can serve as a high-performance bridge between networks. The I/O flexibility and processor performance make the board ideal as a communication switch controller, and the 2 PMC slots ensure compatibility with most standard or custom switch interfaces.

Note: Artesyn strongly recommends that you use the BajaPPC or any VME board with five-row connectors in an 1101.1-compatible enclosure which supports the use of "injector/extractor" handles. This will help ensure that the board can be easily inserted and extracted from the backplane. While the board can be used in enclosures without injector handle support, the increased insertion forces required for the five-row DIN connector may be a source of difficulty for either board or enclosure over time.

Bus Interfaces

VMEbus

- Tundra Universe VME/PCI bus interface
- VME64 architecture:
 - A32/A24/A16
 - D64(MBLT)/D32/D16/D08
 - Master and slave modes
- Integral FIFOs for write posting maximize bandwidth utilization
- Programmable DMA controller with linked list support
- Transfer rates of 60-70 MB/sec (estimated)
- Complete suite of VMEbus address and data transfer modes
- Flexible register set, programmable from both the local bus and VMEbus ports
- Full VMEbus system controller functionality.

VME64 Extensions support

- 5-row P1 & P2 backplane connectors (100% compatible with 3-row DIN backplanes)
- Provides 46 additional user-definable lines on P2 connector rows D&Z
- 35 additional signal and ground lines
- Slot geographical addressing
- 3.3 Volt power
- EMC front panel reduces EMI & RFI radiation
- Optional VMEbus P0 connector
 - 95 signal pins
 - 19 ground pins
- I/O from PMC slot 2 is routed to the P0 connector. The P0 option is required if you wish to route PMC slot 2 I/O to rear-panel boards such as the [TM/Serial](#) or [TM/Span](#)

transition modules.

Mailbox interrupts

- Allows remote control of BajaPPC via specified VMEbus addresses
- CPU interrupt and VMEbus lock functions supported

PMC

- PCI Mezzanine Card interface complies with IEEE 1386 and 1386.1
- Two 32-bit PMC interfaces
- Fully compliant, 32 or 64-bit, 33 MHz PCI Bus interface.
- Accepts 2 single-wide or 1 double-wide PMC module
- PMC I/O can be routed to front panel or out rear connectors
 - Slot 1 routed to P2 rows A&C
 - Slot 2 routed to P0

Processor & Memory

PowerPC 740

- 233 MHz
- 32-Kbyte instruction cache and 32-Kbyte data cache
- Superscalar architecture: 3 instructions per clock cycle
- Dynamic branch prediction
- Multiple integer units
- 64-bit data bus

or

PowerPC 603

- 200 MHz
- 16-Kbyte instruction and 16-Kbyte data caches
- Superscalar architecture: 3 instructions per clock cycle
- On-chip power management
- 32/64-bit data bus mode

Secondary Cache Memory

- 512 KB secondary cache memory speeds program execution

Random Access Memory

- 8, 16, 32, 64, 128 or 256 MB Synchronous DRAM (SDRAM)
- Optional parity (one parity bit per byte)
- 64-bit data bus
- 2-way bank interleaved architecture
- Transparent discrete hardware refresh

Read Only Memory

- Socket accepts EPROM or Flash devices
- Supports 64K, 128K and 512K EPROM chips
- Supports 1 MByte flash chips

Flash Memory

- 4 MBytes field upgradeable non-volatile program storage
- HKMON on-board monitor is standard in first 512K of flash memory space

Timers/Counters

- Three 32-bit timer/counters with 62.5 nsec resolution
- Interrupt capability

Peripheral I/O

Fast Ethernet Interface

- Digital 21140A Fast Ethernet LAN Controller
- Operates at either 10 Mbit/sec or 100 Mbit/sec
- Programmable PCI bus burst size to optimize system data transfer efficiency
- On-chip Tx and Rx FIFOs
- Highly efficient linked-list, Bus Master DMA engine
- Flexible address filtering modes
- External and internal loopback capability
- Complies with Fast Ethernet Standards: IEEE P802.3u/D3 and ANSI TP-PMD v2.0 UTP CAT 5
- Fast Ethernet I/O routed to front panel.
- Optional AUI configuration routes 10 Mbit/sec Ethernet signals to P2 connector

Console Serial I/O

- One front panel serial I/O port
- One serial I/O port optionally routed to P2 connector or on-card header connector
- EIA-232 standard
- Transfer rates up to 1Mbit/sec (cable length dependent)

Front Panel

- I/O for 2 PMC modules
- 7 segment LED display
- RJ45 Fast Ethernet port connector
- RJ45 Serial port connector
- Reset/Interrupt switch

Software support

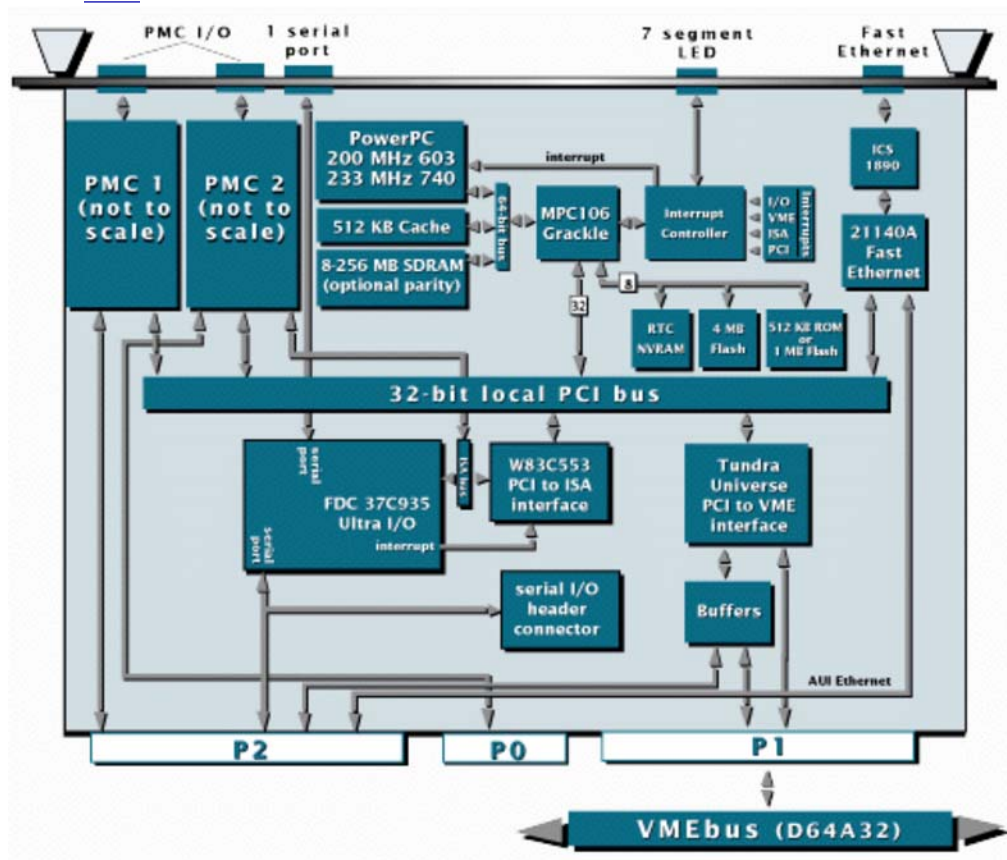
- Wind River Systems' VxWorks real-time operating system and development environment
- ISI's pSOS real-time operating system and development environment
- HKMON on-board monitor software and power-on diagnostics included

Physical Characteristics

- Multilayer with ground and VCC planes
- Board size: 233.5 mm x 160 mm (9.19 in. x 6.3 in.)
- Power requirements:
 - +5VDC @ 5.6 A
 - +12VDC @ 32 mA
 - 12VDC @ 30 mA
- Storage Temperature: -40C to 85C
- Operating range: 0-55C, 95% relative humidity (non-condensing)

Target Applications

- Telecommunications switch
- AIN Switch
- Network Switch
- LAN/WAN bridge





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