

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 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:

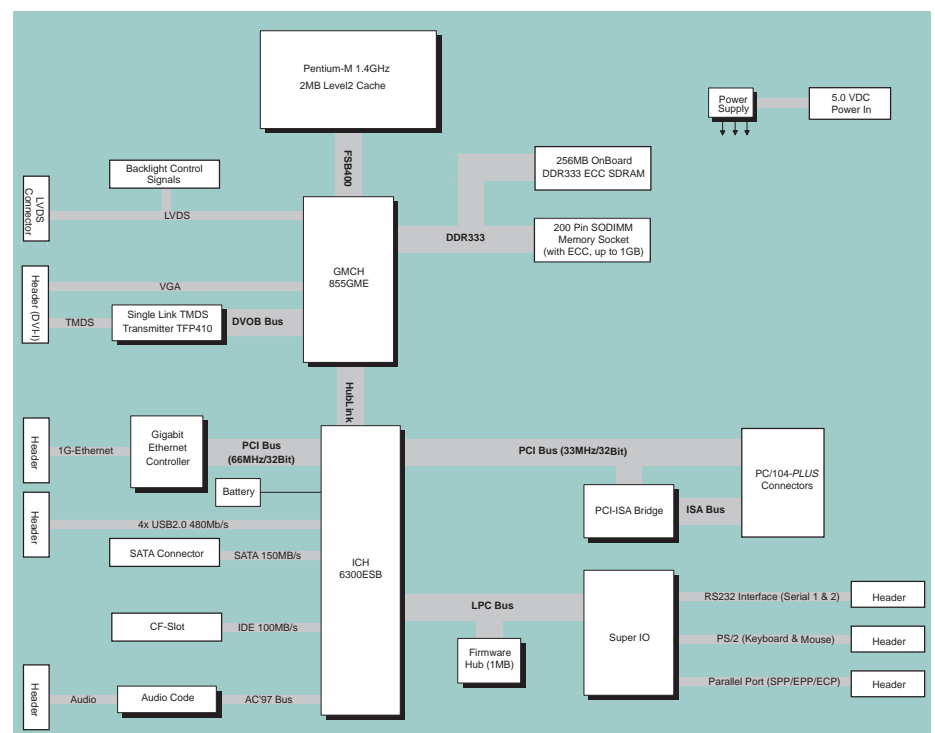
Other distinguish features are:

- 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.

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



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

- Complete version
- Depopulated versions
- Coated versions
- Extended temp. versions

Expansions & Options

- Over the PC/104-Plus:
- Digital or Analog I/O
 - Fieldbus (CAN, PROFIBUS, ...)
 - PC Card module

Operating systems

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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