Rugged Embedded Computer Solution
with fanless Intel® Quad Core™ i7 Processor

General Description

The PIP39 is a high performance, low power and highly integrated rugged Embedded Computer, built in a specially designed aluminum or MIL IP67 housing. This allows to operate the PIP in a moderate or in a harsh environment without fan or air vents. The design integrates standard connectors for easy connection or lockable headers, depending on housing choice. Therefore the PIP39 board can be used for any x86 application where a complete solution is needed.

PIP39 Highlights

The PIP housings offer space for up to two 2.5 inch HDD/SSD. With the integrated PCI/104-Express interface and the two PCI-Express Mini Card Slots there are flexible expansion possibilities available. Particular precautions have been taken that the entire system EMC is within the CE and FCC limits:

Key features are:

- DDR3 ECC RAM up to 16GB
- Two Gigabit Ethernet ports (expandable to 6)
- Fanless operation
- Long term availability*
- PCIe x16 expansion

The PIP39 has been designed to withstand harsh environments and extreme temperature conditions. The special rugged design, combined with the best industrial-grade components, offer high reliability and long-term performance.

The PIP39 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.

MPL products are 100% designed and manufactured in Switzerland. All products are fanless, shock and vibration proof, low power, rugged, and long-term* available. The perfect solution for a system to be used in rugged environments.

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

PIP39 for the harsh Industrial Environment
Standard alum housing available with DIN-Rail or flange, equipped with CAN and dual SSD as RAID solution.

MIL-PIP39 for rough use in Military Environments
IP67 alum housing configured according customer requirement.

RAIL-PIP39 for the rugged Railway Application
LAN on M12, housing with flange, internal DC/DC converter and UPS system.
EN 50155 certified

MPL AG is an ISO9001 certified company

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High-Tech • Made in Switzerland

Technical Features

Board Key Data

	PIP39
Processor	Intel i7-3612QE
# of cores / threads	4 / 8
Clock speed	2.1 / 3.1 GHz
L2 Cache	6 MB
Passmark (all cores)	6665

Chipset	Intel QM77, supports ACPI power states S1, S4, and S5, USB 3.0...
Memory	Up to 16 GB DDR3-1600 ECC memory in two SO-DIMM slots
BIOS	on-board soldered 8MB Flash, MPL engineered BIOS (SecureCore by Phoenix), customizable
TPM	Trusted Platform Module v1.2 (Atmel AT97SC3204) soldered on board
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	2 x SATA 3.0 ports, 2 x SATA 2.0 ports, all ESD protected
	RAID 0/1/5/10 support
mSATA	1 x mSATA Full-Mini Card combo socket w SATA 2.0 & USB 2.0

Interfaces

Graphics Interfaces	DP, DVI-I and 24-bit LVDS interface, ESD protected (DVI-I and Display Port)
	up to 2560x1600 (DP) Dual display capable
USB	4 x USB 3.0 ports, 7 x USB 2.0 ports, supports USB keyboards and mice as legacy devices
LAN	2 x GbE ports (Intel 82574IT), ESD protected connectors, WOL support, ESD protected
PS/2	for keyboard and mouse, 1 x 6-pin Mini-DIN connector, ESD protected
Serial Ports	2 x full modem RS232 ports, ESD protected external DB9 connectors
	2 x RS232/485 optional
HDAudio	Intel HDAudio signals, available on a 1 mm header, sound card (HDSOUND-1) is available

Expansions

mPCIe	1 x mPCIe PCI Express Gen2 x1 lane & USB 2.0
PCI/104-Express	1 x PCIe x16, 4 x PCIe x1 lane, 2 x USB 2.0 (PCI/104-Express to PCIe x16 available)

Power

Input Voltage	10 VDC - 36 VDC input range, ESD and EMC protected power input
	up to -36VDC reverse polarity protection
	up to 150 V load dump protection
	Reset & Power button*
	Ignition input specifically for vehicles* (*also available on a 4-pin Mini-DIN connector)
Power consumption	17 – 46 Watt, Enhanced Intel Speed Step Technology

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
	Extended operating temperature range available, MIL solution are in extended temperature
	Extended temperature range depends on the cooling capability of the housing used
Relative Humidity	5% to 95% non condensing, optional coating available

Standard Compliance

The PIP39 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 List	CE, IEC 60945, IACS E10

Packaging

Chassis version	length	width	heights	weight	
DIN Rail	270	x 162	x 83 /120mm	2.2 kg (4.85 lb.) with HDD	(custom color or foil available)
Flange	312	x 162	x 83 /120mm	2.2 kg (4.85 lb.) with HDD	(custom color or foil available)
Open Frame	218	x 154	x 43mm (min.)	1.5 kg (3.3 lb.) custom cooling plates, population, header version avail.	
IP67 MIL	304	x 234	x 75 / 95mm	3.6 kg (7.9 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.

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