PP01 - PCI-104 Module with PowerPC MPC 5200

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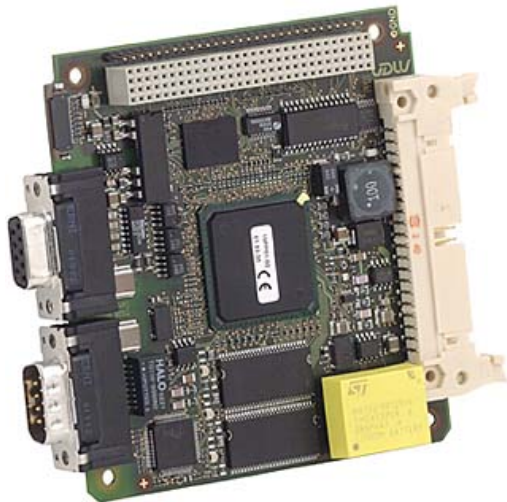
- **PowerPC MPC5200 / 384 MHz**
- **32-bit/33-MHz PCI**
- **Up to 128 MB SDRAM**
- **Up to 64 KB FRAM**
- **Fast Ethernet, dual RS232**
- **Dual CAN with CANopen support**
- **USB 1.1**
- **Complies with PCI-104 specification**

The PP01 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 PP01 is controlled by a MPC5200 PowerPC that operates at 384MHz. The complete PCI-104 module is exclusively available in -40 to +85°C operation temperature, as is the MPC5200 itself. The CPU consumes less than 1W at 384MHz.

The PP01 provides up to 128MB SDRAM for data and 16MB Flash memory for program storage as well as 64KB FRAM. The bus interface is a 32-bit 33-MHz PCI bus. The PP01 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 USB interface is also available by using an SA adapter. The board also features real-time clock and watchdog.

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Technical Data

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CPU
- PowerPC
- MPC5200
- 384MHz

Memory
- 64MHz memory bus operation
- SDRAM up to 64MB
- Flash 16MB
- 8-bit data bus
- FRAM 64KB non-volatile
- 8-bit data bus
- Serial EEPROM 16kbit for factory settings

Interfaces
- 10/100Mbits/s Ethernet
- 9-pin D-Sub connector at front panel
- Two UART RS232 serial interfaces (COM1/COM2)
- Via one 9-pin D-Sub connector at front panel
- USB 1.1
- Physical line interface via SA adapter on I/O connector P2
- Two independent CAN interfaces
- Physical line interface via SA adapter on I/O connector P2

Display interface
- Four characters, 5 by 7 pixels
- For additional display adapter PCB (on request)

PCI Interface
- 32-bit PCI interface at PCI-104 connector J1
- 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: 225,000h @ 50°C

Mechanical Specifications
- Dimensions: conforming to PC-104 specification
- Weight: 90g

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

Safety
- PCB manufactured with a flammability rating of 94V-0 by UL recognized manufacturers
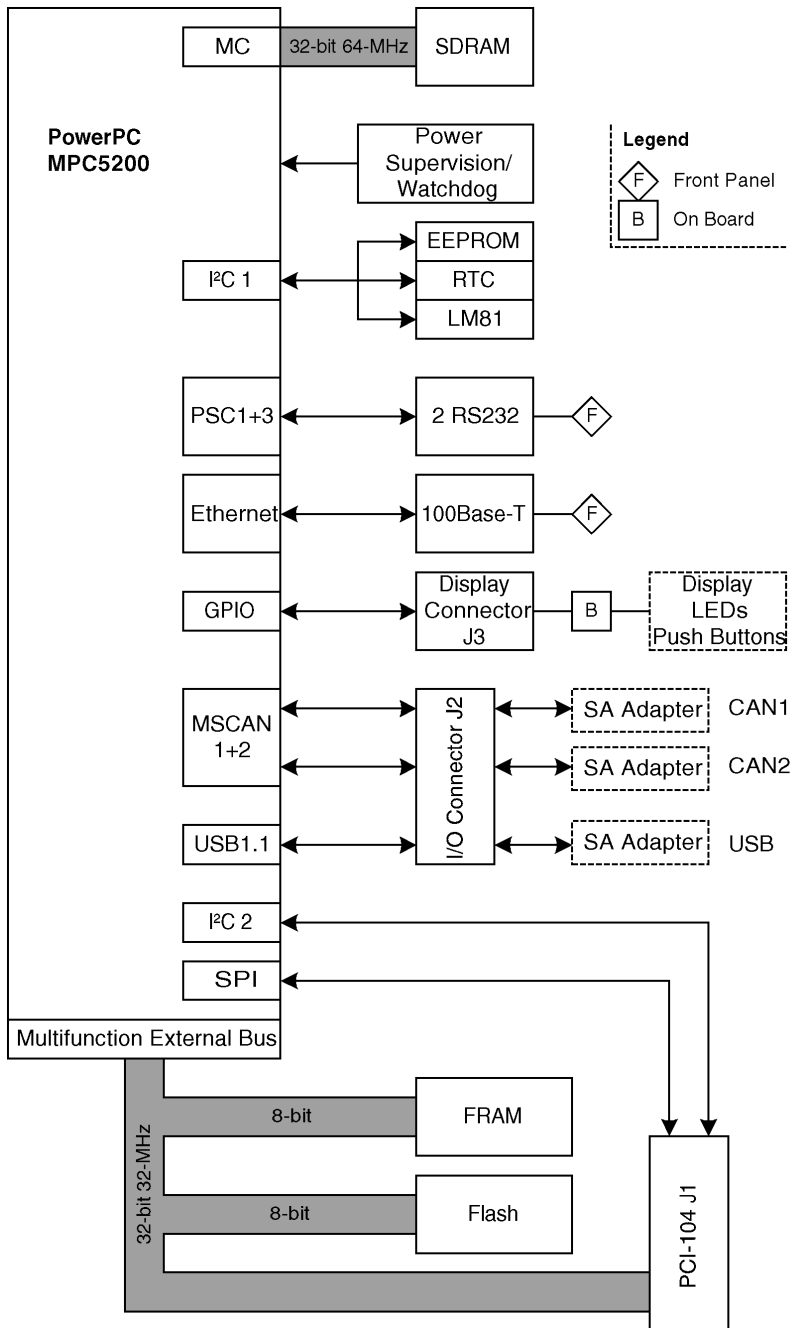
EMC
- Tested according to EN 55022 (radio disturbance), IEC1000-4-2 (ESD) and IEC1000-4-4 (burst) with regard to CE conformity

Software Support
- MENMON
- VxWorks
- Linux
- CANopen firmware (Vector Informatik)
- CANopen support: MEN Driver Interface System (MDIS for Windows, Linux, VxWorks, QNX, RTX, OS-9)
- MSCAN/Layer2 support: MEN Driver Interface System (MDIS for Windows, Linux, VxWorks, QNX, RTX, OS-9)

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Diagram

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PowerPC MPC5200

- MC — 32-bit 64-MHz — SDRAM
- Power Supervision/ Watchdog
- I²C 1 — EEPROM, RTC, LM81
- PSC1+3 — 2 RS232 — F
- Ethernet — 100Base-T — F
- GPIO — Display Connector J3 — B — Display LEDs Push Buttons
- MSCAN 1+2 — I/O Connector J2 — SA Adapter — CAN1 / SA Adapter — CAN2
- USB1.1 — SA Adapter — USB
- I²C 2
- SPI

Multifunction External Bus

32-bit 32-MHz
- 8-bit — FRAM
- 8-bit — Flash

PCI-104 J1

Legend
- F Front Panel
- B On Board

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Related Products

Standard Hardware

15PP01-00	PP01, PCI-104 Module, MPC5200/384MHz, 32MB SDRAM, 16MB Flash, 64KB FRAM, Fast Ethernet, 2 RS232, 2 CAN (via SA adapters), USB 1.1 (via SA adapter), operating temperature -40..+85°C
15PP01-05	PP01, PCI-104 Module, MPC5200/384MHz, 128MB SDRAM, 16MB Flash, 64KB FRAM, Fast Ethernet, 2 RS232, 2 CAN (via SA adapters), USB 1.1 (via SA adapter), operation temperature -0..+60°C

Please refer to our PCI-104 compare chart for a complete overview of our growing range of available PCI-104 modules.

Accessories

05PP01-00	SA adapter kit for PP01 with 2 CAN interfaces led to a ribbon-cable connector; operating temperature 0..+60°C
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 EC01 with 1 PC/104-Plus slot, 2 PCI slots; PP01 with PowerPC MPC5200 / 384MHz, 32MB DRAM, 8MB Flash, 64KB FRAM, Fast Ethernet, 2 COMs; temperature range: 0..+60°C; incl. external PSU, SA-adapter kit (dual CAN, USB), Ethernet adapter D-Sub to RJ45 and RS232 Y-adapter (08EK04-00 = EC01-05 + PP01-00)

Software

10ABMX-20	ELinOS V.3.1 - 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.3.1 - 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.

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Related Products

10PP01-60	VxWorks® BSP for PP01, Tornado 2.0.2 .. 2.2 / VxWorks® 5.4..5.5

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.

13Z015-06	MDIS4/2004 low-level driver sources for MSCAN/Layer2
13Z016-06	MDIS4/2004 low-level CANopen driver (Master)
13Z016-70	MDIS4/2004 Windows® NT4/W2K driver for CANopen
14PP01-00	MENMON (Firmware) for PP01 (binary code)

Documentation

20PP01-ER	PP01 errata
20PP01-00	PP01 user manual

For the most up-to-date ordering information and direct links to other data sheets and downloads, see the PP01 online data sheet under www.men.de. --> Click here!

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