

Rugged Railway Computer Solution with Intel® i7 Quad Core Processor

General Description

The RAIL-PIP39 Product is a high performance, low power, and highly integrated rugged Embedded Computer, designed for railway operation. The solution is available in a compact aluminum housing with flange mounting. The unique chassis solutions allows to operate the RAIL-PIP39 in a moderate as well as in harsh environments without the need of a fan or ventilation holes. The design integrates standard connectors for easy connection or lockable headers, depending on project needs. Therefore, the RAIL-PIP39 can be used for any high quality x86 application where a complete but still expandable solution is needed.

RAIL-PIP39 Highlights

The PIP housings offer sufficient space for up to four 2.5" HDD/SSD or other expansions like UPS, RAID..). One 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:

- Up to 16GB DDR3 ECC RAM
- 2 independent GigE Ethernet ports on RJ45 (optionally on M12, fiber, PoE+)
- Fanless operation, also with -40°C to 75°C
- Long term availability*
- Extremely flexible

The RAIL-PIP39 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

MPL's Railway Solutions are EN50155 certified and all units undergo severe environmental testing to ensure reliable performance under a variety of power conditions, such as voltage variations, power interruptions, and supply changeover. The systems are also tested to withstand environmental disturbances, like vibration, shock, and extreme temperature.



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



RAIL-PIP39 for the harsh environment
in standard aluminum housing with flange mounting



RAIL-PIP39 EN50155 certified 19" rack solution
with RAID, GPS and WLAN



RAIL-PIP39 (LAN, USB and power on M12)

MPL AG is an ISO9001 certified company

Web: www.mpl.ch
Email: info@mpl.ch

MPL AG, Täfernstrasse 20, CH-5405 Dättwil
Phone +41 56 483 34 34 Switzerland

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Technical Features

Board Key Data	
Processor	PIP39 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 Bus	
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 optional 18 - 48VDC or 60 - 163VDC Reset & Power button*
Power consumption	Ignition input specifically for vehicles* 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
Relative Humidity	5% to 95% non condensing, optional coating available
Standard Compliance	
The RAIL-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
Certifications	EN 50155 Class Tx (-45°C up to +85°C)

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.
19" Rack mount	483 x	263 x	62 / 88 / 120mm		(custom color or foil 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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Web: www.mpl.ch
Email: info@mpl.ch

MPL AG, Täfernstrasse 20, CH-5405 Dättwil
Phone +41 56 483 34 34 Switzerland

