

# BAB 750

## PowerPC 755 Based CompactPCI Board

- PowerPC on CompactPCI
- PowerPC 755
- PMC on-board slot

### III Main Features

- PowerPC-based CompactPCI CPU board
- PowerPC 755 (300 MHz)
- 1 MB on-board second level cache
- 32 to 128 MB SDRAM
- SCSI-2 16-bit (ultra/wide) and IDE hard disk controller
- 10/100 Mbps network interface (10BaseT/100BaseTX)
- 32-bit CompactPCI interface with PCI-PCI bridge
- Two serial and one bi-directional parallel channels
- All front panel I/O signals EMC filtered
- Double Eurocard (6U), single-slot format
- Single-slot PMC module mountable on-board
- Transition board for I/O connectivity via CompactPCI backplane
- VxWorks BSP support

### III Technical Details

The BAB 750 is a PowerPC-based single board computer with a CompactPCI interface. The standardised Eurocard format permits setting up multiprocessor systems in proven 19" racks. This is the ideal platform for industrial/telecom applications.

The board is based on the Motorola MPC106 / Winbond 83C553 chip set, the reference for PowerPC chip sets. Also, availability for longer periods than what is common in the PC market is guaranteed.

### CPU

The CPU is a Motorola PowerPC 755, compatible to the PowerPC 750 (G3 kernel) at 300 MHz. The CPU has FPU, MMU, first level cache and a L2 cache interface. The CPU performance index is 20 SPECint95, 13 SPECfp95, and 825 MIPS for the 755 at 450 MHz.

CPU	PowerPC 755
L1 cache (I/D)	32/32 kB
L2 cache	1 MB ext.
Bus speed	66 / 83 MHz
CPU speed	300 MHz
Altivec	-

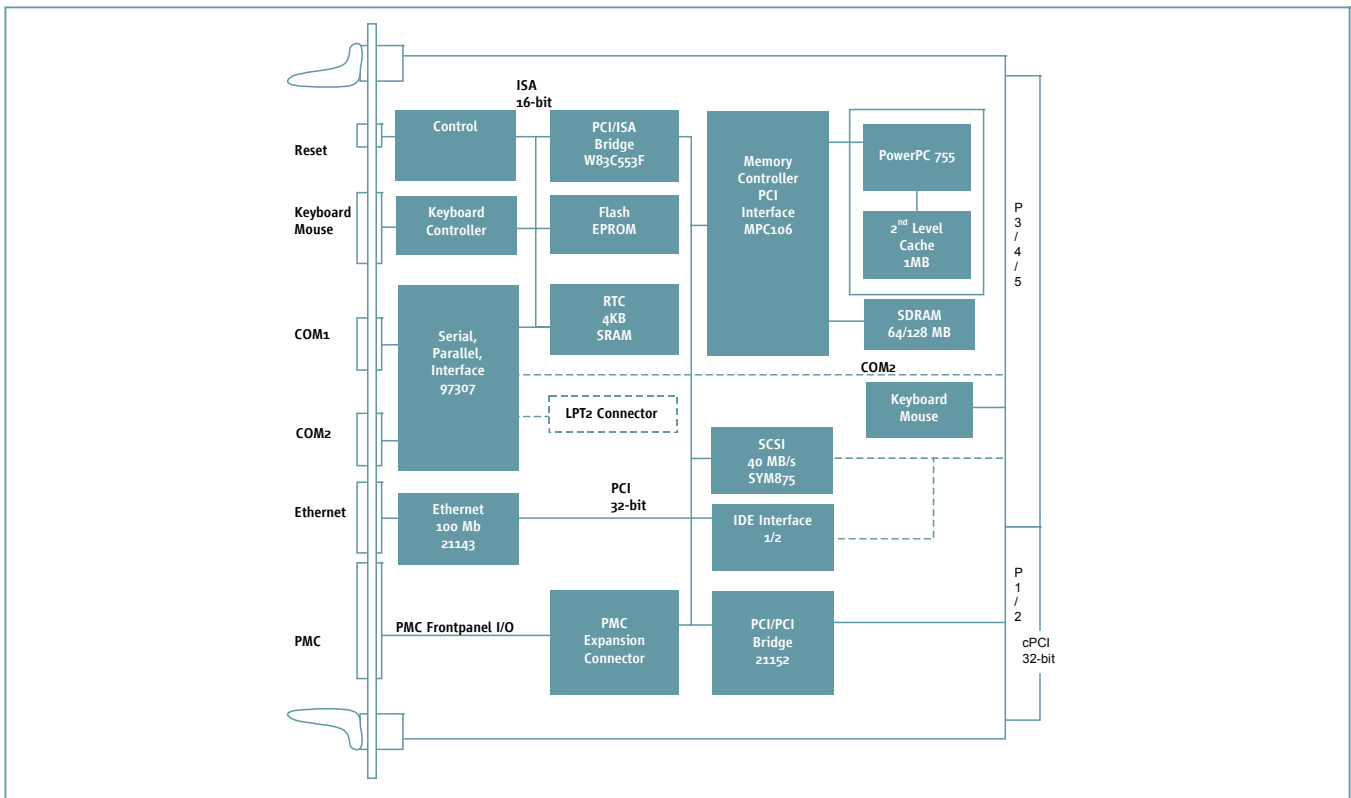
### Memory Configuration

The 64-bit wide memory allows configurations of 32 MBytes, 64 MBytes or 128 MBytes with on-board 66 MHz SDRAMs in a single SO-DIMM module. Memory size is detected automatically. The second-level cache, attached to separate cache bus, runs with clock rates of 150 MHz.

### Boot PROM

Boot code is stored in a Flash EPROM which enables easy code updates. Boot from IDE, SCSI, Ethernet is supported, depending on the operating system used.

Current boot Proms contain self test code as well as OS boot code for VxWorks.



## Graphics Interface

An optional graphics PMC board can be installed at the on-board PMC slot.

## Hard Disks

Hard Disks are supported either by the PCI-based IDE port with Ultra DMA/33 transfer or the 16-bit ultra/wide SCSI port with 40 MB/s transfer rate, equipped with a SYM 53C875 controller. SCSI and IDE are routed to the transition board.

## Ethernet Interface

The network interface uses the network controller DEC21143 with a MII interface for 10/100 Mbps transfers with 10BaseT (twisted pair) or 100BaseTX connectivity.

## I/O Features

Two asynchronous 16550-compatible serial channels with up to 115 kbaud transfer rate and 16-byte FIFO with RS232 levels are available. Printers can be connected to the fully bi-directional parallel port supporting IEEE 1284 enhanced modes (EPP and ECP). PS/2-compatible keyboard and mouse interface are provided.

## CompactPCI Interface

The CompactPCI interface is implemented with the Intel 21152 32-bit bridge chip, delivering system slot capabilities for 32-bit cPCI systems. It features transfer rates of up to 128 MByte/s between board-internal resources and CompactPCI devices.

## CE Conformity

All I/O signals routed to the front panel are filtered by special EMC filters to meet EMC requirements (class B).

## Watchdog

The BAB 750 has an on-board watchdog for operator less environments.

## Operating systems

The software support for the BAB 750 includes the board support package for WindRiver's VxWorks (rev 5.4) with Tornado (rev 1.0.1 and 2.0). Support for additional operating systems is in preparation.

## Backplane I/O

Due to the large number of I/O pins provided by the CompactPCI bus, many peripherals can be connected to a transition board (see below): serial port 2, parallel port, keyboard/mouse, IDE, Floppy, SCSI.

## PMC Expansion

A PMC single-slot module board can be installed in the on-board PMC connector. PMC I/O is routed to the back plane P4 connector.

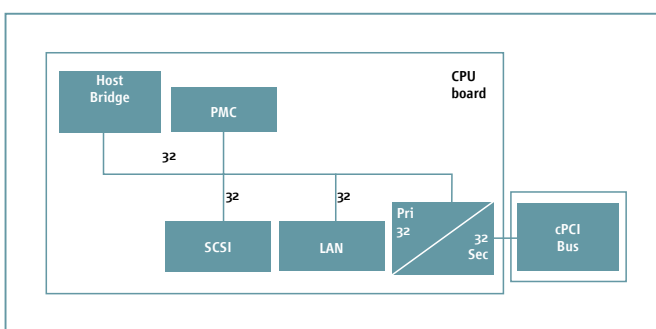
Additionally a PMC module carrier board can be installed to provide three PMC module slots. The PCI bus is buffered with an additional 32-bit PCI-PCI bridge device, located on the carrier board. PMC I/O is routed to the back plane P3..5 connectors.

## Transition Board

The transition board is intended to route I/O from the backside of the back plane to the enclosure back panel. It contains standard connectors for COM2, keyboard, mouse, and header connectors for SCSI, IDE, Floppy, speaker. The transition board is the same as for the EUROCOM 238.

## Miscellaneous

Current version of BAB 750 supports no 21554 bridge instead of 21152 - may be needed for multiprocessor applications.



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### III Specifications

#### CompactPCI

- 32-bit system slot interface
- 5 V operation
- Single-slot, 6U
- Passive cooling of CPU

#### Environmental Conditions

- Storage Temperature: - 40 °C - 70 °C, at 10% - 100% non-condensing
- Operating Temperature: 0 °C - 45 °C (2 m/s forced air cooling)
- Maximum Operating Humidity: 85 % relative

#### Power Requirements (CPU Board only, 300 MHz)

- 4.0A max. 3.0A typ. at + 5 VDC ± 5 %
- 100mA max. 30mA typ. at + 12 VDC ± 10 %
- 100mA max. 30mA typ. at - 12 VDC ± 10 %

#### MTBF Values

- 23865 hrs (computed after MIL-HDBK-217E),
- 319795 hrs (realistic value from industry standard experience)

#### Transition Board

##### Mechanical

- 6U height, 80 mm depth

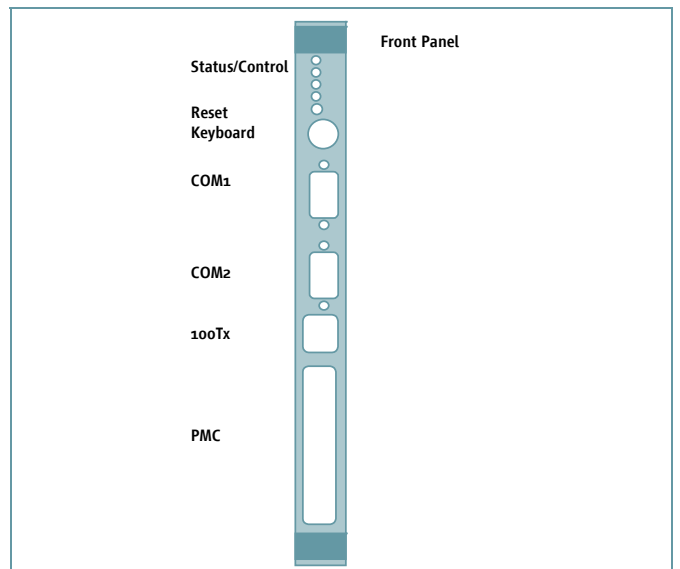
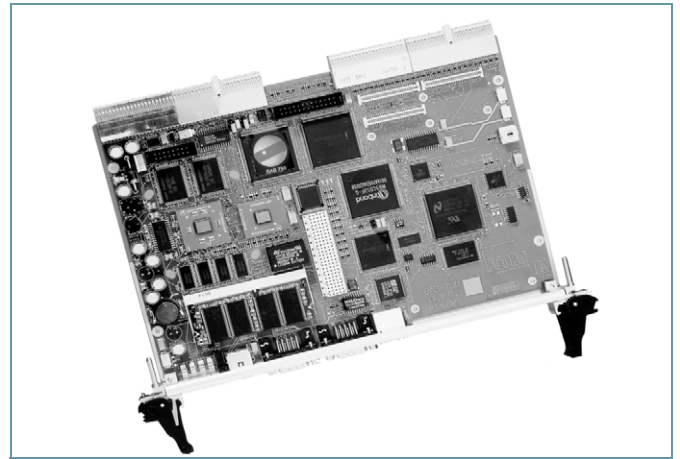
#### Connectors

##### Front panel

- Keyboard / Mouse: Mini-DIN
- Ethernet: RJ45
- COM<sub>1</sub>, 2: 9-pin Sub-D
- PMC I/O

##### Transition board

- SCSI (16-bit): 68-pin high-density
- SCSI (8-bit): 50-pin header
- IDE: 40-pin header
- Floppy: 34-pin header
- Parallel port: 25-pin Sub-D
- COM<sub>2</sub>: 9-pin Sub-D
- Keyboard: Mini-DIN
- Mouse: Mini-DIN



#### Regulatory

- CE: EN50082-2, EN50081-1, EN55011

#### Documentation

- Free Internet

Please contact your local sales office for detailed information.