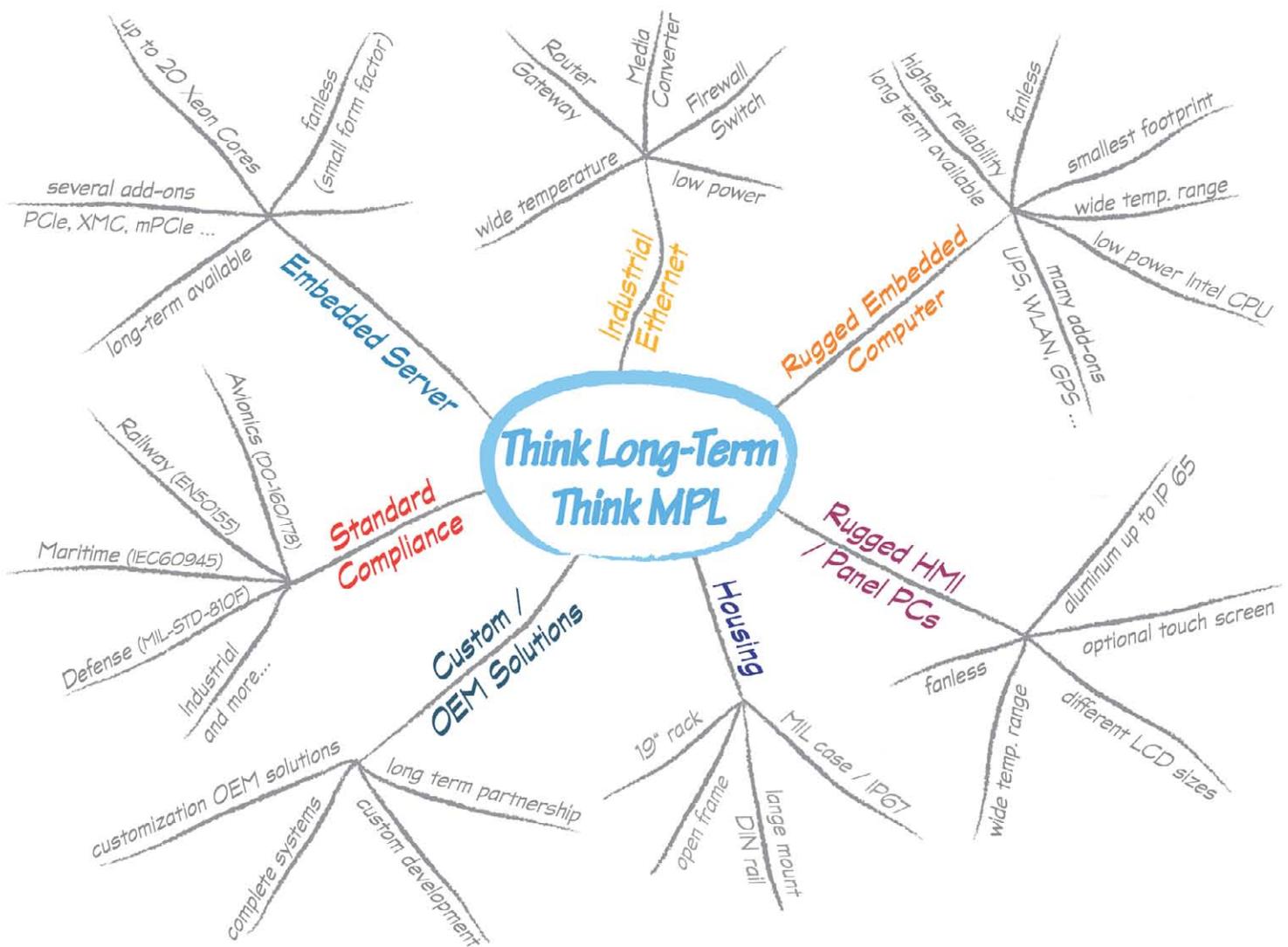


Railway Solutions



Why is MPL the right partner for Railway applications?

TEN Reasons to buy MPL Products

1. Continuity

Since 1985, MPL has been the industry leader in developing and manufacturing rugged, fanless electronics, and embedded systems for customers demanding best quality. MPL's commitment to design, high reliability, low power consumption, extended temperature, and long-term available products are the cornerstones of our success.

2. Innovation

MPL products differ clearly from other products on the market. Most other products are cost optimized, but neglect the quality in design control, life cycle management, low power consumption, and MTBF optimization found in each MPL product. MPL maintains special agreements and relationships with the major chip suppliers who offer MPL early access to the latest technology developments.

3. Unmatched Quality

MPL products are designed from inception to insure high reliability when operating in rugged and tough railway environments. A further development focus is to produce consistent, stable, long-term available products, helping to reduce our customers TCO.

4. Low power Design increases MTBF

We design products and solutions that have the lowest possible power consumption in the industry. They generate less heat, less stress, and therefore a higher MTBF value with a better reliability rate as the proven result.

5. Extended Temperature Range (-40°C up to +85°C)

Each standard MPL product withstands operating temperatures of -20°C to +60°C. Products with the extended temperature option receive additional specific product tests and test cycles in our environmental chambers. Test reports are delivered with each product. Wherever possible, components with a temperature range of -40°C to +85°C will be selected.

6. Long-term available Solutions

Our main target is long-term availability, as this is a major cost reduction factor for our customer. Whenever possible, MPL uses products out of the embedded road map from various suppliers. MPL maintains end-of-life stock to ensure longevity of supply and longevity of repair. Typical long-term availability is 10 years after introduction, and repairs over 20 years.

7. Highly Ruggedized

MPL products are specifically designed to withstand harsh environmental operations. In numerous railway applications, MPL COTS products have proven their ability to withstand extreme temperatures, thermal cycling stress, high shock, and vibration conditions. They have been used worldwide on trains (railway engine and wagon) and control stations according EN50155 class Tx as standalone or 19" rack solution.

8. Reliable Partnership

MPL offers to its customers and business partners a long-term, cooperative engagement. Our financial strength and independence is important to sustain MPL's growth and future.

9. Closeness

Our distributors are near you! To serve our customers the best, we maintain a global distributor network which will handle your local pre- and post sales support.

10. MPLcare

MPLcare is a system which is maintained by design engineers, management, and the MPL administration team. MPLcare is provided to each customer free of charge and includes technical support questions answered in less than 24 hours by the product design engineering team.

Think Long-Term – Think MPL

Customized Firewall for Railways application

Failover redundant rugged Firewall for maintenance monitoring over VPN. Firewall for internal train network and secure separation of passenger network. Use of customized Firewall with open WRT for better Cyber Security.

Features

- µGUARD is a 100% replacement of former GUARD-F12
- Over 550 pcs GUARD-F12 supplied in the past 10 years
- Shock and vibration tests according to EN61373
- EN50155 class Tx Certification
- Fire Protection Certification EN (TS) 45545-2:2009
- Electromagnetic Compliance EN50121-3-2
- Small dimensions and low weight
- Delivery incl. Declarations of Conformity



Wireless LAN Server in Train

The PIP acts as server in the train as part of the Wi-Fi system. Connected to a SW based Cisco Wireless LAN Controller, the PIP acts as Wi-Fi Access Point to provide Wi-Fi services for the whole train. The PIP supports up to 16 access points in each train and is also connected to a CISCO 3G router, allowing the operator to connect to the PIP and control the Wi-Fi performance. The PIP is running VMware EXSI application.

Features

- Dual Core i7 with 3.2GHz system (RAIL-PIP38)
- Flanged enclosure for secure mounting
- Integrated SSD
- Redundant 110VDC supply
- Customized EN50155 class Tx certification
- High performance rugged server that is railway compliant
- Capable of hosting the Cisco virtual controller

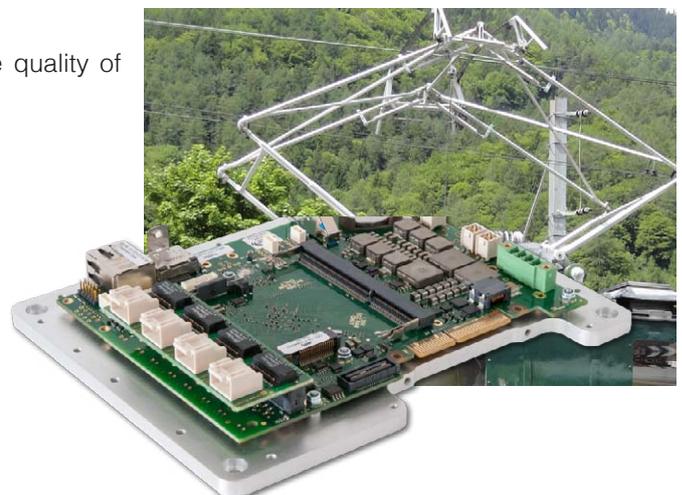


Powerline Inspection System

Pantograph measurement system to measure the quality of the high voltage lines.

Features

- Open Frame CEC14-1H1 (header version) to be installed in existing compartment
- Capable of handling severe shock & vibration
- Environment temperature of -40°C to +75°C
- Designed to meet EN50155 standards



Automatic Rail Welding and Grinding Machine

The customer needed an EMI stable solution to which he could easily integrate his own additional board (for laser sensors). The PIP39 manages all collected data (laser) and controls the grinding machines with the calculated data.

Features

- Quad Core i7 CPU 2.1/3.1GHz
- 8GB ECC RAM
- Managed 10-port GigE Switch
- 5x Custom spaces for laser sensors
- 5x GigE on M12
- OS Linux
- Long term availability
- Meet or exceed EN50155, MIL-STD-461, MIL-STD-810, EN60068...



Station Control System

Main computer for visualization of railroad network, train position and turnout / indication signals. The application requires security level 4. The area is very dusty (Metro), therefore a fanless solution is a must.

Features

- Very reliable hardware to achieve security level 4
- Fanless system
- Customized 19" 2U Rack solution
- Integration of PCIe x16 graphic card
- Powerful graphics to drive 4 monitors
- Customized heatsink to operate the system fanless including graphic card
- Environment temperature -20°C to +60°C
- All connectors on the backside, service on front
- At least 10 years supply and repair



Locomotive Remote Monitoring System

Maintenance staff can monitor the actual performance of diesel engines and other locomotive components working thousands of miles away, thanks to on-board networked computers and radio links that make each locomotive a node on the internet.

Features

- Rugged long-term available PIP30 Family
- Integrated UPS System
- Integrated GPS, GSM, Digital IOs
- Extended temperature (-40°C to 65°C)
- PCI extension
- EN50155 certifications



Security Control System

Train anti-collision system to prevent accidents on single track systems. Highest security & reliability is required to prevent accidents.

Features

- Rugged embedded RAIL-PIP solution
- Operational at environment temperature -40°C to +75°C
- Long-term availability
- Flexible and modular I/O concept
- Designed to meet EN50155
- Free of charge design-in support
- Reliability and robustness are key features for a security system installed on a train



Rail Infrastructure Monitoring System

Ultrasonic rail inspection system with line-scan cameras equipped, installed on special measurement trains which drive 100km/hour during the nights across Europe.

Features

- Rugged standard RAIL-PIP solution mounted on train engine
- Capable of handling severe shock & vibration
- Operational at environment temperature -40°C to +75°C
- Rugged SLC SSD for -40°C to 85°C
- Designed to meet EN50155



Fire Detection and Alarm System

The system can be connected to the universal platform for train bus interfaces via an integrated Ethernet connection. It takes over all fire safety related messages and controls such as declaring an alarm, triggering an extinguishing process or even controlling for example the selective deactivation of the air-conditioning system or closing of the fire safety doors.

Features

- RAIL-CEC solution with EN50155 class Tx certification
- Small, compact, long-term available solution
- Lowest possible weight
- 3 x GigE ports with D or X coded M12 connectors
- 4th port for possible expansion
- Environmental temperature -40 up to +75°C
- Fanless is a must
- Conformal coating & bonding
- BIOS Freeze



Train Vision System

Vandalism monitoring solution for buses, trains and street cars. Built into smallest space. Mounting orientation differ from vehicle type to vehicle type.

Features

- Rugged standard RAIL-PIP solution with different CPUs
- Modular concept to extend system
- Integrated frame grabber, optional with PoE
- Wireless monitoring of passenger boarding at stations
- Designed to meet EN50155 class Tx
- e1 type certification
- Reliability and ruggedness during daily operation
- Guaranteed delivery of solution for 10 years
- Repair-ability for over 20 years



Data Logger on Streetcar

Mobile laboratory on roof of streetcar. System collects data about air quality along the route through the city and urban areas.

Features

- Rugged standard RAIL-PIP solution
- Modular concept to add additional IOs: 20 relay outputs, 20 opto isolated inputs, 4x RS232 ports, CAN-bus, and more.
- Rugged mass storage system
- Operational at environment temperature -40°C to +85°C



Train Passenger Information System

The rugged RAIL-CEC is used in the train cabin to announce and indicate if the train is near a station or a intersection. One application is in Ecuador, on the high elevation touristic train route from north (Carchi) to the south (Loja) over the mountains.

Features

- EN 50155 Certified RAIL-CEC solution
- Integrated MLC SSD for -40°C to 85°C
- DVI port to connect display
- Fanless, vibration resistant
- Environment temperature -20°C to 60°C
- Capable to withstand high altitude
- Reliability & maintenance free is key



Train Traffic Control and Safety System

The Level Crossing Warning System is detecting approaching trains at level crossings and activating warning indicators (lights or crossing gates). The system is based on signals generated in the rails by approaching trains, and uses the specific signal profile associated with trains for detection.

Features

- Rugged long-term available CEC solution
- Extremely compact and reliable
- Wide temperature range
- Fanless, maintenance free
- Easy expandable for multiple interfaces
- Broad range of various IOs



Design

MPL's Railway Embedded Computers have specifically been designed to operate in harsh environments and under extreme temperature conditions. The unique rugged design, combined with the best industrial-grade components, offer high reliability and long-term performance.

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

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

Standards

All MPL products are designed to meet or exceed the most common standards. This includes railways certifications (EN 50155), maritime certification (IEC 60945), defense certifications (MIL-STD-810G), EMI certification, as well as other certification that might be required.

ISO Certification

MPL AG is an ISO 9001 certified company since 1995. The ISO 9001 quality standard ensures that the products and services are of consistently high quality.

References

Worldwide, MPL has more than 600 companies which use our reliable products on a daily basis. Our applications are based in the industrial control, medicine, military/aerospace, traffic, transport, and food service industries. A partial list of trusted Railway & Rugged Application customers are:

ALSTOM
HONEYWELL
SCHWEIZER
STADLER RAIL

BOMBARDIER
LARSEN & TOUBRO
SERSA
THALES

DLR
SCANIA
SIEMENS
WAGNER

FRAUENHOFER

If you need additional information do not hesitate to contact us.



WORLDWIDE DISTRIBUTOR AND SUPPORT NETWORK FROM MPL

Local sales support

Our distributors are near you! To serve our customers best, we have a worldwide distributor network which will handle your local pre and post sales support.

Technical support from the engineer

Our customers get direct access to our design engineers to assist with initial product function and operation. We do not work with call centers or large support teams, but we rather rely upon our prompt and courteous service, while giving customers direct access to our design engineers to resolve any support issues.

MPLcare

is provided to each customer free of charge and includes technical support questions answered in less than 24 hours by the design engineering team.

MPL – The Company You Can Trust



High-Tech • Made in Switzerland

MPL AG Elektronik-Unternehmen

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