PIP8

Ruggedized 1.0 GHz Celeron-M® PC

with lowest power consumption

General Description

The PIP8 is a highly integrated and robust Packaged Industrial PC with the low power Celeron-M® 1.0 GHz processor out of Intel's long term availability Embedded Program. PIP8 complements the existing PIP Product family that represents a unique solution for today's demanding industrial needs. PIPs are available in various options and are built into a extreme compact EMI/RFI sealed aluminum chassis. They can be operated under extreme as well as under normal conditions without the need of fans. All MPL PIP solutions can be assebled according to your needs.

PIP8: robust – rugged – reliable embedded solution in flexible aluminum housing with best EMI/RFI protection.

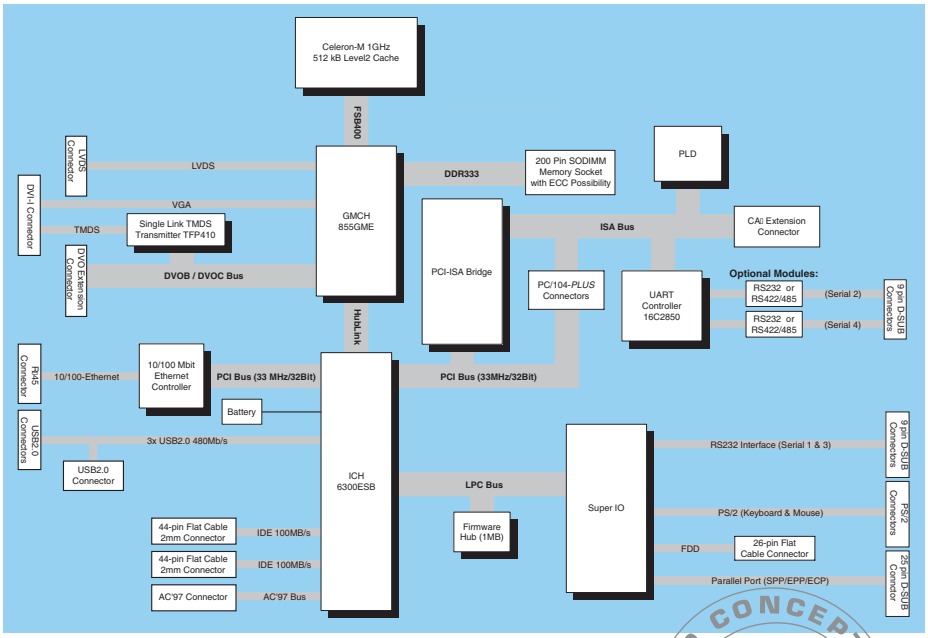
The PIP8 Capabilities

Among many specialities the extreme low power consumption is extraordinary, depending on the application running it is typically 10 Watt up to 16 Watt. Next to standard PC/AT features the PIP8 offers ideal characteristics for a industrial environment like:

- Lowest power, high performance
- Wide temperature range (-40°C/+75°C)
- Fanless operation
- Integration of HDD, Flash, PC/104
- Long term availability
- Complete family – all in the same housing
- Additional functions easy to add

These features make

the PIP8 to the ideal and compact solution where high processing power, long availability, low power consuption and high quality is needed. The PIPs are used in telecom, medicine, vehicles, office as well as in any industrial applications.



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

MPL

High-Tech • Made in Switzerland

Technical Features PIP8

Board Key Data		
Processor	Low Power Embedded Celeron-M® CPU, 1.0GHz 512 kB Level 2 Cache	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 1GB memory with or without ECC	200-pin SO-DIMM socket for one DDR333 module
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
1 x Ethernet	10BaseT /100BaseTX	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 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 PIP8 Features		
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
Serial GPS Module	Mounted on one of the optional serial ports	Supports TSIP, TAIP & NMEA
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 16W
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 PIP8 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

PIP8 versions

- PIP8-11 fully equipped in standard temperature range
- Extended temperature range
- Coated
- PIP8-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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