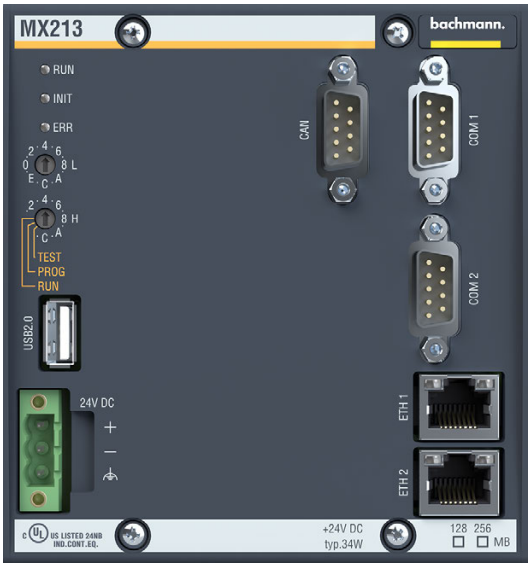

Part type designation	Storage medium	Part number
MX207		00031492-00
MX213		00031491-00
MX213 CC		00031494-00
MX213	CF 2GB	00031491-02
MX213 CC	CF 2GB	00031494-02
MX213	CF 4GB	00031491-03
MX213 CC	CF 4GB	00031494-03
MX220		00031490-00
MX220 CC		00031493-00
MX220	CF 2GB	00031490-02
MX220 CC	CF 2GB	00031493-02
MX220	CF 4GB	00031490-03
MX220 CC	CF 4GB	00031493-03

MX200 series (Compact)

Processor modules of the MX200 series combine outstanding environmental robustness with very compact dimensions.

Thanks to an integrated power supply unit, which can also provide the I/O module power supply, and integrated communication interfaces, complete basic system can be implemented on only 2 module widths. The industrial processors used with scalable clock frequencies offer sufficient CPU performance for small to medium-sized applications.

Machine control, simple motion control, a wide range of communication tasks or condition monitoring can be implemented easily and cost efficiently with this platform. Different programs can be executed priority-controlled and virtually in parallel thanks to the real time multi-tasking. If the CPU performance has to be increased, applications can be transferred easily to more powerful CPU models thanks to the standard programming model.

The generous thermal design and special coating processes enable fan-free use in extreme operating conditions from -30 °C to +60 °C.

Features

- Industrial processor at up to 433 MHz
- Priority-controlled multitasking
- 256 MB working memory
- 512 kB remanent memory (retain)
- 64 MB internal storage medium [1)]
- CompactFlash card slot for removable media
- Front side PC card slot [2)]
- Up to 2x Ethernet 10/100 Mbit/s
- 1x RS-232, 1x RS-232/RS-422/RS-485, 1x USB 2.0
- CAN/CANopen
- Integrated power supply for I/Os

[1)] *Hardware revision ≤ KR15x.000: 16 MB internal storage medium on MX213 and MX220.*

[2)] *Only until hardware revisions ≤ KR182.000.*

MX200 series

Processor	MX207	MX213	MX220
Architecture	x86 / AMD LX		
CPU	Industrial low voltage		
Clock frequency	266 MHz	266 MHz	433 MHz
Processor cores	1		
Hyper-Threading	–		
Multitasking	Yes		
Realtime-SMP / core reservation	–		

Memory	MX207	MX213	MX220
Working memory / partitions	256 MB / Yes		
Ramdisk	Yes		
Retentive data memory (retain)	512 kB NVRAM		
Mass storage integrated	64 MB [1) 2)]		
Mass storage removable	–	Compact Flash [3)] (via side cover)	
	–	PC-Card front side (16/32/64 MB) [3) 4) 5) 6)]	

[1)] *Hardware revision ≤ KR15x.000: 16 MB internal storage medium on MX213 and MX220.*

[2)] *By default 13 MB used for system software at shipping.*

[3)] *Storage medium not included if not mentioned explicitely in order text.*

[4)] *Part number 00039021-00 (MX220) and 00039022-00 (MX213): Design without PC card connector.*

[5)] *Hardware revision ≤ KR182.000: Design with PC card connector.*

[6)] *Part number 00031493-xx (MX220 CC) and 00031494-xx (MX213 CC): Design with PC card connector.*

Interfaces	MX207	MX213	MX220
I/O Subsystem	Bachmann M200 backplane interface		
	Process Image Controller integrated		
	Cyclic and on-event single channel access		
	Synchronisation pulse for I/O & field busses		
Ethernet	1x 10/100 Base-Tx (RJ45)	2x 10/100 Base-Tx (RJ45)	
	AutoNegotiation, AutoCrossing		
Serial interfaces / COM	–	1x RS-232 (D-sub-9 m)	
	1x RS-232/RS-422/RS-485 (D-sub-9 m)		
USB	1x USB 2.0 (Type-A f)		
CAN	1x CAN/CANopen/J1939 (D-sub-9 m) galvanically isolated; up to 1 Mbit/s		
Operation Modes	CAN Master, CAN IO Device		
Indications and operation			
Status indications	3x LED for CPU status (RUN/INIT/ERR)		
	2x LED for status and speed per ETH socket		
Operating elements	2x 16-position rotary switch (Hex-switch) for operation mode, programming, boot mode, address setting etc.		
Programming			
Generic build target	Yes, across all model families		
Languages	IEC 61131-3, C/C++, MATLAB®/Simulink® [1)]		
Function modules	Yes (Motion Control, Camming, CNC, adaptive temperature controller etc.) [1)]		

[1)] *May include additional costs.*

Monitoring			
Processor temperature	Yes		

Monitoring	
Processor load	Yes
Runtime behavior	Yes, cycle monitoring and watchdog
Network load	Yes
Memory protection	Yes, per partition
Power supply	Yes, with interrupt signal
Subsystems	
Real time clock	Yes (battery-backed RTC for time/date), sync capability over IEEE 1588, SNTP

Energy supply	MX207	MX213	MX220
Supply voltage	24 V DC (18 V to 34 V)		
Terminal block for socket	KZ 51/03 RM 5.08; 3-pol.		
Reverse polarity protection	Yes		
Galvanic isolation supply	Yes		
Voltage interruptions immunity (IEC 61131-2)	PS2		
Nominal power consumption without I/O	8 W (+5 V / 1400 mA, +15 V / 30 mA, -15 V / 30 mA)	9.5 W (+5 V / 1700 mA, +15 V / 30 mA, -15 V / 30 mA)	
Nominal power consumption with I/O	33.6 W		
Nominal power output for I/O	18.25 W	16.75 W	
Maximum currents for I/O	+5 V / 2800 mA; +15 V / 250 mA; -15 V / 200 mA [1]		

[1] *Total power max. according to "Nominal power output for I/O".*

Electrical safety	
Protection class (DIN EN 61140)	III
Degree of protection acc. to IEC 60529	IP20

Environmental conditions	Standard	ColdClimate (❄)
Operating temperature	-30 °C to +60 °C fanless	
Relative humidity, operation	5 % to 95 % noncondensing	5 % to 95 % with condensation
Storage temperature	-40 °C to +85 °C	
Relative humidity, storage	5 % to 95 % noncondensing	5 % to 95 % with condensation
Installation altitude	2000 m above sea level (with derating up to 4500 m)	
Pollution degree (IEC 60664-1)	2 (noncondensing)	2

Approvals/Certificates	
Product safety	CE, UKCA, cULus Security IEC 62443-4-2 from M-Base V4.75R
Maritime	ABS, BV (incl. UR E27 from M-Base V4.75R), DNV (incl. UR E27 from M-Base V4.75R), KR, LR, NK, RINA
Dimensions	
Number of slots / module units	2
Width × Height × Depth	110 mm × 119 mm × 61 mm
Weight/Mass	Approx. 660 g / Approx. 675 g
System requirements	
Backplane	BS2xx, BS2xx/S, BS2xx/E
Software	Minimum version MxCCore V3.80 (M-Base V3.80) from M-Base V3.80; recommended [1] MxCCore V4.30

[1] *Access to the 64 MB internal storage medium is significantly slower with older versions than M-Base V4.30.*

For details on shock and vibration robustness, EMC robustness and interference emission see **M-Base User Manual**.
If not stated differently provided technical data is valid for ≥ KR180.000.

Order data

Part type designation	Part number	Description
MX207	00031492-00	CPU module MX207 (266 MHz) SingleCore; 256 MB DRAM; 512 kB nvRAM; 64 MB File-Flash; 1x Eth100; 1x CAN/CANopen; 1x RS232/422/485; 1x USB 2.0; I/O supply 18 W
MX213	00031491-00	CPU module MX213 (266 MHz) SingleCore; 256 MB DRAM; 512 kB nvRAM; 64 MB File-Flash; 2x Eth100; 1x CAN/CANopen; 1x RS232; 1x RS232/422/485; 1x USB 2.0; I/O supply 17 W; CF-Slot
MX213 CC	00031494-00	Like MX213; ColdClimate (❄)
MX213/CF 2GB	00031491-02	CPU module MX213 (266 MHz) SingleCore; 256 MB DRAM; 512 kB nvRAM; 64 MB File-Flash; 2x Eth100; 1x CAN/CANopen; 1x RS232; 1x RS232/422/485; 1x USB 2.0; I/O supply 17 W; CF-Slot, 2 GB CF-Card
MX213/CF 2GB CC	00031494-02	Like MX213/CF 2 GB; ColdClimate (❄)
MX213/CF 4GB	00031491-03	CPU module MX213 (266 MHz) SingleCore; 256 MB DRAM; 512 kB nvRAM; 64 MB File-Flash; 2x Eth100; 1x RS232; 1x CAN/CANopen; 1x RS232/422/485; 1x USB 2.0; I/O supply 17 W; CF-Slot, 4 GB CF-Card
MX213/CF 4GB CC	00031494-03	Like MX213/CF 4 GB; ColdClimate (❄)
MX220	00031490-00	CPU module MX220 (433 MHz) SingleCore; 256 MB DRAM; 512 kB nvRAM; 64 MB File-Flash; 2x Eth100; 1x CAN/CANopen; 1x RS232; 1x RS232/422/485; 1x USB 2.0; I/O supply 17 W; CF-Slot
MX220 CC	00031493-00	Like MX220; ColdClimate (❄)
MX220/CF 2GB	00031490-02	CPU module MX220 (433 MHz) SingleCore; 256 MB DRAM; 512 kB nvRAM; 64 MB File-Flash; 2x Eth100; 1x RS232; 1x CAN/CANopen; 1x RS232/422/485; 1x USB 2.0; I/O supply 17 W; CF-Slot, 2 GB CF-Card
MX220/CF 2GB CC	00031493-02	Like MX220/CF 2 GB; ColdClimate (❄)
MX220/CF 4GB	00031490-03	CPU module MX220 (433 MHz) SingleCore; 256 MB DRAM; 512 kB nvRAM; 64 MB File-Flash; 2x Eth100; 1x CAN/CANopen; 1x RS232; 1x RS232/422/485; 1x USB 2.0; I/O supply 17 W; CF-Slot, 4 GB CF-Card
MX220/CF 4GB CC	00031493-03	Like MX220/CF 4 GB; ColdClimate (❄)

Accessories

Part type designation	Part number	Description
KZ 51/03 B	00012052-00	Supply terminal block: terminal 03-pins pitch 5.08; cage clamp terminal with labeling strips
CF200/2GB	00013163-00	Compact flash card 2 GB UDMA
CF200/4GB	00016586-00	Compact flash card 4 GB UDMA
CF200/8GB	00016587-00	Compact flash card 8 GB UDMA
K-CAN/xm		Cabel CAN with x m length (x = user-defined below 30 m) male <> female, without terminating resistor
K-CAN/0.5m	00008684-03	Cable CAN with 0.5 m length
K-CAN/1.0m	00008684-08	Cable CAN with 1.0 m length
K-CAN/2.0m	00008684-04	Cable CAN with 2.0 m length
K-CAN/5.0m	00008684-06	Cable CAN with 5.0 m length
S-CAN/1B	00009383-00	Connector CAN-terminating resistor, female, 37 mm high, 120 Ω