

## Why is MPL the right partner for MIL / COTS 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 military 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 MIL 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 vehicles, airplanes, and land based applications, according to MIL-STD-810G.

#### 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**



## Heavy Duty Controller

### Description

This rugged solution has been built to increase the network and communication security on vehicles. The MPL MIL-CEC will act in the existing system as a high security cryptology box.

### Features

- Risc SoC 1.2GHz with 3 Gigabit LAN ports (CEC4)
- Integrated SLC SSD for extended temperature
- Destroy capability of SSD content
- Integrated UPS system for extended temperature
- Service port
- Connectors according customer requirement
- Each unit tested in climate chamber at -40°C to +85°C
- Standard IP67 Aluminum housing (internally chromated, externally powder coating)



## Rugged Embedded Computers

### Description

Upgrade of vehicles with a Situation Awareness System, Navigation and Collaboration System, and Radio Communication System. The MIL-PIP is connected to the internal vehicle GPS, two displays for the driver and commander (awareness system), VHF radio (for data communication between vehicles and base station) and GSM (for data communication).

### Features

- Pentium M 1.4GHz with 3 Gbit LAN (MIL-PIP10-1E)
- Integrated SLC SSD for extended temperature
- Dual DVI interface
- Customer specific GSM module
- 3 x RS232 and 1 x RS485 ports
- Connectors according customer requirement
- Each unit tested in climate chamber at -40°C to +75°C
- IP67 aluminum housing (internally chromated externally customer specific power coating)



### Description

Rugged communication controller on vehicle.

### Features

- Pentium M 1.4GHz (MIL-PIP10-1)
- Galvanic isolation of complete system
- Internal power supply acc. MIL-STD-1275D
- Integrated SLC SSD for extended temperature
- 2 x RS232 and 2 x RS485 ports
- Connectors according customer requirement
- Each unit tested in climate chamber at -40 to +75°C
- Standard IP67 aluminum housing (internally chromated, externally powder coating)



## Rugged Embedded Computers

### Description

Rugged embedded controller for security application on vehicles.

### Features

- Core Duo 1.5GHz and 2 GigE (MIL-PIP20-M22)
- Coated & bonded PCBs
- Temperature -40°C to +75°C
- 2.5" SLC SSD (-40°C to +85°C)
- Isolated dual CAN (-40°C to +85°C)
- Galvanic isolated input (PIPVIN-4G)
- Isolation of board & system ground
- Connectors according customer requirement
- Standard IP67 aluminum housing (internally chromated, externally powder coating)



### Description

Airborne computer that needed to be as light as possible, but still as rugged as possible. Details of the application have not been given, only that it is installed in airplanes and helicopters.

### Features

- Core Duo 1.5GHz with 2 Gigabit LAN (MIL-PIP22-1)
- 12 serial lines (OSCI-8MIX)
- 16 channel 12-bit analog inputs
- 5 x Gigabit LAN (TRIGET-3H)
- Integrated 2.5" SLC SSD (-40°C to +85°C)
- Integrated WLAN (-40°C to +85°C)
- Modified MPL standard housing to keep weight down (chromated & powder coated)
- Connectors & wiring according customer requirement



### Description

Full featured, flexible controller on ships with shock absorbers.

### Features

- Core Duo 1.5GHz (MIL-PIP20-M22) (separated board and system ground)
- Galvanic isolation & wide input
- 2.5" SLC SSD (-40°C to +85°C)
- 1 x RS485 & 1 x RS232 (galvanic isolated)
- Custom housing with custom coating
- Frame grabber card
- Camera link card
- VGA to TV scan converter
- 8 port managed switch
- 2 x PoE injector
- MIL connectors & shock absorbers acc. customer requirements
- Extended temperature range of system (-40°C to +65°C)





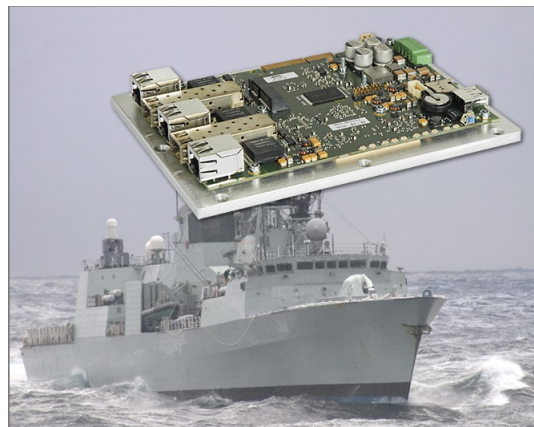
## Tough Open Frame Solutions

### Description

Open frame Firewall/ Router with 3 GigE ports (copper & fiber), OpenWRT as Firewall SW used in a larger environment. Solution is built into an existing cabinet.

### Features

- Risc SoC 1.2GHz with 3 Gbit LAN (MIL-GUARD-F1)
- On board soldered Flash
- On board soldered DDR2 RAM
- SFP multi-mode (-40°C to +85°C)
- SFP single-mode (-40°C to +85°C)
- Supplied as open frame solution
- Each unit tested in climate chamber at -40°C to +85°C



### Description

Redundant Network Controller used in UAV (Unmanned Aerial Vehicle). MIP10 controls two Ethernet switches and provides a Compact Flash IF for SW changes / updates, all built as portable ground station.

### Features

- Pentium M 1.4GHz as PC/104 (MIL-MIP10-1)
- -40°C to +75°C tested in climate chamber
- All boards are coated and bonded
- ECC RAM
- Supplied as open frame solution
- Local integrator installed it in custom housing

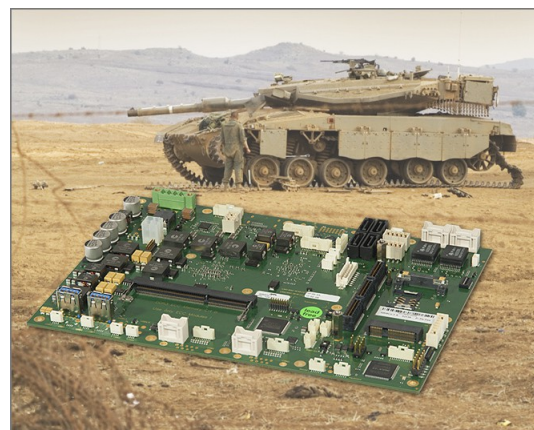


### Description

Embedded communication computer for various defense applications. Customer built his own housing. MPL mounts it in customer housing or cooling plate, and tests the open frame solution in the climate chamber.

### Features

- Quad Core i7 CPU 2.1/3.1GHz (MIL-PIP39-1V2)
- 16 GB ECC DDR3
- Temperature -40°C to +65°C
- Fanless
- Customer supplied IP67 aluminum housing
- Meeting the required portion of MIL-STD-810G



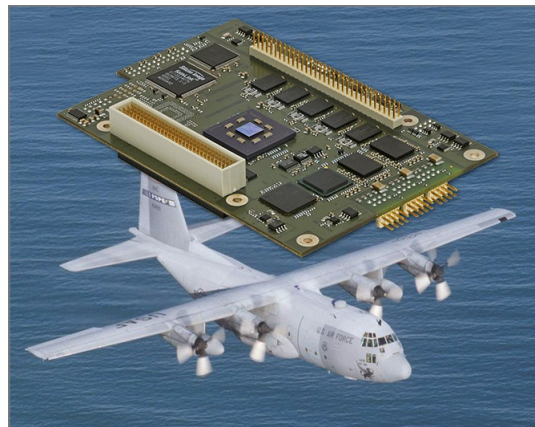
## Tough Open Frame Solutions

### Description

Commercial & Military aircraft use for distributing mission data for PCCARD or SATA drive, to all on-board mission systems.

### Features

- IBM PPC440GX PowerPC (custom design)
- 4 x SATA, 3 x GigE port, PCI-104, 2 x USB
- Low power consumption of only 10.5 Watts
- 40°C to +85°C, tested in climate chamber
- Long-term availability
- Customer built his own housing according his needs.
- Soldered ECC RAM
- Soldered Flash



## Rugged Embedded Fiber Switch

### Description

Rugged stand alone 5-port manageable Ethernet fiber switch built according the customer requirement in IP67 housing.

### Features

- Built with MPL MAGBES and TX2FX products
- Uplink port with 1000 Base-LX (single-mode, 1310nm, up to 10 km)
- Downlink ports with 100 Base-FX (multi-mode, 1300nm, up to 4 km)
- Input voltage +24Vdc (max. 20W)
- Complete unit tested for -40°C up to +85°C in climate chamber
- Long-term availability
- Standard IP67 aluminum housing (internally chromated, externally powder coating)



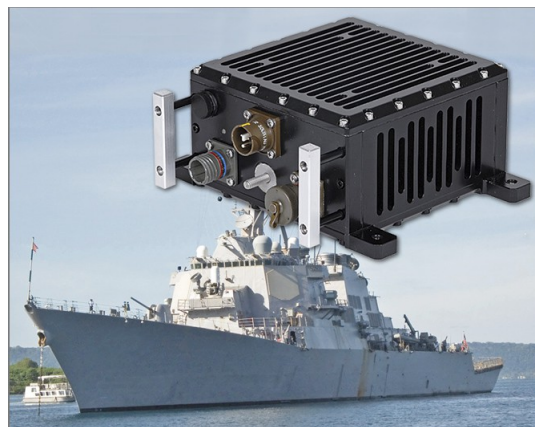
## Rugged compact embedded Computer

### Description

Ultra compact rugged controller to monitor ballistic trajectory.

### Features

- Pentium M 1.4GHz as PC/104 (MIL-MIP10-1)
- ECCRAM
- Compact Flash
- Integrated UPS System
- IP67 aluminum housing (HE30) (internally chromated, externally powder coating)



## Airworthy Computer

### Description

The unit is used for Unified Communications Application which will be installed under Airborne Inhabited Cargo (AIC) environment in aircrafts to have facility control & IP based intra-voice communication between cabin crews, passengers, and ground as well.

### Features

- Dual Core i7 CPU 2.1/3.1GHz (MIL-PIP38-1V1)
- Completely fanless
- Sound (HDSOUND-2)
- DDR3 ECC RAM
- 2.5" SLC SSD
- Ethernet switch (MAGBES)
- 10.4" Night Vision Display
- IP67 aluminum housing (HE30)
- Tested in accordance:  
MIL-STD-810G  
MIL-STD-461E  
MIL-STD-704E



MPL's MIL / COTS 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. This makes it the perfect solution for military and aerospace applications.

### Standards

All MPL products are designed to meet or exceed the most common standards. This includes maritime certification (IEC 60945), railways certifications (EN 50155), 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 MPL's MIL/COTS customers are:

AAI  
IAI  
GENERAL DYNAMICS  
IAEA  
OTO MELARA  
RAYTHEON  
SANDIA NATIONAL LAB  
THALES  
MILCOTS

BAE SYSTEMS  
BOEING  
FOX IT  
LARSEN & TOUBRO  
NASA  
RUAG  
AEC  
EDO  
KAMAN

BEL  
DCNS  
HONEYWELL  
LOCKHEED MARTIN  
NORTHUP GRUMMAN  
DLR  
TATA  
LEIDOS  
LOGOS

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 Trust**



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