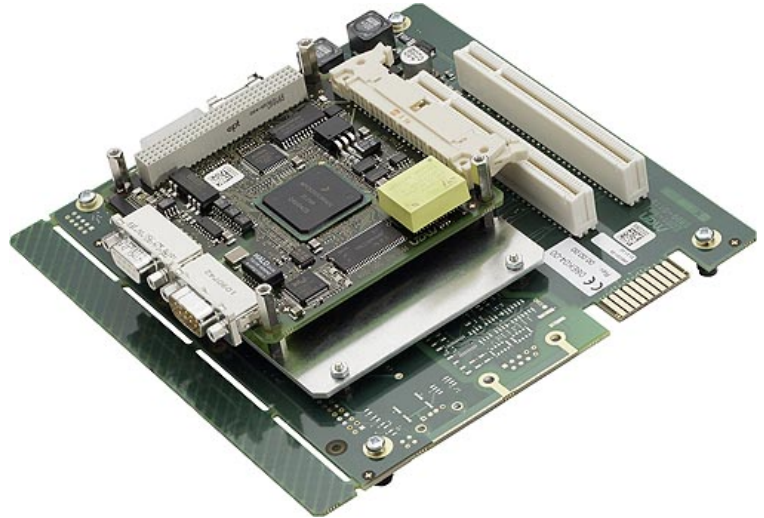


EK4 – Starter Kit with PP1 / MPC5200

- **PP1 with MPC5200 / 384 MHz**
- **128 MB SDRAM**
- **16 MB Flash, 64 KB FRAM**
- **1 Fast Ethernet, 2 COMs, 2 CAN bus**

- **ATX-compatible carrier card:**
- **1 PCI-104 slot, 1 PCI slot**

- **Accessories:**
- **External PSU**
- **SA-Adapter™ kit USB, 2x CAN**



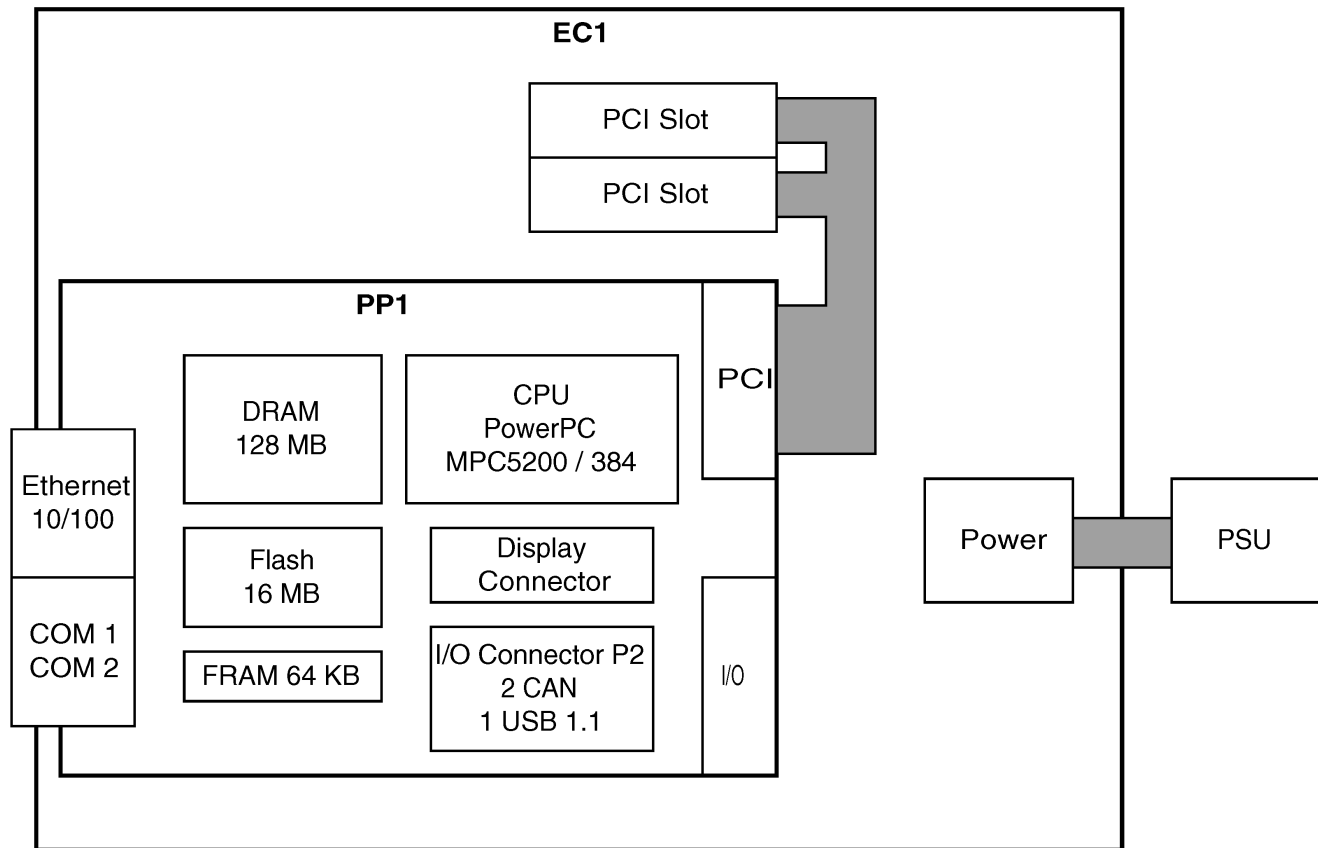
The EK4 is a starter kit that allows evaluation of the functions of the PP1 PCI-104 module. The kit consists of the standard CPU module, the carrier card with I/O connectors, DRAM memory, an external PSU, SA-Adapter™ kit (USB, dual CAN), Ethernet adapter D-Sub to RJ45 and an RS232 Y-adapter. The EK4 provides versatile mounting options and can also be installed in a standard PC.

The PP1 is an industrial computer which is designed to operate under harsh environmental conditions. It complies with the PCI-104 specification and can be stacked with other PCI-104 boards or mounted on different types of carrier boards.

The PP1 is controlled by a MPC5200 PowerPC® that operates at 384 MHz. It provides 128 MB SDRAM for data and 16 MB Flash memory for program storage as well as 64 KB FRAM. The bus interface is a 32-bit, 33-MHz PCI bus. The PP1 provides two optically isolated RS232 and one Fast Ethernet interface at its front panel. Two CAN controllers are included in the MPC5200. The physical CAN interface can be located on SA-Adapters™ or on the carrier board. The board also features a real-time clock and watchdog.

The carrier board has an ATX-compatible format and provides the mechanical platform, the power supply and the I/O connectors. It comes with one PCI-104 slot and two PCI slots, which allow the use of standard extension cards in the PC. The ESM™ carrier also features an I2C EEPROM for the board ID and revision information.

Diagram



Technical Data

PCI-104 Carrier Card	■ One PCI-104 slot ■ J1 assembled ■ PCI interface □ Two PCI slots □ 32-bit/33-MHz, 5V V(I/O)
PCI-104 Module PP1	■ CPU □ PowerPC® MPC5200 □ 384MHz ■ Memory □ 128MB SO-DIMM SDRAM, soldered □ 16MB Flash □ 64KB non-volatile FRAM ■ I/O □ 10/100Base-T Ethernet, 9-pin D-Sub at front panel □ RS232 serial interface (COM1/2), 9-pin D-Sub at front panel □ USB 1.1, via SA-Adapter™ on I/O connector P2 □ Two independent CAN interfaces, via SA-Adapters™ on I/O connector P2 □ Display interface: Four characters, 5 by 7 pixels □ 8 GPIO lines, via I/O connector P2 ■ PCI Interface □ 32-bit/33-MHz PCI interface at PCI-104 connector J1 □ Compliant with PCI Specification 2.2
Accessories	■ External PSU ■ SA-Adapter™ kit (USB, dual CAN) ■ Ethernet adapter D-Sub to RJ45 ■ RS232 Y-adapter
Electrical Specifications	■ Supply voltage/power consumption: □ +24V (-35%/+50%), 1.6A ■ MTBF PP1: 450,000h @ 40°C (derived from MIL-HDBK-217F)
Mechanical Specifications	■ Dimensions: □ Carrier: conforming to Mini-ATX standard (PCB: 170mm x 150mm) □ PP1: conforming to PCI-104 specification ■ Weight: □ Carrier: 200g □ PP1: 90g
Environmental Specifications	■ Temperature range (operation): □ 0..+60°C □ Industrial temperature range on request □ 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
BIOS	■ MENMON™
Software Support	■ VxWorks® ■ Linux ■ MSCAN/Layer2 support: MEN Driver Interface System (MDIS™ for all supported operating systems) ■ For more information on supported operating system versions and drivers see Downloads.

Ordering Information

Standard EK4 Models	08EK04-00	PCI-104 evaluation kit: Mini ATX carrier board, PP1 with PowerPC® MPC5200/384MHz, 128MB DRAM, 16MB Flash, 64KB FRAM, 1 Fast Ethernet, 2 COMs, 0..+60°C; incl. external PSU, SA-Adapter™ kit for 2 CAN and 1 USB 1.1
Software: Linux	This product is designed to work under Linux. See below for potentially available separate software packages from MEN.	
	10EM01-90	Linux BSP (MEN) for EM1, EM1A, EM1N, EK6, EK6N, F12, F12N and PP1 under ELinOS 5.0 (rpm for direct installation in ELinOS)
	This product is designed to work under ELinOS Embedded Linux by Sysgo. For more information and product support please contact www.sysgo.com .	
Software: VxWorks®	13Z015-06	MDISS™ low-level driver sources (MEN) for 16Z029_CAN (MSCAN/Layer2)
	This product is designed to work under VxWorks®. For details regarding supported/unsupported board functions please refer to the corresponding software data sheets.	
	10PP01-60	VxWorks® 5.4..5.5 BSP (MEN) for PP1
	10PP01-61	VxWorks® 6.1 BSP (MEN) for PP1
Software: Firmware/BIOS	13Z015-06	MDISS™ low-level driver sources (MEN) for 16Z029_CAN (MSCAN/Layer2)
	MENMON™ is MEN's firmware/BIOS for PowerPC® platforms.	
	14PP01-00	MENMON™ (Firmware) for PP1 (binary code)
For operating systems not mentioned here contact MEN sales .		
Documentation	20EK04-00	EK4 User Manual
	20PP01-ER	PP1 Errata
	20PP01-00	PP1 User Manual
	21MENM-00	MENMON™ User Manual

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