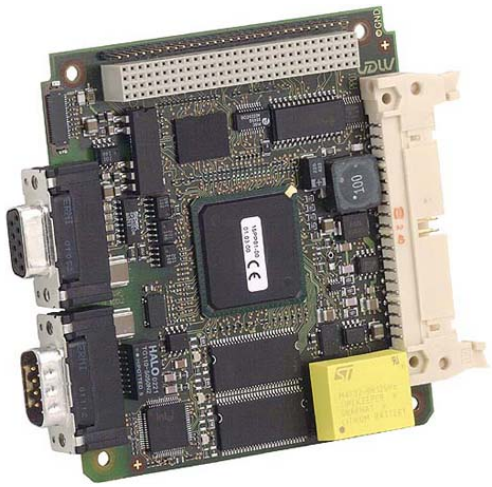
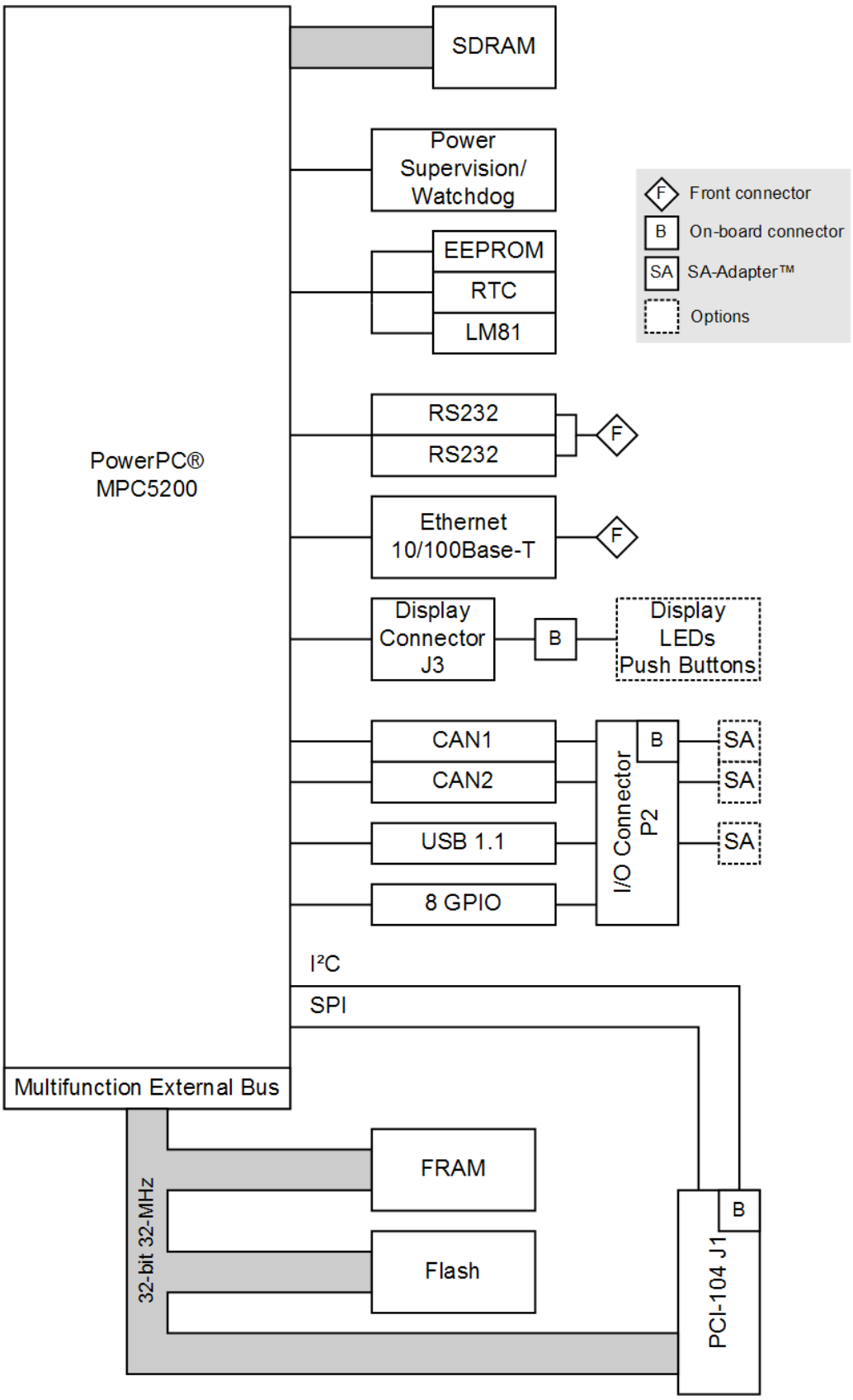
PP1 – PCI-104 COM Module with MPC5200/B

- **PowerPC® MPC5200/B / 384 MHz**
- **32-bit/33-MHz PCI**
- **Up to 128 MB SDRAM**
- **Up to 16 MB Flash**
- **Up to 64 KB FRAM**
- **1 Fast Ethernet, dual UART**
- **Dual CAN with CANopen support**
- **MENMON™ BIOS for PowerPC® cards**
- **-40 to +85°C with qualified components**



The PP1 is controlled by an MPC5200/B PowerPC® that operates at 384 MHz. The complete PCI-104 module is exclusively available for -40 to +85°C operating temperature, as is the MPC5200 itself. The CPU consumes less than 1 W at 384 MHz.
The PP1 provides up to 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 PP1 comes with MENMON™ support. This firmware/BIOS can be used for bootstrapping operating systems (from disk, Flash or network), for hardware testing, or for debugging applications without running any operating system.
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.

Diagram


SDRAM
Power Supervision/ Watchdog
EEPROM
RTC
LM81
RS232
RS232
Ethernet 10/100Base-T
Display Connector J3
B
Display LEDs Push Buttons
CAN1
CAN2
USB 1.1
8 GPIO
I/O Connector P2
B
SA
SA
SA
PowerPC® MPC5200
I²C
SPI
Multifunction External Bus
32-bit 32-MHz
FRAM
Flash
PCI-104 J1
B
F
Front connector
B
On-board connector
SA
SA-Adapter™
Options

Technical Data

CPU	■ PowerPC® □ MPC5200 or MPC5200B □ 384MHz
Memory	■ Up to 128MB SDRAM system memory □ Soldered □ 64MHz memory bus frequency ■ 16MB Flash ■ 64KB non-volatile FRAM ■ Serial EEPROM 16kbits for factory settings
I/O	■ Ethernet □ 10/100Base-T Ethernet □ 9-pin D-Sub connector at front panel ■ Two RS232 UARTs (COM1/COM2) □ One 9-pin D-Sub connector at front panel □ Data rates up to 115.2kbit/s □ 512-byte transmit/receive buffer □ Handshake lines: none ■ USB □ One USB 1.1 port □ Physical line interface via SA-Adapter™ on I/O connector P2 □ OHCI implementation □ Data rates up to 12Mbit/s ■ Two independent CAN interfaces □ Physical line interface via SA-Adapters™ on I/O connector P2 ■ Display interface □ Four characters, 5 by 7 pixels □ For additional display adapter PCB (on request) ■ 8 GPIO lines □ Accessible via I/O connector P2
Front Connections	■ One Ethernet (D-Sub) ■ Two RS232 UARTs COM1/COM2 (D-Sub)
PCI Interface	■ 32-bit/33-MHz PCI interface at PCI-104 connector J1 ■ V(I/O): +3.3V (not +5V tolerant) ■ Compliant with PCI Specification 2.2 ■ Support of one external master
Miscellaneous	■ Real-time clock ■ Temperature sensor ■ Three push buttons and LED on optional display PCB (on request)
Electrical Specifications	■ Supply voltage/power consumption: □ +5V, ±5%, 100mA typ. □ +3.3V, ±5%, 900mA typ. ■ MTBF: 450,000h @ 40°C (derived from MIL-HDBK-217F)
Mechanical Specifications	■ Dimensions: conforming to PCI-104 specification ■ Weight: 90g

Technical Data

Environmental Specifications	■ Temperature range (operation): □ -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 ■ Conformal coating on request
Safety	■ PCB manufactured with a flammability rating of 94V-0 by UL recognized manufacturers
EMC	■ Tested according to EN 55022 (radio disturbance), IEC1000-4-2 (ESD) and IEC1000-4-4 (burst)
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.

Configuration & Options

Standard Configurations

Article No.	CPU Type	Clock	System RAM	Flash	FRAM	Operation Temperature
15PP01-00	MPC5200	384 MHz	32 MB	16 MB	64 KB	-40..+85°C
15PP01-05	MPC5200	384 MHz	128 MB	16 MB	64 KB	-40..+85°C
15PP01-07	MPC5200B	384 MHz	128 MB	16 MB	64 KB	-40..+85°C

Options

CPU	■ MPC5200 or MPC5200B, 384 MHz
Memory	■ System RAM □ 32 MB, 64 MB or 128 MB ■ Flash □ 2 MB, 4 MB, 8 MB or 16 MB ■ FRAM □ 0 KB, 32 KB or 64 KB

Please note that some of these options may only be available for large volumes. Please ask our sales staff for more information.

Ordering Information

Standard PP1 Models	**15PP01-07**	MPC5200 Rev. B / 384MHz, 128MB SDRAM, 16MB Flash, 64KB FRAM, -40..+85°C with qualified components
Miscellaneous Accessories	**0501-0002**	Ethernet adapter D-Sub to RJ45 receptacle (cable 10cm)
	0501-0003	Y-adapter RS232 D-Sub connector to dual D-Sub connector (cable 10cm)
	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.	
	13Z015-06	MDIS5™ low-level driver sources (MEN) for 16Z029_CAN (MSCAN/Layer2)
Software: VxWorks®	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
	13Z015-06	MDIS5™ low-level driver sources (MEN) for 16Z029_CAN (MSCAN/Layer2)
Software: Firmware/BIOS	MENMON™ is MEN's firmware/BIOS for PowerPC® platforms.	
	14PP01-00	MENMON™ (Firmware) for PP1 (binary code)
	MEN's CANopen firmware consists of the Vector Informatik protocol stack. The corresponding driver software comes from MEN. It is based on MDIS™ (MEN Driver Interface System), which makes the hardware ready for use under Windows®, Linux, VxWorks®, QNX®, OS-9® and other software environments. You can find more information on the Vector CANopen tools at www.vector-informatik.de.	

For operating systems not mentioned here contact MEN sales.

Documentation	Compare Chart PCI-104 modules » Download	
	20PP01-ER	PP1 Errata
	20PP01-00	PP1 User Manual
	21MENM-00	MENMON™ User Manual

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