



# i CX5140 | Embedded PC with Intel® Atom™ processor

## CX5140

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.

## Order identifier

The order identifier is derived as follows:

CX5140-015T		Optional interfaces:
0	= no TwinCAT	CX5140-N020 = audio interface
1	= with TwinCAT 2 PLC runtime	CX5140-N030 = RS232, D-sub plug
2	= with TwinCAT 2 NC PTP runtime	CX5140-N031 = RS422/RS485, D-sub socket
3	= with TwinCAT 2 NC I runtime	CX5140-M310 = PROFIBUS master, D-sub socket, 9-pin
5	= TwinCAT 3 runtime (XAR)	CX5140-B310 = PROFIBUS slave, D-sub socket, 9-pin
0	= no operating system	CX5140-M510 = CANopen master, D-sub plug, 9-pin
1	= operating system Windows Embedded Compact 7	CX5140-B510 = CANopen slave, D-sub plug, 9-pin
2	= operating system Windows Embedded Standard 7 P 32 bit	CX5140-M930 = PROFINET RT, controller
3	= operating system Windows Embedded Standard 7 P 64 bit	CX5140-B930 = PROFINET RT, device, Ethernet (2 x RJ45 switch)
4	= Windows 10 IoT Enterprise LTSB 32 bit	CX5140-B931 = PROFINET IRT, device, Ethernet (2 x RJ45 switch)
5	= Windows 10 IoT Enterprise LTSB 64 bit	CX5140-B950 = EtherNet/IP slave, Ethernet (2 x RJ45 switch)
Since not all combinations make sense, the table "Ordering information" contains a breakdown of the permissible combinations.		CX5140-B110 = EtherCAT slave, EtherCAT IN and OUT (2 x RJ45)

Technical data	CX5140
Processor	Intel® Atom™ E3845, 1.91 GHz
Number of cores	4
Flash memory	slot for CFast card and for microSD card (cards are not included)
Internal main memory	4 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 Compact 7, Microsoft Windows Embedded Standard 7 P or Microsoft Windows 10 IoT Enterprise LTSB
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)	142 mm x 100 mm x 92 mm
Weight	approx. 960 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, IECEx
TC3 performance class	performance plus (50); please see <a href="#">here</a> for an overview of all the TwinCAT 3 performance classes

Ordering information	no operating system	Windows Embedded Compact 7	Windows Embedded Standard 7 P 32 bit	Windows Embedded Standard 7 P 64 bit	Windows 10 IoT Enterprise LTSB 32 bit	Windows 10 IoT Enterprise LTSB 64 bit	no TwinCAT	TwinCAT 2 PLC runtime	TwinCAT 2 NC PTP runtime	TwinCAT 2 NC I runtime	TwinCAT 3 run (XAR)
CX5140-0100	x	–	–	–	–	–	x	–	–	–	–
CX5140-0110	–	x	–	–	–	–	x	–	–	–	–
CX5140-0111	–	x	–	–	–	–	–	x	–	–	–
CX5140-0112	–	x	–	–	–	–	–	–	x	–	–
CX5140-0113	–	x	–	–	–	–	–	–	–	x	–
CX5140-0115	–	x	–	–	–	–	–	–	–	–	x
CX5140-0120	–	–	x	–	–	–	x	–	–	–	–
CX5140-0121	–	–	x	–	–	–	–	x	–	–	–
CX5140-0122	–	–	x	–	–	–	–	–	x	–	–
CX5140-0123	–	–	x	–	–	–	–	–	–	x	–
CX5140-0125	–	–	x	–	–	–	–	–	–	–	x
CX5140-0130	–	–	–	x	–	–	x	–	–	–	–
CX5140-0135	–	–	–	x	–	–	–	–	–	–	x
CX5140-0140	–	–	–	–	x	–	x	–	–	–	–
CX5140-0141	–	–	–	–	x	–	–	x	–	–	–
CX5140-0142	–	–	–	–	x	–	–	–	x	–	–
CX5140-0143	–	–	–	–	x	–	–	–	–	x	–
CX5140-0150	–	–	–	–	–	x	x	–	–	–	–
CX5140-0155	–	–	–	–	–	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
CX2900-0107	Device modification for CX5120, CX5130, CX5140 and CX9020 Embedded PCs according to the requirements for ATEX and IECEx certification. The modification is mandatory for the usage of CX5120, CX5130, CX5140 and CX9020 in hazardous areas, Zone 2/22. 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 and II 3 D Ex tc IIIC T135 °C Dc IECEx: Ex nA IIC T4 Gc and Ex tc IIIC T135 °C Dc Read the device documentation for use in hazardous areas carefully.

Optional interfaces	
CX5140-N010	DVI-D interface, additional DVI-D port for clone or extended desktop operation
CX5140-N011	DisplayPort interface, additional DisplayPort for clone or extended desktop operation
CX5140-N020	audio interface, 3 x 3.5 mm jack sockets, Line In, Mic In, Line Out or 5.1 Surround
CX5140-N030	RS232 interface, D-sub plug, 9-pin*
CX5140-N031	RS485 interface, D-sub socket, 9-pin, configuration as an end point, without echo, termination on*
CX5140-N031-0001	RS485 interface, D-sub socket, 9-pin, configuration as an end point, with echo, termination on
CX5140-N031-0002	RS485 interface, D-sub socket, 9-pin, configuration as drop point, without echo, termination off
CX5140-N031-0003	RS485 interface, D-sub socket, 9-pin, configuration as drop point, with echo, termination off
CX5140-N031-0004	RS422 interface, D-sub socket, 9-pin, configuration as full duplex end point, termination on
CX5140-B110	EtherCAT slave interface, EtherCAT IN and OUT (2 x RJ45)
CX5140-M310	PROFIBUS master interface, D-sub socket, 9-pin
CX5140-B310	PROFIBUS slave interface, D-sub socket, 9-pin
CX5140-M510	CANopen master interface, D-sub plug, 9-pin
CX5140-B510	CANopen slave interface, D-sub plug, 9-pin
CX5140-M930	PROFINET RT, controller interface, Ethernet (2 x RJ45)
CX5140-B930	PROFINET RT, device interface, Ethernet (2 x RJ45 switched)
CX5140-B931	PROFINET IRT, device interface, Ethernet (2 x RJ45 switched), in combination with TwinCAT 3 only
CX5140-B950	EtherNet/IP slave interface, Ethernet (2 x RJ45 switched)



**Product announcement**

CX5140-B931, CX5140-B950: estimated market release on request

\*Not available for Microsoft Windows 10 IoT Enterprise (LTSB).