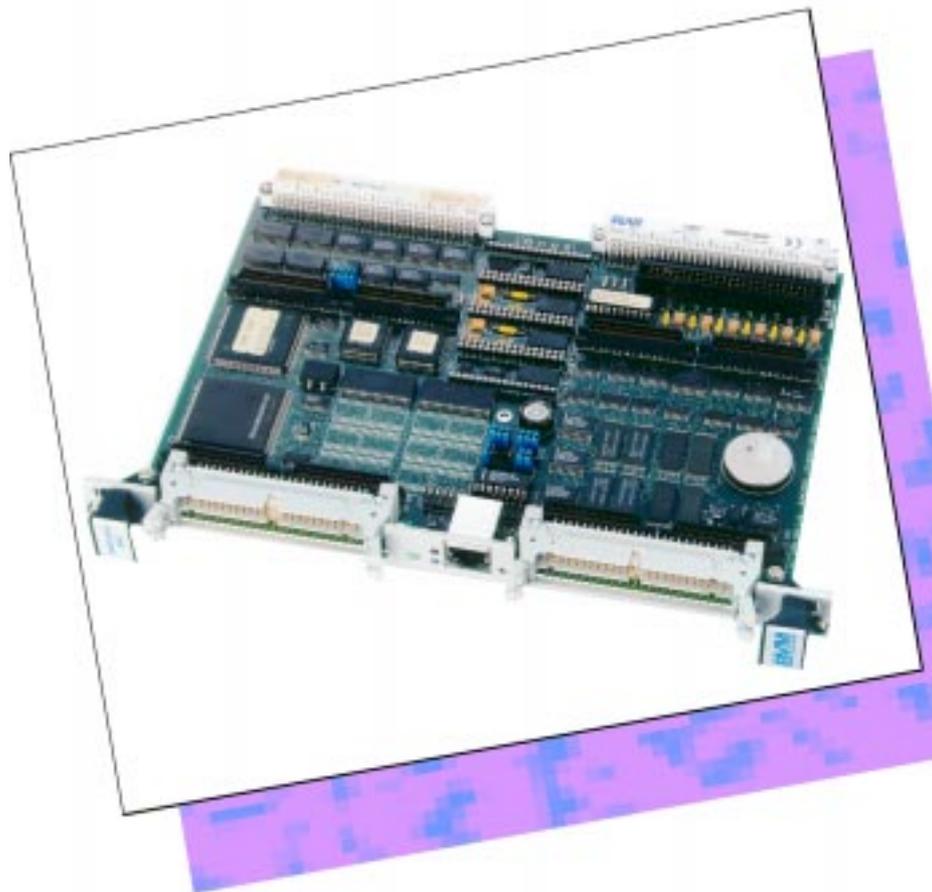


BVME3000

68360 SBC with IndustryPacks

- MC68EN360 CPU with 32MHz Clock
- 4 SCCs
 - 10Mbps ethernet
 - RS232/422/485 synch/asynch
 - X25
 - ISDN
- 2 SCMs for extra serial interfaces
- SPI Serial peripheral interface
- PIP 18 bit parallel interface
- 4/8/12/16Mbytes 32bit DRAM
- 1 or 2Mbytes boot sector Flash
- 512Kbytes non-volatile SRAM dual ported onto VMEbus
- 256byte EEPROM for configuration settings
- 4 x 32 pin JEDEC expansion sockets
- LED indicators
- Real time Clock battery backed
- Four 16bit IndustryPack sites with
 - 8/32MHz operation
 - Double height 32bit access
 - DMA on 2 sites
- Optimized VMEbus A24/D16 master/slave interface
- Single slot 6U form factor
- Non-VMEbus standalone option RP3000
- Comprehensive OS-9 software support
- Extensive low level software support using the BDM interface

The BVME3000 is a cost effective CPU module providing a good level of CPU performance with a wealth of I/O capability. The heart of the module is the MC68EN360 Quad Integrated Communications Controller (QUICC).



The QUICC offers a range of serial and ethernet communications options built around a 68020 processor core. As a very popular processor the 68360 has extensive third party software available in addition to the OS-9 port from BVM. Also the Background Debug Mode (BDM) enables standalone code to be developed on various host machines and downloaded into the BVME3000 DRAM or Flash for development purposes or field upgrades.

A wide range of I/O requirements can be catered for by the addition of up to four standard plug-on IndustryPack modules.

Processor

The BVME3000 is fitted with the 68EN360 Quad Integrated Communications Controller (QUICC) running at a clock speed of 32MHz. This device is fitted with the Ethernet protocol which allows Ethernet on any one channel of the 4 SCC's.

QUICC I/O Features

The 68360 can be programmed to provide a selection of features. The 4 SCCs can, with external buffering, provide any of the following on each channel :-

- 10Mbps Ethernet
- Synchronous/Asynchronous RS232/422/485
- ISDN
- X25
- 2 SMCs can each provide an extra transparent serial interface. (This option is available if IP DMA is not enabled.)
- 4 General Purpose Counter Timers. 1 used as VMEbus Timeout option
- SPI Serial Peripheral Interface
- 18 bit Parallel Interface Port (PIP) which provides:-
- 8/16 bit parallel interface with handshake capability Centronics compatible

All functions described can be deselected to provide general purpose I/O lines, including 12 interrupt sources. It is not possible to include all the features, because many of the 68360's I/O pins have multiple functions. The I/O is available via the P2 Connector.

Memory

Non Volatile RAM

512 Kbytes of non volatile 32 bit wide SRAM.

FLASH EPROM

1 or 2 Mbytes (factory fit option) of Boot Sector FLASH Memory. The boot section is programmed via the BDM interface.

DRAM

4/8/12/16 Mbytes (factory fit option) of 32 bit wide DRAM.

EEPROM

256 Bytes of non-volatile PROM used for configuration settings.

EXPANSION

Four 32 pin JEDEC sockets for EPROM, SRAM and FLASH devices up to 1024K x 8 selected by a PLD.

VMEbus

System Control

Full system controller functions are provided including a Single level Arbiter and generation of RESET, SYSCLK and Bus timeout BERR.

Bus Master

A24/A16 : D16/D8 Programmable interrupt handler.

Bus Slave

A24 : D16/D8 SRAM dual ported at a programmable 512 Kbyte boundary onto the VMEbus.

Interrupter

Generates vectored interrupt on one of seven software selectable levels.

Location Monitor

Generates local Interrupt if specific VMEbus location is accessed.

IndustryPack

Four IndustryPack sites are provided which support the full specification including the following options:-

- 8/32MHz operation
- Double height 32-bit access supported
- DMA support for sites A and C

Internal Interrupts are supported on two levels, features are software selectable. The I/O is available via 50 way Double stacked 2.54mm Pitch connectors, mounted through the front panel.

BVM Limited

Hobb Lane, Hedge End,
SOUTHAMPTON,
SO30 0GH, UK
Tel +44 (0)1489 780144
Fax +44 (0)1489 783589

General

Watchdog

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

Power Supply Monitor

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

Reset/Abort

An abort header is available for the fitting of an external switch. The on-board reset switch controls the MAX791 while Abort provides an auto vectored level 7 interrupt. The connections are also available on the QUICC I/O Connector.

RTC

The Real Time clock is supplied to the QUICC for Real Time multi-tasking applications.

Serial Port

A Serial channel is provided on the baseboard for single board solutions. The Port is configured for RS232 operation, however the port can be fitted with a field change buffer module to provide a non-isolated RS422/485 interface.

LED Indication

The Green LED Indicates the Processor is running valid code. The Red LED indicates IndustryPack accesses.

Connections

Serial Port

Serial connection is via an RJ45 connector mounted through the front panel. This enhances the EMC performance of the product.

IndustryPack I/O

IndustryPack I/O can be accessed via four 50 way, 2.54mm pitch, double stacked IDC connectors mounted through the front panel.

QUICC I/O

QUICC I/O can be accessed via the P2 connector. The connection for any transition module is also made available via a boxed header for ribbon cable connection.

Transition Module

The transition modules are intended for mounting through the rear or front panel of the system enclosure and connect to the BVME3000 via a 60 way ribbon cable.

The features of the transition modules are varied but include some of the following:-

- Ethernet (10base2 10base5 10baseT)
- Synchronous / Asynchronous RS232
- Synchronous / Asynchronous RS422
- Synchronous / Asynchronous RS485
- BVM Isolated FieldLink Interface
- X25
- ISDN
- Digital I/O including Centronics
- Counter Timers
- SPI

RP3000 Variant

The BVME3000 is also available as a non-VMEbus version, the RP3000. This is designed for use in local network nodes or for embedded applications. The RP3000 has the VMEbus connectors and buffer logic removed and a screw terminals added for power connection.

Specification

CPU

MC68EN360 QUICC with Ethernet @ 32Mhz
Background Debug Mode support

MEMORY

FLASH 1 or 2Mbyte 16-bit wide
Bottom 128Kbytes Boot protected
SRAM 512Kbytes CMOS SRAM, 32-bit wide non-volatile for up to 7 days
DRAM 4/8/12/16 Mbytes 32-bit wide
EXPANSION 4off 32pin JEDEC compatible sockets. Support 70nS -100nS devices
EEPROM X25020 256 x 8 bit non volatile storage. Accessed via the SPI interface on the MC68EN360

RT Clock

DS1215S Timer Clock Peripheral Battery backed for 10 years

VMEbus Interface

Single Level 3 Requester
A24, A16:D16, D08(E0) Master
A24:D16, D08(E0) Slave
RMW
AM6
LOCATION MONITOR

VMEbus System Controller Functions

ARBITER: SGL, level3, FAIR ROR
SYSCLK Driver
SYSRESET Driver/Monitor power-up and switch
VMEbus RESET minimum period = 200µS
BUS TIMEOUT period 128mS
ACFAIL monitor (level 7 auto-vectored interrupt)

VMEbus Interrupts

Interrupter D08(O) ROAK
I(1-7) single level, software programmable
Interrupt vector ID, software programmable
Interrupt handler D08(O): I(1-7) all levels software maskable

IndustryPack Functions

Four IndustryPack compatible sites
4 x Single IPs (16-bit) or 2 x Double IP (32-bit)
8MHz or 32MHz, software selectable
IP DMA to local memory support
Front panel IP I/O connections

Serial Ports

RS232 controlled from SCC4 on the MC68EN360
Connection via RJ45 socket through the Front Panel
Up to 6 RS232/485 via transition module

Ethernet

10base2, 10base5, 10baseT via transition module

LEDs

Red indicates CPU access
Green indicates IndustryPack status

Switches

RESET
ABORT header (level 7 auto-vectored interrupt)

Dimensions

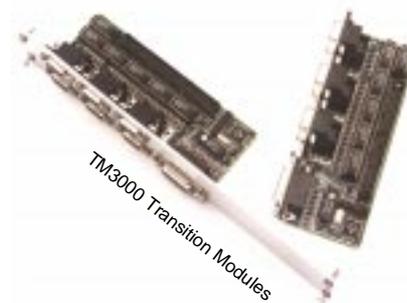
160mm x 233.35mm (6U) single slot

Power

+5v 1.6A Typ (full memory)
+12V 0mA Max
-12V 0mA
(excluding IP and Transition Module requirements)

Environmental

0 to 70 °C, 95% humidity non-condensing



TM3000 Transition Modules

