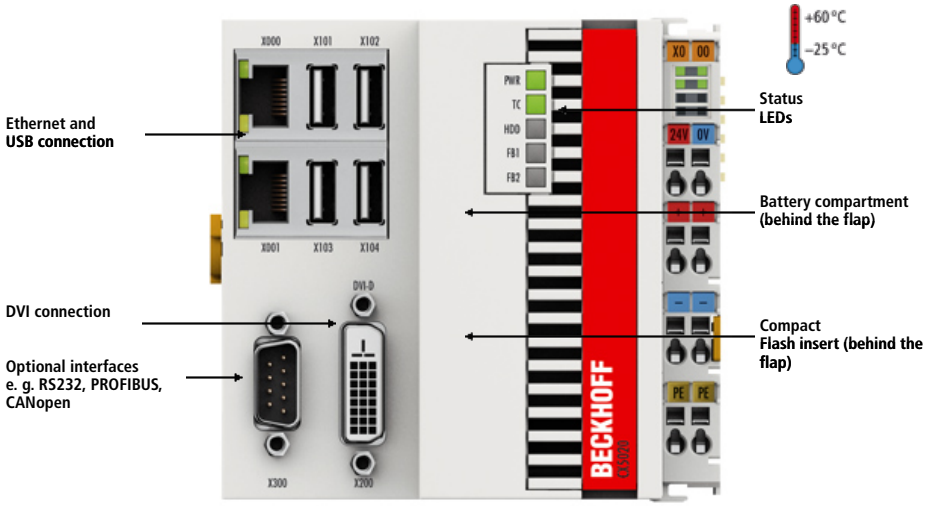

CX5010 | Embedded PC with Intel® Atom™ processor

The CX5010 and CX5020 are Embedded PCs from the CX5000 series based on Intel® Atom™ processors and differ only by the CPU version. The CX5010 has a 1.1 GHz Intel® Atom™ Z510 processor, while the CX5020 has a 1.6 GHz Intel® Atom™ Z530 processor. Apart from the clock speed, the two processors also differ by the fact that the Z530 features hyperthreading technology, i.e. it has two virtual CPU cores for more effective execution of software.

Depending on the installed TwinCAT runtime environment, the CX5010/CX5020 can be used for the implementation of PLC or PLC/Motion Control projects (with or without visualisation).

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

The order identifier of the basic CPU module is derived as follows:

CX50x0-U1ST

- 0 = no TwinCAT
- 1 = with TwinCAT 2 PLC runtime
- 2 = with TwinCAT 2 NC PTP runtime
- 5 = TwinCAT 3 runtime (XAR)

- 0 = no operating system
- 1 = operating system Windows Embedded CE 6
- 2 = operating system Windows Embedded Standard 2009

- 0 = E-bus interface for EtherCAT Terminals
- 1 = K-bus interface for Bus Terminals

- 1 = Intel® Atom™ processor 1.1 GHz
- 2 = Intel® Atom™ processor 1.6 GHz

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

Optional interfaces:

CX50x0-N020 = audio interface
CX50x0-N030 = RS232, D-sub plug
CX50x0-N031 = RS422/RS485, D-sub socket
CX50x0-M310 = PROFIBUS master, D-sub socket, 9-pin
CX50x0-B310 = PROFIBUS slave, D-sub socket, 9-pin
CX50x0-M510 = CANopen master, D-sub plug, 9-pin
CX50x0-B510 = CANopen slave, D-sub plug, 9-pin
CX50x0-M930 = PROFINET RT, controller
CX50x0-B930 = PROFINET RT, device, Ethernet (2 x RJ45 switch)
CX50x0-B950 = EtherNet/IP slave, Ethernet (2 x RJ45 switch)
CX50x0-B110 = EtherCAT slave, EtherCAT IN and OUT (2 x RJ45)

Technical data	CX5010
Processor	Intel® Atom™ Z510, 1.1 GHz clock frequency
Number of cores	1
Flash memory	128 MB Compact Flash card (optionally expandable)
Internal main memory	512 MB RAM (internal, not expandable)
Persistent memory	integrated 1-second UPS (1 MB on Compact Flash card)
Interfaces	2 x RJ45, 10/100/1000 Mbit/s, DVI-D, 4 x USB 2.0, 1 x optional interface
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 Embedded CE 6 or Microsoft Windows Embedded Standard 2009
Control software	TwinCAT 2 runtime TwinCAT 3 runtime (XAR)
I/O connection	E-bus or K-bus, automatic recognition
Power supply	24 V DC (-15 %/+20 %)
Current supply E-bus/K-bus	2 A
Max. power loss	12 W (including the system interfaces)
Dimensions (W x H x D)	100 mm x 106 mm x 92 mm
Weight	approx. 575 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	CE, UL, Ex
TC3 performance class	performance (40); please see here for an overview of all the TwinCAT 3 performance classes

Ordering information	E-bus	K-bus	no operating system	Windows Embedded CE 6	Windows Embedded Standard 2009	no TwinCAT	TwinCAT 2 PLC runtime	TwinCAT 2 NC PTP runtime	TwinCAT 3 runtime (XAR)
CX5010-0100	x	–	x	–	–	x	–	–	–
CX5010-0110	x	–	–	x	–	x	–	–	–
CX5010-0111	x	–	–	x	–	–	x	–	–
CX5010-0112	x	–	–	x	–	–	x	x	–
CX5010-0115	x	–	–	x	–	–	–	–	x
CX5010-0120	x	–	–	–	x*	x	–	–	–
CX5010-0121	x	–	–	–	x*	–	x	–	–
CX5010-0122	x	–	–	–	x*	–	x	x	–
CX5010-0125	x	–	–	–	x*	–	–	–	x
CX5010-1100	–	x	x	–	–	x	–	–	–
CX5010-1110	–	x	–	x	–	x	–	–	–
CX5010-1111	–	x	–	x	–	–	x	–	–
CX5010-1112	–	x	–	x	–	–	x	x	–
CX5010-1115	–	x	–	x	–	–	–	–	x
CX5010-1120	–	x	–	–	x*	x	–	–	–
CX5010-1121	–	x	–	–	x*	–	x	–	–
CX5010-1122	–	x	–	–	x*	–	x	x	–
CX5010-1125	–	x	–	–	x*	–	–	–	x

Accessories	
CX1900-0204	1 GB DDR2 RAM for CX5020, instead of 512 MB DDR2 RAM; pre-assembled ex factory
CX1800-0401	Windows Embedded Standard 7 P 32 bit instead of Windows Embedded Standard 2009; requires at least 1 GB RAM and 8 GB Compact Flash; supported devices: CX5020
CX1900-00xx	Optionally expandable memory ex factory. Instead of 128 MB Compact Flash card: 1, 2, 4 and 8 GB Compact Flash card
CX1900-00xx	Aditionally expandable memory: 1, 2, 4 and 8 GB Compact Flash card
CX1900-001x	Formatting a Compact Flash card (bootable)
CX1900-0105	Device modification for CX5010 and CX5020 Embedded PCs according to the requirements for ATEX certification. The modification is mandatory for the usage of the devices in hazardous areas, Zone 2. It includes the modification and repositioning of the device label as well as a mounting bracket installed ex works for mechanical locking of the connectors. Product labeling: ATEX: II 3 G Ex nA IIC T4 Gc Read the device documentation for use in hazardous areas carefully.

Optional interfaces	
CX5010-N020	audio interface, 3 x 3.5 mm jack sockets, Line In, Mic In, Line Out or 5.1 Surround
CX5010-N030	RS232 interface, D-sub plug, 9-pin
CX5010-N031	RS485 interface, D-sub socket, 9-pin, configuration as an end point, without echo, termination on
CX5010-N031-0001	RS485 interface, D-sub socket, 9-pin, configuration as an end point, with echo, termination on
CX5010-N031-0002	RS485 interface, D-sub socket, 9-pin, configuration as drop point, without echo, termination off
CX5010-N031-0003	RS485 interface, D-sub socket, 9-pin, configuration as drop point, with echo, termination off
CX5010-N031-0004	RS422 interface, D-sub socket, 9-pin, configuration as full duplex end point, termination on
CX5010-B110	EtherCAT slave interface, EtherCAT IN and OUT (2 x RJ45)
CX5010-M310	PROFIBUS master interface, D-sub socket, 9-pin
CX5010-B310	PROFIBUS slave interface, D-sub socket, 9-pin
CX5010-M510	CANopen master interface, D-sub plug, 9-pin
CX5010-B510	CANopen slave interface, D-sub plug, 9-pin
CX5010-M930	PROFINET RT, controller interface, Ethernet (2 x RJ45)
CX5010-B930	PROFINET RT, device interface, Ethernet (2 x RJ45 switched)
CX5010-B950	EtherNet/IP slave interface, Ethernet (2 x RJ45 switched)

Product announcement	CX5010-B950: estimated market release on request

*CX50x0 systems with Microsoft Embedded Standard 2009 require Compact Flash with a capacity of at least 2 GB (must be ordered separately).