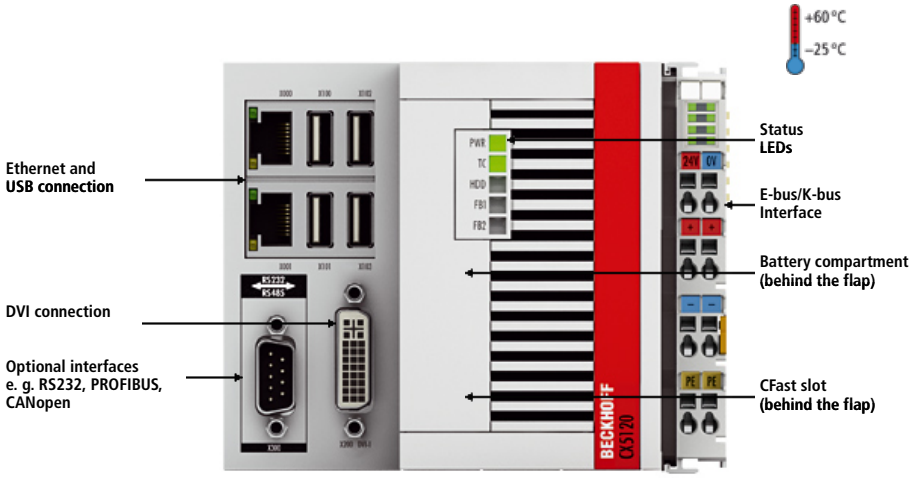

CX5120 | Embedded PC with Intel® Atom™ processor

CX5120, CX5130 and CX5140 are Embedded PCs from the CX5100 series based on the Intel® Atom™ multi-core processors. They differ from one another in housing width and CPU type. What is new is that the available Atom™ CPUs now also introduce genuine multi-core technology, extending up to quad-core, into the compact Embedded PC segment. Since the new devices are an extension of the existing CX5000 series, they are equipped with identical hardware interfaces. Two independent Gigabit-capable Ethernet interfaces as well as four USB 2.0 and one DVI-I interface are available. A multitude of further connection options and gateway functions is created by the multi-option interface, which can be pre-equipped ex factory, as well as the I/O level, which can optionally consist of either E-Bus or K-Bus Terminals.

All devices in the series are characterised by low power consumption and fanless design.

Depending on the installed TwinCAT runtime environment, the CX5100 can be used for implementing PLC or PLC/Motion Control projects with or without visualisation. The execution of Motion Control applications with interpolating axis movements is also possible.

The extended operating temperature range from -25 to +60 °C enables the use of the CX5100 Embedded PCs in climatically demanding environments.

Like the CX5000, the CX5100 series has a compact design; a modular device with extension modules like in the CX2000 series is not available.

The order number of the basic CPU module can be derived as follows:

CX51x0-01ST

- 0 = no TwinCAT
- 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
- 2 = operating system Windows Embedded Standard 7 P 32 bit
- 3 = operating system Windows Embedded Standard 7 P 64 bit

- 2 = Intel® Atom™ processor 1.46 GHz, 1 core
- 3 = Intel® Atom™ processor 1.75 GHz, 2 cores
- 4 = Intel® Atom™ processor 1.91 GHz, 4 cores

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

Optional interfaces:

- CX51x0-N020 = audio interface
- CX51x0-N030 = RS232, D-sub plug
- CX51x0-N031 = RS422/RS485, D-sub socket
- CX51x0-M310 = PROFIBUS master, D-sub socket, 9-pin
- CX51x0-B310 = PROFIBUS slave, D-sub socket, 9-pin
- CX51x0-M510 = CANopen master, D-sub plug, 9-pin
- CX51x0-B510 = CANopen slave, D-sub plug, 9-pin
- CX51x0-M930 = PROFINET RT, controller
- CX51x0-B930 = PROFINET RT, device, Ethernet (2 x RJ45 switch)
- CX51x0-B950 = EtherNet/IP slave, Ethernet (2 x RJ45 switch)
- CX51x0-B110 = EtherCAT slave, EtherCAT IN and OUT (2 x RJ45)

Technical data	CX5120
Processor	processor Intel® Atom™ E3815, 1.46 GHz, 1 core (TC3: 40)
Flash memory	slot for CFast card (card not included), slot for microSD card
Internal main memory	2 GB DDR3 RAM (not expandable)
Persistent memory	integrated 1-second UPS (1 MB on CFast card)
Interfaces	2 x RJ45, 10/100/1000 Mbit/s, DVI-I, 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 Standard 7 P
Control software	TwinCAT 2 PLC runtime or TwinCAT 2 NC PTP runtime
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	9 W (including the system interfaces)
Dimensions (W x H x D)	124 mm x 100 mm x 92 mm
Weight	approx. 860 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
Approvals	CE, UL
TC3 performance class	performance (40); please see here for an overview of all the TwinCAT 3 performance classes

Ordering information	no operating system	Windows Embedded Standard 7 P 32 bit	Windows Embedded Standard 7 P 64 bit	no TwinCAT	TwinCAT 2 PLC runtime	TwinCAT 2 NC PTP runtime	TwinCAT 2 NC I runtime	TwinCAT 3 runtime (XAR)
CX5120-0100	x	–	–	x	–	–	–	
CX5120-0120	–	x	–	x	–	–	–	
CX5120-0121	–	x	–	–	x	–	–	
CX5120-0122	–	x	–	–	–	x	–	
CX5120-0123	–	x	–	–	–	–	x	
CX5120-0125	–	x	–	–	–	–	–	x
CX5120-0130	–	–	x	x	–	–	–	
CX5120-0135	–	–	x	–	–	–	–	x

Accessories	
CX1900-0101	DVI-to-VGA passive adaptor for connecting a standard desktop VGA monitor to the CX system (singles out the VGA signals of the DVI-I interface).
CX2900-00xx	CFast cards: 2, 4, 8, 16, 32 GB CFast card

Optional interfaces	
CX5120-N020	audio interface, 3 x 3.5 mm jack sockets, Line In, Mic In, Line Out or 5.1 Surround
CX5120-N030	RS232 interface, D-sub plug, 9-pin
CX5120-N031	RS485 interface, D-sub socket, 9-pin, configuration as an end point, without echo, termination on
CX5120-N031-0001	RS485 interface, D-sub socket, 9-pin, configuration as an end point, with echo, termination on
CX5120-N031-0002	RS485 interface, D-sub socket, 9-pin, configuration as drop point, without echo, termination off
CX5120-N031-0003	RS485 interface, D-sub socket, 9-pin, configuration as drop point, with echo, termination off
CX5120-N031-0004	RS422 interface, D-sub socket, 9-pin, configuration as full duplex end point, termination on
CX5120-B110	EtherCAT slave interface, EtherCAT IN and OUT (2 x RJ45)
CX5120-M310	PROFIBUS master interface, D-sub socket, 9-pin
CX5120-B310	PROFIBUS slave interface, D-sub socket, 9-pin
CX5120-M510	CANopen master interface, D-sub plug, 9-pin
CX5120-B510	CANopen slave interface, D-sub plug, 9-pin
CX5120-M930	PROFINET RT, controller interface, Ethernet (2 x RJ45)
CX5120-B930	PROFINET RT, device interface, Ethernet (2 x RJ45 switched)
CX5120-B950	EtherNet/IP slave interface, Ethernet (2 x RJ45 switched)

Product announcement	CX5120-B950: estimated market release 4th quarter 2016