

MIP10 FAMILY

MIP8 / MIP9 / MIP10 / MIP11

CPU Boards for extreme environments

General Description

The MIP10 family offers highly integrated Embedded CPU Boards on a footprint smaller than two credit cards. It is designed for fanless operation, powerful, robust and based on the Intel Centrino Mobile Technology. Choose from 4 different, long term available, low power Intel CPUs. On-board integrated is next to numerous standard features, SATA, on-board ECC RAM as well as Gigabit Ethernet. The boards represents a distinguish solution for today's demanding industrial needs and x86 upgrade. The products are easy expandable over PC/104 as well as PC/104-Plus. The MIP10 family is designed from scratch to operate under extreme and normal conditions without the need of fans or derating and throttling. The boards are rugged enough to be used in any application.

MIP10 Specialities

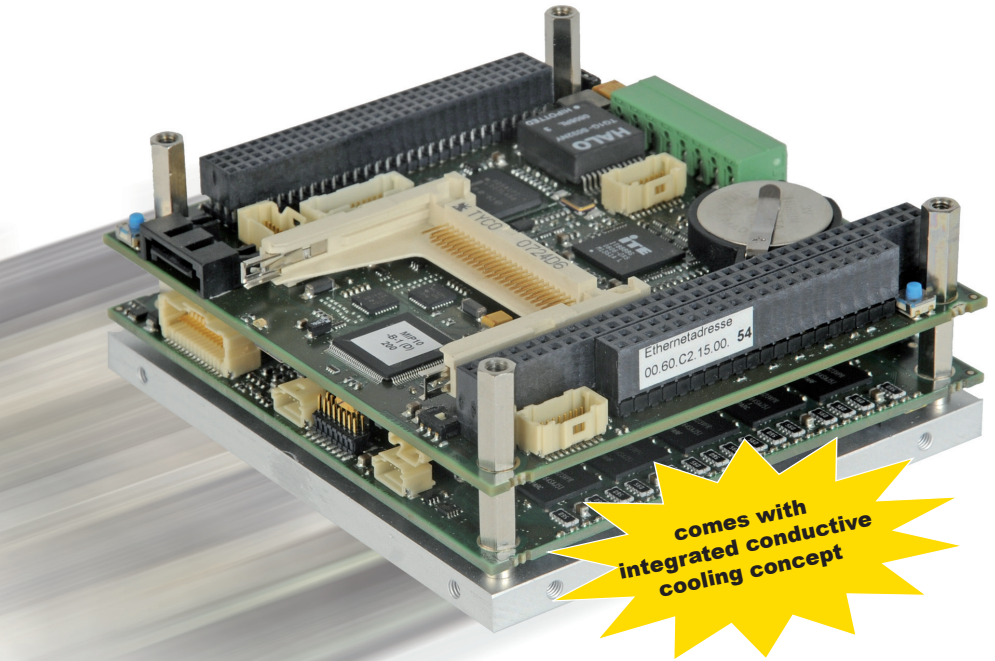
are the extreme small footprint, the low power consumption and the conductive cooling concept as well as its high functionality. The footprint is fully according to the PC/104-Plus specification without using the I/O overhang areas. The boards are 100% PC compatible and in addition offer several industrial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

Other distinguish features are:

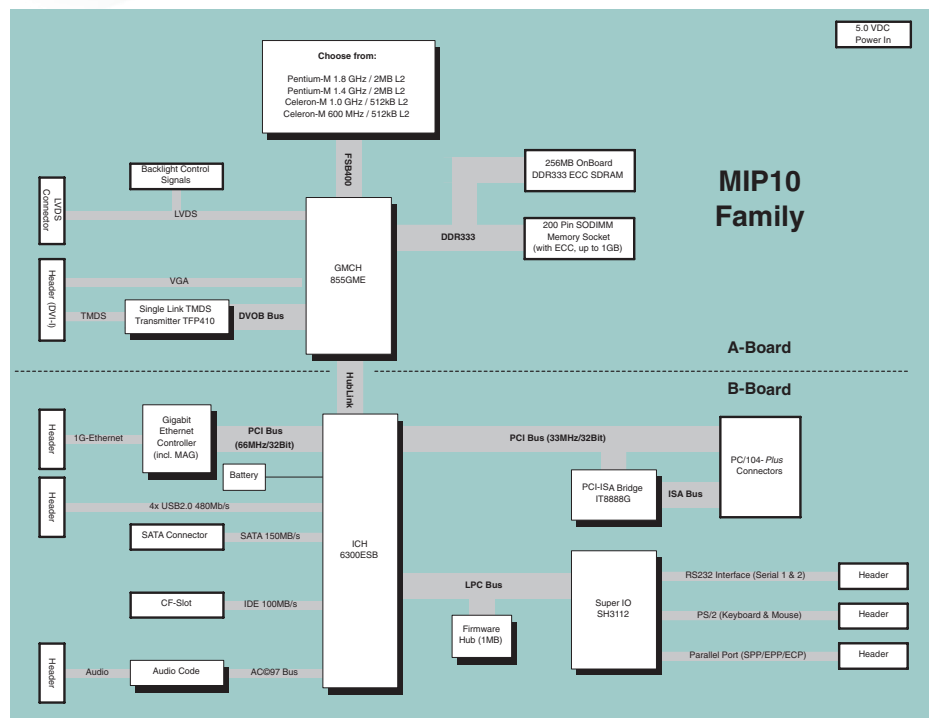
- Soldered low power CPU
- Soldered ECC RAM
- Lockable headers
- CF-Slot
- Gigabit Ethernet
- Long-term availability

Those Features make

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



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



Technical Features

Board Key Data

Processor:	Intel Low Power Embedded:	all from the Embedded IA-Roadmap
MIP11	Pentium-M® CPU, 1.8GHz, 2M L2 cache	Pentium-M® CPUs support Intel SpeedStep
MIP10	Pentium-M® CPU, 1.4GHz, 2M L2 cache	
MIP9	Celeron-M® CPU, 1.0GHz, 512kB L2 cache	
MIP8	Celeron-M® CPU, 600 MHz, 512kB L2 cache	
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 256MB 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 1920 x 1200 Analog-Video on lockable header 2048 x 1536 LVDS ports on lockable header, 1920 x 1200 (WUXGA) DVD-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 header
Audio Interface	3 x inputs (line in, CD, microphone) 1 stereo output incl. headphone amplifier	On ESD 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 and PCB temperature	

Physical / Power

Size & weight	Footprint: 96mm x 90mm (3.8" x 3.6") Height: 28.7mm (1.13") without heat spreader	as described in PC/104-Plus Specification Weight: 180 g
Mounting	Easy mounting over chromated aluminum heat spreader (96mm x 90mm) with several thread holes	
Power	5VDC supply power (over PC104 or separate plug)	High efficiency switching regulators
Board Data:	Power Consumption	Standard Temperature
MIP11	11 – 22W	-20°C to +60°C
MIP10	11 – 19W	-20°C to +60°C
MIP9	11 – 15W	-20°C to +60°C
MIP8	11 – 15W	-20°C to +60°C
Measured at 5VDC	Upper value under full speed and full load with 512MB RAM, Gigabit Link, SATA HD	
Humidity	5% - 95% non condensing	

Standard Compliance

All MIP10 family boards are 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

Board 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, ...)
 - GigE and switch modules

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.

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



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