# BVME770/775

Communications Processsors

- Eight RS232/422 serial channels

- Uses 4 x 8530 or 85230 (BVME775) SCC devices

- Speeds up to 38.4Kbaud

- 68000 CPU with clock up to 16MHz

- 68450 DMA Controller (optional)

- Zero wait CPU access options

- 32K/128K/512K/1Mbyte static RAM dual port data buffer

- Battery backed Real Time Clock and periodic interrupt generation (BVME775)

- I/O via P2 with port 7 duplicated on front panel

- VMEbus system controller functions (BVME775)

- VMEbus Interrupter and handler

- Address pipelining support

- RESET and ABORT push button switches

- RED/GREEN status LEDs

- Conforms to VMEbus specification C.1

- Extensive OS-9 software available

- Firmware and stand-alone debugger available

The BVME770 provides all the resources required for use as an intelligent communications processor and/or a general purpose VMEbus CPU card or it may be used as a stand alone single board computer.
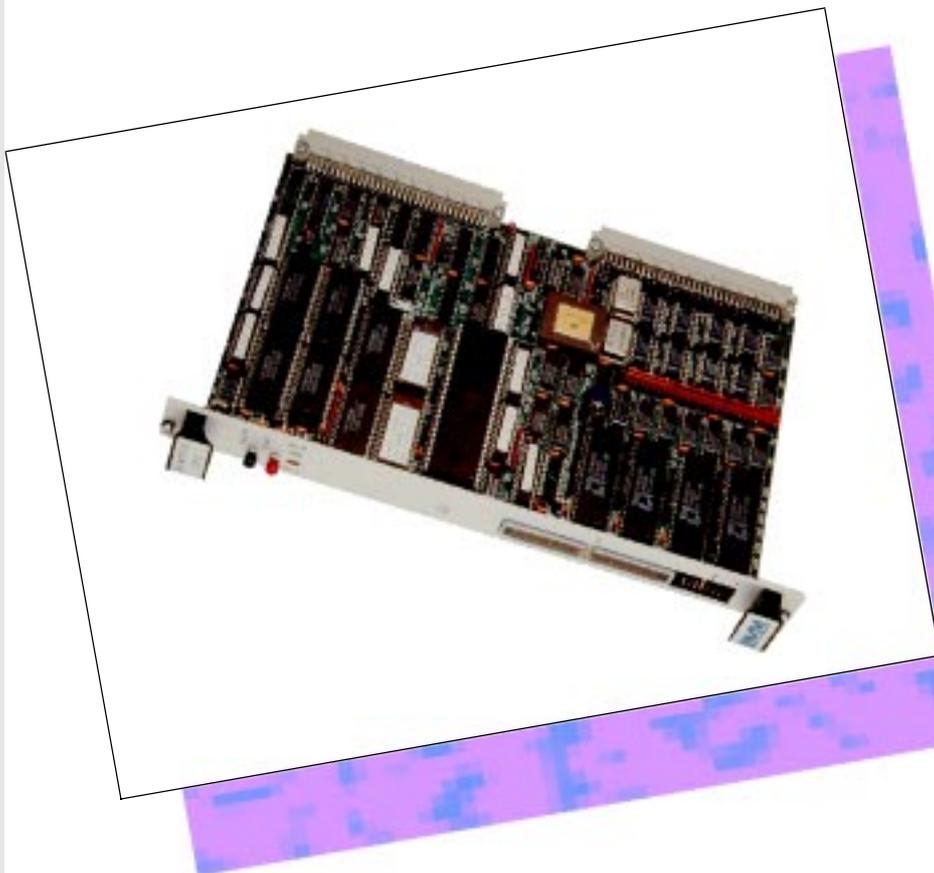
The BVME770 provides a 68000 CPU, DMA controller, zero wait PROM/RAM, 8 serial interfaces and a real time clock on its local bus. The dual-ported SRAM is accessable to the local bus and to the VMEbus and may act as an efficient communications buffer between the local CPU and the VMEbus. The local CPU or DMA may access the VMEbus as a bus master allowing general purpose VMEbus CPU applications. Its system controller functions and larger memory options enable the BVME775 to also act as the main system CPU.

BVM

CPU and Memory

The BVME770/775 use a 68000 CPU with clock speeds up to 16 MHz. Four 32-Pin sockets can be populated with JEDEC compatible SRAMs. This RAM is dual ported to the 68000 CPU, 68450 DMA controller and to the VMEbus. The dual port RAM allows one wait state on-board CPU access when not contending with the VMEbus. A further two JEDEC socket are available for the firmware EPROMs. These can accept up to 512Kbytes of code.

Serial Channels

Eight serial channels are provided, controlled by four SCCs. These can be either 8530 devices or for higher speed applications 85230 devices. The later have an eight byte FIFO minimising over-run condirions at high transfer rates. Pairs of channels can be selected as either RS232 or RS422 by changing the line driver buffer chips.

VMEbus Master Access

Byte or Word Master access may be made to Standard (A24) and Short I/O (A16) address space. Read Modify Write (RMW) cycles are supported.

The VMEbus daisy chain arbitration circuitry is optimised to allow very efficient multi-processor operation. VMEbus arbitration is normally configured to the Release on Request (ROR) method. This may be changed to Release When Done (RWD) by changing a PAL.

Because of the BVME770's efficient mode of arbitration control, ROR mode will normally provide the best bus utilization. RWD may be the more desirable method when it is required to downgrade the priority of BVME770 master access when it and other CPU's are constantly contending for the bus.

Interrupt Handler

The BVME770 may be configured to respond to VMEbus interrupts on any of the 7 VMEbus interrupt levels. VMEbus interrupts may be Auto or User vectored. A User vectored VMEbus interrupt causes the CPU to reply with a VMEbus Master interrupt acknowledge cycle. This cycle uses only the A1,A2,A3 address lines and is identified by the VMEbus /IAK signal that is broadcast in a similar way to the addresses. The A1,2,3 addresses indicate the address level being handled.

The interrupting device returns a an ID vector on the odd data byte. This is used as the user vector by the CPU.

The BVME770 may also be configured to be interrupted on VME ACFAIL or VME BCLR signals. These may only be Auto vectored Internal Interrupts. Internal CPU interrupts are generated on selected VMEbus interrupts, ABORT switch, Real time clock, DMA or Serial interface interrupts. VMEbus, DMA and Serial interface interrupts may be Auto or User vectored.

Interrupter

The BVME770 may generate VMEbus interrupts on any single level 1-7 and responds with a software programmable ID to the subsequent interrupt acknowledge cycle.

Status Register

A status register provides indication of the board number so that firmware may identify the board type and its available resources. The standard module returns a value of 77hex.

VMEbus System Controller Functions

The BVME770 provides a number of system controller functions that may be individually link selected.

SYSFAIL

Asserted on VMEbus RESET. On board sysfail generation turns the status LED to RED and is cleared by the CPU reading the status register.

RESET

Asserted if +5V falls below 4.7V. VMEbus RESET has a minimum asserted period of 500Msec.

ARBITRATION

The BVME770 can provide VMEbus single level arbitration.

SYSCLK

The BVME770 can provide a 16Mhz VMEbus SYSCLK by installing a crystal oscillator module in position X1.. Alternatively, the CPU clock may be selected to drive VMEbus SYSCLK.

Specifications

VMEbus Master/Slave
- A24,A16
- D16,D8(OE)
- AM6
- RMW

Interrupter
- D08(O) ROAK
- I(1-7) Single level, Hard link
- Status ID soft programmable

Interrupt Handler
- System controller functions
  - SGL arbiter level 3
  - ROR (RWD PAL selectable)
  - SYSCLK Drive
  - SYSFAIL Drive
  - SYSRESET Drive/Monitor power-up and switch
  - ACFAIL monitor
  - BCLR monitor

CPU
- 68000/68010 CPU up to 16MHz clock
- 68450 DMA controller option

Serial Controllers
- 4 x Z8530 Dual Serial interface controllers at 3.6864MHz (85230 option)
- RS232/422 operation
- Synchronous or asynchronous

RAM
- 2 x 28-pin CPU PROM sockets for 64/128/256/512K/1M bit PROMs
- 2 x 32-pin CPU RAM sockets for 8K/32K/128K/256Kb StaticDual Port RAM
- 4 x 32-pin Dual Port RAM sockets for 8K/32K/128K/256Kb SRAM

Internal bus timeout period
- 512 uSec

VMEbus RESET minimum period
- 500 mSec

STATUS LED
- Green OK / Red SYSFAIL (Un-initialised status)

RESET switch.

ABORT switch
- (Level 7 interrupt).

Links
- DPR Base Address decode
- PROM type
- System controller functions
- Interrupt source/destination.
- DMA request selection
- RS232/422 serial buffer operation
- Serial buffer synchronous clock source/destination
- CPU/DMA/Serial/VMEbus Clock source selection

Dimensions
- 160mm x 233.35mm Single slot

Power

+5v	2 Amps	
+12V	0.0 Amp RS-422	
+12V	0.2 Amp RS-232	

Environmental
- 0 to 70# C
- 5 to 95% humidity non-condensing

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