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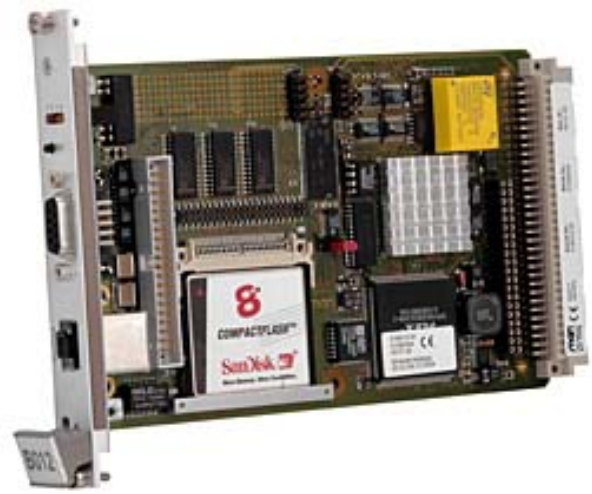
B12 - 3U VMEbus PowerPC SBC



- **MPC823e/66MHz**
- **1-slot VMEbus master/slave or busless**
- **128MB DRAM, 32MB Flash, CompactFlash**
- **10Mbit Ethernet**
- **3 COMs, 3 CAN**
- **1 M-Module slot**
- **CANopen support**

- **Full EN50155 compliance**

The B12 is a VMEbus single Eurocard industrial computer designed to operate under harsh environmental conditions, e.g. in trains.

The B12 is controlled by a PowerPC MPC823e microprocessor which operates at 66MHz. It provides 32MB SDRAM for data and up to 32MB Flash memory for program storage.

32KB non-volatile FRAM can be used to periodically store operating data. There is no loss of operating data if system power is switched off.

The B12 gives access to the serial communication ports of the MPC823e. These include two RS232 ports and a 10Base-T Ethernet interface on the board. In addition, the B12 offers three CAN controllers and an RS422/485 interface accessible at the front panel. All of these interfaces are optically isolated.

The B12 CPU board is prepared for master and slave operations on the VMEbus. It is equipped with a real-time clock, temperature sensor and a voltage supervisor. Board configuration data is stored in a 4kbit serial EEPROM.

The B12 is fully compliant with EN50155 and thus an ideal computer for railway applications.

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Technical Data

CPU
- PowerPC
  - MPC823e
  - 66MHz CPU clock
  - 33MHz memory clock

Memory
- SDRAM 32MB
  - 32 bits
  - 3.3V
- Flash up to 32MB
  - 32 bits
  - 3.3V
- Non-volatile FRAM 32KB
  - 8 bits
  - 5V
- Serial EEPROM 4kbit
  - For factory settings
- CompactFlash (TM) interface (true IDE)
- PCMCIA/PC-Card interface

Interfaces
- Two serial RS232 interfaces COM1/COM2
  - Optically isolated
  - One 9-pin D-Sub connector at front panel
- Ethernet
  - 10Base-T
  - One RJ45 connector at front panel
- IDE
  - For external hard disk drives
  - Ribbon cable connection
- Three SJA1000 CAN controllers
  - CAN 2.0B functionality, Extended CAN
  - Max. data rate 1Mbits/s (ISO high speed)
  - Ribbon cable connection or via single adapter cards at front panel (on request)
- One serial RS422/RS485 interface COM3
  - Half-duplex or full-duplex operation
  - Physical interface using SA adapter via 10-pin ribbon cable, RS232..RS485, isolated or not, for free use in system (cable to front or back)

M-Module Extension
- One M-Module mezzanine extension slot
- Compliant with M-Module Standard
- Characteristics: A08, D16, INTA

VMEbus
- Master D08(EO):D16:A24:A16:RMW; transfer rate max. 7MB/s
- Slave D08(EO):D16:A24:BLT
- Interrupter D08(O):I(7-1):ROAK
- Interrupt handler D08(O):IH(7-1)
- Slot-1 autodetection
- Level 3 arbiter, bus timer, arbitration timer
- VME requester

Miscellaneous
- Real-time clock
- Watchdog
- Four front-panel LEDs
- Reset button at front panel
- Temperature sensor for in-system diagnosis

Electrical Specifications
- Supply voltage/power consumption:
  - +5V (4.75V..5.25V), 0.6A typ.
- MTBF: tbd. @ 50°C

Mechanical Specifications
- Dimensions: standard single Eurocard, 100mm x 160mm
- Weight: 160g

Environmental Specifications
- Temperature range (operation):
  - 0..+60°C or -40..+85°C
  - Airflow: min. 10m³/h
- Temperature range (storage): -40..+85°C
- Relative humidity range (operation): max. 95% non-condensing
- Relative humidity range (storage): max. 95% non-condensing
- Altitude: -300m to + 3,000m
- Shock: 15g/0.33ms, 6g/6ms
- Vibration: 1g/5..2,000Hz

Safety
- PCB manufactured with a flammability rating of 94V-0 by UL recognized manufacturers

EMC
- Tested according to EN 55022 / 1999-05 (radio disturbance) and EN 55024 / 1999-05 (immunity) with regard to CE conformity

Software Support
- MENMON
- VxWorks
- OS-9

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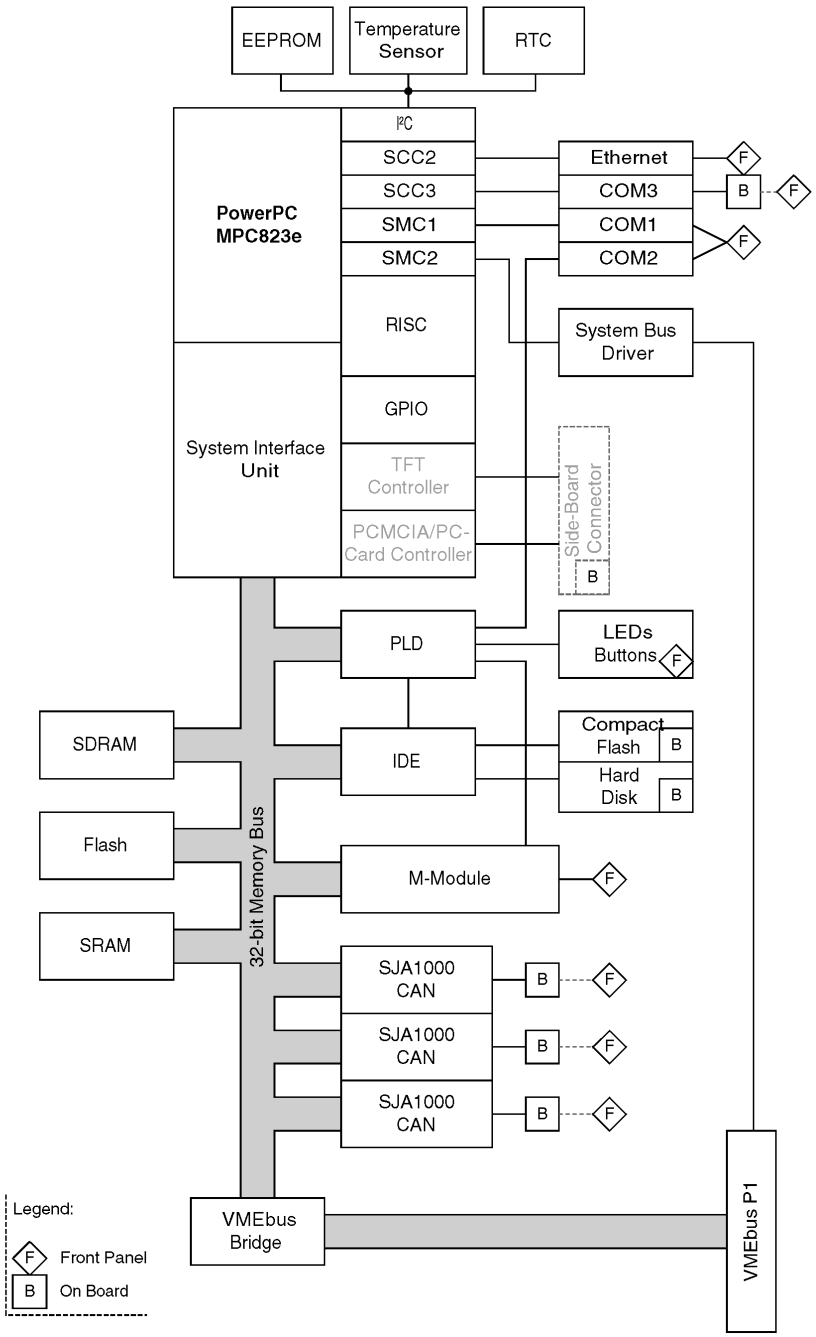
Diagram



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Related Products

Standard Hardware

01B012-02	B12, VMEbus 3U, MPC823/66MHz, 32MB SDRAM, 8MB Flash, 32KB SRAM, 4KB EEPROM, CompactFlash slot Type I, 2 RS232, Ethernet, 4 LEDs, 1 push button, M-Module slot, 1-slot front panel EMC, temperature range: 0..+60°C
01B012-03	B12, VMEbus 3U, MPC823/66MHz, 32MB SDRAM, 8MB Flash, 32KB SRAM, 4KB EEPROM, CompactFlash slot Type I, 2 RS232, Ethernet, 4 LEDs, 1 push button, M-Module slot, 1-slot front panel EMC, temperature range: -40..+85°C, E2 suitable components

Please refer to our 3U VMEbus compare chart for a selection of further single-board computers with different processors and on-board functionality.

Systems & Card Cages

Disk drives for basic systems are delivered as requested. Different rack sizes, power supplies and backplanes on request.

0700-0004	CE-conformal housing for VMEbus 3U: MENCOMP6-BGT: closed 19" rack, 4U, 9 slots, J1 backplane, power supply 230V, fan, incl. power cable no. 6080-0020
0700-0009	CE-conformal housing for VMEbus 3U: closed 19" rack, 4U, 9 slots, J1 backplane, power supply 230V, fan

Accessories

05B012-00	Accessory kit for B12: 2-slot front panel, mounting kit for 1 M-Module and 1 SA adapter, cover plates for M-Module and SA adapter
05M000-17	25 mounting screw sets to fix M-Modules on carrier boards
0500-0001	Battery M4T32... for Timekeeper M41T11 (spare part)
0751-0006	CompactFlash card, 512MB, Type I, 0..+60°C
0751-0007	CompactFlash card, 512MB, Type I, -40..+85°C
0751-0008	CompactFlash card, 64MB, Type I, 0..+60°C
0751-0009	CompactFlash card, 128MB, Type I, 0..+60°C
0751-0012	CompactFlash card, 256MB, Type I, 0..+60°C
0751-0013	CompactFlash card, 64MB, -40..+85°C
0751-0014	CompactFlash card, 128MB, -40..+85°C
0751-0018	CompactFlash card, 256MB, Type I, -40..+85°C

Related Products

08SA01-00	Serial interface adapter, RS232, not optically isolated, 0..+60°C
08SA02-00	Serial interface adapter, RS422/485, half duplex, optically isolated, 0..+60°C
08SA02-01	Serial interface adapter, RS422/485, full duplex, optically isolated, 0..+60°C
08SA02-07	Serial interface adapter, RS422/485, full duplex, optically isolated, temperature range: -40..+85°C
08SA03-00	Serial interface adapter, RS232, optically isolated, 0..+60°C
08SA03-01	Serial interface adapter, RS232, optically isolated, -40..+85°C
08SA04-00	Serial interface adapter, TTY, optically isolated, 0..+60°C

For more functions realized with SA adapters, see the listing on MEN's website. You can also view our SA adapter compare chart for a quick overview of different functions. Please contact sales to make sure that these SA adapters can be used in the board configuration you are looking for.

Software

10B012-01	OS-9(000) 3.x: BSP for B12 (object code, MEN)
10B012-60	VxWorks® V.5.4(.2) / Tornado 2.(0.2) BSP for B12

VxWorks® software for this MEN board is available from WindRiver Systems. This does not imply that the complete board functions have been tested in this environment, nor that specific MEN BSP or driver packages are available. If you don't find ordering numbers for additional VxWorks® BSP or driver packages provided or recommended by MEN, please contact sales.

For OS-9 BSP and driver support provided by MEN please refer to the ordering numbers below.

MEN has vast experience with CANopen-based implementations on standard and custom boards and systems. The CANopen protocol stack on MEN solutions runs under Windows®, Linux, VxWorks®, QNX®, OS-9 and other software environments. You will find more information about CANopen under www.can-cia.org/canopen.

14B012-00	MENMON (Firmware) for B12 (object code)

You can download the data sheet for the MENMON firmware for PowerPC platforms from MEN's website.

Documentation

20B012-00	B12 user manual

For the most up-to-date ordering information and direct links to other data sheets and downloads, see the B12 online data sheet under www.men.de. --> Click here!

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