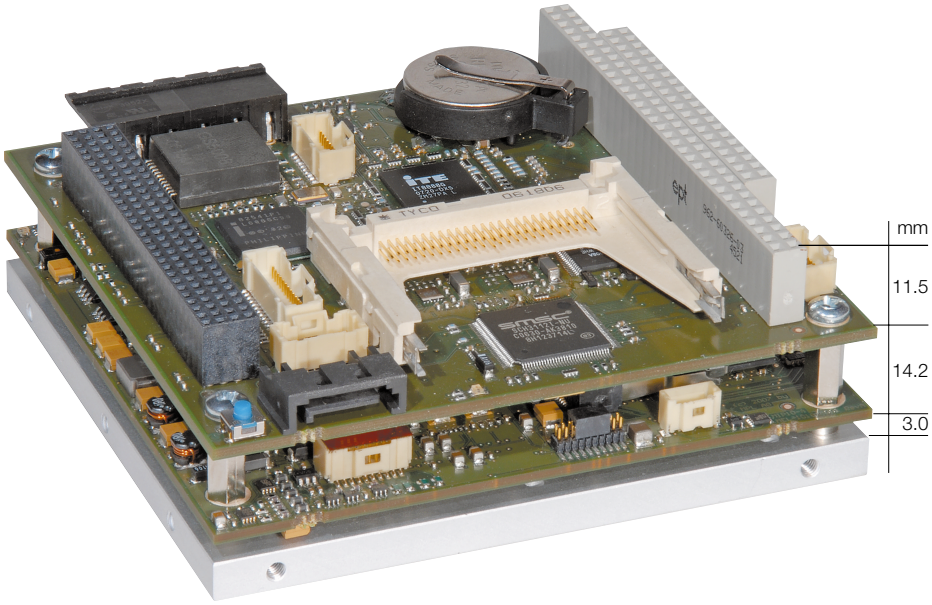
MIP10

The Smallest Embedded Pentium-M® CPU

General Description

The MIP10 is a highly integrated MPL Industrial PC which is on a footprint smaller than two credit cards. Designed for fanless operation, powerful, robust and based on the Intel Centrino Mobile Technology. It incorporates the low Power embedded Pentium-M® 1.4GHz with 2MB L2 cache. On-board integrated is next to numerous standard features, SATA, on-board ECC RAM as well as Gigabit Ethernet. MIP10 represents a distinguish solution for today's demanding industrial needs and x86 upgrades. The product is easy expandable over PC/104 or PC/104-*Plus*. MIP10 is designed from scratch to operate under extreme and normal conditions without the need of fans or derating and throttling. MIP10 is rugged enough to be used in any application.



MIP10 dimensions 96 x 90 mm therefore fully PC/104-*Plus* compliant

MIP10 Specialities

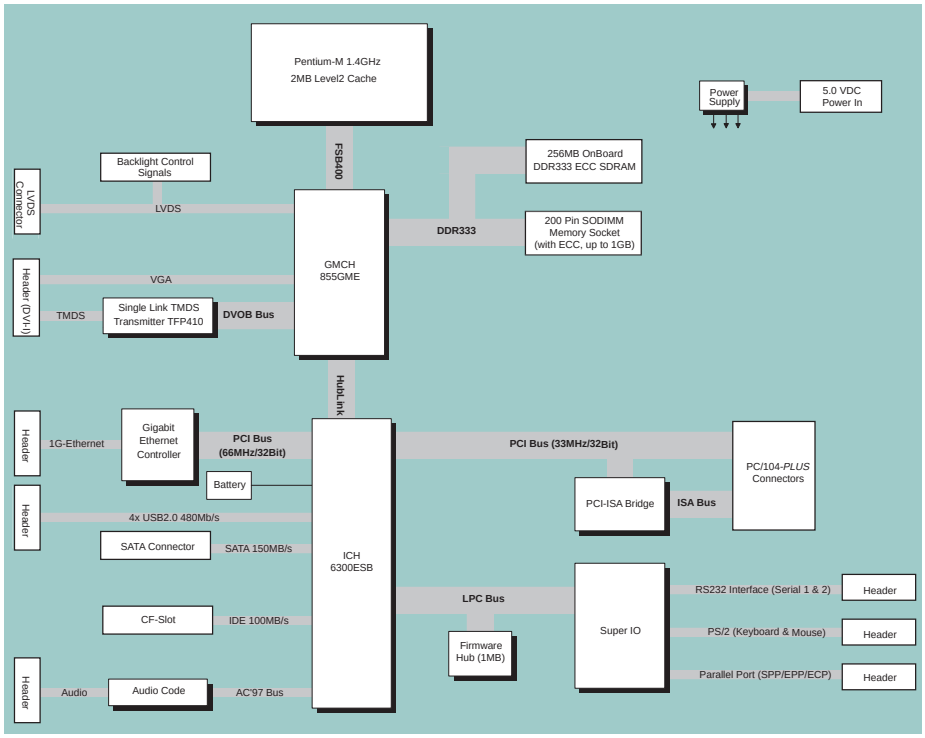
are the extreme small footprint, the low power consumption and the conductive cooling concept as well as its high functionality. The footprint is fully according to the PC/104-*Plus* specification without using the I/O connector overhang areas. The MIP10 is 100% PC compatible and in addition it has several industrial features.

Other distinguish features are:

- Soldered low power CPU
- Soldered ECC RAM
- Lockable headers
- CF-Slot
- Gigabit Ethernet
- Long-term availability

Those features make

the MIP10 to the ideal solution for any application where a high performance PC with a low power consumption and long-term availability is desired. MIP10 is used in vision, medicine, transportation systems, telecom as well as in any industrial applications. Because of its size the MIP10 is ideal to upgrade existing x86 PC/104 boards.



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Technical Features MIP10

Board Key Data		
Processor	Low Power Embedded Pentium-M® CPU, 1.4GHz 2MB Level 2 Cache	Intel SpeedStep, 64-Bit Data Bus CPU in Intel's long-term supply program
Chip Set	Intel 855GME & 6300ESB	400MHz Frontside Bus
BIOS	1MB Flash EEPROM, easy BIOS update	MPL engineered BIOS (General Software)
Memory	Up to 1.25Gb memory with or without ECC 256 MB ECC RAM soldered on-board	200-pin SO-DIMM socket for one module DDR333 memory
FLASH	CF-Slot	Can be used with any CF Storage Card
RTC	Backed with field exchangeable or external battery	CMOS setup can be saved in EEPROM
Graphics	INTEL IGD (Integrated Graphics Device) 250MHz graphic core with 2D and 3D engine 350MHz, 24-bit RAMDAC Dual panel support (DVI, LVDS)	Digital-Video on lockable header 1600 x 1280 Analog-Video on lockable header 2048 x 1536 LVDS ports on lockable header, 1600 x 1280 DVI-I header is ESD protected
Serial Ports	2 x RS232 ports with full modem handshake	On ESD protected, lockable header
USB 2.0	4 x ports with up to 480 Mbit/s	On ESD protected, lockable header, bootable
Ethernet	10BaseT /100BaseTX / 1000BaseTX	On ESD protected, lockable header, auto nego.
Parallel Port	SPP, EPP, ECP (IEEE1284)	On ESD protected, lockable header
S-ATA Port	1 port for transfer rates up to 150Mbyte/s	On standard SATA connector
FDD Port	Up to 2.88 MByte FDD supported	Connection over the Parallel Port
PC/104-Plus Interface	8/16 bit memory and I/O ISA Interface (PC/104)	32 bit PCI interface for up to 4 PC/104-Plus cards
Keyboard / Mouse	PS/2 interfaces	On ESD protected, lockable headers
Audio Interface	3 x inputs (line in, CD microphone) 1 stereo output incl. headphone amplifier	On EDS protected, lockable header
Hardware Watchdog Timer	2 stages, independent count values for each stage	Configurable granularity from 1µs to 10 min
Power Reset Button	On board / remote power and a remote reset button	ATX functionality, ESD protected
Indicators	Bicolored Power / Reset LED	Signals for external LAN LED on header
Temperature sensor	Monitors CPU, on-board memory, as well as the PCB temperature	

Physical / Power		
Size & weight	Footprint: 96mm x 90mm (3.8" x 3.6") as described in PC/104-*Plus* Specification Height: 28.7mm (1.13") without heat spreader	Weight: 180 g
Mounting	Easy mounting over chromated aluminum heat spreader (96mm x 90mm x 6mm) with several thread holes	
Power	5VDC supply power (over PC/104 or separate Plug)	High efficiency switching regulators
Power consumption	Typically 20W	5VDC, 1.4GHz, 256MB DDRAM, HDD
Temperature Range	-20°C up to +60°C, extended temperature optionally	No fan, values at full load
Humidity	5% - 95% non condensing	

Standard Compliance	
The MIP10 is designed to meet the most common standards. Particular references are:	
EMC	EN 55022, EN 55024, EN 61000, MIL-STD-461E
Shock & Vibration	EN 60068
Environmental & Safety	EN 50155, MIL-STD-810-F, EN 60601, EN 60950
Approval Lists	CE, EN60945, IACS E10

MIP10 versions	Expansions & Options	Operating systems
• Complete version • Depopulated versions • Coated versions • Extended temp. versions	Over the PC/104-Plus: • Digital or Analog I/O • Fieldbus (CAN, PROFIBUS, …) • PC Card module	100% PC/AT compatible and can be operated with DOS, Windows, QNX or any other PC compatible operation system. Linux distributions are available.

Other MPL Products	
PC/104 Peripherals	PC/104 and PC/104-*Plus* peripheral solutions (4/8 x serial lines, single & dual LAN, PC card, …) IDE based memory storage solutions (CF, PCMCIA).
Industrial PCs	Fanless, rugged Packed Industrial PCs with Intel CPUs in various housings and with many accessories. Products for extended temperature (-40° up to +75°C) and with long-term availability.
Panel PCs	Fanless, IP65/NEMA4 protected Panel PCs (all around). Solutions with 6" - 19" LCDs and Touch in special aluminum or stainless steel case.
Engineering & Support	Professional engineering, support and consulting through MPL engineers on Hardware and Software.

The MIP10 is fully developed, designed and produced by MPL AG in Switzerland.
For other requirements contact MPL.

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