



i CX2043 | Basic CPU module

The CX2043 has an AMD Ryzen™ V1807B CPU with 3.35 GHz and four cores. Due to its high power, the CX2043 has a fan with ball bearings and speed monitoring. The basic configuration of the CX2043 includes two independent Gbit Ethernet interfaces, four USB 3.1 gen. 2 interfaces and a DVI-D interface.

In addition to the CPU and chipset, the basic module also contains the RAM with a capacity of 8 GB. The controller boots from the CFast card. The CPU has an internal 128 kB NOVRAM, which functions as a persistent data memory if no UPS is used.

The unit can optionally be ordered with a fieldbus or serial interface. Other components from the CX2000 family can be connected via the multi-pin terminals on either side. The operating system is Microsoft Windows 10 IoT Enterprise 2019 LTSC. TwinCAT automation software transforms a CX2033 system into a powerful PLC and motion control system that can be operated with or without visualisation.

Up to four modules can be connected to the basic CPU module. The connection order is irrelevant. Internally the modules are connected via PCI Express and can be plugged to the CPU in the field. The power supply for the CPU module comes from a CX2100 power supply module, which is connected on the right-hand side of the CPU. Two further CFast memory card modules (CX2550-0010) can be connected between the power supply unit and the CPU.

The extended operating temperature range between -25 and +60 °C enables application in climatically demanding situations.

Order identifier

The order identifier is derived as follows:

CX20x3-01ST	0 = no TwinCAT	Optional interfaces: CX20x3-N010 = second DVI connection, DVI-D port CX20x3-N011 = DisplayPort interface CX20x3-N030 = RS232, D-sub plug CX20x3-N031 = RS422/RS485, D-sub socket CX20x3-B110 = EtherCAT slave, EtherCAT IN and OUT (2 x RJ45) CX20x3-M310 = PROFIBUS master, D-sub socket, 9-pin CX20x3-B310 = PROFIBUS slave, D-sub socket, 9-pin CX20x3-M510 = CANopen master, D-sub plug, 9-pin CX20x3-B510 = CANopen slave, D-sub plug, 9-pin CX20x3-M930 = PROFINET RT, controller CX20x3-B930 = PROFINET RT, device, Ethernet (2 x RJ45 switch) CX20x3-B931 = PROFINET IRT, device, Ethernet (2 x RJ45 switch) CX20x3-B950 = EtherNet/IP slave, Ethernet (2 x RJ45 switch)
	1 = with TwinCAT 2 PLC runtime	
	2 = with TwinCAT 2 NC PTP runtime	
	3 = with TwinCAT 2 NC I runtime	
5 = TwinCAT 3 runtime (XAR)		
0 = no operating system		
6 = Microsoft Windows 10 IoT Enterprise 2019 LTSC, 32 bit		
7 = Microsoft Windows 10 IoT Enterprise 2019 LTSC, 64 bit		
3 = AMD Ryzen™ V1202B processor 2.3 GHz, 2 cores		
4 = AMD Ryzen™ V1807B processor 3.35 GHz, 4 cores		

Since not all combinations make sense, the table Ordering Information contains a breakdown of the permissible combinations.

Technical data	CX2043
Processor	AMD Ryzen™ V1807B 3.35 GHz
Number of cores	4
Flash memory	slot for CFast card
Main memory	8 GB DDR4 RAM (expandable ex factory to 16 GB)
Persistent memory	128 KB NOVRAM integrated
Interfaces	2 x RJ45, 10/100/1000 Mbit/s, 1 x DVI-D, 4 x USB 3.1 Gen. 2, 1 x optional interface
Cooling	integrated fan with ball bearings and speed monitoring
Diagnostics LED	1 x power, 1 x TC status, 1 x flash access, 2 x bus status
Clock	internal battery-backed clock for time and date (battery exchangeable)
Operating system	Microsoft Windows 10 IoT Enterprise 2019 LTSC
Control software	TwinCAT 2 runtime TwinCAT 3 runtime (XAR)
I/O connection	via power supply module (E-bus or K-bus, automatic recognition)
Power supply	24 V DC (-15 %/+20 %)
Max. power consumption	70 W
Dimensions (W x H x D)	144 mm x 99 mm x 91 mm
Weight	approx. 1230 g
Operating/storage temperature	-25...+60 °C/-40...+85 °C
Relative humidity	95 %, no condensation
Vibration/shock resistance	conforms to EN 60068-2-6/EN 60068-2-27
EMC immunity/emission	conforms to EN 61000-6-2/EN 61000-6-4
Protection class	IP 20
Approvals/markings	CE, UL
TC3 performance class	Mid Performance (60); please see here for an overview of all the TwinCAT 3 performance classes

Ordering information	no operating system	Windows 10 IoT Enterprise 2019 LTSC 32 bit	Windows 10 IoT Enterprise 2019 LTSC 64 bit	no TwinCAT	TwinCAT 2 PLC runtime	TwinCAT 2 NC PTP runtime	TwinCAT 2 NC I runtime	TwinCAT 3 runtime (XAR)
CX2043-0100	x	–	–	x	–	–	–	–
CX2043-0160	–	x	–	x	–	–	–	–
CX2043-0161	–	x	–	–	x	–	–	–
CX2043-0162	–	x	–	–	–	x	–	–
CX2043-0163	–	x	–	–	–	–	x	–
CX2043-0170	–	–	x	x	–	–	–	–
CX2043-0175	–	–	x	–	–	–	–	x

Accessories	
CX2900-0038	40 GB CFast card, 3D flash, extended temperature range
CX2900-0040	80 GB CFast card, 3D flash, extended temperature range
CX2900-0042	160 GB CFast card, 3D flash, extended temperature range
CX2900-0101	Housing locking clips

Optional interfaces	
CX2043-N010	DVI-D interface, additional DVI-D port for clone or extended desktop operation
CX2043-N011	DisplayPort interface, additional DisplayPort for clone or extended desktop operation
CX2043-N030	RS232 interface, D-sub plug, 9-pin
CX2043-N031	RS485 interface, D-sub socket, 9-pin, configuration as an end point, without echo, termination on
CX2043-N031-0001	RS485 interface, D-sub socket, 9-pin, configuration as an end point, with echo, termination on
CX2043-N031-0002	RS485 interface, D-sub socket, 9-pin, configuration as drop point, without echo, termination off
CX2043-N031-0003	RS485 interface, D-sub socket, 9-pin, configuration as drop point, with echo, termination off
CX2043-N031-0004	RS422 interface, D-sub socket, 9-pin, configuration as full duplex end point, termination on
CX2043-B110	EtherCAT slave interface, EtherCAT IN and OUT (2 x RJ45)
CX2043-M310	PROFIBUS master interface, D-sub socket, 9-pin
CX2043-B310	PROFIBUS slave interface, D-sub socket, 9-pin
CX2043-M510	CANopen master interface, D-sub plug, 9-pin
CX2043-B510	CANopen slave interface, D-sub plug, 9-pin
CX2043-M930	PROFINET RT, controller interface, Ethernet (2 x RJ45)
CX2043-B930	PROFINET RT, device interface, Ethernet (2 x RJ45 switched)
CX2043-B931	PROFINET IRT, device interface, Ethernet (2 x RJ45 switched), in combination with TwinCAT 3 only

CX2043-B950

EtherNet/IP slave interface, Ethernet (2 x RJ45 switched)



Product announcement

estimated market release 4th quarter 2020