

D3b - 6U CompactPCI PowerPC SBC with M-Modules



- ◆ PowerPC MPC8245 with 603e core
- ◆ 1-slot CompactPCI system slot
- ◆ 512MB DRAM, CompactFlash
- ◆ Dual Fast Ethernet
- ◆ 4 COMs, USB, IDE, keyboard/mouse
- ◆ 3 M-Module slots

The D3 is a single-board computer for embedded applications based on the Kahlua II PowerPC. It can be used in a CompactPCI system slot or as a stand-alone card.

The D3 comes with the MPC8245 PowerPC with 300MHz clock frequency and a local 32-bit/33-MHz PCI data bus. It is a complete state-of-the-art SBC offering DRAM, Flash and CompactFlash memory, dual Fast Ethernet, 4 COMs, USB, IDE and keyboard/mouse interfaces as well as an optional onboard hard disk.

In addition, the D3b CPU board can be equipped with M-Module mezzanine cards. M-Modules are recommended for real-world I/O like analog/binary process I/O and instrumentation I/O. The modular combination of I/O functionality on a single-board computer allows to build up tailored control systems which appear as customized solutions based on standard components. Depending on the kind of I/O requirements, further standard versions of D3 are available for other mezzanine standards.

Technical Data

CPU

- PowerPC
 - MPC8245
 - 300MHz

Memory

- Level 1 Cache integrated in MPC8245
- SO-DIMM slot for up to 512MB SDRAM
- 100MHz memory bus operation
- Flash 2MB
 - 8-bit data bus
- Serial EEPROM 2KB for factory settings
- CompactFlash (TM) card interface for Flash ATA (true IDE) via on-board IDE

Interfaces

- Two 10/100Mbps/s Ethernet channels
 - Intel 82559ER
 - RJ45 at front panel with two LEDs
- One UART RS232 serial interface (COM1)
 - 16-byte send/receive buffer
 - RJ45 at front panel
- One UART (COM2)
 - 16-byte send/receive buffer
 - Physical interface using SA adapter via 10-pin ribbon cable on I/O connector
 - RS232..RS485, isolated or not: for free use in system (e. g. cable to front)
- Two MPC8245 UARTs
 - Accessible via I/O connector
- IDE port for hard disk drives
 - Drive can be connected via ribbon cable or mounted directly on the CPU board using MEN's adapter kit
 - Only one CompactPCI slot needed even with hard disk
- Keyboard/mouse
 - PS/2 compatible
 - External adapters for line drivers required
- USB port
 - External line drivers

Local PCI Bus

- PCI Spec. 2.2 compliant
- 32-bit data bus, 33MHz, 3.3V

CompactPCI Bus

- CompactPCI system slot
 - PICMG Spec. 2.0 R3.0 compliant
 - 32-bit data bus
 - 33MHz
- V(I/O): +3.3V or +5V (Universal Board)
- Concurrent primary and secondary bus operation

- Compact PCI hot-swap support

PXI

- Two trigger lines compliant with PXI Specification

Mezzanine Extensions

- D3a: three PC-MIPs Type I/II on local PCI bus
 - Compliant with PC-MIP specification
- D3b: three M-Modules
 - Compliant with M-Module standard
 - Characteristics: D16, D32, A08, A24, INTA, INTC
- D3c: two PMCs
 - Compliant with PMC standard IEEE P1386

Miscellaneous

- Serial real-time clock with integrated 56-byte NVRAM
- Serial hardware watchdog in supervisory circuit
- Temperature sensor
- Hex switch for user settings
- User LEDs (external)

Electrical Specifications

- Supply voltage/power consumption:
 - +5V (4.85V..5.25V), 1.65 A typ.
 - ±12V for mezzanines only, tbd.
- MTBF: 63,000h @ 50°C

Mechanical Specifications

- Dimensions: standard double Eurocard, 233.3mm x 160mm
- Weight (without mezzanines and accessories):
 - D3a: 318g
 - D3b: 315g
 - D3c: 315g

Environmental Specifications

- Temperature range (operation):
 - 0..+60°C or -40..+85°C
 - Airflow: min. 10m³/h
- Temperature range (storage): -40..+85°C
- Relative humidity (operation): max. 95% non-condensing
- Relative humidity (storage): max. 95% non-condensing
- Altitude: -300m to + 3,000m
- Shock: 15g/11ms
- Bump: 10g/16ms
- Vibration (sinusoidal): 2g/10..150Hz

Safety

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

Technical Data

EMC

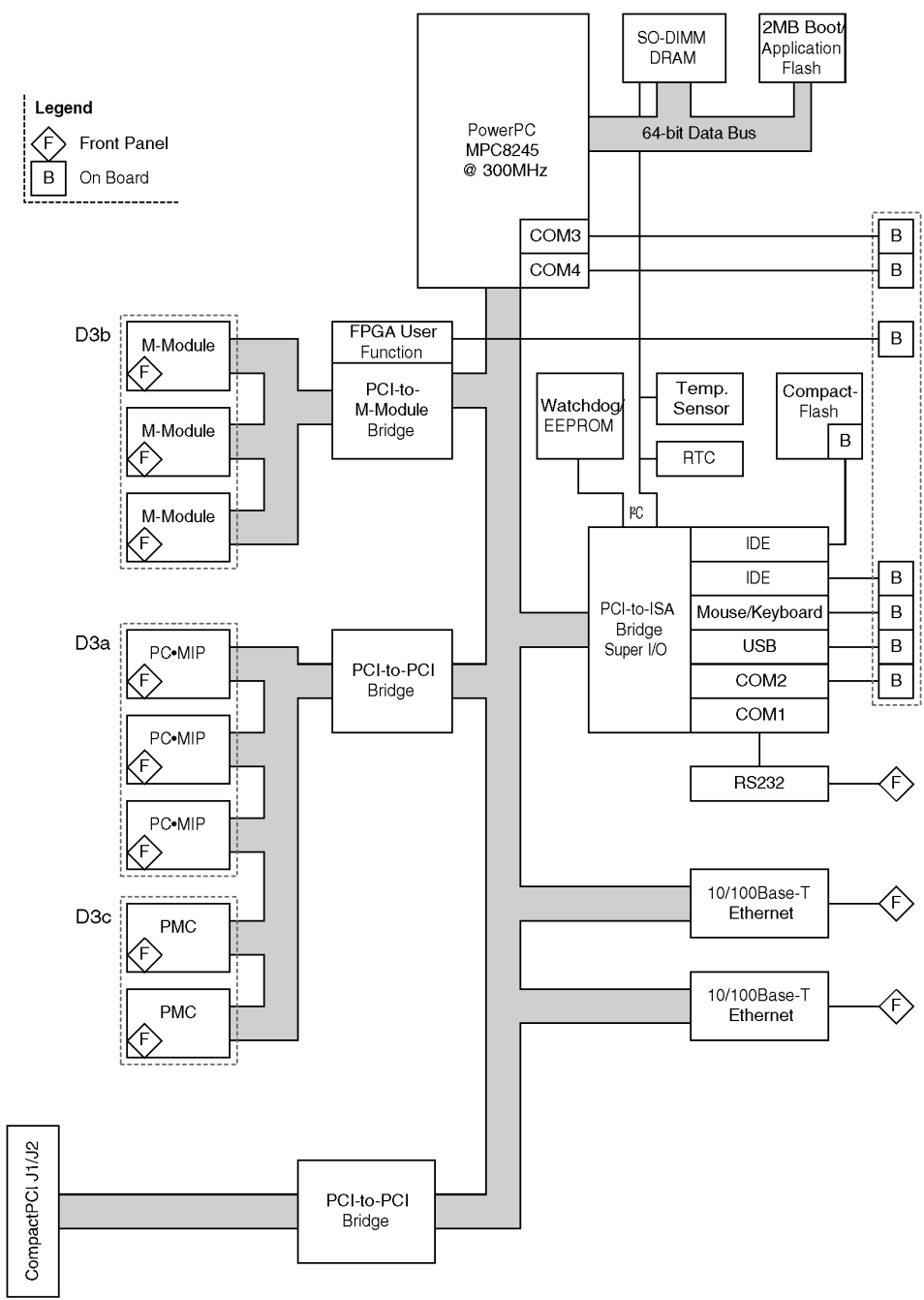
- Tested according to EN 55022 (radio disturbance), IEC1000-4-2 (ESD) and IEC1000-4-4 (burst) with regard to CE conformity

Software Support

- MENMON
- Linux
- VxWorks
- QNX
- OS-9

Diagram

Embedded Solutions



Related Products

Standard Hardware

| | |
|-----------|--|
| 02D003A00 | D3a, CompactPCI 6U, single-board computer, CPU MPC8245-300MHz, 2MB Flash, 3 PC-MIP slots, 0..+60°C |
| 02D003A01 | D3a, CompactPCI 6U, single-board computer, CPU MPC8245-300MHz, 2MB Flash, 3 PC-MIP slots, -40..+85°C |
| 02D003B00 | D3b, CompactPCI 6U, single-board computer, CPU MPC8245-300MHz, 2MB Flash, 3 M-Module slots, 0..+60°C |
| 02D003B01 | D3b, CompactPCI 6U, single-board computer, CPU MPC8245-300MHz, 2MB Flash, 3 M-Module slots, -40..+85°C |
| 02D003C00 | D3c, CompactPCI 6U, single-board computer, CPU MPC8245-300MHz, 2MB Flash, 2 PMC slots, 0..+60°C |
| 02D003C01 | D3c, CompactPCI 6U, single-board computer, CPU MPC8245-300MHz, 2MB Flash, 2 PMC slots, -40..+85°C |

Please refer to our 6U CompactPCI 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.

| | |
|-----------|---|
| 0701-0004 | CompactPCI 19" 3U rack-mount enclosure, 5-slot 6U CompactPCI midplane, ATX power supply, fan, 2 batteries; obsolete as of October 13, 2004 |
| 0701-0010 | CompactPCI 19" 7U/84HP rack-mount enclosure for 6U cards vertical, 8-slot 6U CompactPCI backplane, system slot left, prepared for rear I/O, space for hard-disk drive, floppy drive, CD-ROM drive, 300W ATX power supply, incl. 1U fan tray |

Accessories

| | |
|-----------|--|
| 05AD67-00 | IDE mounting kit 44-pin to 44-pin; 50.8 mm; installation kit for Kahlua Box or A12, D3, A15 with AD67, temperature range: -40..+85°C |
| 05A012-00 | Hard disk 2.5", 9.5mm adapter for A12, D3, SC13 |
| 05A012-01 | Mounting kit for 2 SA adapters for A12/A15/D3, incl. 6U 1-slot VME or CompactPCI front panel incl. ribbon cable, without SA adapters |
| 05F006-00 | RS232 interface cable 9-pin D-Sub plug to 8-pin RJ45 plug, 2m |
| 05M000-17 | 25 mounting screw sets to fix M-Modules on carrier boards |

Related Products

You can download the data sheet for hard disk 0710-0012 from MEN's website.

| | |
|-----------|--|
| 0710-0009 | IDE hard disk 2.5", 9.5mm, 20GB; for mounting on-board (harddisk mounting kit may be additionally required) |
| 0710-0012 | Industrial IDE hard disk 2,5", 40GB, 24 hours/7 days, 0..+60°C; for on-board mounting (hard disk mounting kit may be required additionally) |
| 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 | Compact Flash card, 64MB, -40..+85°C |
| 0751-0014 | Compact Flash card, 128MB, -40..+85°C |
| 0751-0018 | CompactFlash card, 256MB, Type I, -40..+85°C |
| 0752-0048 | 64MB DRAM 0..+60°C for 02D003x00 |
| 0752-0049 | 128MB DRAM 0..+60°C for 02D003x00 |
| 0752-0050 | 256MB DRAM 0..+60°C for 02D003x00 |
| 0752-0051 | 512MB DRAM 0..+60°C for 02D003x00 |
| 0752-0132 | 512MB DRAM -40..+85°C for 02D003x01 |
| 08AD67-01 | I/O extension 19" 6U 4HP incl. 1 USB connector, 1 keyboard connector, 1 mouse connector; prepared for 3 SA adapters, prepared for HDD 2.5", reset, abort, 0..+60°C |
| 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

Related Products

| | |
|-----------|--|
| 10ABMX-20 | ElinOS V.3.0 - Embedded Linux incl. RTAI real-time extension for PowerPC, English version. The Sysgo Development Kit includes the board support packages (BSPs) for MEN cards F1N, B11, A12, A15, D3, SC13, F6, EM04/N and PP01. The package includes 1 year ElinOS development support and all ElinOS updates and upgrades during this period for free. It additionally includes the BSP support for MEN hardware by MEN. --- N.B.: For correct handling of the ElinOS software support it is mandatory to sign and return the enclosed support agreement directly to Sysgo! The Sysgo support agreement is automatically prolonged for another year if not cancelled 3 months prior to expiration. |
| 10ABMX-21 | ElinOS V.3.0 - Embedded Linux incl. RTAI real-time extension for PowerPC, German version. The Sysgo Development Kit includes the board support packages (BSPs) for MEN cards F1N, B11, A12, D3, SC13, F6, EM04/N and PP01. The package includes 1 year ElinOS development support and all ElinOS updates and upgrades during this period for free. It additionally includes the BSP support for MEN hardware by MEN. --- N.B.: For correct handling of the ElinOS software support it is mandatory to sign and return the enclosed support agreement directly to Sysgo! The Sysgo support agreement is automatically prolonged for another year if not cancelled 3 months prior to expiration. |
| 10F001N01 | OS-9(000) V.2.2/3.x: BSP for F1N, B11, A12, D3, SC13, Kahlua Box (object code, MEN) |
| 10F001N02 | OS-9(000) V4.2: BSP for F1N, B11, A12, A15, D3, SC13, Kahlua Box (object code, MEN) |
| 10F001N40 | QNX 6 BSP for F1N, B11, A12, A15, D3, SC13, Kahlua Box (object code, MEN) |
| 10F001N60 | VxWorks V.5.4..5.5 / Tornado 2.0..2.2 BSP for F1N, B11, A12, D3, SC13, Kahlua Box, A15 |

This board is an MEN product running Sysgo's ElinOS Embedded Linux. Sysgo provides full support for MEN hardware. Please contact www.sysgo.de.

QNX software for this MEN board is available from QNX (www.qnx.com). For QNX BSP and driver support provided by MEN please refer to the ordering numbers below.

VxWorks software for this MEN board is available from WindRiver Systems. For VxWorks BSP and driver support provided by MEN please refer to the ordering numbers below.

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

XiBase9, a graphical user interface for Linux and OS-9 from XiSys, is running on the MEN graphics controller PC-MIP and PMC modules P1, P17 and P517 in combination with the PowerPC-based Single-Board Computers A11, A12, D3, F1N, B11 and SC13 (further SBCs on request). For more information, purchase and support please apply to www.xisys.de.

Related Products

14A012-00 MENMON (Firmware) for A12, D3, SC13 (object code)

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

Documentation

20D003-00 D3 user manual

For the most up-to-date ordering information and direct links to other data sheets and downloads, see the D3b online data sheet under www.men.de. --> [Click here!](#)

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