Rugged Embedded Computer Solution
with Intel® Core™ i7 and Celeron® Processor

General Description

The PIP30 Product Family is a high performance, low power and highly integrated rugged Embedded Computer. The solution is available in a compact aluminum housing with DIN-Rail or flange, a rugged MIL IP67 case, or an open frame solution with a cooling plate, configurable depending on your application. The unique chassis solutions allows to operate the PIP30 product range in a moderate as well as in harsh environments without the need of fan or ventilation holes. The design integrates standard connectors for easy connection or lockable headers, depending on housing choice or needs. Therefore, the PIP30 Family can be used for any high quality x86 application where a complete but still expandable solution is needed.

PIP30 Family Highlights

The PIP housings offer sufficient space for up to four 2.5" HDD/SSD or other expansions like UPS, RAID..). Two mPCIe slots allow to expand the system very easy. The internal expansion bus allows to integrate PCI or PCIe cards. This expansion possibilities give a maximum on customization for additional interfaces and features. Particular precautions during the design have been taken that the entire system EMC is within the CE and FCC limits and standards like EN50155, IEC 60945 or MIL-STD-810 can be met.

Key features are:

- On-board soldered DDR3 ECC RAM up to 4GB (up to 12GB via SO-DIMM slot)
- 4 independent GigE Ethernet ports on RJ45 (optionally on M12 or fiber)
- Fanless operation, also with -40°C to 75°C
- Long term availability*
- Extremely flexible

The PIP30 Family has been designed to withstand any harsh environments and extreme temperature conditions. The special rugged design, combined with the best industrial-grade components, offer high reliability and long-term performance.

* Typically 10 years or more, 20+ years repair-ability

The PIP30 Family is available for different Industries and is the perfect embedded computer solution for industrial environments, railway applications, MIL/COTS applications, or whenever a rugged long-term available computer is needed.

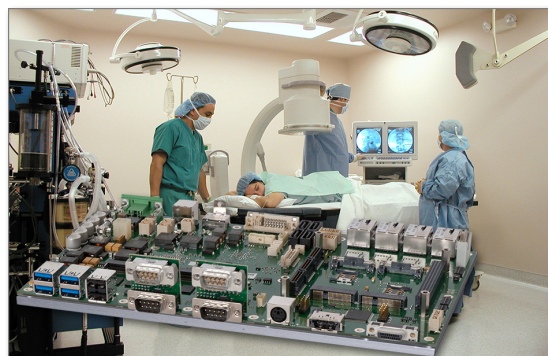All MPL products are 100% designed and manufactured in Switzerland.

MPL AG is an ISO9001 certified company

PIP38 used in harsh environments, equipped with UPS and removable battery, GPRS, GPS, and PoE.

MIL-PIP32 for rough use in military environment as communication controller.

RAIL-PIP37 used in rugged railway application, Profibus & LAN ports on M12 connectors.

OPEN-PIP31 for integration in existing housing. Cooling plate & CPU board are semi-customized.

MPL
High-Tech • Made in Switzerland

Technical Features

Board Key Data

	PIP31-1	**PIP32-1**	**PIP37-1**	**PIP38-1**
Processor	Intel Celeron 927UE	Intel Celeron 1047UE	Intel i7-3517UE	Intel i7-3555LE
# of cores / threads	1 / 1	2 / 2	2 / 4	2 / 4
Clock speed	1.5 GHz	1.4 GHz	1.7 / 2.8 GHz	2.5 / 3.1 GHz
L2 Cache	1 MB	2 MB	4 MB	4 MB
Passmark (all cores)	566	1188	3807	4080

Chipset	Intel QM77 (Panther Point), supports ACPI power states S1, S4, and S5, USB 3.0...
Memory	4GB DDR3 on-board soldered ECC RAM
	1x 204-pin dual-channel DDR3 SODIMM slot, supports up to 8GB modules (total board memory 12GB)
BIOS	On-board soldered 8MB Flash, MPL engineered BIOS (SecureCore by Phoenix), customizable
TPM	Trusted Platform Support
Watchdog Timer	Configurable granularity 1-255 sec. or 1-255 min.
Indicator LEDs	Power, Reset, HDD LAN, and Wi-Fi LEDs, 2 user programmable LEDs

Mass Storage

SATA	2x SATA 3.0 ports and 2x SATA 2.0 ports, RAID 0/1/5/10 support
mSATA	1x mSATA Full-Mini Card combo socket with SATA 2.0 & USB 2.0
eSATAp	Powered external SATA port with SATA 2.0 and USB 2.0, ESD protected connector

Interfaces

Graphics Interfaces	Display Port (DP) up to 2560x1600 (DP) and DVI-I and 24-bit LVDS up to 1920 x 1200
	Dual display capable, ESD protected. Gen3 PCIe port x16 (PEG) for graphic card.
USB	4x USB 3.0 ports, 2x USB 2.0 ports, supports USB keyboards and mice as legacy devices
	3x additional internal USB2.0 ports
LAN	4x GbE ports (Intel 82574IT) on RJ45 , ESD protected connectors, Wake on LAN support
Serial Ports	2x full modem RS232 ports, ESD protected external DB9 connectors
	2x additional RS232/485 ports (optional)
PS/2	For keyboard and mouse, 1x 6-pin Mini-DIN connector, ESD protected
HDAudio	Intel HDAudio signals, available on a 1 mm header, sound card (HDSOUND-1) is available

Expansions

mPCIe	2x mPCIe PCI Express Gen2, x1 lane & USB 2.0 (1 combined with mSATA)
ePCIe	1x external PCI Express Gen2, x1 lane port with 500 MB/s, ESD protected connector
PCI/104-Express	1x PCIe/104 slot (4x PCIe x1 lane, 2x USB 2.0), PCI/104 slot (33 or 66 MHz PCI bus)

Power

Input Voltage	8 - 36 VDC input range, ESD and EMC protected power input (optionally up to 110VDC)
	Protection against: up to -36 VDC over voltage , reverse polarity, up to 150V load dump
	Reset & Power button*
	Ignition input specifically for vehicles* (*also available on a 4-pin Mini-DIN connector)
Power consumption	PIP31: 11-17 Watt / PIP32: 11-19 Watt / PIP37: 11-33 Watt / PIP38: 11-36 Watt
	(Enhanced Intel Speed Step Technology, all LANs operational)

Environment

Storage Temperature	-45°C up to +85°C (-49°F to +185°F)
Operating Temperature	-20°C to +60°C (-4°F to +140°F), with full CPU, 3D video and memory usage, fanless
Ext. Temp. (optional)	-40°C to +75°C (-40°F to +167°F), fanless , final test in climate chamber with test protocol
Relative Humidity	5% to 95% non condensing, optional coating available

Standard Compliance

The PIP30 Family 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-810G, EN 60601, EN 60950
Approval List	CE, IEC 60945, IACS E10

Packaging

Chassis version	length		width		heights	weight	
DIN Rail	270	x	162	x	62/83/120mm	2.2 kg (4.85 lb.) with HDD	(custom color or foil available)
Flange	290	x	162	x	62/83/120mm	2.2 kg (4.85 lb.) with HDD	(custom color or foil available)
Open Frame	260	x	154	x	33mm	1.0 kg (2.2 lb.)	(custom cooling plate available)
IP67 MIL	304	x	234	x	75/95mm	3.0 kg (6.6 lb.)	(custom housings and connectors available)

The aluminum housings are internally chromated, externally powder coated or anodized, no ventilation holes.

The cooling plate for the open frame versions is chromated. Depopulated versions or solutions with headers can be offered.

MPL AG is an ISO9001 certified company

MPL
High-Tech • Made in Switzerland

**ICP Electronics
Australia Pty Ltd**

TEL: 02 9457 6011
sales@icp-australia.com.au
www.icp-australia.com.au

icp
Electronics Australia