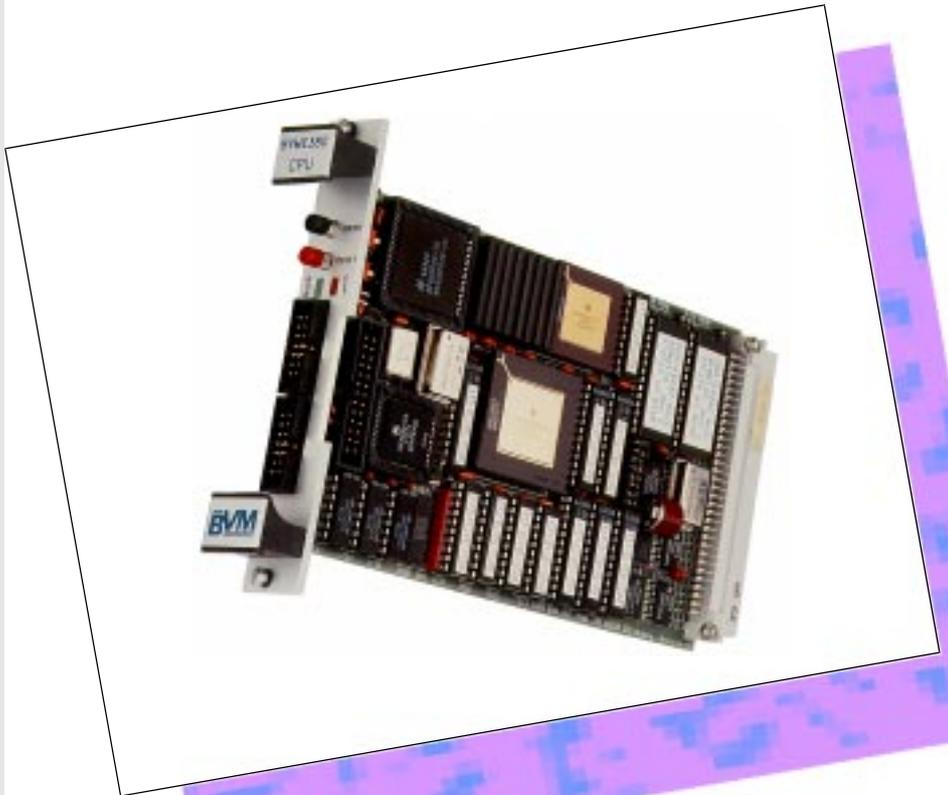


BVME370/380

68EC030/68030 CPU Module

- 68EC030 or 68030 32-bit CPU with data caching
- Clock Speeds up to 40MHz
- Memory Management
- 68882 Enhanced Floating Point Co-Processor option
- 4Mbytes dual ported DRAM
- Supports cache burst filling
- 512Kbytes EPROM (1Mbyte option)
- Battery backed real time clock
- 128bytes Non Volatile writable memory - EEPROM
- Dual RS232 serial ports (RS422 & RS485 options)
- Interrupt driven Centronics compatible 8-bit printer port
- 16-bit Counter/Timer
- VMEbus Interrupter
- Optimised master/slave VMEbus Interface
- Address pipelining support
- Interrupt Handler
- Location Monitor - Mailbox Interrupts
- Watchdog Timer
- System Controller Functions
- Single Eurocard 3U form factor
- Extensive support for OS-9 including multi-processor
- FBUG+ monitor/debugger available
- Fully compatible with VMEbus specifications rev.C.1.

The BVME370 and BVME380 form a family of 32 bit processors based on the 68EC030/68030 CPUs. They are general purpose processor modules with full master/slave VMEbus interface offering excellent price and performance for many applications.



The BVME380 uses the full 68030 CPU which includes a memory management unit providing hardware memory protection, whilst the BVME370 uses the 68EC030 and is particularly suitable for cost effective embedded applications. Each is available with a variety of processor clock speeds up to 40MHz, and all units can be fitted with the optional 68882 floating point co-processor.

The 4MBytes of high speed DRAM are dual ported onto the VMEbus and the slave interface also supports "mailbox" interrupts, making it particularly suitable for multi-processor applications.

The architecture is kept similar to other CPUs in the BVME3xx family, allowing straightforward upward or downward migration as application performance requirements dictate.

CPU

The CPU is a 32 bit 68EC030 or 68030 with clock speeds available up to 40MHz. Both offer the same facilities except the 68030 incorporates a hardware memory management unit. The optional 68882 co-processor can be clocked at the CPU speed or at half speed via link selection.

Memory

The memory is implemented using eight 4Mbit chips to provide 4Mbytes of 32bit wide DRAM. This is dual ported between the on-board processor bus and the VMEbus.

For stand-alone applications or for boot-code, up to 512Kbytes (1Mbyte option) of EPROM space is provided via two 32 pin JEDEC sockets (giving 16 bit word-wide accesses). Additionally 128bytes of non-volatile writable EEPROM is provided which typically could be used to store configuration data.

Serial Ports

Two RS232 ports are fitted as standard. Each has three handshake lines and supports baud rates up to 38.4Kbaud. Optional plug-in modules allow either or both ports to be re-configured as RS422 or RS485. These are presented on 14 pin boxed headers on the front panel providing pin compatibility to 25 way 'D' connectors via ribbon cable.

Parallel Printer port

A Centronics compatible eight bit output printer port with handshaking is included. This is again available on a boxed header adjacent to the front panel.

Calendar Clock

A battery backed Calendar Clock and a 16-bit counter timer are provided for real time multi-tasking applications.

Watchdog Timer

A watchdog timer circuit is provided to protect against software loops or crashes. Once initialised, by setting a bit in the control register, it must be refreshed within 900ms by writing to the register again, otherwise the CPU will be reset.

VMEbus Interface

The BVME370/380 has a master/slave VMEbus interface. It is able to drive SYSCLK and has an efficient single level (SGL) arbitration allowing it to operate as

the system controller. The VMEbus arbitration is normally configured to be Release on Request (ROR) but can be changed to Release When Done (RWD) (factory fit option). Both schemes use FAIR requesting ensuring each master in the system has an equal chance of obtaining the bus.

Mailbox interrupts are provided whereby the processor is interrupted whenever an assigned block of memory is accessed from the VMEbus. This provides an efficient method of communication between processors in multi-processor systems.

Interrupt Handler

The BVME370/380 may be configured to respond to interrupts on any of the seven VMEbus interrupt levels. These interrupts may be Auto or User vectored. Internal CPU interrupts are generated on selected VMEbus interrupts, ABORT switch, Mailbox, parallel and serial interfaces and timer interrupts.

VMEbus Interrupter

The BVME370/380 can also generate VMEbus interrupts on any programmable single level 1-7 and respond with a software programmable ID to the subsequent interrupt acknowledge cycle.

Writing the ID to the interrupt ID vector register causes a VMEbus interrupt to be generated on the selected level.

Software

Extensive OS-9 software is available for the BVME370/380 both for embedded applications and disc based development environments. BVM's TargetLink development suite provides the tools needed for producing and debugging target firmware under OS-9.

For the development of stand-alone code FBUG+ firmware based debug/monitor provides the the necessary tools for simple program loading and debugging.

Specifications

Processor

MC68EC030 or MC68030 32 bit CPU
20,25,33,40MHz CPU clock options
68882 FPU option

Serial ports

Dual serial interfaces
Uses a 68681 device at 3.6864MHz
RS232 (RS422 or RS485 options)

EPROM

2 x 32-pin CPU PROM sockets 64K to 2Mbit
(4Mbit option with alternate memory map)

DRAM

4 Mbytes 32-bit wide
Supports 68030 cache burst fill

VMEbus Master/Slave

MA24, MRMW16, SRMW16
A24,A16:D16,D8 (OE)
AM6
RMW

Interrupter

D08 (O) ROAK
I(1-7) Single level, link selectable

Status ID soft programmable

Interrupt Handler

PAL selectable

System controller functions

Arbiter Single level
FAIR ROR (RWD option)
SYSCLK Driver
SYSRESET Drive/Monitor power-up and switch
ACFAIL monitor option
VMEbus timeout = 128µSec
VMEbus RESET period = 500mSec

Status LED's

Red Master access on VMEbus
Green Watchdog not timed out

RESET switch

ABORT switch (level 7 interrupt)

Links

PROM type
System controller functions

Dimensions

160mm x 100mm Single slot

Power

+5V 2.0 amps typical
+12V 10mA typical

Environmental

0 to 70°C.
5-95% humidity non-condensing
(extended ranges to special order)

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