Rugged 19" Rack Server Solution
conductive cooled, with Intel® Xeon™ Processor

General Description

The 19" MXCS Rack 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 and dusty environment.

MXCS Highlights

The MXCS housings offer space for up to 8 x 2.5" SSD. Over PCI/104-Express and mini PCIe are unlimited expansions possible. The 19" rack server is conductive cooled and designed for an environment of -20°C to +60°C. On request it can be equipped with a failure protected ventilation array, without blowing air and dust over the electronics. 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 configuration samples

MXCS-1577RK / Intel Xeon 16 cores

- 4× 32GB DDR4 ECC (total **128GB**)
- 1× M.2 SSD 1T
- 1× BMC (1× RJ45, 1× VGA)
- 8× 2.5" SSD/HDD
- RAID
- fanless / -20° to +60°C
- opt. 1× Fan (2× Fan with controller)
- 2× RS232
- 2× LAN Gbit
- 4× LAN Gbit
- 2× 10Gbit SFP+ port
- 4× USB 3.0
- 19 - 36 VDC input

MXCS-1548RK / Intel Xeon 8 cores

- 2× 8GB DDR4 ECC (total **16GB**)
- 1× BMC (1× RJ45, 1× VGA)
- 2× 2.5" SSD/HDD
- 1× DVD
- RAID
- fanless / -20° to +60°C
- 2× RS232
- 2× LAN Gbit
- 2× 10Gbit SFP+ port
- 4× USB 3.0
- 19 - 36 VDC input
- optional fan

MXCS-1529RK / Intel Xeon 4 cores

- 2× 16GB DDR4 ECC (total **32GB**)
- 2× mSATA SSD 512GB
- 1× BMC (1× RJ45, 1× VGA)
- 6× 2.5" SSD/HDD
- fanless / -20° to +60°C
- opt. 1× Fan (2× Fan with controller)
- 4× USB 3.0
- 2× LAN Gbit
- 2× 10Gbit SFP+ port
- 19 - 36 VDC input
- 1× DVD

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.

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Technical Features

Board Key Data	MXCS-1529RK	MXCS-1548RK	MXCS-1577RK
Processor	Intel Xeon D-1529	Intel Xeon D-1548	Intel Xeon D-1577
Clock speed	1.3 / 2.1GHz	2.0 / 2.6GHz	1.3 / 2.1GHz
Cores / threads	4 / 8	8 / 16	16 / 32
Smart Cache	6 MB	12 MB	24 MB

Memory	up to 128 GB DDR4 ECC memory in four RDIMM slots
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 USB3.0 ports on type A
LAN	2 x 1Gbit copper ports on RJ45 / 2 x 10Gbit SFP+ port (copper or fiber)

Internal Expansions

mPCIe	4 x mPCIe PCI Express Gen2
PCI/104-Express	1 x PCIe x8
PCIe x16	1 x PEG graphic expansion
SATA	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
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	25 - 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)
	fan solution recommended for rack integration
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

Packaging

Chassis version		length	width	heights	weight	
MXCS-RK	19" Rack version	415mm	19"	2U	18.2 kg (40.1 lb.)	fully populated with HDD/RAID
MXCS-CA	**C**ompact **A**luminum	207mm	351mm	66mm	5 kg (11 lb.)	see housing specific datasheet MXCS-CA
MXCS-ML	IP67 MIL version	TBD - to customer specifications				see housing specific datasheet MXCS-ML
MXCS-OF	Open Frame	201mm	342mm	27mm	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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