



Fig. 1: mc220_frontal

Part type designation	Storage medium	Part number
MC206		00031730-00
MC206	4GB CFA	00031730-03
MC206 CC		00031735-00
MC206 CC	4GB CFA	00031735-03
MC212		00031731-00
MC212	4GB CFA	00031731-03
MC212 CC		00031736-00
MC212 CC	4GB CFA	00031736-03
MC220		00031732-00
MC220	4GB CFA	00031732-03
MC220 CC		00031737-00
MC220 CC	4GB CFA	00031737-03

MC200 Series (Advanced)

The MC200 CPUs combine maximum processing performance with outstanding robustness and compact dimensions. Scalable processors with up to 4 physical processor cores and clock frequencies of up to 1.6 GHz enable the implementation of a wide range of applications and provide a generous reserve for future expansion.

Thanks to multicore technology and symmetrical multiprocessing for real-time systems, the CPUs are suitable for very demanding applications; such as high volume requirements and short cycle times.

Parallel processing from the multicore units enables a more responsive machine control, complex motion control, and demanding communication tasks. The multicore options also offer various IT security benefits, such as stronger algorithms and longer keys. Data centric applications, such as process diagnostics, machine learning and predictive maintenance are easily implemented thanks to the large working memory.

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

Features

- Industrial processor at up to 1.6 GHz
- Single-/dual-/quad-core
- Realtime symmetrical multi processing
- Up to 2 GB DDR4 RAM
- Up to 1 MB remanent memory (retain)
- Up to 4 GB internal storage medium
- CFast card slot for removable media
- Up to 3x Ethernet 10/100/1000 Mbit/s with IEEE 1588
- 1x RS232, 1x RS232/RS422/RS485, 1x USB 3.0
- Trusted platform module

MC200 Series

Processor	MC206	MC212	MC220
Architecture	x86 / Intel Atom		
CPU	Industrial low voltage		
Clock frequency	600 MHz	1300 MHz	1600 MHz
Processor cores	1	2	4
Hyper-Threading	-		
Multitasking	Yes		
Realtime-SMP / core reservation	-/-	Yes/yes	Yes/yes
Memory	MC206	MC212	MC220
Working memory / partitions	1 GB DDR4 / Yes	2 GB DDR4 / Yes	2 GB DDR4 / Yes
Ramdisk	Yes		
Retentive data memory (retain)	512 kB NVRAM	512 kB NVRAM	1 MB NVRAM
Mass storage integrated	2 GB pSLC Flash ¹⁾	2 GB pSLC Flash ¹⁾	4 GB pSLC Flash ¹⁾
Mass storage removable	CFast Type I ²⁾ (via side cover)		

¹⁾ By default 16 MB used for system software at shipping

²⁾ Storage medium not included if not mentioned explicitly in order text. Maximum tested capacity 256 GB, theoretical limit up to 1.7 TB.

Interfaces	MC206	MC212	MC220
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	2x 10/100/1000 Base-T (RJ45)	2x 10/100/1000 Base-T (RJ45)	3x 10/100/1000 Base-T (RJ45)
	AutoNegotiation, AutoCrossing, IEEE 1588		
Serial interfaces / COM	1x RS232 (D-SUB-9 m) 1x RS232/RS422/RS485 (D-SUB-9 m)		
USB	1x USB 3.0 (Type-A f)		

Indications & 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® ³⁾
Function modules	Yes (Motion Control, Camming, CNC, adaptive temperature controller etc.) ³⁾

³⁾ May include additional costs

Monitoring	
Processor temperature	Yes
Processor load	Yes
Runtime behaviour	Yes, cycle monitoring & 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		
Trusted platform module	Yes (TPM 2.0)		
Energy supply	MC206	MC212	MC220
Supply voltage	+5 V DC via M200 backplane		
Reverse polarity protection	Yes (with NT255)		
Voltage interruptions immunity (IEC 61131-2)	PS2 (with NT255)		
Nominal power consumption	10.3 W (+5 V / 2060 mA)	11.1 W (+5 V / 2220 mA)	15.9 W (+5 V / 3180 mA)
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 without fan		
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 acc. IEC 60664-1	2 (noncondensing)	2	
Approvals/Certificates			
Product safety	CE, UKCA, cULus		
Maritime	ABS, BV, DNV, KR, LR, NK, RINA		
Dimensions	MC206	MC212	MC220
Number of slots / module units	2		
Width × Height × Depth	110 mm × 119 mm × 61 mm		
Weight/Mass	Approx. 500 g	Approx. 500 g	Approx. 520 g
System requirements			
Backplane	BS2xx, BS2xx/S, BS2xx/E		
Power supply	NT255		
Software	McOS (VxWorks 7) and driver from M-Base V4.39 or higher (pre installed on internal memory device), for application development ToolChain from V4.30 or higher is recommended (to utilize MultiCore/SMP)		

For details on shock and vibration robustness, EMC robustness and interference emission see user manual M-Base.

Order data

Part type designation	Part number	Description
MC206	00031730-00	CPU module MC206 (600 MHz) SingleCore; 1 GB DDR4; 512 kB nvRAM; 2 GB pSLC File-Flash; 2x Eth100/1000; 1x RS232; 1x RS232/422/485; 1x USB3.0; TPM; CFast-Slot
MC206 4GB CFA	00031730-03	CPU module MC206 (600 MHz) SingleCore; 1 GB DDR4; 512 kB nvRAM; 2 GB pSLC File-Flash; 2x Eth100/1000; 1x RS232; 1x RS232/422/485; 1x USB3.0; TPM; CFast-Slot; 4 GB CFast-Card
MC206 CC	00031735-00	Like MC206; ColdClimate (❄)
MC206 4GB CFA CC	00031735-03	Like MC206 4GB CFA; ColdClimate (❄)
MC212	00031731-00	CPU module MC212 (1.3 GHz) DualCore; 2 GB DDR4; 512 kB nvRAM; 2 GB pSLC File-Flash; 2x Eth100/1000; 1x RS232; 1x RS232/422/485; 1x USB3.0; TPM; CFast-Slot
MC212 4GB CFA	00031731-03	CPU module MC212 (1.3 GHz) DualCore; 2 GB DDR4; 512 kB nvRAM; 2 GB pSLC File-Flash; 2x Eth100/1000; 1x RS232; 1x RS232/422/485; 1x USB3.0; TPM; CFast-Slot; 4 GB CFast-Card
MC212 CC	00031736-00	Like MC212; ColdClimate (❄)
MC212 4GB CFA CC	00031736-03	Like MC212 4 GB CFA; ColdClimate (❄)
MC220	00031732-00	CPU module MC220 (1.6 GHz) QuadCore; 2 GB DDR4; 1 MB nvRAM; 4 GB pSLC File-Flash; 3x Eth100/1000; 1x RS232; 1x RS232/422/485; 1x USB3.0; TPM; CFast-Slot
MC220 4GB CFA	00031732-03	CPU module MC220 (1.6 GHz) QuadCore; 2 GB DDR4; 1 MB nvRAM; 4 GB pSLC File-Flash; 3x Eth100/1000; 1x RS232; 1x RS232/422/485; 1x USB3.0; TPM; CFast-Slot; 4 GB CFast-Card
MC220 CC	00031737-00	Like MC220; ColdClimate (❄)
MC220 4GB CFA CC	00031737-03	Like MC220 4 GB CFA; ColdClimate (❄)

Accessories

Part type designation	Part number	Description
CFA200/4GB	00017355-00	CFast card 4 GB
CFA200/8GB	00021781-00	CFast card 8 GB
CFA200/16GB	00019082-00	CFast card 16 GB