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



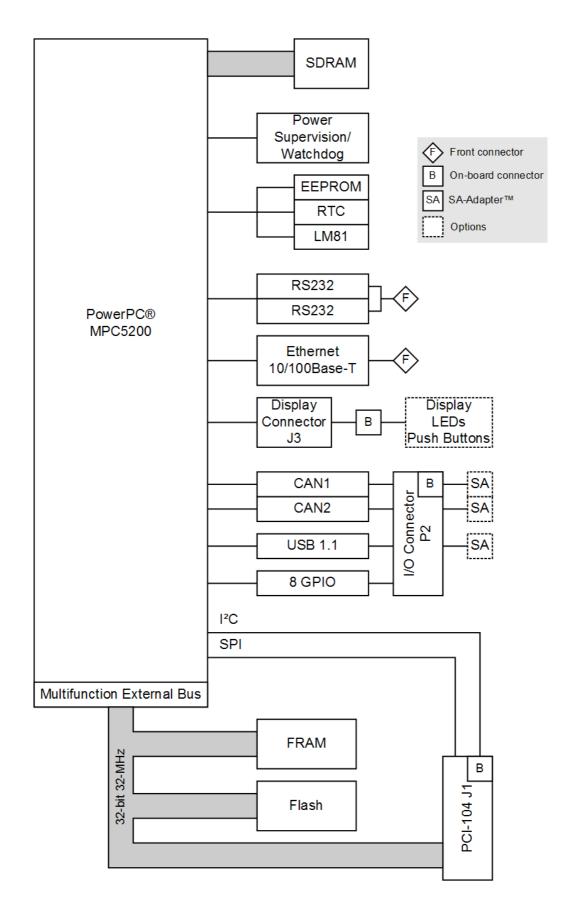
CAN interface can be located on SA-Adapters™ or on the carrier board. The board also features a real-time clock and watchdog.

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



Technical Data

СРИ	 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 	
Ι/Ο	 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-Adapter[™] on I/O connector P2 DHCI implementation Data rates up to 12Mbit/s 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) 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 specificationWeight: 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/10150Hz 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	
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.	СРИ Туре	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

СРИ	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

OS01-0003 Y-adapter RS232 D-Sub connector to dual D-Sub connector (cable 10cm) OBEK04-00 PC-L104 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 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 Linux Sysgo.com. 132015-06 MDIS5T TM 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 to to the corresponding software data sheets. 10PP01-60 VxWorks® 6.1 BSP (MEN) for PP1 132015-06 MDIS5T TM low-level driver sources (MEN) for 16Z029_CAN (MSCAN/Layer2) Software: Firmware/BIOS MENMONT TM (Firmware) For PP1 (binaty fortocol stack. The corresponding driver software environments. Software: Firmware/BIOS MENMONT TM (Firmware) For PP	Standard PP1 Models	15PP01-07				
Software: Linux PCI-104 evaluation kit: Mini ATX carrier board, PP1 with PowPC® MPCS200/384MHz, 128MB DRAM, 16MB Flash, 64KB FRAM, 1 Fast Ethernet, 2 COMs, 0460°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 Plexe contact www.sysgo.com. 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 relet to the corresponding software data sheets. 10PP01-60 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 MEV=tresponding software data sheets. 10PP01-61 VxWorks® 6.1 BSP (MEN) for PP1 13Z015-06 MENMON™ (Firmware) for PP1 (binary code) MENMON™ is MEN=to is based on MDIS™ (MEN Driver Interface System), which makes the hardware ready for use under Windows®, Linux, VXWorks®, QNX®, QS.9® and other software environments. You can find more information on t= vector CANopen tools at www.vector.informatik.de. For operating systems not mentio= <t< th=""><th>Miscellaneous Accessories</th><th>0501-0002</th><th>Ethernet adapter D-Sub to RJ45 receptacle (cable 10cm)</th></t<>	Miscellaneous Accessories	0501-0002	Ethernet adapter D-Sub to RJ45 receptacle (cable 10cm)			
Software: Linux This product is descented by SA.Adapter Witt for 2 CAN and 1 USB 1.1 Software: Linux This product is descented by SA.Adapter Witt for 2 CAN and 1 USB 1.1 Image: Imag		0501-0003	Y-adapter RS232 D-Sub connector to dual D-Sub connector (cable 10cm)			
from MEN. IOEM01-90 Linux BSP (MEN) for EM1, EM1A, EM1N, EK6, EK6N, F12, F12N and PP1 under ELinOS S.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 plexe contact www.sysgo.com. 132015-06 MDIS5™ low-level driver sources (MEN) for 16Z029_CAN (MSCAN/Layer2) This product is designed to work under VXWorks ⁶ . For details regarding supported/unsupported board functions please refer to the corresponding software data sheets. 10PP01-61 VXWorks ⁶ 5.45.5 BSP (MEN) for PP1 12P015-06 MENMON™ is MEVS ⁶ for QeerPC ⁶ platforms. 14PP01-00 MENMON™ (Firmware/BIOS for PowerPC ⁶ platforms. 14PP01-00 MENMON™ (Firmware/BIOS for PowerPC ⁶ platforms. 14PP01-00 MENMON™ (KIEND FOP1 (binary code) MEN's CANopen firmware/BIOS for PowerPC ⁶ platforms. 14PP01-00 MENMON™ (Firmware/BIOS for PowerPC ⁶ 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 ^{5M} (MEN Driver Interface System), which makes the hardware ready for use under Windows ⁴ , Linux, YXWork ⁶ , OS-9 ⁴ and other software environments. You can find more information on t+vector CANopen tools at www.vector-informatik.de. For operating systems not mentione Esples. Documentation Comp		08EK04-00	128MB DRAM, 16MB Flash, 64KB FRAM, 1 Fast Ethernet, 2 COMs, 0+60°C; incl.			
S.0 (rpm for direct installation in ELinOS) This product is designed to work under ELinOS Embedded Linux by SYSCO. For more information and product support= 132015-06 MDIS5™ low-level driver sources (MEN) for 162029_CAN (MSCAN/Layer2) Software: VXWorks® This product is designed to work under VXWorks®. For details regarding supported/unsupported board functions please = IOPP01-60 VXWorks® 5.45.5 BSP (MEN) for PP1 10PP01-61 VXWorks® 6.1 BSP (MEN) for PP1 132015-06 MDIS5™ low-level driver sources (MEN) for 162029_CAN (MSCAN/Layer2) Software: Firmware/BIOS MENMON™ IS MUST™ inware/BIOS for PowerPC® platforms. 14PP01-00 MENMON™ (Firmware) for PP1 (binary code) MENMON™ IS abed on MDIS™ (MEN Driver Interface System), which makes the hardware ready for use under Windows÷ Linux, VXWorks®, QNX®, QS-9® and other software environments. You can find more information on the vector CANopen tools at www.vector-informatik.de. For operating systems not mentitere contact HEUS Compare Chart >= USA Documentation Compare Chart >= USA QPP01-ER PP1 Errata	Software: Linux	•	igned to work under Linux. See below for potentially available separate software packages			
product support please contact www.sysgo.com. 132015-06 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 retro to the corresponding software data sheets. 10PP01-60 VxWorks® 5.45.5 BSP (MEN) for PP1 10PP01-61 VxWorks® 6.1 BSP (MEN) for PP1 132015-06 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™ is MENDON™ (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®, QS-9® and other software environments. You can find more information on the vector CANopen tools at www.vector-informatik.de. For operating systems not mentioner here contact MEN sales. Compare Chart PCI-104 modules » Download 20PP01-ER PP1 Errata		10EM01-90				
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® 5.45.5 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 corres 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 text Vector Compare Chart PC-104 modules » Download 20PP01-ER 20PP01-ER PP1 Errata						
Import of the corresponding software data sheets. Software: Firmware/BIOS MENMONTM IS HEVIS firmware/BIOS for PowerPC® platforms. Import of the corresponding driver software consists of the Vector Informatik protocol stack. The corresponding driver software comes from MEN. Import of the Vector Informatik protocol stack. The corresponding driver software ready for use under Windows®, Linux, VxWorks®, QNX®, QS-9® and other software environments. You can find more information on the Vector CANopen tools at www.vector-informatik.de. For operating systems not mentioner the contact MEU-Import of modules and the software contact of the corresponding and the software environments. The compare Chart PC-Import of the modules and the software contact method and the software contact of the corresponding and the software environments. The compare chart PC-Import of the modules and the software contact method and the soft		13Z015-06	MDIS5 [™] low-level driver sources (MEN) for 16Z029_CAN (MSCAN/Layer2)			
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 MEV'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 mentioner here contact MEV sales. Documentation Compare Chart > 104 modules » Download 20PP01-ER PP1 Errata	Software: VxWorks®					
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 Immware 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 correct CANopen tools at www.vector-informatik.de. For operating systems not mentioned there contact MEN sales. Compare Chart VEI usdues » Download 20PP01-ER PP1 Errata		10PP01-60	VxWorks [®] 5.45.5 BSP (MEN) for PP1			
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		10PP01-61	VxWorks [®] 6.1 BSP (MEN) for PP1			
14PP01-00MENMON™ (Firmware) for PP1 (binary code)MEN's CANopen limmare 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 DocumentationCompare Chart VE-104 modules » Download 20PP01-ERPP1 ErrataPP1 Errata		13Z015-06	MDIS5 [™] low-level driver sources (MEN) for 16Z029_CAN (MSCAN/Layer2)			
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	Software: Firmware/BIOS	MENMON™ is ME	N's firmware/BIOS for PowerPC [®] platforms.			
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.Compare Chart PCI-104 modules » Download 20PP01-ERPP1 Errata		14PP01-00	MENMON™ (Firmware) for PP1 (binary code)			
Documentation Compare Chart PCI-104 modules » Download 20PP01-ER PP1 Errata						
20PP01-ER PP1 Errata	For operating systems not mentioned here contact MEN sales.					
	Documentation	Compare Chart PCI-104 modules » Download				
20PP01-00 PP1 User Manual		20PP01-ER	PP1 Errata			
		20PP01-00	PP1 User Manual			

MENMON[™] User Manual

21MENM-00

Contact Information

Germany

MEN Mikro Elektronik GmbH Neuwieder Straße 3-7 90411 Nuremberg Phone +49-911-99 33 5-0 Fax +49-911-99 33 5-901

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

info@men-france.fr www.men-france.fr USA

MEN Micro Inc. 860 Penllyn Blue Bell Pike Blue Bell, PA 19422 Phone (215) 542-9575 Fax (215) 542-9577

sales@menmicro.com www.menmicro.com

The date of issue stated in this data sheet refers to the Technical Data only. Changes in ordering information given herein do not affect the date of issue. All brand or product names are trademarks or registered trademarks of their respective holders.

MEN is not responsible for the results of any actions taken on the basis of information in the publication, nor for any error in or omission from the publication.

MEN expressly disclaims all and any liability and responsibility to any person, whether a reader of the publication or not, in respect of anything, and of the consequences of anything, done or omitted to be done by any such person in reliance, whether wholly or partially, on the whole or any part of the contents of the publication.

The correct function of MEN products in mission-critical and life-critical applications is limited to the environmental specification given for each product in the technical user manual. The correct function of MEN products under extended environmental conditions is limited to the individual requirement specification and subsequent validation documents for each product for the applicable use case and has to be agreed upon in writing by MEN and the customer. Should the customer purchase or use MEN products for any unintended or unauthorized application, the customer shall indemnify and hold MEN and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim or personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that MEN was negligent regarding the design or manufacture of the part.

In no case is MEN liable for the correct function of the technical installation where MEN products are a part of.

Copyright © 2014 MEN Mikro Elektronik GmbH. All rights reserved.