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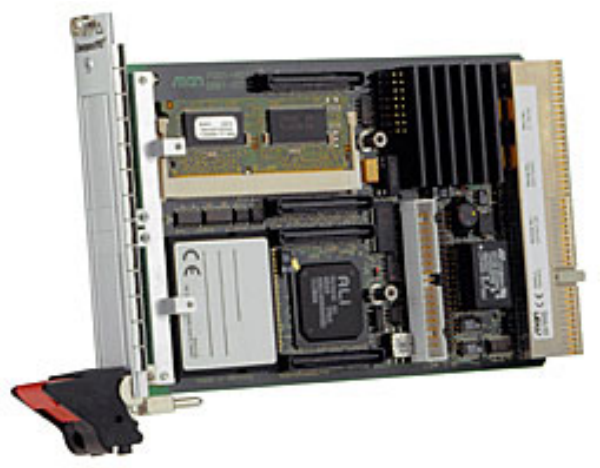
F1N - 3U CompactPCI PowerPC SBC



- **PowerPC MPC8245/300MHz**
- **1-slot 32-bit CompactPCI system master**
- **1MB ultra-fast DPRAM**
- **256MB DRAM, CompactFlash**
- **Graphics via PC-MIP**
- **Ethernet via PC-MIP**
- **2 COMs, IDE, USB, keyboard/mouse**
- **2 PC-MIP slots**
- **Option: 4 RS232 and 100Base-T with 5 RJ45**

The F1N is a high-speed PowerPC-based CompactPCI CPU card optimized for industrial requirements in control and instrumentation in terms of functionality, environmental conditions and cost. It is especially prepared for all types of industrial qualification such as extended temperature range (-40 to +85°C), shock, vibration, humidity etc., and is thus the optimum choice for the most extreme environmental conditions: railroad, ship and aerospace applications.
The computing core of the F1N is the powerful high-speed MPC8245 Kahlua processor, which has an internal PowerPC 603. The F1N is equipped with SO-DIMM SDRAM, CompactFlash (TM) and Flash, two serial interfaces, hard-disk controller (IDE), RTC with 8k NVRAM, keyboard, mouse, USB and two local PC-MIP mezzanines for flexible and individual workstation I/O extensions such as graphics, SCSI, additional serial lines, field busses etc. and various board and system control mechanisms.
Despite the full functionality of the F1N and even with its 2 PC-MIP slots populated, the complete CPU card still needs only one slot in a CompactPCI system.
By means of an adapter in double PC-MIP format (AD45) the F1N functionality can be extended by four RS232 UARTs and 100Base-T Ethernet. The signals are available at the front via five RJ45 connectors. The F1N in this configuration still needs only one slot on the CompactPCI bus (see Related Products and AD45 data sheet).

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Technical Data

CompactPCI Bus
- 3U CompactPCI CPU board rev. 2.1 compliant
  - · Compliance with PCI specification 2.1
  - · Up to 33MHz PCI frequency
- 32-bit CompactPCI system slot functionality
- 6 possible external loads due to PCI-to-PCI bridge
- V(I/O): +3.3V or +5V (Universal Board)

CPU
- PowerPC MPC8245/300MHz

Memory
- Level 1 Cache integrated in MPC8245
- SDRAM SO-DIMM up to 512MB
  - · 64 bits
- Flash 2MB
  - · 8 bits
- Serial EEPROM 4Kbit
  - · For factory settings
- CompactFlash (TM) interface (true IDE)

Interfaces
- Two serial COM ports
  - · 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)
- IDE
- Keyboard/mouse
- USB

Local Extensions
- PC-MIP I/O at front panel
  - · Two PC-MIP mezzanine extension slots
  - · Compliant with PC-MIP specification (Type I/II slots)

Differences to F1
- Processor F1: MPC8240 (F1N: MPC8245)
- Processor address Map F1: Map A (F1N: Map B)
- F1 AND F1N ARE NOT SOFTWARE-COMPATIBLE!

Miscellaneous
- Real-time clock with 8k NVRAM
- Hardware monitor and watchdog for on-board temperature control
- Hex switch for user settings

Electrical Specifications
- Supply voltage/power consumption:
  - · +5V (4.75V..5.25V), 0.44A typ.
  - · +3.3V (3.0V..3.6V), 1.25A typ. w/o SO-DIMM; increases up to 2A depending on installed SO-DIMM
- MTBF: 159,000h @ 50°C

Mechanical Specifications
- Dimensions: conforming to CompactPCI specification for 3U boards
- Weight: 180g

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
- Linux
- VxWorks
- QNX
- OS-9

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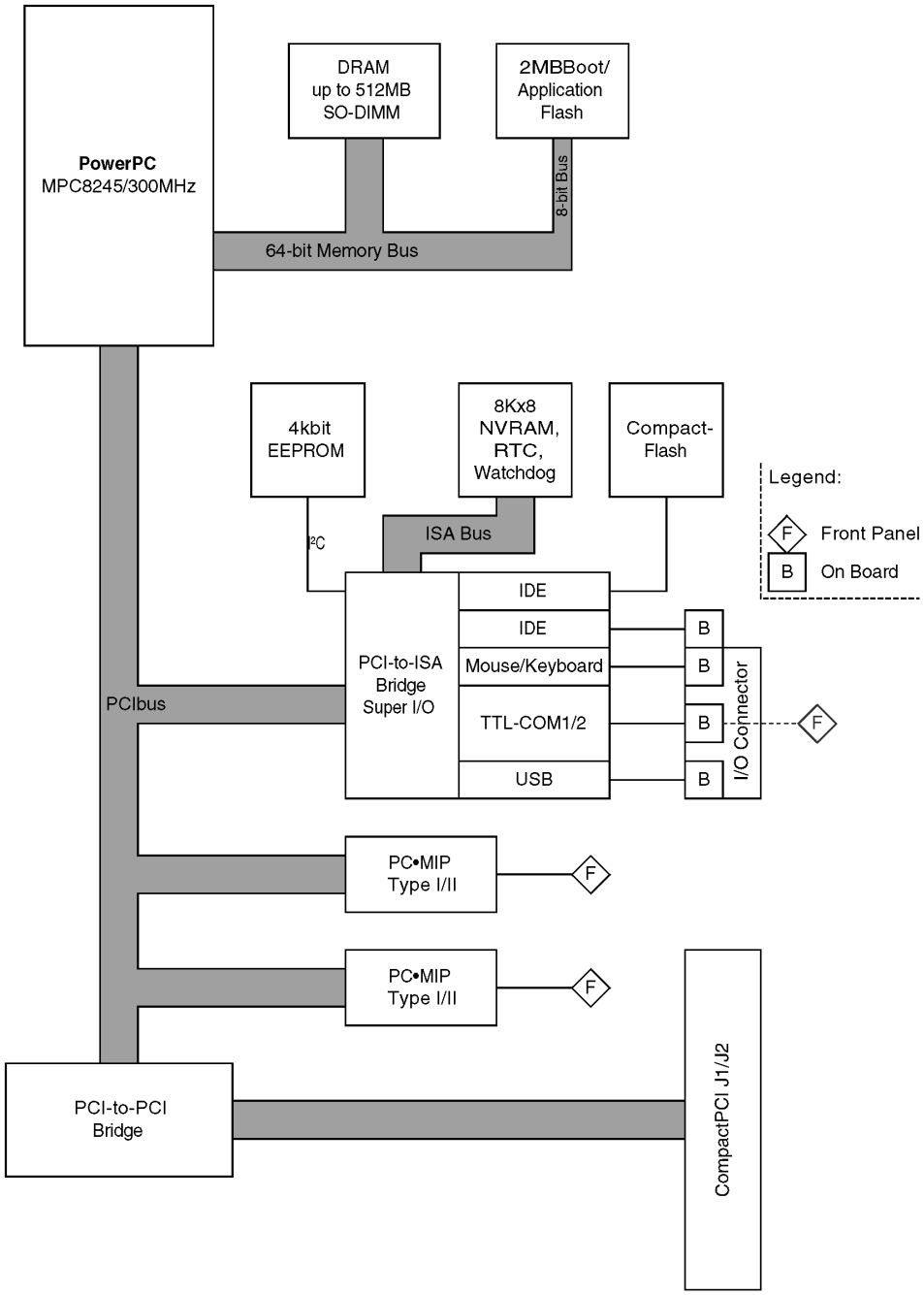
Diagram



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Related Products

Standard Hardware

02F001N00	F1N, CompactPCI 3U, single-board computer, MPC8245/300MHz, 2MB Flash, no DRAM, 2 PC-MIP slots, 1-slot front panel
02F001N01	F1N, CompactPCI 3U, single-board computer, MPC8245/300MHz, 2MB Flash, no DRAM, 2 PC-MIP slots, 1-slot front panel, temperature range: -40..+85°C

Please refer to our 3U 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.

0701-0009	Abk13.10.04 - nur intern; Preis wird nicht erhBuy:offen fexistierende Kunden Last Delivery:offen fexistierende Kunden Name: B.Schmitz Grund: Ersatz-Standardsystem 0701-0021 kann falle 3U-Karten verwendet werden ----------CompactPCI 19" 3U rack-mount enclosure, 3U 7-slot CompactPCI backplane, ATX power supply
0701-0018	CompactPCI 19" 4U/84HP rack-mount enclosure for 3U cards (vertical), 8-slot 3U CompactPCI backplane, system slot right, no rear I/O, space for hard-disk drive, floppy drive, 300W ATX power supply wide range 100..240VAC on front, 1U fan tray included

Accessories

05F001-00	Mounting kit for 2 SA adapters for F1/F1N/F4, incl. 3U 1-slot CompactPCI front panel and ribbon cable, without SA adapters
05F003-03	IDE adapter cable, 44-pin 2-mm IDE connection to 2x 44-pin 2-mm IDE connection, 450mm
0500-0002	Battery M4T28... for Timekeeper M48T86 (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	Compact Flash card, 64MB, -40..+85°C
0751-0014	Compact Flash card, 128MB, -40..+85°C

Related Products

0751-0018	CompactFlash card, 256MB, Type I, -40..+85°C
0752-0033	64MB DRAM 0..+60°C for 02F001N00
0752-0034	128MB DRAM 0..+60°C for 02F001N00
0752-0035	256MB DRAM 0..+60°C for 02F001N00
0752-0107	256MB DRAM -40..+85°C for 02F001N01
08AD45-05	AD45, double PC-MIP, DS21143 Ethernet controller, 10/100Mbit/s, 100Base-T, quad RS232 UART 16450 with 128-byte FIFO, with front panel for 3U CompactPCI boards, 0..+60°C
08AD45-06	AD45, double PC-MIP, DS21143 Ethernet controller, 10/100Mbit/s, 100Base-T, quad RS232 UART 16450 with 128-byte FIFO, with front panel for 3U CompactPCI boards, -40..+85°C
08SA01-00	Serial interface adapter, RS232, not optically isolated, 0..+60°C
08SA01-03	Serial interface adapter for F1/F1N/F4/B11, RS232, not optically isolated, for direct mounting on CPU board, 0..+60°C (N.B.: Standard adapters can only be mounted using MEN's mounting kit.)
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

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 suppvort 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.

Related Products

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.

14F001-00	MENMON (Firmware) for F1 and F1N (object code)

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

Documentation

20AD45-00	AD45 user manual
20F001N00	F1N user manual

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Related Products

21APPN003	Application Note: Using P1/P501 Graphics on MEN 824x/ALI boards under ELinOS

For the most up-to-date ordering information and direct links to other data sheets and downloads, see the F1N online data sheet under www.men.de. --> Click here!

Germany
MEN Mikro Elektronik GmbH
Neuwieder Straße 5-7
90411 Nuremberg
Phone +49-911-99 33 5-0
Fax +49-911-99 33 5-901
E-mail info@men.de
www.men.de

France
MEN Mikro Elektronik SA
18, rue René Cassin
ZA de la Châtelaine
74240 Gaillard
Phone +33 (0) 450-955-312
Fax +33 (0) 450-955-211
E-mail info@men-france.fr
www.men-france.fr

UK
MEN Micro Ltd
Whitehall, 75 School Lane
Hartford, Northwich
Cheshire UK, CW8 1PF
Phone +44 (0) 1477-549-185
Fax +44 (0) 1477-549-178
E-mail info@menmicro.co.uk
www.menmicro.co.uk

USA
MEN Micro, Inc.
PO Box 4160
Lago Vista, TX 78645-4160
Phone (512) 267-8883
Fax (512) 267-8803
E-mail sales@menmicro.com
www.menmicro.com

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