Rugged Open Frame Solution
conductive cooled, with Intel® Xeon™ Processor

General Description

The MXCS Open Frame Version is a high performance, low power and highly integrated Rugged Embedded Server. The MXCS solution can be operated in a moderate or harsh environment without the need of fans. Therefore, the MXCS board can be used for any server application in very tough environment.

MXCS Highlights

The MXCS Open Frame supports easy installation into an existing system. Over PCI/104-Express and mini PCIe are unlimited expansions possible. The Open Frame server is conductive cooled and designed for an environment of -20°C to +60°C. The system is designed to meet standards like MIL-STD810G, EN50155, or IEC 60945.
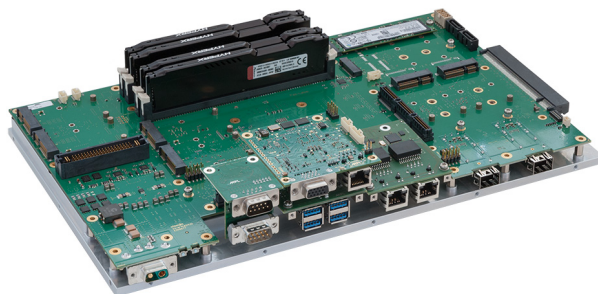
Key features are:

- up to 16 cores / Intel Xeon CPU
- up to 128GB ECC DDR4
- two 10Gbit ports
- mSATA / M.2 ports
- mPCIe / PCIe ports
- up to 8x SAS/SATA with RAID configuration
- conductive cooling concept
- fanless, -20°C to +60°C
- long-term availability guarantee*

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

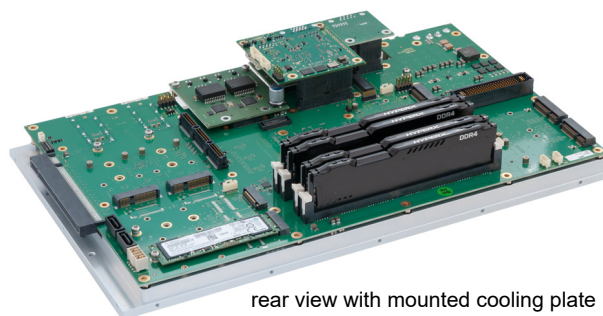** Typically 10 years or more, 20+ years repairable*

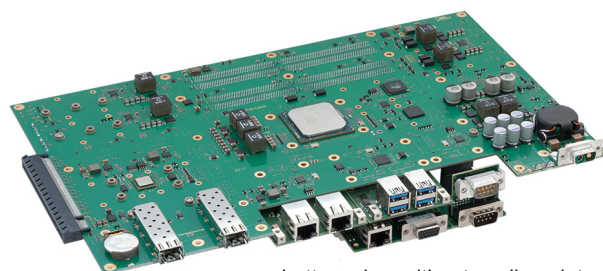All MPL products are 100% designed and manufactured in Switzerland.

MXCS-1577OF / Intel Xeon 16 cores
- 4× 32GB DDR4 ECC (total **128GB**)
- 1× M.2 SSD 1T
- 1× BMC (1× RJ45, 1× VGA)
- RAID
- fanless / -20° to +60°C
- 1× conductive cooling plate
- 2× RS232
- 2× LAN Gbit
- 2× 10Gbit SFP+ port
- 4× USB 3.0
- 19 - 36 VDC input

rear view with mounted cooling plate

bottom view without cooling plate

The MXCS 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 with cooling concept is needed.

MPL AG is an ISO9001 certified company

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Technical Features

Board Key Data	MXCS-1548OF	MXCS-1577OF	MXCS-1587OF
Processor *	Intel Xeon D-1548	Intel Xeon D-1577	Intel Xeon D-1587
Clock speed	2.0 / 2.6GHz	1.3 / 2.1GHz	1.7 / 2.3GHz
Cores / threads	8 / 16	16 / 32	16 / 32
Smart Cache	12 MB	24 MB	24 MB

Memory	up to 128 GB DDR4 ECC memory in four RDIMM slots, or up to 64GB UDIMM memory
TPM	over separate module (INTEL or FPGA)
Watchdog Timer	configurable granularity 10 ms, 1 s or 1 minute, results in a timeout from 2.5 seconds up to 4 hours.
Indicator LEDs	power, reset, various others

Interfaces
Serial	1 x RS232 on connector
	1 x RS232/422/485 on DB-9
USB	4 x USB 3.0 ports on type A (D-1529 USB 2.0 only)
LAN	2 x 1Gbit copper ports on RJ45
	2 x 10Gbit SFP+ copper or fiber ports (D-1529 1Gbit SFP only)

Internal Expansions
mPCIe	4 x mPCIe Full-Mini Card sockets
PCI/104-Express	1 x PCIe/104 (PCIe x8 Gen3)
PCIe x16	1 x PEG port connector (PCIe x16 Gen3)
SATA	2 x SATA 3.0
	2 x mSATA
	2 x M.2 Key M ports
RAID	optional RAID controller board with on-board memory and flash,
	up to 8 x SAS/SATA ports, RAID 0/1/5/10 support

Baseboard Management Controller (BMC)
Memory	DDR4-1600 up to 1GB
Graphics	1 x VGA, ESD protected up to 1920 x 1200
LAN	1 x GbE port, ESD protected / IPMI management port
BIOS	redundant AMI BIOS FLASH

Power
Input Voltage	19 - 36 VDC input range, ESD and EMC protected power input (redundant capability)
	reverse polarity protection, load dump protection
	reset & power button
	optional internal UPS system, optional galvanic separation, other voltage possible
	ignition input specifically for vehicles
Power consumption	40 - 100 Watt (depending on CPU), 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 (Fanless)
Relative Humidity	5% to 95% non condensing, optional coating available

Standard Compliance
The MXCS 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

* other D-1500 CPUs on request

Packaging

Chassis version		length	width	heights	weight	
MXCS-OF	Open Frame	201mm	342mm	50mm	3.2 kg (7 lb.)	dimension without RAM
MXCS-CA	**C**ompact **A**luminum	207mm	351mm	66mm	5 kg (11 lb.)	see housing specific datasheet MXCS-CA
MXCS-RK	19" Rack version	415mm	19"	2U	18.2 kg (40.1 lb.)	see housing specific datasheet MXCS-RK
MXCS-ML	IP67 MIL version	TBD - to customer specifications				see housing specific datasheet MXCS-ML

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

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