

## Fanless Rugged Server Solution in compact housing with Intel® Xeon™ CPU

### General Description

The MXCS is a high performance, low power and highly integrated rugged embedded Server, built in a special designed compact aluminum housing to meet the SWaP-C specifications. This allows to operate the MXCS in a moderate or harsh environment without the need of fans or air vents. The design integrates standard connectors for easy connection. Alternative connectors (M12, MIL 389999) or different housings (19" rack, MIL IP67 or Open Frame) are available. The MXCS solution can be used for any server application where a compact fanless solution is needed.

### MXCS Highlights

The housings offer space for up to 2 x 2.5" SSD. With internal expansion over PCI/104-Express and Mini PCIe, various functions can be added. Particular precautions in the design have been taken that the entire system EMC is within the CE and FCC limits and capable to meet the MIL-STD810G, 461, 704, 1275, as well as standards like IEC60945 or EN50155.

#### 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.

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.



### MXCS configuration samples



#### MXCS-1577CA / Intel Xeon 16 cores

- 4x 32GB DDR4 ECC (total 128GB)
- 2x 2.5" SATA SSD 1T
- 2x M.2 SSD 1T
- 1x BMC (1x RJ45 / 1x VGA)
- 19 - 36 VDC input voltage
- fanless / -20° to +60°C
- 2x RS232
- 4x USB 3.0
- 2x LAN Gbit
- 4x LAN Gbit
- 2x 10Gbit SFP+ port



#### MXCS-1548CA / Intel Xeon 8 cores

- 2x 32GB DDR4 ECC (total 64GB)
- 2x 2.5" SATA SSD 1T
- 1x BMC (1x RJ45 / 1x VGA)
- 19 - 36 VDC input voltage
- fanless / -20° to +60°C
- 2x RS232
- 4x USB 3.0
- 2x LAN Gbit
- 2x 10Gbit SFP+ port



#### MXCS-1529CA / Intel Xeon 4 cores

- 2x 8GB DDR4 ECC (total 16GB)
- 1x mSATA SSD 512GB
- 1x BMC (1x RJ45 / 1x VGA)
- 19 - 36 VDC input voltage
- 4x USB 2.0
- 2x LAN Gbit
- 2x 1Gbit SFP port
- fanless / -20° to +60°C

MPL AG is an ISO9001 certified company

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## Technical Features

Board Key Data	MXCS-1548CA	MXCS-1577CA	MXCS-1587CA
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 128GB 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 RJ45 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-CA Compact Aluminum	207mm	351mm	66mm	5 kg (11 lb.)	
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
MXCS-OF Open Frame	201mm	342mm	50mm	3.2 kg (7 lb.)	see housing specific datasheet MXCS-OF
The aluminum housings are internally chromated, externally powder coated or anodized, no ventilation holes					

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