Rugged Embedded Server Solution
with fanless Intel® Xeon™ Processor

General Description

The MXCS is a high performance, low power and highly integrated rugged Embedded Server, built in a special designed aluminum or MIL IP67 housing. This allows to operate the MXCS in a moderate or harsh environment without fan or air vents. The design integrates standard connectors for easy connection or lockable headers, depending on housing choice. Therefore, the MXCS board can be used for any Server application where a complete solution is needed.

MXCS Highlights

The MXCS housings offer space for up to 8 x 2.5" SSD. With the internal expansion possibilities over PCI/104-Express interface and the four PCI-Express Mini Card slots, there are unlimited expansion possibilities available. 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-STD810, 461, 704, 1275, as well as standards like IEC60945 or EN50155.

Key features are:

- Intel Xeon CPU, up to 16 cores
- ECC DDR4 up to 128GB
- Up to six 1Gbit Ethernet ports
- Up to two 10Gbit Ethernet ports
- Long term availability*
- PCIe x16 expansion
- Conductive cooling concept

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

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 is needed.

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

* Typically 10 years or more, 20+ years repairable

MPL AG is an ISO9001 certified company

MXCS used in power plant, with RAID & DVD

MXCS used on vessel, in space optimized housing

MXCS Open-frame solution used on military vehicle

MXCS used in railway application
with rugged conductive cooled 19" rack housing

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Technical Features

Board Key Data

Processor	Broadwell DE Xeon CPU Server Family (first series Xeon D-1548)
# of cores / threads	8 / 16
Clock speed	2.0 / 2.6 GHz
Smart Cache	12 MB
Passmark (all cores)	10'883
Memory	up to 128 GB DDR4 ECC memory in four RDIMM slots
TPM	Over separate module
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 or M12
LAN	2 x 1Gbit copper ports on RJ45 or M12 / 2 x 10Gbit SFP+ port (copper or fiber)

Internal Expansions

mPCIe	4 x mPCIe PCI Express Gen2 x1 lane & USB 2.0
PCI/104-Express	1 x PCIe x8, 4 x PCIe x1 lane, 2 x USB 2.0
PCIe x16	1 x PEG graphic expansion
SATA	4 x mSATA / 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

Management Controller Board

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

Power

Input Voltage	24 VDC (+50/-20%) 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
	Ignition input specifically for vehicles
Power consumption	40 - 100 Watt (TBD), 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 (-4°F to +140°F)
	Extended operating temperature range available, MIL solutions
	Extended temperature range depends on the cooling capability of the housing used
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-810-F, EN 60601, EN 60950
Approval List	CE, IEC 60945, IACS E10

space optimized

Packaging

Chassis version	length	width	heights	weight	
Standard	207mm	351mm	66mm	5 kg (11 lb.)	
19" Rack version	415mm	19"	2U	18.2 kg (40.1 lb.)	fully populated with HDD/RAID
IP67 MIL	TBD				custom housings and connectors available

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

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