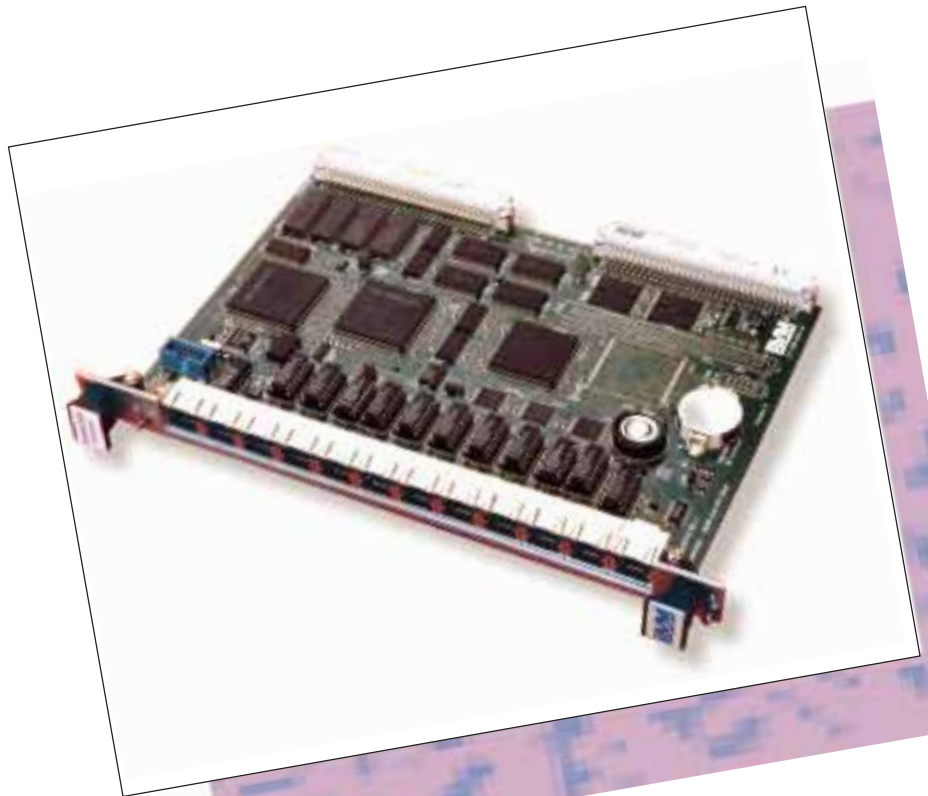


# BVME3500

## Communications Processor

- Dual MC68360 processors master/slave
- 32MHz Processor clocks
- 4M or 8Mbytes of DRAM
- 1M or 2Mbytes of FLASH
- 512K or 2Mbytes of non-volatile SRAM
- 256bytes of EEPROM
- 10baseT Ethernet port via front panel RJ45 connector
- 11 asynchronous serial ports accessible via front edge RJ11 connectors
- RS232, RS422 or RS485 individually configurable
- Tx and Rx LED indicators on each port
- Real time clock.
- Reset and abort switches on front panel
- IP expansion interface compatible with EXP100 for IndustryPack I/O options.
- Comprehensive software support
- BDM connector for low level programming/debugging
- Self contained double Eurocard form factor
- Compact desktop enclosure available

The BVME3500 is a Single Board Computer optimised for communication and protocol switching and routing applications. It provides eleven asynchronous serial ports and a 10baseT ethernet port. It is ideally suited for custom network routing or concentrator applications, or embedded systems requiring many serial ports and industrial I/O.



Controlled by a pair of 68360 CPUs in a master/slave configuration, the BVME3500 can take advantage of the wealth of software available for these very popular processors.

The standard double Eurocard form factor allows the BVME3500 to be installed in standard racking. The rear DIN41612 connectors are compatible with VMEbus signals taking its power form P1 and I/O via the P2 connector. This enables the BVME3500 to be installed in vacant VMEbus slots. Alternatively very compact desktop or wall mounting cases are available.

## Master Processor

The master MC68EN360 Quad Integrated Communication Controller Ethernet variant (QUICC) operating at 32MHz providing the following resources:

- CPU32 core with Ethernet
- 4 Serial Comms Controllers (SCC's)
- 2 Serial Management Channels (SMC's)
- Counter timers/General purpose I/O
- SPI port
- DRAM support

## Slave Processor

The slave QUICC MC68360 operating at 32MHz provides the following resources:

- 4 Serial Comms Controllers (SCC's)
- 2 Serial Management Channels (SMC's)
- Counter timers/General purpose I/O
- SPI port.

## Memory

DRAM 4M or 8Mbytes of 32-bit wide DRAM, selected as two 4Mbyte banks.

Flash 1M of 2Mbytes of 16-bit wide FLASH memory The bottom 128K (boot block) can be write protected by fitting a link. The master 68360 can power up boot from the FLASH devices.

SRAM 512K or 2Mbytes of 32-bit wide SRAM. The SRAM can take its backup power from an on board supply capacitor, on board lithium coin cell (link selectable) or the VME +5V standby line.

EEPROM The 256byte EEPROM can store configuration settings via the SPI interface on the master MC68EN360. It can be write protected by fitting a link.

## Serial Communications

There are eleven asynchronous serial interfaces, 5 from the master MC68EN360 and 6 from the slave MC68360. These have the following properties:

- Individually selectable between RS232, RS422 and RS485.
- Baud rates upto 115.2Kbaud.
- Access via front panel RJ11 connectors.
- RS232 drivers implemented using MAX202E devices (5 volt only)
- RS422 drivers implemented using BVM 453-63422 modules.
- RS485 drivers implemented using BVM 453-63485 modules.

## Ethernet Interface

The Ethernet interface from the MC68EN360 connects via an MC68160 EEST transceiver providing a 10baseT interface via an RJ45 connector at the front of the board.

## Monitoring LED's

Two LED's per channel are used to monitor the serial communications and Ethernet Interfaces. A processor run LED is also and user status LED are also included.

## Power Supply Monitor

A MAX791 is used to perform the power monitoring functions including the non-volatile RAM housekeeping.

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## Reset/Abort/ACFAIL

Reset and Abort switches are mounted at the front of the board. The reset switch is controlled by the MAX791 to generate a CPU reset, while abort will provide an auto-vectored level 7 interrupt. The VME signal ACFAIL is monitored (via an enable link) and generates an interrupt if asserted.

## Mechanical

The BVME3500 is 6U double-eurocard format physically compatible with VMEbus. The P1 and P2 connectors are available for power (P1) and I/O connections (P2) enabling the BVME3500 to be inserted in a standard VMEbus backplane. There is an optional front panel, the serial connectors (11 x RJ11 & 1 x RJ45), LED's and switches being mounted at the front of the board, through the front panel (when fitted).

## BootFlash Programming

The FLASH EPROM on the BVME3500 can be programmed via the BDM interface on the master MC68EN360 using a Windows based program on a PC.

## Additional I/O

All slave MC68360 I/O connections are routed to the P2 I/O connector. This provides the option of synchronous serial I/O or other functions via external buffering.

## IP Expansion Interface

An IndustryPack expansion interface electrically and mechanically compatible with BVM's EXP100 IndustryPack Expansion module is available as an option.

## Watchdog

The software watchdog timer is internally available on the master MC68EN360 and can be programmed to generate either a level 7 interrupt or a SYSRESET.

## RTC

The Real Time clock is provided using a DS1315 shadowed under the FLASH memory even byte in the lower 1Mbyte FLASH bank. Battery power is from an on board lithium coin cell.

## Power Requirements

The BVME3500 is designed for 5 volt only operation, the choice of buffering and other logic devices has been made to minimise the power consumption. Power can be supplied either through the P1 connector (VMEbus power connection compatible), or via the separate power connector .

## EMC Consideration

The board has been designed to have low EMC emissions and good EMC immunity and is supplied CE marked.

## Software

An OS-9 Version 3.0.3 port is available complete with SCF drivers for the serial ports, ISP and SoftStax for the ethernet

port. For specialist applications the BVME3500 can be programmed and debugged directly via the BDM port using a number of third party software suites.

## Specifications

MC68EN360	Master Quad Integrated Communications Controller with Ethernet @ 32MHz. Background Debug Mode support.
MC68360	Slave Quad Integrated Communications Controller.
SERIAL	11 x RS232 serial ports. (5 from master 68EN360, 6 from slave 68360). Connection via front panel RJ11 connectors.
FLASH	1 or 2Mbyte (factory fitted), 16-bit wide, Bottom 128kbytes Boot protected.
SRAM	512kbytes or 2Mbytes CMOS SRAM, 32-bit wide, non-volatile for up to 10 years.
DRAM	4 or 8Mbytes (factory fitted) 32-bit wide.
EEPROM	X25020 256 x 8 bit non volatile storage, accessed via SPI on master 68EN360.
Real Time Clock	DS1315S battery backed (10 years)
LOCAL BUS TIMEOUT	Period 1024 CPU clocks (32mS)
Indicators / Switches	GREEN LED power indication GREEN LED indicates CPU activity RED LED user indication RESET/ABORT individual enable links IndustryPack™ Expansion Interface Supports four IndustryPack™ compatible sites on an expansion board (e.g. EXP100)
USER LINKS	Single IPs (16-bit) or Double IP (32-bit) 8MHz or 32MHz, software selectable Software programmable IP interrupts
PROGRAMMABLE OPTIONS	SRAM battery backup supply RESET switch enable ABORT switch enable EEPROM write protect FLASH boot block write protect P2 RESET enable P2 ABORT enable
Dimensions	160mm x 233.35mm (6U) single slot
Power	+5v, 1.2A typical, 1.5A maximum
Environmental	0 to 70°C, 95% humidity non-condensing (extended range to order)

