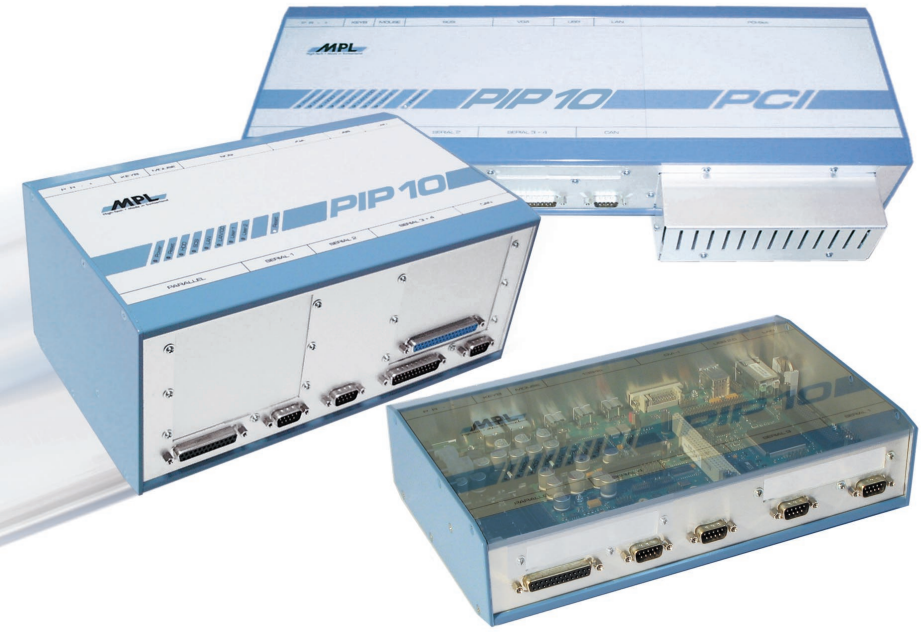
PIP10

The other Pentium-M® Solution

800 Mbit Firewire, SATA & Gigabit Ethernet

General Description

PIP10 is a powerful, highly integrated, robust and fanless Packaged Industrial PC based on Intel's Embedded Mobile Technology. It incorporates the low Power embedded Pentium-M® with 1.4 GHz and 2MB L2 cache. On-board integrated are numerous features like SATA, Gigabit Ethernet, and Firewire 1394b. The PIP10 represents an unique solution for today's demanding industrial needs and is available with various options and housings. The PIP10 is designed to operate under extreme as well as normal conditions without the need of fans and without derating or throttling. The special engineering results in an unique solution which is compact, maintenance free, noiseless, and rugged. All MPL PIP solutions can be assembled according to your needs.



PIP10 in various rugged aluminum housings with best EMI/RFI protection (inside chromated, externally powder coated or eloxated)

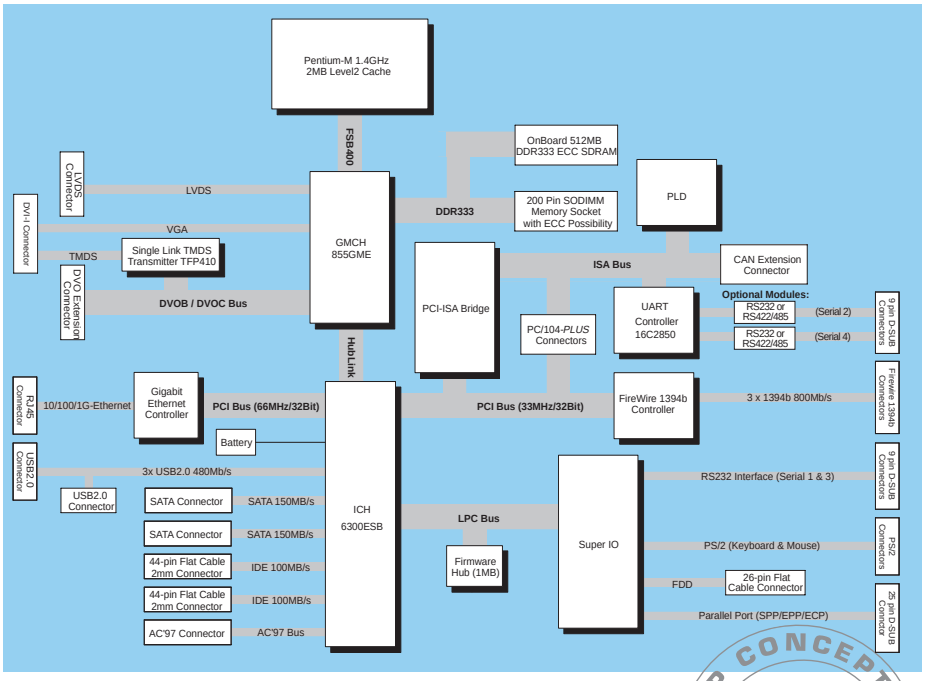
The PIP10 specialties

are extreme low power consumption and high flexibility due to various expansions. Furthermore the unit has a complete set of PC interfaces (USB 2.0, IEEE1394b, LAN, Graphics...). It offers industrial features like 8-28 VDC input power, 4 serial ports (RS232/485), PC/104-*Plus* (with full ISA bus), PCI and PMC expansion, CAN and even UPS functionalities can be added optional. Other features are:

- Soldered ECC protected SDRAM
- Operational at -40°C up to +75°C
- Fanless operation
- Various case solutions/sizes
- Long term availability

Those features make

the PIP10 to the ideal solution for any application where a high performance PC with a low power consumption is required. Additional you benefit from a high quality, very rugged, small size, and expandable Industrial PC solution. The PIP10 is widely used in vision, medicine, defense, transportation, telecom, and in industrial applications.



PIP CONCEPT * SNAP-ON & WORK * Rugged Industrial PC

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Technical Features PIP10

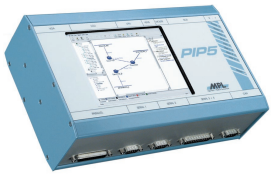
Board Key Data		
Processor	Low Power Embedded Pentium-M® CPU, 1,4 GHz 2MB Level 2 Cache	Intel SpeedStep, 64-Bit Data Bus CPU in Intel's long-term supply program
Chip Set	Intel 855GME & 6300ESB	400MHz Frontside Bus
BIOS	1MB Flash EEPROM, easy BIOS update	MPL engineered BIOS (General Software)
Memory	Up to 1.5GB memory with or without ECC 512 MB ECC RAM soldered on-board	200-pin SO-DIMM socket for one module DDR333 memory
Watchdog Timer	2 stages, independent count values for each stage	Configurable granularity from 1µs to 10 min
Indicators	8 two color LEDs, 6 activity + 2 user definable	Power, Reset, HDD, IEEE1394b, 2 x LAN
Interfaces		
Graphic	INTEL IGD (Integrated Graphics Device) 250MHz graphics core with 2D and 3D engine Optionally dual panel support possible	Digital-Video on DVI-I connector max.1920x1200 Analog-Video on DVI-I connector max. 2048x1536 LVDS ports on 1.27 header, 1920x1200 (WUXGA)
3 x USB 2.0	2 ports external, 1 port internal	2 x Type A connectors, ESD protected, bootable
3 x FireWire	IEEE-1394b ports, up to 800Mbit/s Power source for external device possible	Bilingual connector ESD protected
1 x Ethernet	10BaseT /100BaseTX / 1000BaseTX	RJ45 connector, ESD protected, auto negotiation
4 x Serial Ports	2 ports fix as RS232 2 ports optionally via RS232 or RS422/485 modules	4 x 9-pin DSUB, ESD protected Transfer rates up to 230.4 kBaud
2 x E-IDE Ports	Up to 4 drives PIO mode 4 and Bus Master IDE	2 x standard 44-pin header
2 x SATA Ports	Data transfer rates up to 150Mbyte/s	2 x standard SATA connectors
2 x PS/2	For keyboard and mouse	2 x 6-pin mini DIN connector, ESD protected
Parallel Port	SPP, EPP, ECP (IEEE1284)	25-pin DSUB connector, ESD protected
Power/Reset Button	On chassis (protected) and remote buttons	ATX functionality, ESD protected
PC/104-*Plus*	8/16 bit memory and I/O ISA-Interface (PC/104)	32-bit PCI-Interface for up to 4 PC/104-*Plus* cards
Optional PIP10 Features (not via PC/104-*Plus*, PCI or PMC)		
AC97 Sound Module	Offering Line IN, Line OUT, Headphone & MIC	All available on 3.5 mm Jacks
CAN Bus Extension	Internal isolated CAN 2.0 module	Externally available on DB-9, ESD protected
WLAN Module	Connected to internal USB port	Supports 802.11b/g
UPS Extension	Internal UPS module	For safe shut down (or autonomous operation)
Physical / Power		
Chassis	Rugged chromated aluminum with EMI protection	DIN-rail, flange mounting, no ventilation holes
Size & Weight	270 x 162 mm, with PIPPCI 440 x 162 mm	Height depending on needs 62/83/120 mm / 2.2kg
Power	8 – 28VDC input range, optionally up to 48VDC	Consumption typically 20W
Temperature Range	-20°C up to +60°C, optional –40°C up to +75°C	No fan, no openings, values at full CPU load
Humidity	5% - 95% non condensing	Optional coating available
Standard Compliance		
The PIP10 is designed to meet or exceed 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, EN 60945, IACS E10	

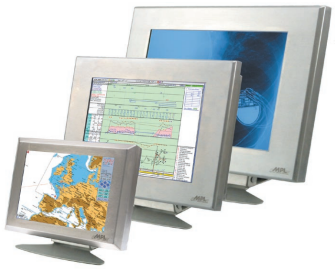
PIP10 versions

– PIP10-1 fully equipped with on-board soldered 512MB SDRAM & FireWire
– PIP10-2 without on-board soldered 512MB SDRAM & FireWire; only 2 x RS232 and no Expansion
– PIP10-Cx depopulated (less features) and/or other color, customer label...

Internal PIP Expansions, Options and Operating Systems

- Over the PC/104 & PC/104-*Plus*
  - Digital & Analog I/O's
  - Fieldbus (CAN, PROFIBUS...)
  - Or any other Module
- Hard Disks, Flash Disks, CF
- CD-ROM, RAID, PCCARD
- PCI and PMC expansions
- 6.5" LCD and Touch built in PIP-chassis
- 12" - 19" Panel PCs in special aluminum or stainless steel case (fanless, IP65/NEMA4)
- Operating systems:
  PIP's are 100% PC/AT compatible therefore any PC operating system (Windows, LINUX RTOS …) can be used





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PIP10-E

Extreme Rugged Embedded PC with 3 Gigabit Ethernet and Pentium-M®

General Description

PIP10-E is a powerful, highly integrated, robust and fanless Packaged Industrial PC based on Intel's Embedded Mobile Technology. It incorporates the low Power embedded Pentium-M® with 1.4 GHz and 2MB L2 cache. On-board integrated are numerous features like triple Gigabit Ethernet, serial ports, USB 2.0 and much more.

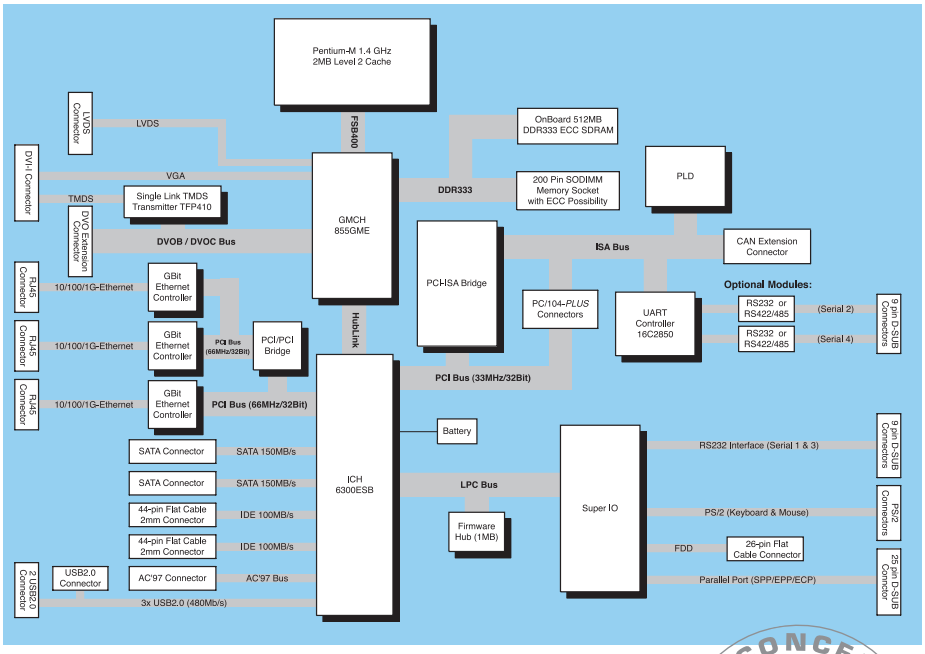
The PIP10-E represents an unique solution for today's demanding industrial needs and is available with various options and housings. Therefore easy to expand and to adjust to your needs. The PIP10-E is designed to operate under extreme as well as normal conditions without the need of fans and without derating or throttling. The special engineering results in a solution which is compact, maintenance free, noiseless, and rugged.

PIP10-E available in various rugged aluminum housings with best EMI/RFI protection (inside chromated, externally powder coated/anodized)

The PIP10-E specialties

are next to the triple Gigabit ports the extreme low power consumption and high flexibility due to various expansions. Furthermore the unit has a complete set of PC interfaces and offers industrial features like 8-28 VDC input power, 4 serial ports (RS232/485), PC/104-*Plus* (with full ISA bus), PCI and PMC expansion, CAN and even UPS functionalities can be added optional. The unique features are:

- Three Gigabit Ethernet ports
- Soldered ECC protected SDRAM
- Fanless operation -40°C up to +75°C
- Various case solutions/sizes
- 5-10 years availability



Those features make

the PIP10-E to the ideal solution for any application where a high performance PC with a low power consumption is required. Additional you benefit from a high quality, very rugged, small size, and expandable Industrial PC solution. The PIP10-E is widely used in vision, medicine, defense, transportation, telecom, and in industrial applications.

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Technical Features PIP10-E

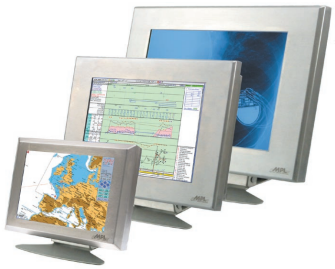
Board Key Data		
Processor	Low Power Embedded Pentium-M® CPU, 1,4 GHz 2MB Level 2 Cache	Intel SpeedStep, 64-Bit Data Bus CPU in Intel's long-term supply program
Chip Set	Intel 855GME & 6300ESB	400MHz Frontside Bus
BIOS	1MB Flash EEPROM, easy BIOS update	MPL engineered BIOS (General Software)
Memory	Up to 1.5GB memory with or without ECC 512 MB ECC RAM soldered on-board	200-pin SO-DIMM socket for one module DDR333 memory
Watchdog Timer	2 stages, independent count values for each stage	Configurable granularity from 1µs to 10 min
Indicators	11 two color LEDs, 9 activity + 2 user definable	Power, Reset, HDD, 6 x LAN
Interfaces		
Graphic	INTEL IGD (Integrated Graphics Device) 250MHz graphics core with 2D and 3D engine Optionally dual panel support possible	Digital-Video on DVI-I connector max.1920x1200 Analog-Video on DVI-I connector max. 2048x1536 LVDS ports on 1.27 header, 1920x1200 (WUXGA)
3 x Ethernet	10BaseT /100BaseTX / 1000BaseTX	RJ45 connectors, ESD protected, auto negotiation
3 x USB 2.0	2 ports external, 1 port internal	2 x Type A connectors, ESD protected, bootable
4 x Serial Ports	2 ports fix as RS232 2 ports optionally via RS232 or RS422/485 modules	4 x 9-pin DSUB, ESD protected Transfer rates up to 230.4 kBaud
2 x E-IDE Ports	Up to 4 drives PIO mode 4 and Bus Master IDE	2 x standard 44-pin header
2 x SATA Ports	Data transfer rates up to 150Mbyte/s	2 x standard SATA connectors
2 x PS/2	For keyboard and mouse	2 x 6-pin mini DIN connector, ESD protected
Parallel Port	SPP, EPP, ECP (IEEE1284)	25-pin DSUB connector, ESD protected
Power/Reset Button	On chassis (protected) and remote buttons	ATX functionality, ESD protected
PC/104-*Plus*	8/16 bit memory and I/O ISA-Interface (PC/104)	32-bit PCI-Interface for up to 4 PC/104-*Plus* cards
Optional PIP10-E Features (not via PC/104-*Plus*, PCI or PMC)		
AC97 Sound Module	Offering Line IN, Line OUT, Headphone & MIC	All available on 3.5 mm Jacks
CAN Bus Extension	Internal isolated CAN 2.0 module	Externally available on DB-9, ESD protected
WLAN Module	Connected to internal USB port	Supports 802.11b/g
UPS Extension	Internal UPS module	For safe shut down (or autonomous operation)
Serial GPS Module	Mounted on one of the optional serial ports	Supports TSIP, TAIP & NMEA
Physical / Power		
Chassis	Rugged chromated aluminum with EMI protection	DIN-rail, flange mounting, no ventilation holes
Size & Weight	270 x 162 mm, with PIPPCI 440 x 162 mm	Height depending on needs 62/83/120 mm / 2.2kg
Power	8 – 28VDC input range, optionally up to 48VDC	Consumption typically 23W
Temperature Range	-20°C up to +60°C, optional –40°C up to +75°C	No fan, no openings, values at full CPU load
Humidity	5% - 95% non condensing	Optional coating available
Standard Compliance		
The PIP10-E is designed to meet or exceed 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, EN 60945, IACS E10	

PIP10-E versions

- PIP10-1E fully equipped with on-board soldered ECC RAM
- Extended temperature range
- Coated
- PIP10-CxE depopulated (less features) and/or other color, customer label...

Internal PIP Expansions, Options and Operating Systems

- Over the PC/104 & PC/104-*Plus*
  - Digital & Analog I/O's
  - Fieldbus (CAN, PROFIBUS...)
  - Or any other Module
- Hard Disks, Flash Disks, CF
- CD-ROM, RAID, PCCARD
- PCI and PMC expansions
- 6.5" LCD and Touch built in PIP-chassis
- 12" - 19" Panel PCs in special aluminum or stainless steel case (fanless, IP65/NEMA4)
- Operating systems:
  PIP's are 100% PC/AT compatible therefore any PC operating system (Windows, LINUX RTOS …) can be used



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