

Industrial Computing

Box PC

Introduction

Overview



SIMATIC Box PCs

SIMATIC Box PCs provide mechanical engineers, plant engineers and control cabinet builders with particularly rugged industrial PC systems for use in powerful yet compact applications.

The following industrial functions are common to all device classes:

- Extreme compactness
- Varied mounting possibilities for flexibility with installation
- Certification for global marketing
- Robust data storage through the use of solid-state drive (SSD)
- Wide operating temperature range
- High vibration/shock load during operation
- Integrated parameterizable monitoring functions (temperature, fan, watchdog)
- High service friendliness
- Optional operating system preinstalled and activated for fast commissioning

SIMATIC IOT2050: The universal data gateway

- Wide range of options for programming in high-level languages
- Implementation of flexible communication solutions with different protocols, from Modbus RTU, OPC UA, all the way to cloud protocols such as MQTT/AMQP
- Use of open source application examples and libraries

SIMATIC IPCBX-21A: Ultra-compact and flexible integration

- High-performance gateway for the acquisition/collection/processing/transmission of data / integration of machinery in Cloud/Edge solutions
- For retrofitting and new systems: Networking/retrofitting of digitizing tasks in brownfield and greenfield plants due to ultra-compact design
- Optimized price/performance ratio; ideal for high quantities

SIMATIC IPC227 (Nanobox PC): The Box PC with optimized performance in compact design – versatile and open

- Maximum compactness with approx. 1 liter enclosure volume with integrated industrial power supply for minimum space requirements in the control cabinet
- Maximum flexibility thanks to several mounting options and interfaces on one side suitable for every installation situation
- Optimum variety of interfaces due to a large number of integrated interfaces such as a selectable serial connection and 2x or 3x teaming-capable Gigabit-Ethernet
- Maximum industrial functionality due to closed enclosure for optimum dust protection and optional non-volatile retentive memory

SIMATIC IPC BX-32A: Box PC without fan with attractive price/performance ratio

- Without fan, high performance with maximum compactness and ruggedness for direct installation in the machine
- Flexible expansion using a PCIe I/O card (optional)
- Flexible installation options including DIN rail/wall/front portrait mounting

SIMATIC IPC327: Box PC at an appealing price - focused on basic functions

- Low-cost platform for the industrial and industry-oriented field
- Flexible installation on the DIN rail or wall mounting, as well as simple connection of I/O devices due to a large number of interfaces
- Fanless industrial design
- Fast availability directly ex stock due to preferred versions

SIMATIC BX-35A: Powerful for price-sensitive applications

- Without fan, high performance with maximum compactness and ruggedness for direct installation in the machine
- Flexible expansion using a PCIe I/O card (optional)
- Flexible installation options including DIN rail/wall/front portrait mounting

SIMATIC IPC BX-39A (Microbox PC): The powerful embedded IPC – flexible in use and expandable in a variety of ways

- Fan-free operation
- High performance with maximum compactness and ruggedness for direct installation in the machine
- Optimized for embedded applications
- Flexibility expandable using one or two PCIe I/O cards (optional)
- Flexible installation options including DIN rail/wall/front portrait mounting, even outside control cabinets
- NVRAM for retentive data storage (optional)

SIMATIC IPC527: The powerful Box PC at an appealing price

- High system performance for computation-intensive applications with compact dimensions
- High flexibility due to expansion options
- High degree of investment protection thanks to support of existing systems
- Industrial quality at an attractive price
- Fast availability directly ex stock due to preferred versions

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SIMATIC IPC627: The high-end Box PC – with high functionality and expandability

- Maximum system performance for complex measuring, control and visualization tasks
- High flexibility with expansion slots and integrated interfaces
- Flexible, space-saving installation with mounting brackets or portrait mounting kits
- Very rugged design for direct installation in the machine
- RAID1 controller onboard
- 4 signaling LEDs

SIMATIC IPC BX-56A / SIMATIC IPC BX-59A: The high-end IPC with maximum performance, functional scope, and expansion capability

- Device selection focused precisely on the use case due to the variance of the modular system and the high scalability of the modular system
- Flexibility due to optional expansion modules with up to 5 PCIe slots
- Maximum system performance for demanding computing, control and visualization tasks through the use of Intel® processors up to the 65 W class
- High system availability due to optional RAID functionality
- On-premise Edge analyses and GPU-enabled neural networks, e.g. for quality inspection and AI inference

Technical specifications

Article number	6ES7647-0BA00-1YA2	6AG4021-0B.00.A..	6ES7647-8C...-....	6AG4022-0B...-....	6AG4152-.....-....	6ES7647-0JC...-....
	SIMATIC IoT2050	SIMATIC IPC BX-21A	SIMATIC IPC227G	SIMATIC IPC327G	SIMATIC IPC BX-32A	SIMATIC IPC BX-35A
General information						
Product type designation	IOT2050	IPC BX-21A	IPC227G	IPC327G	BX-32A	BX-35A
Installation type/mounting						
Mounting		DIN rail, wall mounting, book mounting, VESA mounting	DIN rail, wall mounting, portrait mounting	Rail or wall mounting	DIN rail, wall mounting, portrait mounting	rail mounting, wall mounting
Design	IoT Gateway, built-in unit	Box PC, built-in unit	Box PC, built-in unit	Box PC, built-in unit	Box PC, built-in unit	Box PC, built-in unit
Supply voltage						
Type of supply voltage	12/24 V DC	24 V DC	24 V DC	24 V	9 - 36 V DC	rated 12 to 24 V DC, range 9 to 36 V DC
Mains buffering						
• Mains/voltage failure stored energy time	5 ms	5 ms	20 ms	20 ms	20 ms	5 ms
Processor						
Processor type	ARM TI AM6548 HS	Intel Atom X6413E	Intel Atom X6211E / X6413E / X6414RE	Intel Atom X6413E	Intel® Celeron 6600HLE (2.1 GHz, 2C/2T) Intel® Xeon W-11155MLE (1.8/3.1 GHz, 4C/8T) Intel® Xeon W-11555MLE (1.9/4.4 GHz, 6C/12T) Intel® Xeon W-11865MLE (1.5/4.5 GHz, 8C/16T)	NVIDIA 8 core Arm® Cortex®-A78AE v8.2 64-bit CPU 2MB L2 + 4MB L3 / 6 core Arm® Cortex®-A78AE v8.2 64-bit CPU 1.5MB L2 + 4MB L3
Chipset		SoC	SoC		Intel® RM590E	
Graphic						
Graphics controller	Integrated	Integrated	Integrated		Intel® UHD Graphics 16 EUs (for Intel® Celeron® 6600HLE and Intel® Xeon® W-11155MLE) / Intel® UHD Graphics 32 EUs (for Intel® Xeon® W-11555MLE and Intel® Xeon® W-11865MLE)	1024 core NVIDIA Ampere GPU with 32 Tensor Core
Graphics card	Yes					

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	SIMATIC IoT2050	SIMATIC IPC BX-21A	SIMATIC IPC227G	SIMATIC IPC327G	SIMATIC IPC BX-32A	SIMATIC IPC BX-35A
Drives						
Hard disk					M.2 SSD ≥ 240 GB	
SSD		Yes; 128 / 256 GB	Yes; 256 Eco	Yes; 256 GB SSD/512 GB SSD	Yes; ≥ 240 GB optional	Yes; 256 GB / 512 GB / 1 T / no SSD
Slot for drives	1x microSD card slot					
Memory						
Type of memory	DDR4	LPDDR4 onboard	DDR4 SO-DIMM	DDR4	DDR4-3200 SO-DIMM	LPDDR5
Main memory	2 GB RAM	8 / 16 GB RAM	2 / 4 / 8 / 16 Gbyte; inband ECC optional	4 GB, 8 GB, 16 GB	4 / 8 / 16 / 32 GB	8 GB, 16 GB
Hardware configuration						
Slots						
• free slots	1x Arduino, 1x mPCIe		2x M.2	2x M.2	1x PCIe (x4); optional	1x nano SIM card slot
Digital inputs						
Number of digital inputs	20					4
Input voltage						
• Type of input voltage	DC					24 V DC
• for signal "0"						< 5 V DC
• for signal "1"						> 12 V DC
Input current						
• for signal "0", max. (permissible quiescent current)						1 mA
• for signal "1", typ.						2.5 mA
Digital outputs						
Type of digital output						transistor
Number of digital outputs	20					4
Short-circuit protection						No
Output voltage						
• Type of output voltage	DC					DC
• permissible voltage at output, min.	3.3 V					20.4 V
• permissible voltage at output, max.	5 V					28.8 V
Output current						
• for signal "1" rated value						0.5 A
Switching frequency						
• with resistive load, max.						10 Hz
• with inductive load, max.						0.5 Hz
• mechanical, max.						10 Hz
Analog inputs						
Number of analog inputs	6					
Input ranges						
• Voltage	Yes; 0 ... 5 V					

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	SIMATIC IoT2050	SIMATIC IPC BX-21A	SIMATIC IPC227G	SIMATIC IPC327G	SIMATIC IPC BX-32A	SIMATIC IPC BX-35A
Interfaces						
PROFIBUS/MPI	can be implemented with plug-in card					
Number of industrial Ethernet interfaces	2	3; 3x Ethernet (RJ45)	3; 3x Ethernet (RJ45)	2; 2x RJ45 (independent)	2; 2x Gigabit Ethernet (IE/PN), RJ45	4; 4x RJ45 (4x support PoE PSE IEEE 802.3af 30 W total)
Number of PROFINET interfaces	2					
USB port	2x USB 2.0	4x USB 3.1 Gen2	4x USB 3.1	4x USB 3.1; 3x USB 2.0	4x USB 3.2 Gen2	3x USB 3.1 Gen1 5 GB/s + 1x USB 2.0
Connection for keyboard/mouse serial interface version	USB 1x COM (1x RS 232 / 422 / 485)	USB / USB	USB / USB without / 1x / 2x COM (RS 232 / 485 / 422; selectable)	USB / USB	USB / USB 2x / 4x (optional) COM (RS 232 / 485 / 422; selectable)	USB / USB 1x COM (1x RS 232 / 422 / 485)
Video interfaces						
• Graphics interface	1x DisplayPort	1x DisplayPort	2x DisplayPort	2x DisplayPort	2x DisplayPort (DP1.4-capable); maximum 4096 × 2304 / 60 Hz / 36 bit	1x DisplayPort
Industrial Ethernet						
• Industrial Ethernet interface	2x Ethernet (RJ45)	3x Ethernet (RJ45)	3x Ethernet (RJ45)	2x Ethernet (RJ45)	2x Ethernet (RJ45)	4x Ethernet (RJ45)
- 100 Mbps	Yes	Yes	Yes	Yes	Yes	Yes
- 1000 Mbps	Yes	Yes	Yes	Yes	Yes	Yes
Protocols						
Protocols (Ethernet)						
• TCP/IP		Yes	Yes	Yes		Yes
Interrupts/diagnostics/status information						
LED status display	Yes	1x power, 3x user	1x power, 3x user		No	1x Power, 1x User, 8x DIO
Integrated Functions						
Monitoring functions						
• Temperature monitoring	Yes		Yes	Yes	No	Yes
• Watchdog	Yes	Yes	Yes	Yes	No	Yes
• Fan			No	No	No	No
• Monitoring function via network			Optional		Optional	
EMC						
Interference immunity against discharge of static electricity						
• Interference immunity against discharge of static electricity	±4 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2	±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2	±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2	±4 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2	±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2	± 6 KV contact discharge at the front in accordance with IEC 61000-4-2; ±4 kV, housing contact discharge at the back in accordance with IEC 61000-4-2; ± 8 kV air discharge in accordance with IEC 61000-4-2

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	SIMATIC IoT2050	SIMATIC IPC BX-21A	SIMATIC IPC227G	SIMATIC IPC327G	SIMATIC IPC BX-32A	SIMATIC IPC BX-35A
Interference immunity against high-frequency electromagnetic fields <ul style="list-style-type: none"> Interference immunity against high frequency radiation 	10 V/m for 80 ... 1 000 MHz, 80 % AM according to IEC 61000-4-3; 3 V/m for 1.4 ... 6 GHz, 80 % AM according to IEC 61000-4-3	10 V/m for 80 - 2 700 MHz, 80 % AM acc. to IEC 61000-4-3; 3 V/m for 2.7 - 6 GHz, 80 % AM acc. to IEC 61000-4-3; 10 V for 10 kHz to 80 MHz, 80 % AM acc. to IEC 61000-4-6	10 V/m for 80 - 1 000 MHz and 1.4 - 2 GHz, 80% AM acc. to IEC 61000-4-3; 3 V/m for 2 - 2.7 GHz, 80% AM acc. to IEC 61000-4-3; 10 V for 10 kHz - 80 MHz, 80% AM acc. to IEC 61000-4-6	10 V/m for 80 - 1 000 MHz and 1.4 - 2 GHz, 80% AM acc. to IEC 61000-4-3; 3 V/m for 2 - 2.7 GHz, 80% AM acc. to IEC 61000-4-3; 10 V for 10 kHz - 80 MHz, 80% AM acc. to IEC 61000-4-6	10 V/m for 80 - 1 000 MHz and 1.4 - 2 GHz, 80% AM acc. to IEC 61000-4-3; 3 V/m for 2 - 2.7 GHz, 80% AM acc. to IEC 61000-4-3; 10 V for 10 kHz - 80 MHz, 80% AM acc. to IEC 61000-4-6	10 V/m for 80 ... 2 700 MHz, 80% AM acc. to IEC 61000-4-3; 3 V/m for 2.7 to 6 GHz, 80% AM acc. to IEC 61000-4-3; 10 V for 10 kHz to 80 MHz, 80% AM acc. to IEC 61000-4-6
Interference immunity to cable-borne interference <ul style="list-style-type: none"> Interference immunity on supply cables Interference immunity on signal cables >30m Interference immunity on signal cables < 30m 	±2 kV (according to IEC 61000-4-4, burst); ±1 kV (according to IEC 61000-4-5, surge pulse/line to line); ±2 kV (according to IEC 61000-4-5, surge pulse/line to ground)	±2 kV according to IEC 61000-4-4, burst	±2 kV acc. to IEC 61000-4-4, burst; ±1 kV acc. to IEC 61000-4-5, surge symmetric; ±2 kV acc. to IEC 61000-4-5, surge asymmetric		±2 kV acc. to IEC 61000-4-4, burst; ±1 kV acc. to IEC 61000-4-5, surge symmetric; ±2 kV acc. to IEC 61000-4-5, surge asymmetric	±2 kV (according to IEC 61000-4-4, burst); ±1 kV (according to IEC 61000-4-5, surge pulse/line to line); ±2 kV (according to IEC 61000-4-5, surge pulse/line to ground)
	±2 kV acc. to IEC 61000-4-5, surge, length > 30 m	±2 kV according to IEC 61000-4-4, burst	±2 kV acc. to IEC 61000-4-5, surge, length > 30 m		±2 kV acc. to IEC 61000-4-4, burst; ±2 kV acc. to IEC 61000-4-5, surge	burst: ±2 kV (5 kHz / 100 kHz) in accordance with IEC 61000-4-4; length of signal port extension cable ≥ 30 m
	±1 kV acc. to IEC 61000-4-4, Burst	±1 kV acc. to IEC 61000-4-4, Burst	±1 kV (5 kHz/100 kHz) acc. to IEC 61000-4-4; burst; length < 30 m; ±2 kV (5 kHz/100 kHz) acc. to IEC 61000-4-4; burst; length > 30 m		±1 kV acc. to IEC 61000-4-4, Burst	burst: ±1 kV (5 kHz / 100 kHz) in accordance with IEC 61000-4-4; length of signal port extension cable < 30 m
Interference immunity against voltage surge <ul style="list-style-type: none"> asymmetric interference symmetric interference 	±2 kV acc. to IEC 61000-4-5, surge asymmetric	±2 kV acc. to IEC 61000-4-5, line to earth	±2 kV acc. to IEC 61000-4-5, surge asymmetric		±2 kV acc. to IEC 61000-4-5, surge asymmetric	
	±1 kV acc. to IEC 61000-4-5, surge symmetric	±1 kV acc. to IEC 61000-4-5, line to line	±1 kV acc. to IEC 61000-4-5, surge symmetric		±1 kV acc. to IEC 61000-4-5, surge symmetric	
Interference immunity to magnetic fields <ul style="list-style-type: none"> Interference immunity to magnetic fields at 50 Hz 			100 A/m; to IEC 61000-4-8		100 A/m; to IEC 61000-4-8	100 A/m; to IEC 61000-4-8
Emission of conducted and non-conducted interference <ul style="list-style-type: none"> Interference emission via line/ AC current cables 		IEC 61000-6-3 + A1/ CISPR 32 + A1	EN 61000-6-3, EN 61000-6-4, CISPR 22 Class B, FCC Class A		IEC 61000-6-3, IEC 61000-6-4, CAN/CSA CISPR 32 Class B, FCC Class A	IEC 61000-6-4, CAN/CSA CISPR 32 class A, FCC class A

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	SIMATIC IoT2050	SIMATIC IPC BX-21A	SIMATIC IPC227G	SIMATIC IPC327G	SIMATIC IPC BX-32A	SIMATIC IPC BX-35A
Degree and class of protection						
IP degree of protection	IP20	IP40	IP40	IP40	IP20	IP20
IP (all-round)	IP20					
Standards, approvals, certificates						
CE mark	Yes	Yes	Yes	Yes	Yes	Yes
UKCA mark					Yes	
CSA approval				Yes	Yes	No
UL approval	Yes	Yes		Yes	Yes; UL 61010-2-201 Second Edition, File E472609	Yes; UL 61010-2-201, UL 61010-1
• UL 508					No	No
cULus	Yes		Yes		Yes	Yes; UL 61010-1, UL 61010-2-201
FM approval						No
RCM (formerly C-TICK)	Yes	Yes	Yes		Yes	Yes; C-Tick
KC approval	Yes	Yes	Yes	Yes	Yes	No; in preparation
EAC (formerly Gost-R)	Yes		Yes	Yes	No	No
CCC						No
FCC	Yes	Yes	Yes	Yes	Yes	Yes
BSMI				Yes	No; in preparation	No; in preparation
BIS					Yes	
EMC	CE, EN 61000-6-4:2007 +A1:2011, EN 61000-6-2:2005, CE, EN IEC 61000-6-4:2019, EN IEC 61000-6-2:2019	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4	CE, EN 61000-6-4:2007, EN 61000-6-2:2005		EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, CAN/CSA CISPR 32 Class B, EN 55032 Class B, FCC Class A, KN32	
Dust protection		Protection against foreign bodies > 1 mm	Protection against foreign bodies > 1 mm	Protection against foreign bodies > 1 mm		
Use in hazardous areas						
• ATEX Zone 2					No	
• IECEx Zone 2					No	
• cULus Class I Zone 2, Division 2					No	
Marine approval						
• Germanischer Lloyd (GL)					No	
• American Bureau of Shipping (ABS)					No	
• Bureau Veritas (BV)					No	
• Det Norske Veritas (DNV)					No	
• Korean Register of Shipping (KRS)					No	
• Lloyds Register of Shipping (LRS)					No	
• Nippon Kaiji Kyokai (Class NK)					No	
Ambient conditions						
Ambient temperature during operation						
• min.	0 °C	-20 °C	0 °C	0 °C	0 °C	0 °C; 15 W CPU, 30 W PoE, 3 W M.2 M-KEY, 3 W M.2 B-KEY or 2.5 W M.2 E-KEY, USB
• max.	50 °C	50 °C	55 °C	55 °C; without M.2 module	50 °C	50 °C; 15 W CPU, 30 W PoE, 3 W M.2 M-KEY, 3 W M.2 B-KEY or 2.5 W M.2 E-KEY, USB

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	SIMATIC IoT2050	SIMATIC IPC BX-21A	SIMATIC IPC227G	SIMATIC IPC327G	SIMATIC IPC BX-32A	SIMATIC IPC BX-35A
Altitude during operation relating to sea level						
• Installation altitude above sea level, max.	2 000 m				3 000 m	
Relative humidity						
• Relative humidity	5 ... 85 % at 30 °C, no condensation	max. 85% at 30 °C, no condensation, gradient <= 10 °C/h	Tested according to IEC 60068-2-78, IEC 60068-2-30: Operation: 5 % to 85 % at 30 °C (no condensation), storage / transport: 5 % to 95 % at 25 / 55 °C (no condensation)	5 ... 85 % at 30 °C, no condensation	Tested according to IEC 60068-2-78, IEC 60068-2-30: Operation: 5% to 80% at 25 °C (no condensation), Storage: 5% to 95% at 25 °C (no condensation)	5 ... 85 % at 30 °C, no condensation
• Operation, max.	85 %				85 %	
Vibrations						
• Vibration resistance during operation acc. to IEC 60068-2-6	tested according to IEC 60068-2-6: 10 cycles; 5 to 8.4 Hz: deflection 3.5 mm; 8.4 to 200 Hz: acceleration 9.8 m/s ²	tested according to IEC 60068-2-6: 5 Hz to 8.4 Hz: 3.5 mm, 8.4 Hz to 200 Hz : 9.8m/s ² (1 g) (except DIN Rail) 10 Hz to 58 Hz: 0.0375 mm, 58 Hz to 500 Hz: 4.9 m/s ² (0.5 g) (DIN Rail)	tested according to IEC 60068-2-6: 5 Hz to 8.4 Hz: 3.5 mm, 8.4 Hz to 200 Hz : 9.8m/s ² (1 g) (except DIN Rail) 10 Hz to 58 Hz: 0.0375 mm, 58 Hz to 500 Hz: 4.9 m/s ² (0.5 g) (DIN Rail)	58 Hz to 200 Hz: 4.9 m/s ² ; tested according to IEC 60068-2-6	tested according to IEC 60068-2-6; 5 Hz to 9 Hz: 3.5 mm; 9 Hz to 500 Hz: 9.8 m/s ²	tested according to IEC 60068-2-6: 10 cycles; 5 to 8.4 Hz: deflection 3.5 mm; 8.4 to 200 Hz: acceleration 9.8 m/s ²
Shock testing						
• Shock load during operation	Tested according to IEC 60068-2-27: 150 m/s ² , 11 ms	Tested according to IEC 60068-2-27: 150 m/s ² , 11 ms	Tested according to IEC 60068-2-27: 150 m/s ² , 11 ms	with SSD: 150 m/s ² , 11 ms, 5 g, 30 ms, tested accordance with IEC 60068-2-27	Tested according to IEC 60068-2-27: 150 m/s ² , 11 ms	Tested according to IEC 60068-2-27: 150 m/s ² , 11 ms
Operating systems						
pre-installed operating system	SIMATIC Industrial OS	Windows 10 Enterprise 2021 LTSC 64-bit, MUI	Windows 10 IoT Enterprise 2019 LTSC, 64 bit, MUI	Windows 10 IoT Enterprise 2019 LTSC, 64 bit, MUI	Windows 10 IoT Enterprise 2021 LTSC, Industrial OS	SIMATIC Industrial OS optional
without operating system	No	Yes; Optional	Yes; Optional	Yes; Optional	Yes; Optional	Yes
Mechanics/material						
Enclosure material (front)	plastic				Continuous-cast aluminum	
• Plastic	Yes					
• Aluminum	Yes					
• Stainless steel	Yes					
• Glass	No					
Dimensions						
Width	37 mm	85 mm	191 mm	254 mm	255 mm	196 mm
Height	142 mm	104 mm	100 mm	132 mm	133 mm	131 mm
Depth	100 mm	45 mm	64 mm	73 mm	75 mm	70 mm

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General information					
Product type designation	BX-39A	IPC527G	IPC627E	BX-56A	BX-59A
Installation type/mounting					
Mounting	standard rail	Wall mounting, portrait mounting, desktop mounting	Wall mounting, portrait mounting	Wall mounting, book mounting, desk mounting, tower mounting	Wall mounting, book mounting, desk mounting, tower mounting
Design	Box PC, built-in unit	Box PC, built-in unit	Box PC, built-in unit	Box PC, built-in unit	Box PC, built-in unit
Supply voltage					
Type of supply voltage	24 V DC	100/240V AC (autorange) 50/60 Hz	100/240 V AC (autorange); 24 V DC	400 W / 24 V / 19.2 - 28.8 VDC; 220 W / 12-24 V / 9 - 36 VDC	
Rated value (DC)	24 V			24 V; 12...24 V DC on 220 W	24 V; 12...24 V DC on 220 W
Rated value (AC)					240 V; 100 - 240V, 50/60Hz
Line frequency					
• Rated value 50 Hz		Yes	Yes		Yes
• Rated value 60 Hz		Yes	Yes		Yes
Mains buffering					
• Mains/voltage failure stored energy time	20 ms		20 ms	20 ms	20 ms
Processor					
Processor type		Core i7-6700 (4C/8T, 3.4 (4.0) GHz, 8 MB cache); Core i5-6500 (4C/4T, 3.2 (3.6) GHz, 6 MB cache); Pentium G4400 (2C/2T, 3.3 GHz, 3 MB cache)	Celeron G4900 (2C/2T, 3.1 GHz, 2 MB cache; VT-d); Core i3-8100 (4C/4T, 3.6 GHz, 6 MB cache, VT-d); Core i7-8700 (6C/12T, 3.2 (4.6) GHz, 12 MB cache, VT-d, AMT)	Core i5-13500E 14C (6P+8E)/20T, 2.4 (4.6) GHz, 24 MB cache; Core i3-13100TE 4C (4P+0E)/8T, 2.4 (4.1) GHz, 12 MB cache; Pentium G7400E 2C (2P+0E)/4T, 3.6 GHz, 6 MB cache	Core i9-13900E 24C (8P+16E)/32T, 1.8 (5.2) GHz, 36 MB cache; Core i7-13700E 16C (8P+8E)/24T, 1.9 (5.1) GHz, 30 MB cache; Core i7-13700TE 16C (8P+8E)/24T, 1.1 (4.8) GHz, 30 MB cache; Core i5-13500E 14C (6P+8E)/20T, 2.4 (4.6) GHz, 24 MB cache
Chipset	Intel® RM590E	Intel H110	Intel C246	Intel H610E	Intel R680E
Graphic					
Graphics controller		Onboard Intel HD graphics 530/510 integrated in processor	Intel UHD Graphics 630 (Core i); Intel UHD Graphics 610 (Celeron)	Intel UHD Graphics 710 (Pentium); Intel UHD Graphics 730 (Core i3); Intel UHD Graphics 770 (Core i5)	Intel UHD Graphics 770 (Core i5, Core i7, Core i9)
Graphics card					Yes; Optional

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Drives					
Hard disk	M.2 SSD 256 GB Eco	1 TB HDD	2.5" SATA ≥ 320 GB		
SSD	Yes	Yes; Optional	Yes; SSD M.2 NVMe 512 GB; SSD 2.5" SATA 480 / 960 GB; RAID1 2x SSD 2.5" SATA 480 / 960 GB in removable drive bay	Yes; base module: 512 GB 2.5" SATA SSD; 1 TB 2.5" SATA SSD;	Yes; base module: 480 GB 2.5" SATA SSD (PLP); 960 GB 2.5" SATA SSD (PLP); 512 GB 2.5" SATA SSD; 1 TB 2.5" SATA SSD; 512 GB M.2 NVMe onboard SSD; 1 TB M.2 NVMe onboard SSD; 512 GB M.2 NVMe onboard SSD with 1* 512 GB M.2 NVMe on 1 exchangeable SSD slider; 512 GB M.2 NVMe onboard SSD with 1* 1 TB M.2 NVMe on 1 exchangeable SSD slider; RAID1 2* 512 GB M.2 NVMe on 2 exchangeable SSD slider; RAID1 2* 1 TB M.2 NVMe on 2 exchangeable SSD slider; 512 GB M.2 NVMe onboard SSD with RAID1 2* 512 GB M.2 NVMe on 2 exchangeable SSD slider
Memory					
Type of memory	DDR4-3200 SO-DIMM	DDR4-2133 SO-DIMM	DDR4-2666 DIMM	DDR5-4800 SO-DIMM	DDR5-4800 SO-DIMM
Main memory		4 / 8 / 16 GB, supports up to 32 GB	4 / 8 / 16 / 32 / 64 GB	8 / 16 / 32 / 64 GB	8 / 16 / 32 / 64 GB; ECC optional
Data areas and their retentivity					
Retentive data area (incl. timers, counters, flags), max.	512 kbyte; 128 KB can be stored in the buffer time; optional		512 kbyte; 128 KB can be stored in the buffer time	512 kbyte; 128 KB can be stored in the buffer time; optional	512 kbyte; 128 KB can be stored in the buffer time
Hardware configuration					
Slots					
• free slots	2x PCIe; optional: 1x PCIe (x4); 2x PCIe (x1, x4), with card retainer	1x PCIe (x16), optional 1x PCIe (x1), 2x PCI additionally	2x PCI; optional: 1x PCI & 1x PCIe (x16); 2x PCIe (x4, x16); 3x PCI & 2x PCIe (x16, x4); 5x PCIe (1x16, 2x4, 2x1); with card retainer	1 slot: 1x PCI Express (x16) gen 4 (16 lanes); 2 slots: 1x PCI Express (x16) gen 4 (16 lanes) and 1x PCI Express (x4) gen 3 (4 lanes);	

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Interfaces					
Number of industrial Ethernet interfaces	4; 4x Gigabit Ethernet (IE/PN)	3; 3x Gigabit Ethernet (IE/PN), RJ45 optional; 2x Gigabit Ethernet (IE/PN), RJ45 basic configuration	3; 3x Ethernet (RJ45)	2; 2x Gigabit Ethernet (RJ45)	4; 4x Gigabit Ethernet (RJ45)
Number of PROFINET interfaces		3; 2 ports base configuration, 3 ports optional			
USB port	4x USB 3.2 Gen2	4x USB 3.0, 1x USB 2.0 internal, 2x USB 2.0 optional	6x USB 3.1 Gen. 2 (2x type C)	2x USB 3.2 GEN2 10G Type A, 2x USB 3.2 GEN1 5G Type A	1x USB 3.2 Gen2 10G Type C, 6x USB 3.2 Gen 2 10G Type A
Connection for keyboard/mouse serial interface version	USB / USB	USB / USB 2x RS 232 / 485 / 422 combined, 2x RS 232 optional	USB / USB 1x COM	USB / USB 2x / 4x (optional) COM (RS 232 / 485 / 422; selectable)	USB / USB 2x / 4x (optional) COM (RS 232 / 485 / 422; selectable)
Multimedia					
• Audio In/Out		Yes		Yes	Yes
• Microphone In		Yes			
Video interfaces					
• Graphics interface	2x DisplayPort (DP1.4-capable); maximum 4096 × 2304 / 60 Hz / 36 bit	1x DisplayPort, 1x VGA	2x DisplayPort; 1x DVI-D	2x DisplayPort	2x DisplayPort
Industrial Ethernet					
• Industrial Ethernet interface	4x Ethernet (RJ45)	2x Ethernet (RJ45), 1x Ethernet (RJ45) additional option	3x Ethernet (RJ45)	2x Gigabit Ethernet (RJ45)	4x Gigabit Ethernet (RJ45)
- 100 Mbps	Yes	Yes	Yes	Yes	Yes
- 1000 Mbps	Yes	Yes	Yes	Yes	Yes
Interrupts/diagnostics/status information					
LED status display	1x power, 3x user	POWER, HDD	1x power, 3x user	base module (1x power, 3x user, 1x HDD)	
Integrated Functions					
Monitoring functions					
• Temperature monitoring	Yes		Yes	Yes	Yes
• Watchdog	Yes		Yes	Yes	Yes
• Fan	No		Yes	Yes	Yes
• Monitoring function via network	Optional		Optional	Optional	Optional
EMC					
Interference immunity against discharge of static electricity					
• Interference immunity against discharge of static electricity	±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2	±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2	±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2	±6 kV contact; ±8 kV air (to IEC 61000-4-2, ESD)	±6 kV contact; ±8 kV air (to IEC 1000-4-2; ESD)
Interference immunity against high-frequency electromagnetic fields					
• Interference immunity against high frequency radiation	10 V/m for 80 ... 2 700 MHz, 80% AM acc. to IEC 61000-4-3; 3 V/m for 2.7 to 6 GHz, 80% AM acc. to IEC 61000-4-3; 10 V for 10 kHz to 80 MHz, 80% AM acc. to IEC 61000-4-6		10 V/m for 80 ... 2 700 MHz, 80% AM acc. to IEC 61000-4-3; 3 V/m for 2.7 to 6 GHz, 80% AM acc. to IEC 61000-4-3; 10 V for 10 kHz to 80 MHz, 80% AM acc. to IEC 61000-4-6	10 V/m for 80 ... 2 700 MHz, 80% AM acc. to IEC 61000-4-3; 3 V/m for 2.7 to 6 GHz, 80% AM acc. to IEC 61000-4-3; 10 V for 10 kHz to 80 MHz, 80% AM acc. to IEC 61000-4-6	10 V/m, 80 MHz to 2 700 MHz, 80% AM acc. to IEC 61000-4-3; 3 V/m, 2.7 GHz to 6 GHz, 80% AM acc. to IEC 61000-4-3; 10 V, 10 kHz to 80 MHz, 80% AM acc. to IEC 61000-4-6

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Article number	6AG4142-.....-....	6AG4025-0...0-...0	6AG4131-3....-.....	6AG4132-0....-....	6AG4133-0....-....
	SIMATIC IPC BX-39A	SIMATIC IPC527G (Box PC)	SIMATIC IPC627E (Box PC)	SIMATIC IPC BX-56A (Box PC)	SIMATIC IPC BX-59A (Box PC)
Interference immunity to cable-borne interference					
<ul style="list-style-type: none"> Interference immunity on supply cables 	±2 kV acc. to IEC 61000-4-4, burst; ±1 kV acc. to IEC 61000-4-5, surge symmetric; ±2 kV acc. to IEC 61000-4-5, surge asymmetric		±2 kV acc. to IEC 61000-4-4, burst; ±1 kV acc. to IEC 61000-4-5, surge symmetric; ±2 kV acc. to IEC 61000-4-5, surge asymmetric	±2 kV (according to IEC 61000-4-4, burst); ±1 kV (according to IEC 61000-4-5, surge pulse/line to line); ±2 kV (according to IEC 61000-4-5, surge pulse/line to ground)	±2 kV (according to IEC 61000-4-4, burst); ±1 kV (according to IEC 61000-4-5, surge pulse/line to line); ±2 kV (according to IEC 61000-4-5, surge pulse/line to ground)
<ul style="list-style-type: none"> Interference immunity on signal cables >30m 	±2 kV acc. to IEC 61000-4-4, burst; ±2 kV acc. to IEC 61000-4-5, surge		±2 kV acc. to IEC 61000-4-5, surge, length > 30 m	burst: ±2 kV (5 kHz / 100 kHz) in accordance with IEC 61000-4-4; length of signal port extension cable ≥ 30 m; surge: ±2 kV line-to-earth in accordance with IEC 61000-4-5; length of signal port extension cable ≥ 10 m	burst: ±2 kV (5 kHz / 100 kHz) in accordance with IEC 61000-4-4; length of signal port extension cable ≥ 30 m; surge: ±2 kV line-to-earth in accordance with IEC 61000-4-5; length of signal port extension cable ≥ 10 m
<ul style="list-style-type: none"> Interference immunity on signal cables < 30m 	±1 kV acc. to IEC 61000-4-4, Burst		±1 kV acc. to IEC 61000-4-4; burst; length < 3 m; ±2 kV acc. to IEC 61000-4-4; burst; length > 3 m	burst: ±1 kV (5 kHz / 100 kHz) in accordance with IEC 61000-4-4; length of signal port extension cable < 30 m; surge: ±2 kV line-to-earth in accordance with IEC 61000-4-5; length of signal port extension cable ≥ 10 m	burst: ±1 kV (5 kHz / 100 kHz) in accordance with IEC 61000-4-4; length of signal port extension cable < 30 m; surge: ±2 kV line-to-earth in accordance with IEC 61000-4-5; length of signal port extension cable ≥ 10 m
Interference immunity against voltage surge					
<ul style="list-style-type: none"> asymmetric interference 	±2 kV acc. to IEC 61000-4-5, surge asymmetric		±2 kV acc. to IEC 61000-4-5, surge asymmetric		
<ul style="list-style-type: none"> symmetric interference 	±1 kV acc. to IEC 61000-4-5, surge symmetric		±1 kV acc. to IEC 61000-4-5, surge symmetric		
Interference immunity to magnetic fields					
<ul style="list-style-type: none"> Interference immunity to magnetic fields at 50 Hz 	100 A/m; to IEC 61000-4-8		100 A/m; to IEC 61000-4-8	100 A/m; to IEC 61000-4-8	100 A/m; to IEC 61000-4-8
Emission of conducted and non-conducted interference					
<ul style="list-style-type: none"> Interference emission via line/ AC current cables 	IEC 61000-6-3, IEC 61000-6-4, CAN/CSA CISPR 32 Class B, FCC Class A		EN 61000-6-3, EN 61000-6-4, CISPR 22 Class B, FCC Class A	EN 61000-6-3, EN 61000-6-4, CISPR 22 Class B, FCC Class A	EN 61000-6-3, EN 61000-6-4, CISPR 22 Class B, FCC Class A
Compliance with line harmonic distortion limits					
<ul style="list-style-type: none"> Compliance with line harmonic distortion acc. to IEC 61000-3-2, IEC 61000-3-3 				Yes; EN 61000-3-2 Class D; EN 61000-3-3	Yes; EN 61000-3-2 Class D; EN 61000-3-3
Degree and class of protection					
IP degree of protection	IP20		IP20	IP20 with fan or extension modules, IP40 without fan	IP20 with fan or extension modules, IP40 without fan
IP (at the front)		IP20			
IP (rear)		IP20			
Standards, approvals, certificates					
CE mark	Yes	Yes	Yes	Yes; also UKCA	Yes; also UKCA
UKCA mark	Yes				
CSA approval	Yes	Yes; No. 61010-1-12, No. 61010-2-201			
UL approval	Yes; UL 61010-2-201 Second Edition, File E85972	Yes	Yes		
<ul style="list-style-type: none"> UL 508 	No				

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Article number	6AG4142-.....-....	6AG4025-0...0-...0	6AG4131-3.....-....	6AG4132-0.....-....	6AG4133-0.....-....
	SIMATIC IPC BX-39A	SIMATIC IPC527G (Box PC)	SIMATIC IPC627E (Box PC)	SIMATIC IPC BX-56A (Box PC)	SIMATIC IPC BX-59A (Box PC)
cULus	Yes	Yes; UL 61010-1, UL 61010-2-201	Yes; UL 61010-2-201 Second Edition; CAN/CSA-C22.2 No. 61010-2-201 Second Edition	Yes	Yes
RCM (formerly C-TICK)	Yes	Yes	Yes	Yes	Yes
KC approval	Yes	Yes	Yes		
EAC (formerly Gost-R)	Yes	Yes	Yes		
FCC	Yes	Yes	Yes	Yes	Yes
BSMI	No; in preparation		Yes		
BIS	Yes			Yes; 400 W DC power supply configuration only (base module, base module + extension module 1/2 slot)	Yes; 400 W DC power supply configuration only (base module, base module + extension module 1/2 slot)
EMC	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, CAN/CSA CISPR 32 Class B, EN 55032 Class B, FCC Class A, KN32		CE, EN 61000-6-3:2007 +A1:2011, EN 61000-6-2:2005	EMC EN 61000-6-1, EN IEC 61000-6-1, EN 61000-6-2, EN IEC 61000-6-3, EN IEC 61000-6-4	EMC EN 61000-6-1, EN IEC 61000-6-1, EN 61000-6-2, EN IEC 61000-6-3, EN IEC 61000-6-4
Use in hazardous areas					
• cULus Class I Zone 2, Division 2			Yes; Optional		
Marine approval					
• Germanischer Lloyd (GL)	Yes				
• American Bureau of Shipping (ABS)	Yes		Yes; Only with SSD		
• Bureau Veritas (BV)	Yes		Yes; Only with SSD		
• Det Norske Veritas (DNV)	Yes		Yes; Only with SSD		
• Korean Register of Shipping (KRS)	Yes		Yes; Only with SSD		
• Lloyds Register of Shipping (LRS)	Yes		Yes; Only with SSD		
• Nippon Kaiji Kyokai (Class NK)	Yes		Yes; Only with SSD		
• Chinese Classification Society (CCS)			Yes; Only with SSD		
Ambient conditions					
Ambient temperature during operation					
• min.	0 °C	0 °C	5 °C	0 °C	0 °C
• max.	55 °C	45 °C	55 °C	55 °C; base module only: 40 °C at fanless and 2.5" non power loss protection SSD configuration; 50 °C at fanless and M.2 SSD configuration; with extension module: 40 °C	55 °C; base module only: 40 °C at fanless and 2.5" non power loss protection SSD configuration; 50 °C at fanless and M.2 SSD configuration; with extension module: 40 °C
Altitude during operation relating to sea level					
• Installation altitude above sea level, max.	3 000 m				
Relative humidity					
• Relative humidity	tested according to IEC 60068-2-78, IEC 60068-2-30: operation: temperature 30 °C, relative humidity 85%; permissible range: 0 to 31 °C: 5 - 80%; decreasing linearly to 5 - 25% at 55 °C; storage: temperature 25 °C - 55 °C, relative humidity 95%	8 ... 85 % at 30 °C, no condensation	Tested according to IEC 60068-2-78, IEC 60068-2-30: Operation: 5% to 80% at 25 °C (no condensation), Storage: 5% to 95% at 25 °C (no condensation)	tested according to IEC 60068-2-78, IEC 60068-2-30: operation: 5 % to 85 % at 30 °C (no condensation) storage: 5 % to 95 % at 25 °C / 55 °C (no condensation)	tested according to IEC 60068-2-78, IEC 60068-2-30: operation: 5 % to 85 % at 30 °C (no condensation) storage: 5 % to 95 % at 25 °C / 55 °C (no condensation)
• Operation, max.	85 %				

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	SIMATIC IPC BX-39A	SIMATIC IPC527G (Box PC)	SIMATIC IPC627E (Box PC)	SIMATIC IPC BX-56A (Box PC)	SIMATIC IPC BX-59A (Box PC)
Vibrations					
<ul style="list-style-type: none"> Vibration resistance during operation acc. to IEC 60068-2-6 	tested according to IEC 60068-2-6; 5 Hz to 9 Hz: 3.5 mm; 9 Hz to 500 Hz: 9.8 m/s ²	tested according to IEC 60068-2-6; 10 Hz to 58 Hz: 0.0375 mm, 58 Hz to 200 Hz: 4.9 m/s ²	tested according to DIN IEC 60068-2-6; 10 Hz to 58 Hz: 0.075 mm; 58 Hz to 500 Hz: 9.8 m/s ² (1 g)	tested in accordance with IEC 60068-2-6; operation - base module (5 to 8.4 Hz: 3.5 mm; 8.4 to 200 Hz: 9.8 m/s ²); extension module w/o storages (10 to 58 Hz: 0.0375 mm; 58 to 200 Hz: 4.9 m/s ²); extension module with SSD (10 to 58 Hz: 0.0375 mm; 58 to 200 Hz: 4.9 m/s ²); storage / transport - 5 to 8.4 Hz: 3.5 mm; 8.4 to 500 Hz: 9.8 m/s ²	tested in accordance with IEC 60068-2-6; operation - base module (5 to 8.4 Hz: 3.5 mm; 8.4 to 200 Hz: 9.8 m/s ²); extension module w/o storages (10 to 58 Hz: 0.0375 mm; 58 to 200 Hz: 4.9 m/s ²); extension module with SSD (10 to 58 Hz: 0.0375 mm; 58 to 200 Hz: 4.9 m/s ²); storage / transport - 5 to 8.4 Hz: 3.5 mm; 8.4 to 500 Hz: 9.8 m/s ²
Shock testing					
<ul style="list-style-type: none"> Shock load during operation 	Tested according to IEC 60068-2-27: 150 m/s ² , 11 ms	Tested in accordance with IEC 60068-2-27: With SSD: 150 m/s ² , 11 ms; with HDD: 9.8 m/s ² , 20 ms	Tested to DIN IEC 60068-2-29: 50 m/s ² (5 g), 30 ms, 100 shocks	tested in accordance with IEC 60068-2-27; operation - base module (150 m/s ² , 11 ms); extension module (10 m/s ² , 20 ms); storage / transport - 250 m/s ² , 6 ms	tested in accordance with IEC 60068-2-27; operation - base module (150 m/s ² , 11 ms); extension module (10 m/s ² , 20 ms); storage / transport - 250 m/s ² , 6 ms
Operating systems					
pre-installed operating system		Windows 7 Ultimate (Multi-Language) 32-bit / 64-bit; Windows 10 Enterprise 2016 LTSC	Windows 10 Enterprise 2016 LTSC or 2019 LTSC or 2021 LTSC 64 bit, MUI	Windows 10 Enterprise 2021 LTSC 64-bit, MUI	Windows 10 Enterprise 2021 LTSC 64-bit, MUI
Additional info on operating system		Multi-Language User Interface (MUI): 5 languages (English, German, French, Spanish, Italian)			
without operating system	Yes	Yes	Yes; Optional	Yes; Optional	Yes; Optional
Software					
SIMATIC Software	Optional package with SIMATIC WinCC				optionally with pre-installed Industrial Edge - SIMATIC
Mechanics/material					
Enclosure material (front)	Continuous-cast aluminum				
Dimensions					
Width	262 mm	260 mm	314 mm	79 mm; 85 mm base module with fan, 116 mm with extension module 1 slot, 138 mm with extension module 2 slots	79 mm
Height	139.7 mm	135 mm	93 mm; For variant 5x PCI(e): 155 mm	194 mm	194 mm
Depth	62.6 mm	225 mm	301 mm; incl. mounting rail	237 mm; 237 mm base module without fan module and with extension module 1 slot, 307 mm base module with fan module and with / without extension module 1/2 slots	237 mm

More information

More information is available on the internet at <https://www.siemens.com/simatic-box-pc>.

Industrial Computing

Box PC

SIMATIC IPC BX-21A

Overview



SIMATIC IPC BX-21A:

Ultra-compact IoT gateway for data collection, pre-processing and forwarding of data. Due to the ultra-compact enclosure, which has a volume of just 0.4 liters, the SIMATIC IPC BX-21A can be easily – even subsequently – integrated into the control cabinet or directly on the machine with minimal space requirements.

The enclosed all-metal enclosure enables the new industrial PC to be used flexibly and maintenance-free even under harsh conditions. Thus the SIMATIC IPC BX-21A makes it possible to reliably record / collect / process / transfer data directly in the production environment and can be flexibly used as an IoT gateway between the cloud or the corporate IT level and production.

Ordering data

Article No.

Ordering data	Article No.
SIMATIC IPC BX-21A (Box PC) ¹⁾	6AG4021-0B
Processor / RAM	A B C D
<ul style="list-style-type: none"> Atom X6413E (2-core) / 4 GB RAM (available soon) Atom X6413E (2-core) / 8 GB RAM (available soon) Atom X6413E (4-core) / 8 GB RAM Atom X6413E (4-core) / 16 GB RAM 	
Drives	1 2 3 4
<ul style="list-style-type: none"> 128 GB Eco SSD 256 GB Eco SSD 512 GB Eco SSD (available soon) 1 TB Eco SSD (available soon) 	
Operating system	A B E W
<ul style="list-style-type: none"> None Windows 10 IoT Enterprise 2021 LTSC, MUI (en, de, es, fr, it) SIMATIC Industrial OS (available soon) Industrial Edge – SIMATIC (available soon) 	
USB flash drive	1 2
<ul style="list-style-type: none"> Without USB flash drive (restore image; D&D) With USB flash drive (restore image; D&D) 	

¹⁾ For an up-to-date overview, see the SIMATIC PC Online Configurator: <http://www.siemens.com/ipc-configurators>

Note:

Please select the required IPC configuration via the TIA Selection Tool or configurator in the SiePortal in order to ensure availability; we do not accept any liability for configurations compiled by users themselves. The SIMATIC IPC online configurator offers a current overview at <https://www.siemens.com/ipc-configurators>

Note:

All configurations of the SIMATIC IPC BX-21A do not include any mounting accessories. They must be ordered separately.

Mounting accessories

DIN rail	6AG4021-0AA20-0AA1
Wall mounting	6AG4021-0AA20-0AA2
Portrait mounting	6AG4021-0AA20-0AA4
Portrait mounting DIN rail	6AG4021-0AA20-0AA5
VESA mounting	6AG4021-0AA20-0AA6

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SIMATIC IPC BX-21A

Technical specifications

Article number	6AG4021-0B.00-.A.. SIMATIC IPC BX-21A
General information	
Product type designation	IPC BX-21A
Installation type/mounting	
Mounting	DIN rail, wall mounting, book mounting, VESA mounting
Design	Box PC, built-in unit
Supply voltage	
Type of supply voltage	24 V DC
Mains buffering	
• Mains/voltage failure stored energy time	5 ms
Processor	
Processor type	Intel Atom X6413E
Chipset	SoC
Graphic	
Graphics controller	Integrated
Drives	
SSD	Yes; 128 / 256 GB
Memory	
Type of memory	LPDDR4 onboard
Main memory	8 / 16 GB RAM
Interfaces	
Number of industrial Ethernet interfaces	3; 3x Ethernet (RJ45)
USB port	4x USB 3.1 Gen2
Connection for keyboard/mouse	USB / USB
Video interfaces	
• Graphics interface	1x DisplayPort
Industrial Ethernet	
• Industrial Ethernet interface	3x Ethernet (RJ45)
- 100 Mbps	Yes
- 1000 Mbps	Yes
Protocols	
Protocols (Ethernet)	
• TCP/IP	Yes
Interrupts/diagnostics/status information	
LED status display	1x power, 3x user
Integrated Functions	
Monitoring functions	
• Watchdog	Yes
EMC	
Interference immunity against discharge of static electricity	
• Interference immunity against discharge of static electricity	±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2
Interference immunity against high-frequency electromagnetic fields	
• Interference immunity against high frequency radiation	10 V/m for 80 - 2 700 MHz, 80 % AM acc. to IEC 61000-4-3; 3 V/m for 2.7 - 6 GHz, 80 % AM acc. to IEC 61000-4-3; 10 V for 10 kHz to 80 MHz, 80 % AM acc. to IEC 61000-4-6

Article number	6AG4021-0B.00-.A.. SIMATIC IPC BX-21A
Interference immunity to cable-borne interference	
• Interference immunity on supply cables	±2 kV according to IEC 61000-4-4, burst
• Interference immunity on signal cables >30m	±2 kV according to IEC 61000-4-4, burst
• Interference immunity on signal cables < 30m	±1 kV acc. to IEC 61000-4-4, Burst
Interference immunity against voltage surge	
• asymmetric interference	±2 kV acc. to IEC 61000-4-5, line to earth
• symmetric interference	±1 kV acc. to IEC 61000-4-5, line to line
Emission of conducted and non-conducted interference	
• Interference emission via line/ AC current cables	IEC 61000-6-3 + A1/ CISPR 32 + A1
Degree and class of protection	
IP degree of protection	IP40
Standards, approvals, certificates	
CE mark	Yes
UL approval	Yes
RCM (formerly C-TICK)	Yes
KC approval	Yes
FCC	Yes
EMC	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4
Dust protection	Protection against foreign bodies > 1 mm
Ambient conditions	
Ambient temperature during operation	
• min.	-20 °C
• max.	50 °C
Relative humidity	
• Relative humidity	max. 85% at 30 °C, no condensation, gradient ≤ 10 °C/h
Vibrations	
• Vibration resistance during operation acc. to IEC 60068-2-6	tested according to IEC 60068-2-6: 5 Hz to 8.4 Hz: 3.5 mm, 8.4 Hz to 200 Hz : 9.8m/s ² (1 g) (except DIN Rail) 10 Hz to 58 Hz: 0.0375 mm, 58 Hz to 500 Hz: 4.9 m/s ² (0.5 g) (DIN Rail)
Shock testing	
• Shock load during operation	Tested according to IEC 60068-2-27: 150 m/s ² , 11 ms
Operating systems	
pre-installed operating system	Windows 10 Enterprise 2021 LTSC 64-bit, MUI
without operating system	Yes; Optional
Dimensions	
Width	85 mm
Height	104 mm
Depth	45 mm

More information

More information is available on the internet at <https://www.siemens.com/simatic-box-pc>

Industrial Computing

Box PC

SIMATIC IPC127E

Overview



SIMATIC IPC127E:
Ultra-compact IoT gateway for data collection,
pre-processing, and forwarding of data

Thanks to the ultra-compact enclosure, which has a volume of just 0.3 liters, the SIMATIC IPC127E can be easily – even subsequently – integrated into the control cabinet or directly on the machine with minimal space requirements.

The enclosed all-metal enclosure enables the new industrial PC to be used flexibly and maintenance-free even under harsh conditions. Thus the SIMATIC IPC127E makes it possible to reliably record / collect / process / transfer data directly in the production environment and can be flexibly used as an IoT gateway between the cloud or the corporate IT level and production. Thanks to pre-configured versions, the right product is available to users in a very short time.

Ordering data

Article No.

Ordering data	Article No.
SIMATIC IPC127E	6AG4021- 0 A 1 - - - 0
<u>Processor / RAM / TPM</u>	
• Atom E3930 (2C/2T) / 2 GB RAM	A
• Atom E3940 (4C/4T) / 4 GB RAM	B
• Atom E3930 (2C/2T) / 2 GB RAM / TPM	C
• Atom E3940 (4C/4T) / 4 GB RAM / TPM	D
<u>Box type</u>	
• Basic version; 2x Ethernet RJ45, 2x USB 3.0	1
• Extended version; 3x Ethernet RJ45, 4x USB 3.0	2
<u>Operating system</u>	
• None	0
• Windows 10 IoT Enterprise 2016 LTSC, 64-bit, MUI (en, de, fr, it, es)	1
• Windows 10 IoT Enterprise 2019 LTSC, 64-bit, MUI (en, de, fr, it, es)	2
• Windows 10 IoT Enterprise 2021 LTSC, 64-bit, MUI (en, de, fr, it, es)	3
<u>Drives</u>	
• 32 GB SSD	A
• 64 GB SSD	B
• 128 GB SSD	C
<u>SIMATIC Software</u>	
• Without SIMATIC Software	A
• Industrial Edge - SIMATIC	B
• Industrial Edge - SINUMERIK	C

Note:

Please select the required IPC configuration via the TIA Selection Tool or configurator in the SiePortal in order to ensure availability; we do not accept any liability for configurations compiled by users themselves.

The SIMATIC IPC online configurator offers a current overview at <https://www.siemens.com/ipc-configurators>.

Industrial Computing

Box PC

SIMATIC IPC127E

Ordering data	Article No.	Ordering data	Article No.
SIMATIC IPC127E		SIMATIC IPC127E	
Configuration 1 <ul style="list-style-type: none"> Processor / RAM: 2 core / 2 GB RAM Box type: Base Operating system: None Drive: 32 GB SSD 	6AG4021-0AA11-0AA0	Configuration 6 <ul style="list-style-type: none"> Processor / RAM: 4 core / 4 GB RAM Box type: Base Operating system: Windows 10 Enterprise 2016 LTSP, 64-bit, MUI Drive: 64 GB SSD 	6AG4021-0AB11-1BA0
Configuration 2 <ul style="list-style-type: none"> Processor / RAM: 2 core / 2 GB RAM Box type: Extended Operating system: None Drive: 64 GB SSD 	6AG4021-0AA12-0BA0	Configuration 7 <ul style="list-style-type: none"> Processor / RAM: 4 core / 4 GB RAM Box type: Base Operating system: Windows 10 Enterprise 2016 LTSP, 64-bit, MUI Drive: 128 GB SSD 	6AG4021-0AB11-1CA0
Configuration 3 <ul style="list-style-type: none"> Processor / RAM: 4 core / 4 GB RAM Box type: Base Operating system: None Drive: 64 GB SSD 	6AG4021-0AB11-0BA0	Configuration 8 <ul style="list-style-type: none"> Processor / RAM: 4 core / 4 GB RAM Box type: Extended Operating system: Windows 10 Enterprise 2016 LTSP, 64-bit, MUI Drive: 64 GB SSD 	6AG4021-0AB12-1BA0
Configuration 4 <ul style="list-style-type: none"> Processor / RAM: 4 core / 4 GB RAM Box type: Extended Operating system: None Drive: 128 GB SSD 	6AG4021-0AB12-0CA0	Configuration 9 <ul style="list-style-type: none"> Processor / RAM: 4 core / 4 GB RAM Box type: Extended Operating system: Windows 10 Enterprise 2016 LTSP, 64-bit, MUI Drive: 128 GB SSD 	6AG4021-0AB12-1CA0
Configuration 5 <ul style="list-style-type: none"> Processor / RAM: 2 core / 2 GB RAM Box type: Base Operating system: Windows 10 Enterprise 2016 LTSP, 64-bit, MUI Drive: 64 GB SSD 	6AG4021-0AA11-1BA0		
		Note: All configurations of the SIMATIC IPC127E do not include any mounting accessories. They must be ordered separately.	
		Mounting accessories	
		DIN rail	6AG4021-0AA20-0AA1
		Wall-mount	6AG4021-0AA20-0AA2
		Book-mount Base	6AG4021-0AA20-0AA3
		Book-mount Extended	6AG4021-0AA20-0AA4
		Book-mount DIN-Rail	6AG4021-0AA20-0AA5

Industrial Computing

Box PC

SIMATIC IPC127E

Technical specifications

Article number	6AG4021-0A.1-...A0 SIMATIC IPC127E
General information	
Product type designation	IPC127E
Installation type/mounting	
Mounting	DIN rail, wall mounting, portrait mounting
Design	Box PC, built-in unit
Supply voltage	
Type of supply voltage	24 V DC
Mains buffering	
• Mains/voltage failure stored energy time	5 ms
Processor	
Processor type	Intel Atom E3930 / E3940
Chipset	SoC
Graphic	
Graphics controller	Integrated
Drives	
SSD	Yes; 32 / 64 / 128 GB
Memory	
Type of memory	DDR4 onboard
Main memory	2 / 4 GB RAM
Interfaces	
Number of industrial Ethernet interfaces	3; Ethernet (2x RJ45, optional 3x RJ45)
USB port	2x USB 3.0 / 4x USB 3.0
Connection for keyboard/mouse	USB / USB
Video interfaces	
• Graphics interface	1x DisplayPort
Industrial Ethernet	
• Industrial Ethernet interface	2x / 3x Ethernet (RJ45)
- 100 Mbps	Yes
- 1000 Mbps	Yes
Protocols	
Protocols (Ethernet)	
• TCP/IP	Yes
Interrupts/diagnostics/status information	
LED status display	1x power, 3x user
Integrated Functions	
Monitoring functions	
• Temperature monitoring	Yes
• Watchdog	Yes
• Fan	No
• Monitoring function via network	Optional
EMC	
Interference immunity against discharge of static electricity	
• Interference immunity against discharge of static electricity	±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2
Interference immunity against high-frequency electromagnetic fields	
• Interference immunity against high frequency radiation	10 V/m, 80 MHz to 2 GHz, 80 % AM acc. to IEC 61000-4-3; 3 V/m, 2 GHz to 2.7 GHz, 80 % AM acc. to IEC 61000-4-3; 10 V, 10 kHz to 80 MHz, 80 % AM acc. to IEC 61000-4-6

Article number	6AG4021-0A.1-...A0 SIMATIC IPC127E
Interference immunity to cable-borne interference	
• Interference immunity on supply cables	±2 kV (according to IEC 61000-4-4; burst); ±0,5 kV (according to IEC 61000-4-5; surge pulse/line to line); ±1 kV (according to IEC 61000-4-5; surge pulse/line to ground)
• Interference immunity on signal cables > 30m	±2 kV acc. to IEC 61000-4-5, surge, length > 30 m
• Interference immunity on signal cables < 30m	±1 kV acc. to IEC 61000-4-4; burst; length < 3 m; ±2 kV acc. to IEC 61000-4-4; burst; length > 3 m
Interference immunity against voltage surge	
• asymmetric interference	±2 kV acc. to IEC 61000-4-5, surge asymmetric
• symmetric interference	±1 kV acc. to IEC 61000-4-5, surge symmetric
Interference immunity to magnetic fields	
• Interference immunity to magnetic fields at 50 Hz	100 A/m; to IEC 61000-4-8
Emission of conducted and non-conducted interference	
• Interference emission via line/ AC current cables	EN 61000-6-4:2007 +A1:2011 (industrial environments), EN 61000-6-3:2007 +A1:2011 (residential environments), CISPR 22 Class B, FCC Class A
Degree and class of protection	
IP degree of protection	IP40
Standards, approvals, certificates	
CE mark	Yes
UL approval	Yes
RCM (formerly C-TICK)	Yes
EAC (formerly Gost-R)	Yes
FCC	Yes
EMC	CE, EN 61000-6-4:2007, EN 61000-6-2:2005
Dust protection	Protection against foreign bodies > 1 mm
Ambient conditions	
Ambient temperature during operation	
• min.	0 °C
• max.	55 °C
Relative humidity	
• Relative humidity	5 ... 85 % at 30 °C, no condensation
Vibrations	
• Vibration resistance during operation acc. to IEC 60068-2-6	Tested according to IEC 6068-2-6; 5 Hz to 9 Hz: 3.5 mm, 9 Hz to 500 Hz: 9,8 m/s ²
Shock testing	
• Shock load during operation	Tested according to IEC 60068-2-27: 150 m/s ² , 11 ms
Operating systems	
pre-installed operating system	Windows 10 Enterprise 2016 LTSC or 2019 LTSC 64-bit, MUI
without operating system	Yes; Optional

Industrial Computing

Box PC

SIMATIC IPC127E

Technical specifications

Article number	6AG4021-0AA11-0AA0 SIMATIC IPC127E	6AG4021-0AA12-0BA0 SIMATIC IPC127E	6AG4021-0AB11-0BA0 SIMATIC IPC127E	6AG4021-0AB12-0CA0 SIMATIC IPC127E
General information				
Product type designation	IPC127E	IPC127E	IPC127E	IPC127E
Installation type/mounting				
Design	Box PC, built-in unit	Box PC, built-in unit	Box PC, built-in unit	Box PC, built-in unit
Supply voltage				
Type of supply voltage	24 V DC	24 V DC	24 V DC	24 V DC
Mains buffering				
• Mains/voltage failure stored energy time	5 ms	5 ms	5 ms	5 ms
Processor				
Processor type	Intel Atom E3930, 1.3 GHz, 2 cores	Intel Atom E3930, 1.3 GHz, 2 cores	Intel Atom E3940, 1.6 GHz, 4 cores	Intel Atom E3940, 1.6 GHz, 4 cores
Graphic				
Graphics card	Yes	Yes	Yes	Yes
Drives				
SSD	Yes; 32 GB	Yes; 64 GB	Yes; 64 GB	Yes; 128 GB
Memory				
Type of memory	DDR4	DDR4	DDR4	DDR4
Main memory	2 GB RAM	2 GB RAM	4 GB RAM	4 GB RAM
Interfaces				
Number of industrial Ethernet interfaces	2; 2x RJ45 (independent)	3; 3x Ethernet (RJ45)	2; 2x RJ45 (independent)	3; 3x Ethernet (RJ45)
Number of PROFINET interfaces	2	3	2	3
USB port	2x USB 3.0	4x USB 3.0	2x USB 3.0	4x USB 3.0
Connection for keyboard/mouse	USB / USB	USB / USB	USB / USB	USB / USB
Video interfaces				
• Graphics interface	1x DisplayPort	1x DisplayPort	1x DisplayPort	1x DisplayPort
Industrial Ethernet				
• Industrial Ethernet interface	2x Ethernet (RJ45)	3x Ethernet (RJ45)	2x Ethernet (RJ45)	3x Ethernet (RJ45)
- 100 Mbps	Yes	Yes	Yes	Yes
- 1000 Mbps	Yes	Yes	Yes	Yes
Protocols				
Protocols (Ethernet)				
• TCP/IP	Yes	Yes	Yes	Yes
Interrupts/diagnostics/status information				
LED status display	1x power, 3x user	1x power, 3x user	1x power, 3x user	1x power, 3x user
Integrated Functions				
Monitoring functions				
• Temperature monitoring	Yes	Yes	Yes	Yes
• Watchdog	Yes	Yes	Yes	Yes
• Fan	No	No	No	No
EMC				
Interference immunity against discharge of static electricity				
• Interference immunity against discharge of static electricity	±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2			
Interference immunity against high-frequency electromagnetic fields				
• Interference immunity against high frequency radiation	10 V/m, 80 MHz to 2 GHz, 80 % AM acc. to IEC 61000-4-3; 3 V/m, 2 GHz to 2.7 GHz, 80 % AM acc. to IEC 61000-4-3; 10 V, 10 kHz to 80 MHz, 80 % AM acc. to IEC 61000-4-6			

Industrial Computing

Box PC

SIMATIC IPC127E

Technical specifications

Article number	6AG4021-0AA11-0AA0	6AG4021-0AA12-0BA0	6AG4021-0AB11-0BA0	6AG4021-0AB12-0CA0
	SIMATIC IPC127E	SIMATIC IPC127E	SIMATIC IPC127E	SIMATIC IPC127E
Interference immunity to cable-borne interference				
• Interference immunity on supply cables	±2 kV (according to IEC 61000-4-4; burst); ±0,5 kV (according to IEC 61000-4-5; surge pulse/line to line); ±1 kV (according to IEC 61000-4-5; surge pulse/line to ground)			
• Interference immunity on signal cables > 30m	±2 kV acc. to IEC 61000-4-5, surge, length > 30 m	±2 kV acc. to IEC 61000-4-5, surge, length > 30 m	±2 kV acc. to IEC 61000-4-5, surge, length > 30 m	±2 kV acc. to IEC 61000-4-5, surge, length > 30 m
• Interference immunity on signal cables < 30m	±1 kV acc. to IEC 61000-4-4; burst; length < 3 m; ±2 kV acc. to IEC 61000-4-4; burst; length > 3 m			
Interference immunity to magnetic fields				
• Interference immunity to magnetic fields at 50 Hz	100 A/m; to IEC 61000-4-8	100 A/m; to IEC 61000-4-8	100 A/m; to IEC 61000-4-8	100 A/m; to IEC 61000-4-8
Emission of conducted and non-conducted interference				
• Interference emission via line/AC current cables	EN 61000-6-4:2007 +A1:2011 (industrial environments), EN 61000-6-3:2007 +A1:2011 (residential environments), CISPR 22 Class B, FCC Class A			
Degree and class of protection				
IP degree of protection	IP40	IP40	IP40	IP40
Standards, approvals, certificates				
CE mark	Yes	Yes	Yes	Yes
UL approval	Yes	Yes	Yes	Yes
Dust protection	Protection against foreign bodies > 1 mm	Protection against foreign bodies > 1 mm	Protection against foreign bodies > 1 mm	Protection against foreign bodies > 1 mm
Ambient conditions				
Ambient temperature during operation				
• min.	0 °C	0 °C	0 °C	0 °C
• max.	55 °C	55 °C	55 °C	55 °C
Relative humidity				
• Relative humidity	5 ... 85 % at 30 °C, no condensation	5 ... 85 % at 30 °C, no condensation	5 ... 85 % at 30 °C, no condensation	5 ... 85 % at 30 °C, no condensation
Vibrations				
• Vibration resistance during operation acc. to IEC 60068-2-6	Tested according to IEC 6068-2-6; 5 Hz to 9 Hz: 3.5 mm, 9 Hz to 500 Hz: 9,8 m/s ²			
Shock testing				
• Shock load during operation	Tested according to IEC 60068-2-27: 150 m/s ² , 11 ms			
Operating systems				
pre-installed operating system	No	No	No	No
Dimensions				
Width	85 mm	85 mm	85 mm	85 mm
Height	85 mm	104 mm	85 mm	104 mm
Depth	41 mm	41 mm	41 mm	41 mm

Industrial Computing

Box PC

SIMATIC IPC127E

Technical specifications

Article number	6AG4021-0AA11-1BA0	6AG4021-0AB11-1BA0	6AG4021-0AB11-1CA0	6AG4021-0AB12-1BA0	6AG4021-0AB12-1CA0
	SIMATIC IPC127E	SIMATIC IPC127E	SIMATIC IPC127E	SIMATIC IPC127E	SIMATIC IPC127E
General information					
Product type designation	IPC127E	IPC127E	IPC127E	IPC127E	IPC127E
Installation type/mounting					
Design	Box PC, built-in unit	Box PC, built-in unit	Box PC, built-in unit	Box PC, built-in unit	Box PC, built-in unit
Supply voltage					
Type of supply voltage	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC
Mains buffering					
• Mains/voltage failure stored energy time	5 ms	5 ms	5 ms	5 ms	5 ms
Processor					
Processor type	Intel Atom E3930, 1.3 GHz, 2 cores	Intel Atom E3940, 1.6 GHz, 4 cores	Intel Atom E3940, 1.6 GHz, 4 cores	Intel Atom E3940, 1.6 GHz, 4 cores	Intel Atom E3940, 1.6 GHz, 4 cores
Graphic					
Graphics card	Yes	Yes	Yes	Yes	Yes
Drives					
SSD	Yes; 64 GB	Yes; 64 GB	Yes; 128 GB	Yes; 64 GB	Yes; 128 GB
Memory					
Type of memory	DDR4	DDR4	DDR4	DDR4	DDR4
Main memory	2 GB RAM	4 GB RAM	4 GB RAM	4 GB RAM	4 GB RAM
Interfaces					
Number of industrial Ethernet interfaces	2; 2x RJ45 (independent)	2; 2x RJ45 (independent)	2; 2x RJ45 (independent)	3; 3x Ethernet (RJ45)	3; 3x Ethernet (RJ45)
Number of PROFINET interfaces	2	2	2	3	3
USB port	2x USB 3.0	2x USB 3.0	2x USB 3.0	4x USB 3.0	4x USB 3.0
Connection for keyboard/mouse	USB / USB	USB / USB	USB / USB	USB / USB	USB / USB
Video interfaces					
• Graphics interface	1x DisplayPort	1x DisplayPort	1x DisplayPort	1x DisplayPort	1x DisplayPort
Industrial Ethernet					
• Industrial Ethernet interface	2x Ethernet (RJ45)	2x Ethernet (RJ45)	2x Ethernet (RJ45)	3x Ethernet (RJ45)	3x Ethernet (RJ45)
- 100 Mbps	Yes	Yes	Yes	Yes	Yes
- 1000 Mbps	Yes	Yes	Yes	Yes	Yes
Protocols					
Protocols (Ethernet)					
• TCP/IP	Yes	Yes	Yes	Yes	Yes
Interrupts/diagnostics/status information					
LED status display	1x power, 3x user	1x power, 3x user	1x power, 3x user	1x power, 3x user	1x power, 3x user
Integrated Functions					
Monitoring functions					
• Temperature monitoring	Yes	Yes	Yes	Yes	Yes
• Watchdog	Yes	Yes	Yes	Yes	Yes
• Fan	No	No	No	No	No
EMC					
Interference immunity against discharge of static electricity					
• Interference immunity against discharge of static electricity	±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2				
Interference immunity against high-frequency electromagnetic fields					
• Interference immunity against high frequency radiation	10 V/m, 80 MHz to 2 GHz, 80 % AM acc. to IEC 61000-4-3; 3 V/m, 2 GHz to 2.7 GHz, 80 % AM acc. to IEC 61000-4-3; 10 V, 10 kHz to 80 MHz, 80 % AM acc. to IEC 61000-4-6				

Industrial Computing

Box PC

SIMATIC IPC127E

Technical specifications

Article number	6AG4021-0AA11-1BA0	6AG4021-0AB11-1BA0	6AG4021-0AB11-1CA0	6AG4021-0AB12-1BA0	6AG4021-0AB12-1CA0
	SIMATIC IPC127E	SIMATIC IPC127E	SIMATIC IPC127E	SIMATIC IPC127E	SIMATIC IPC127E
Interference immunity to cable-borne interference					
• Interference immunity on supply cables	±2 kV (according to IEC 61000-4-4; burst); ±0,5 kV (according to IEC 61000-4-5; surge pulse/line to line); ±1 kV (according to IEC 61000-4-5; surge pulse/line to ground)				
• Interference immunity on signal cables > 30m	±2 kV acc. to IEC 61000-4-5, surge, length > 30 m				
• Interference immunity on signal cables < 30m	±1 kV acc. to IEC 61000-4-4; burst; length < 3 m; ±2 kV acc. to IEC 61000-4-4; burst; length > 3 m				
Interference immunity to magnetic fields					
• Interference immunity to magnetic fields at 50 Hz	100 A/m; to IEC 61000-4-8	100 A/m; to IEC 61000-4-8	100 A/m; to IEC 61000-4-8	100 A/m; to IEC 61000-4-8	100 A/m; to IEC 61000-4-8
Emission of conducted and non-conducted interference					
• Interference emission via line/AC current cables	EN 61000-6-4:2007 +A1:2011 (industrial environments), EN 61000-6-3:2007 +A1:2011 (residential environments), CISPR 22 Class B, FCC Class A				
Degree and class of protection					
IP degree of protection	IP40	IP40	IP40	IP40	IP40
Standards, approvals, certificates					
CE mark	Yes	Yes	Yes	Yes	Yes
UL approval	Yes	Yes	Yes	Yes	Yes
Dust protection	Protection against foreign bodies > 1 mm	Protection against foreign bodies > 1 mm	Protection against foreign bodies > 1 mm	Protection against foreign bodies > 1 mm	Protection against foreign bodies > 1 mm
Ambient conditions					
Ambient temperature during operation					
• min.	0 °C	0 °C	0 °C	0 °C	0 °C
• max.	55 °C	55 °C	55 °C	55 °C	55 °C
Relative humidity					
• Relative humidity	5 ... 85 % at 30 °C, no condensation	5 ... 85 % at 30 °C, no condensation	5 ... 85 % at 30 °C, no condensation	5 ... 85 % at 30 °C, no condensation	5 ... 85 % at 30 °C, no condensation
Vibrations					
• Vibration resistance during operation acc. to IEC 60068-2-6	Tested according to IEC 6068-2-6; 5 Hz to 9 Hz: 3.5 mm, 9 Hz to 500 Hz: 9,8 m/s ²	Tested according to IEC 6068-2-6; 5 Hz to 9 Hz: 3.5 mm, 9 Hz to 500 Hz: 9,8 m/s ²	Tested according to IEC 6068-2-6; 5 Hz to 9 Hz: 3.5 mm, 9 Hz to 500 Hz: 9,8 m/s ²	Tested according to IEC 6068-2-6; 5 Hz to 9 Hz: 3.5 mm, 9 Hz to 500 Hz: 9,8 m/s ²	Tested according to IEC 6068-2-6; 5 Hz to 9 Hz: 3.5 mm, 9 Hz to 500 Hz: 9,8 m/s ²
Shock testing					
• Shock load during operation	Tested according to IEC 60068-2-27: 150 m/s ² , 11 ms	Tested according to IEC 60068-2-27: 150 m/s ² , 11 ms	Tested according to IEC 60068-2-27: 150 m/s ² , 11 ms	Tested according to IEC 60068-2-27: 150 m/s ² , 11 ms	Tested according to IEC 60068-2-27: 150 m/s ² , 11 ms
Operating systems					
pre-installed operating system	Windows 10 Enterprise 2016 LTSB, 64 bit, MUI	Windows 10 Enterprise 2016 LTSB, 64 bit, MUI	Windows 10 Enterprise 2016 LTSB, 64 bit, MUI	Windows 10 Enterprise 2016 LTSB, 64 bit, MUI	Windows 10 Enterprise 2016 LTSB, 64 bit, MUI
Dimensions					
Width	85 mm	85 mm	85 mm	85 mm	85 mm
Height	85 mm	85 mm	85 mm	104 mm	104 mm
Depth	41 mm	41 mm	41 mm	41 mm	41 mm

More information

More information is available on the internet at

<https://www.siemens.com/simatic-box-pc>.

Industrial Computing

Box PC

SIMATIC IPC227G

Overview



SIMATIC IPC227G (Nanobox PC): The Box PC with optimized performance in compact design – maintenance-free, rugged and expandable

The SIMATIC IPC227G Nanobox PC is an extremely compact and flexible embedded industrial PC. Due to its closed, dust-protected all-metal enclosure, the IPC227G offers maximum industrial functionality for flexible use under harsh conditions – while remaining maintenance-free. Modern interfaces and the option of two M.2 slots allow this Box PC to be easily integrated into the automation system and expanded. The latest Intel Dual-Core and Quad-Core processors ensure excellent performance here in an ultra-compact design.

Ordering data

Article No.

Ordering data	Article No.
SIMATIC IPC227G	6ES7647- 8 C
<u>Processor</u>	
• Atom X6211E (2-core)	A
• Atom X6413E (4-core)	B
• Atom X6414RE (4-core)	C
• Atom X6211E (2-core)/TPM	D
• Atom X6413E (4-core)/TPM	E
• Atom X6414RE (4-core)/TPM	F
<u>Work memory</u>	
• 4 GB	1
• 8 GB	2
• 16 GB	3
<u>Hardwareconfiguration</u>	
• Without COM	1
• 1x COM	2
• 2x COM	3
<u>Mass storage</u>	
• Without mass storage	1
• 256 GB Eco SSD	2
• 240 GB SSD	3
• 480 GB SSD	4
<u>Hardwareextension</u>	
• None	A
• NVRAM	B
• AI accelerator	C
<u>Software</u>	
• Without software	A
• Windows 10 IoT Enterprise 2019 LTSC, 64-bit, MUI (en, de, fr, it, es)	B
• Windows 10 IoT Enterprise 2021 LTSC, 64-bit, MUI (en, de, fr, it, es)	C
• Industrial Edge - SIMATIC	W
<u>Mounting accessories</u>	
• None	0
• DIN rail	1
• Wall mounting	2
• Portrait mounting	3
• DIN rail mounting with ATEX/IECEX Cat 3G Zone 2/cULus Class I Div. 2	4
• Wall mounting with ATEX/IECEX Cat 3G Zone 2/cULus Class I Div. 2	5
• Portrait mounting with ATEX/IECEX Cat 3G Zone 2/cULus Class I Div. 2	6

Note:

Please select the required IPC configuration via the TIA Selection Tool or configurator in the SiePortal in order to ensure availability; we do not accept any liability for configurations compiled by users themselves.

The SIMATIC IPC online configurator offers a current overview at

<https://www.siemens.com/ipc-configurators>.

Industrial Computing

Box PC

SIMATIC IPC227G

Technical specifications

Article number	6ES7647-8C...-.... SIMATIC IPC227G
General information	
Product type designation	IPC227G
Installation type/mounting	
Mounting	DIN rail, wall mounting, portrait mounting
Design	Box PC, built-in unit
Supply voltage	
Type of supply voltage	24 V DC
Mains buffering	
• Mains/voltage failure stored energy time	20 ms
Processor	
Processor type	Intel Atom X6211E / X6413E / X6414RE
Chipset	SoC
Graphic	
Graphics controller	Integrated
Drives	
SSD	Yes; 256 Eco
Memory	
Type of memory	DDR4 SO-DIMM
Main memory	2 / 4 / 8 / 16 Gbyte; inband ECC optional
Hardware configuration	
Slots	
• free slots	2x M.2
Interfaces	
Number of industrial Ethernet interfaces	3; 3x Ethernet (RJ45)
USB port	4x USB 3.1
Connection for keyboard/mouse serial interface version	USB / USB without / 1x / 2x COM (RS 232 / 485 / 422; selectable)
Video interfaces	
• Graphics interface	2x DisplayPort
Industrial Ethernet	
• Industrial Ethernet interface	3x Ethernet (RJ45)
- 100 Mbps	Yes
- 1000 Mbps	Yes
Protocols	
Protocols (Ethernet)	
• TCP/IP	Yes
Interrupts/diagnostics/ status information	
LED status display	1x power, 3x user
Integrated Functions	
Monitoring functions	
• Temperature monitoring	Yes
• Watchdog	Yes
• Fan	No
• Monitoring function via network	Optional

Article number	6ES7647-8C...-.... SIMATIC IPC227G
EMC	
Interference immunity against discharge of static electricity	
• Interference immunity against discharge of static electricity	±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2
Interference immunity against high-frequency electromagnetic fields	
• Interference immunity against high frequency radiation	10 V/m for 80 - 1 000 MHz and 1.4 - 2 GHz, 80% AM acc. to IEC 61000-4-3; 3 V/m for 2 - 2.7 GHz, 80% AM acc. to IEC 61000-4-3; 10 V for 10 kHz - 80 MHz, 80% AM acc. to IEC 61000-4-6
Interference immunity to cable-borne interference	
• Interference immunity on supply cables	±2 kV acc. to IEC 61000-4-4, burst; ±1 kV acc. to IEC 61000-4-5, surge symmetric; ±2 kV acc. to IEC 61000-4-5, surge asymmetric
• Interference immunity on signal cables > 30m	±2 kV acc. to IEC 61000-4-5, surge, length > 30 m
• Interference immunity on signal cables < 30m	±1 kV (5 kHz/100 kHz) acc. to IEC 61000-4-4; burst; length < 30 m; ±2 kV (5 kHz/100 kHz) acc. to IEC 61000-4-4; burst; length > 30 m
Interference immunity against voltage surge	
• asymmetric interference	±2 kV acc. to IEC 61000-4-5, surge asymmetric
• symmetric interference	±1 kV acc. to IEC 61000-4-5, surge symmetric
Interference immunity to magnetic fields	
• Interference immunity to magnetic fields at 50 Hz	100 A/m; to IEC 61000-4-8
Emission of conducted and non-conducted interference	
• Interference emission via line/ AC current cables	EN 61000-6-3, EN 61000-6-4, CISPR 22 Class B, FCC Class A
Degree and class of protection	
IP degree of protection	IP40
Standards, approvals, certificates	
CE mark	Yes
cULus	Yes
RCM (formerly C-TICK)	Yes
KC approval	Yes
EAC (formerly Gost-R)	Yes
FCC	Yes
EMC	CE, EN 61000-6-4:2007, EN 61000-6-2:2005
Dust protection	Protection against foreign bodies > 1 mm

Industrial Computing

Box PC

SIMATIC IPC227G

Technical specifications

Article number	6ES7647-8C...-.... SIMATIC IPC227G
Ambient conditions	
Ambient temperature during operation	
• min.	0 °C
• max.	55 °C
Relative humidity	
• Relative humidity	Tested according to IEC 60068-2-78, IEC 60068-2-30: Operation: 5 % to 85 % at 30 °C (no condensation), storage / transport: 5 % to 95 % at 25 / 55 °C (no condensation)
Vibrations	
• Vibration resistance during operation acc. to IEC 60068-2-6	tested according to IEC 60068-2-6: 5 Hz to 8.4 Hz: 3.5 mm, 8.4 Hz to 200 Hz : 9.8m/s ² (1 g) (except DIN Rail) 10 Hz to 58 Hz: 0.0375 mm, 58 Hz to 500 Hz: 4.9 m/s ² (0.5 g) (DIN Rail)
Shock testing	
• Shock load during operation	Tested according to IEC 60068-2-27: 150 m/s ² , 11 ms
Operating systems	
pre-installed operating system	Windows 10 IoT Enterprise 2019 LTSC, 64 bit, MUI
without operating system	Yes; Optional
Dimensions	
Width	191 mm
Height	100 mm
Depth	64 mm

More information

More information is available on the internet at <https://www.siemens.com/simatic-box-pc>.

Industrial Computing

Box PC

SIMATIC IPC227E

Overview



SIMATIC IPC227E (Nanobox PC): The Box PC with optimized performance in compact design – maintenance-free and rugged

The SIMATIC IPC227E Nanobox PC is an extremely compact and flexible embedded industrial PC.

Thanks to its closed, dust-protected all-metal enclosure, the IPC227E offers maximum industrial functionality for flexible use under harsh conditions – while remaining maintenance-free.

Modern interfaces and the option for expansion via a PCIe slot mean this Box PC can be easily integrated into the automation system. In the version with preinstalled Industrial Edge Runtime, it also supports modern Edge architectures. In the version with preinstalled Industrial Edge Runtime, it also supports modern Edge architectures. The latest Intel Dual-Core and Quad-Core processors ensure excellent performance here in an ultra-compact design.

Ordering data

SIMATIC IPC227E	Article No.
Processor	6ES7647- 8 B ■ ■ ■ ■ ■ ■ ■ ■ ■ ■
<ul style="list-style-type: none"> Celeron N2807 (2C/2T) Celeron N2930 (4C/4T) Celeron N2807 (2C/2T)/TPM Celeron N2930 (4C/4T)/TPM Celeron E3845 ET (4C/4T)/TPM 	A B C D E
Work memory/NVRAM	
<ul style="list-style-type: none"> 2 GB 4 GB 8 GB 2 GB/NVRAM 4 GB/NVRAM 8 GB/NVRAM 4 GB RAM ET/NVRAM 	1 2 3 4 5 6 7
Device version/interface	
<ul style="list-style-type: none"> Basic without COM Basic with COM1/2 PCIe without COM PCIe with COM1/2 	1 2 3 4
Operating system	
<ul style="list-style-type: none"> Without operating system Windows Embedded Standard 7 E SP1, English, 32-bit Windows Embedded Standard 7 E SP1, English, 64-bit Windows Embedded Standard 7 P SP1, English, 32-bit Windows Embedded Standard 7 P SP1, English, 64-bit Windows 7 Ultimate SP1, 32-bit, MUI (en, de, fr, it, es) Windows 7 Ultimate SP1, 64-bit, MUI (en, de, fr, it, es) Windows 10 Enterprise 2016 LTSB, 64-bit, MUI (en, de, fr, it, es) Windows 10 IoT Enterprise 2019 LTSC, 64-bit, MUI (en, de, fr, it, es) 	0 1 2 3 4 5 6 7 8

Article No.

SIMATIC IPC227E	Article No.
Mass storage	6ES7647- 8 B ■ ■ ■ ■ ■ ■ ■ ■ ■ ■
<ul style="list-style-type: none"> None 256 GB Eco SSD 240 GB SSD 480 GB SSD 60 GB SSD ET 8 GB CFAST 16 GB CFAST 128 GB CFAST 320 GB HDD 	A E C D H L M N R
Software	
<ul style="list-style-type: none"> Without SIMATIC Software Windows 10 IoT Enterprise 2021 LTSC, 64-bit, MUI (en, de, fr, it, es) SIMATIC Industrial OS V2 Industrial Edge Sinumerik Industrial Edge - SIMATIC 	A B N V W
Mounting accessories	
<ul style="list-style-type: none"> DIN rail Wall mounting Portrait mounting DIN rail mounting with ATEX/IECEX Cat 3G Zone 2/cULus Class I Div. 2 Wall mounting with ATEX/IECEX Cat 3G Zone 2/cULus Class I Div. 2 Portrait mounting with ATEX/IECEX Cat 3G Zone 2/cULus Class I Div. 2 	1 2 3 4 5 6
SIMATIC IPC227E (Nanobox PC) with preinstalled Industrial Edge Runtime	6ES7647-8BD31-0CW1
<ul style="list-style-type: none"> 1 x DisplayPort; 2x 10/100/1000 Mbps Ethernet RJ45; 1 x USB 3.0, 3 x USB 2.0; CFAST slot; 24 V DC industrial power supply Industrial Edge (SIMATIC) 	

Note:

Please select the required IPC configuration via the TIA Selection Tool or configurator in the SiePortal in order to ensure availability; we do not accept any liability for configurations compiled by users themselves.

The SIMATIC IPC online configurator offers a current overview at <https://www.siemens.com/ipc-configurators>.

Industrial Computing

Box PC

SIMATIC IPC227E

Technical specifications

Article number	6ES7647-8B...-.... SIMATIC IPC227E (Nanobox PC)
General information	
Product type designation	IPC227E
Installation type/mounting	
Mounting	DIN rail, wall mounting, portrait mounting
Design	Box PC, built-in unit
Supply voltage	
Type of supply voltage	24 V DC
Mains buffering	
• Mains/voltage failure stored energy time	20 ms
Processor	
Processor type	Intel Celeron N2807 / N2930, Intel Atom E3845
Chipset	SoC
Graphic	
Graphics controller	Integrated
Drives	
Hard disk	2.5" SATA ≥ 320 GB
SSD	Yes; 256 Eco / 240 / 480 GB
Memory	
Type of memory	DDR3L SO-DIMM
Main memory	2 / 4 / 8 GB
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	512 kbyte; 128 KB can be stored in the buffer time; optional
Hardware configuration	
Slots	
• free slots	1x PCIe (x1) (optional)
Interfaces	
Number of industrial Ethernet interfaces	2; 2x Ethernet (RJ45)
USB port	1x USB 3.0 / 3x USB 2.0
Connection for keyboard/mouse serial interface version	Without / 2x COM (RS 232 / 422 / 485), selectable in the BIOS
Video interfaces	
• Graphics interface	1x DisplayPort
Industrial Ethernet	
• Industrial Ethernet interface	2x Ethernet (RJ45)
- 100 Mbps	Yes
- 1000 Mbps	Yes
Interrupts/diagnostics/status information	
LED status display	1x power, 3x user
Integrated Functions	
Monitoring functions	
• Temperature monitoring	Yes
• Watchdog	Yes
• Fan	No
• Monitoring function via network	Optional

Article number	6ES7647-8B...-.... SIMATIC IPC227E (Nanobox PC)
EMC	
Interference immunity against discharge of static electricity	
• Interference immunity against discharge of static electricity	±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2
Interference immunity against high-frequency electromagnetic fields	
• Interference immunity against high frequency radiation	10 V/m for 80 - 1 000 MHz and 1.4 - 2 GHz, 80% AM acc. to IEC 61000-4-3; 3 V/m for 2 - 2.7 GHz, 80% AM acc. to IEC 61000-4-3; 10 V for 10 kHz - 80 MHz, 80% AM acc. to IEC 61000-4-6
Interference immunity to cable-borne interference	
• Interference immunity on supply cables	±2 kV acc. to IEC 61000-4-4, burst; ±1 kV acc. to IEC 61000-4-5, surge symmetric; ±2 kV acc. to IEC 61000-4-5, surge asymmetric
• Interference immunity on signal cables > 30m	±2 kV acc. to IEC 61000-4-5, surge, length > 30 m
• Interference immunity on signal cables < 30m	±1 kV acc. to IEC 61000-4-4; burst; length < 3 m; ±2 kV acc. to IEC 61000-4-4; burst; length > 3 m
Interference immunity against voltage surge	
• asymmetric interference	±2 kV acc. to IEC 61000-4-5, surge asymmetric
• symmetric interference	±1 kV acc. to IEC 61000-4-5, surge symmetric
Interference immunity to magnetic fields	
• Interference immunity to magnetic fields at 50 Hz	100 A/m; to IEC 61000-4-8
Emission of conducted and non-conducted interference	
• Interference emission via line/ AC current cables	EN 61000-6-3, EN 61000-6-4, CISPR 22 Class B, FCC Class A

Industrial Computing

Box PC

SIMATIC IPC227E

Technical specifications

Article number	6ES7647-8B...-.... SIMATIC IPC227E (Nanobox PC)
Degree and class of protection	
IP degree of protection	IP40
Standards, approvals, certificates	
CE mark	Yes
UL approval	Yes
• UL 508	Yes
cULus	Yes
RCM (formerly C-TICK)	Yes
KC approval	Yes
FCC	Yes
EMC	CE, EN 61000-6-4:2007, EN 61000-6-2:2005
Dust protection	Protection against foreign bodies > 1 mm
Marine approval	
• Germanischer Lloyd (GL)	Yes
• American Bureau of Shipping (ABS)	Yes
• Bureau Veritas (BV)	Yes
• Det Norske Veritas (DNV)	Yes
• Korean Register of Shipping (KRS)	Yes
• Lloyds Register of Shipping (LRS)	Yes
• Nippon Kaiji Kyokai (Class NK)	Yes
• Chinese Classification Society (CCS)	Yes
Ambient conditions	
Ambient temperature during operation	
• min.	0 °C; -20 °C as option
• max.	60 °C
Relative humidity	
• Relative humidity	Tested according to IEC 60068-2-78, IEC 60068-2-30: Operation: 5 % to 85 % at 30 °C (no condensation), storage / transport: 5 % to 95 % at 25 / 55 °C (no condensation)
Vibrations	
• Vibration resistance during operation acc. to IEC 60068-2-6	tested to DIN IEC 60068-2-6: 10 Hz to 58 Hz: 0.075 mm, 58 Hz to 200 Hz: 9.8 m/s ² (1 g)
Shock testing	
• Shock load during operation	Tested according to IEC 60068-2-27: 150 m/s ² , 11 ms
Operating systems	
pre-installed operating system	Windows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-bit
Additional info on operating system without operating system	optional: SIMATIC Industrial OS Yes; Optional
Software	
SIMATIC Software	Optionally with pre-installed SIMATIC WinCC RT Advanced / Software Controller CPU 1500S software bundle
Dimensions	
Width	191 mm
Height	100 mm
Depth	60 mm

Article number	6ES7647-8BD31-0CW1 SIMATIC IPC227E (Nanobox PC)
General information	
Product type designation	IPC227E
Installation type/mounting	
Mounting	DIN rail, wall mounting, portrait mounting
Design	Box PC, built-in unit
Supply voltage	
Type of supply voltage	24 V DC
Mains buffering	
• Mains/voltage failure stored energy time	20 ms
Processor	
Processor type	Intel Celeron N2930
Chipset	SoC
Graphic	
Graphics controller	Integrated
Drives	
SSD	Yes; 240 GB
Memory	
Type of memory	DDR3L SO-DIMM
Main memory	8 GB RAM
Interfaces	
Number of industrial Ethernet interfaces	2; 2x Ethernet (RJ45)
USB port	1x USB 3.0 / 3x USB 2.0
Connection for keyboard/mouse serial interface version	USB / USB No
Video interfaces	
• Graphics interface	1x DisplayPort
Industrial Ethernet	
• Industrial Ethernet interface	2x Ethernet (RJ45)
- 100 Mbps	Yes
- 1000 Mbps	Yes
Interrupts/diagnostics/status information	
LED status display	1x power, 3x user
Integrated Functions	
Monitoring functions	
• Temperature monitoring	Yes
• Watchdog	Yes
• Fan	No
• Monitoring function via network	Optional
EMC	
Interference immunity against discharge of static electricity	
• Interference immunity against discharge of static electricity	±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2
Interference immunity against high-frequency electromagnetic fields	
• Interference immunity against high frequency radiation	10 V/m for 80 - 1 000 MHz and 1.4 - 2 GHz, 80% AM acc. to IEC 61000-4-3; 3 V/m for 2 - 2.7 GHz, 80% AM acc. to IEC 61000-4-3; 10 V for 10 kHz - 80 MHz, 80% AM acc. to IEC 61000-4-6

Industrial Computing

Box PC

SIMATIC IPC227E

Technical specifications

Article number	6ES7647-8BD31-0CW1 SIMATIC IPC227E (Nanobox PC)
Interference immunity to cable-borne interference	
• Interference immunity on supply cables	±2 kV acc. to IEC 61000-4-4, burst; ±1 kV acc. to IEC 61000-4-5, surge symmetric; ±2 kV acc. to IEC 61000-4-5, surge asymmetric
• Interference immunity on signal cables > 30m	±2 kV acc. to IEC 61000-4-5, surge, length > 30 m
• Interference immunity on signal cables < 30m	±1 kV acc. to IEC 61000-4-4; burst; length < 3 m; ±2 kV acc. to IEC 61000-4-4; burst; length > 3 m
Interference immunity against voltage surge	
• asymmetric interference	±2 kV acc. to IEC 61000-4-5, surge asymmetric
• symmetric interference	±1 kV acc. to IEC 61000-4-5, surge symmetric
Interference immunity to magnetic fields	
• Interference immunity to magnetic fields at 50 Hz	100 A/m; to IEC 61000-4-8
Emission of conducted and non-conducted interference	
• Interference emission via line/ AC current cables	EN 61000-6-3, EN 61000-6-4, CISPR 22 Class B, FCC Class A
Degree and class of protection	
IP degree of protection	IP40
Standards, approvals, certificates	
CE mark	Yes
UL approval	Yes
• UL 508	Yes
cULus	Yes
RCM (formerly C-TICK)	Yes
KC approval	Yes
FCC	Yes
EMC	CE, EN 61000-6-4:2007, EN 61000-6-2:2005
Dust protection	Protection against foreign bodies > 1 mm

Article number	6ES7647-8BD31-0CW1 SIMATIC IPC227E (Nanobox PC)
Use in hazardous areas	
• ATEX Zone 2	Yes; Optional
• IECEx Zone 2	Yes; Optional
• cULus Class I Zone 2, Division 2	Yes; Optional
Marine approval	
• Germanischer Lloyd (GL)	Yes
• American Bureau of Shipping (ABS)	Yes
• Bureau Veritas (BV)	Yes
• Det Norske Veritas (DNV)	Yes
• Korean Register of Shipping (KRS)	Yes
• Lloyds Register of Shipping (LRS)	Yes
• Nippon Kaiji Kyokai (Class NK)	Yes
• Chinese Classification Society (CCS)	Yes
Ambient conditions	
Ambient temperature during operation	
• min.	0 °C
• max.	50 °C
Relative humidity	
• Relative humidity	Tested according to IEC 60068-2-78, IEC 60068-2-30: Operation: 5 % to 85 % at 30 °C (no condensation), storage / transport: 5 % to 95 % at 25 / 55 °C (no condensation)
Vibrations	
• Vibration resistance during operation acc. to IEC 60068-2-6	tested to DIN IEC 60068-2-6: 10 Hz to 58 Hz: 0.075 mm, 58 Hz to 200 Hz: 9.8 m/s ² (1 g)
Shock testing	
• Shock load during operation	Tested according to IEC 60068-2-27: 150 m/s ² , 11 ms
Operating systems	
pre-installed operating system	SIMATIC Industrial OS
Software	
SIMATIC Software	Industrial Edge - SIMATIC
Dimensions	
Width	191 mm
Height	100 mm
Depth	60 mm

More information

More information is available on the internet at

<https://www.siemens.com/simatic-box-pc>.

Industrial Computing

Box PC

SIMATIC IPC327G

Overview



SIMATIC IPC327G

The new SIMATIC IPC327G is a cost-optimized platform with the most up-to-date Intel® Atom processor technology. The design with multiple interfaces can be used for different applications, for example, logistics, electronics, etc.

It is characterized in particular by a large number of interfaces for easy connection to existing and new systems, fast availability from stock, as well as a fanless industrial design.

Ordering data

Article No.

Ordering data	Article No.
SIMATIC IPC327G	6AG4022- 0 B ■ ■ ■ - ■ ■ ■ ■
2x DisplayPort graphics interface 2x 10/100/1 000 Mbps Ethernet RJ45 4 x USB 3.0; 3 x USB 2.0; 4 x serial ports (COM)	
<u>Processor</u>	
• Intel Atomx6413E (4-core) / audio	A
• Intel Atomx6413E (4-core) / TPM / audio	B
• Intel Atomx6413E (4-core)	C
• Intel Atomx6413E (4-core) audio	D
<u>Work memory</u>	
• 4 GB RAM	2
• 8 GB RAM	3
• 16 GB RAM	4
<u>Expansions/interfaces</u>	
• 2x COM	1
• 4x COM	2
<u>Operating system</u>	
• None	0
• Windows 10 IOT Enterprise LTSC 2019, 64-bit MUI (en, de, fr, it, es)	2
<u>Drives</u>	
• None	A
• 256G Eco SSD	B
• 512G Eco SSD	C
<u>Power supply</u>	
• 24 V DC	A
<u>Mounting accessories</u>	
• Standard	1
• DIN rail	2

Note:

Please assemble the required IPC configuration using the TIA Selection Tool or configurator in the SiePortal in order to ensure availability; we do not accept any liability for configurations compiled by users themselves.

For an up-to-date overview, see the SIMATIC IPC online configurator at <https://www.siemens.com/ipc-configurators>.

<i>Preferred variants (available ex stock)</i>	
SIMATIC IPC327G	
Configuration 1	6AG4022-0BC21-0AA1
Processor: Intel Atomx6413E (up to 3.0 GHz)/ without audio Drives (SATA): without mass storage, Main memory: 4 GB DRAM (1x 4 GB), Without operating system	
Configuration 2	6AG4022-0BC21-2BA1
Processor: Intel Atomx6413E (up to 3.0 GHz)/ without audio Drives (SATA): 256G Eco SSD, Main memory: 4 GB DRAM (1x 4 GB) Windows 10 Enterprise LTSC 2019, 64-bit, MUI (en, de, fr, it, es)	
Configuration 3	6AG4022-0BC31-0AA1
Processor: Intel Atomx6413E (up to 3.0 GHz)/ without audio Drives (SATA): without mass storage, Main memory: 8 GB DRAM (1x 8 GB); Without operating system	
Configuration 4	6AG4022-0BC31-2BA1
Processor: Intel Atomx6413E (up to 3.0 GHz)/ without audio Drives (SATA): 256G Eco SSD, Main memory: 8 GB DRAM (1x 8 GB) Windows 10 Enterprise LTSC 2019, 64-bit, MUI (en, de, fr, it, es)	

Industrial Computing

Box PC

SIMATIC IPC327G

Technical specifications

Article number	6AG4022-0B...-.... SIMATIC IPC327G
General information	
Product type designation	IPC327G
Installation type/mounting	
Mounting	Rail or wall mounting
Design	Box PC, built-in unit
Supply voltage	
Type of supply voltage	24 V
Mains buffering	
• Mains/voltage failure stored energy time	20 ms
Processor	
Processor type	Intel Atom X6413E
Drives	
SSD	Yes; 256 GB SSD/512 GB SSD
Memory	
Type of memory	DDR4
Main memory	4 GB, 8 GB, 16 GB
Hardware configuration	
Slots	
• free slots	2x M.2
Interfaces	
Number of industrial Ethernet interfaces	2; 2x RJ45 (independent)
USB port	4x USB 3.1; 3x USB 2.0
Connection for keyboard/mouse	USB / USB
Video interfaces	
• Graphics interface	2x DisplayPort
Industrial Ethernet	
• Industrial Ethernet interface	2x Ethernet (RJ45)
- 100 Mbps	Yes
- 1000 Mbps	Yes
Protocols	
Protocols (Ethernet)	
• TCP/IP	Yes
Integrated Functions	
Monitoring functions	
• Temperature monitoring	Yes
• Watchdog	Yes
• Fan	No

Article number	6AG4022-0B...-.... SIMATIC IPC327G
EMC	
Interference immunity against discharge of static electricity	
• Interference immunity against discharge of static electricity	±4 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2
Interference immunity against high-frequency electromagnetic fields	
• Interference immunity against high frequency radiation	10 V/m for 80 - 1 000 MHz and 1.4 - 2 GHz, 80% AM acc. to IEC 61000-4-3; 3 V/m for 2 - 2.7 GHz, 80% AM acc. to IEC 61000-4-3; 10 V for 10 kHz - 80 MHz, 80% AM acc. to IEC 61000-4-6
Degree and class of protection	
IP degree of protection	IP40
Standards, approvals, certificates	
CE mark	Yes
CSA approval	Yes
UL approval	Yes
KC approval	Yes
EAC (formerly Gost-R)	Yes
FCC	Yes
BSMI	Yes
Dust protection	Protection against foreign bodies > 1 mm
Ambient conditions	
Ambient temperature during operation	
• min.	0 °C
• max.	55 °C; without M.2 module
Relative humidity	
• Relative humidity	5 ... 85 % at 30 °C, no condensation
Vibrations	
• Vibration resistance during operation acc. to IEC 60068-2-6	58 Hz to 200 Hz: 4.9 m/s ² ; tested according to IEC 60068-2-6
Shock testing	
• Shock load during operation	with SSD: 150 m/s ² , 11 ms, 5 g, 30 ms, tested accordance with IEC 60068-2-27
Operating systems	
pre-installed operating system	Windows 10 IoT Enterprise 2019 LTSC, 64 bit, MUI
without operating system	Yes; Optional
Dimensions	
Width	254 mm
Height	132 mm
Depth	73 mm

Industrial Computing

Box PC

SIMATIC IPC327G

Technical specifications

Article number	6AG4022-0BC21-0AA1 SIMATIC IPC327G	6AG4022-0BC21-2BA1 SIMATIC IPC327G	6AG4022-0BC31-2BA1 SIMATIC IPC327G
Installation type/mounting			
Design	Box PC, built-in unit	Box PC, built-in unit	Box PC, built-in unit
Supply voltage			
Type of supply voltage	24 V DC	24 V DC	24 V DC
Mains buffering			
• Mains/voltage failure stored energy time	20 ms	20 ms	20 ms
Memory			
Type of memory	DDR4	DDR4	DDR4
Hardware configuration			
Slots			
• free slots	2x M.2	2x M.2	2x M.2
Interfaces			
Number of industrial Ethernet interfaces	2; 2x RJ45 (independent)	2; 2x RJ45 (independent)	2; 2x RJ45 (independent)
Video interfaces			
• Graphics interface	2x DisplayPort	2x DisplayPort	2x DisplayPort
Industrial Ethernet			
• Industrial Ethernet interface	2x Ethernet (RJ45)	2x Ethernet (RJ45)	2x Ethernet (RJ45)
- 100 Mbps	Yes	Yes	Yes
- 1000 Mbps	Yes	Yes	Yes
Protocols			
Protocols (Ethernet)			
• TCP/IP	Yes	Yes	Yes
Integrated Functions			
Monitoring functions			
• Temperature monitoring	Yes	Yes	Yes
• Watchdog	Yes	Yes	Yes
• Fan	No	No	No
EMC			
Interference immunity against discharge of static electricity			
• Interference immunity against discharge of static electricity	±4 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2	±4 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2	±4 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2
Interference immunity against high-frequency electromagnetic fields			
• Interference immunity against high frequency radiation	10 V/m for 80 - 1 000 MHz and 1.4 - 2 GHz, 80% AM acc. to IEC 61000-4-3; 3 V/m for 2 - 2.7 GHz, 80% AM acc. to IEC 61000-4-3; 10 V for 10 kHz - 80 MHz, 80% AM acc. to IEC 61000-4-6	10 V/m for 80 - 1 000 MHz and 1.4 - 2 GHz, 80% AM acc. to IEC 61000-4-3; 3 V/m for 2 - 2.7 GHz, 80% AM acc. to IEC 61000-4-3; 10 V for 10 kHz - 80 MHz, 80% AM acc. to IEC 61000-4-6	10 V/m for 80 - 1 000 MHz and 1.4 - 2 GHz, 80% AM acc. to IEC 61000-4-3; 3 V/m for 2 - 2.7 GHz, 80% AM acc. to IEC 61000-4-3; 10 V for 10 kHz - 80 MHz, 80% AM acc. to IEC 61000-4-6
Degree and class of protection			
IP degree of protection	IP40	IP40	IP40
Standards, approvals, certificates			
CE mark	Yes	Yes	Yes
CSA approval	Yes	Yes	Yes
UL approval	Yes	Yes	Yes
KC approval	Yes	Yes	Yes
EAC (formerly Gost-R)	Yes	Yes	Yes
FCC	Yes	Yes	Yes
BSMI	Yes	Yes	Yes
Dust protection	Protection against foreign bodies > 1 mm	Protection against foreign bodies > 1 mm	Protection against foreign bodies > 1 mm

Industrial Computing

Box PC

SIMATIC IPC327G

Technical specifications

Article number	6AG4022-0BC21-0AA1 SIMATIC IPC327G	6AG4022-0BC21-2BA1 SIMATIC IPC327G	6AG4022-0BC31-2BA1 SIMATIC IPC327G
Ambient conditions			
Ambient temperature during operation			
• min.	0 °C	0 °C	0 °C
• max.	55 °C	55 °C	55 °C
Relative humidity			
• Relative humidity	5 ... 85 % at 30 °C, no condensation	5 ... 85 % at 30 °C, no condensation	5 ... 85 % at 30 °C, no condensation
Vibrations			
• Vibration resistance during operation acc. to IEC 60068-2-6	58 Hz to 200 Hz: 4.9 m/s ² ; tested according to IEC 60068-2-6	58 Hz to 200 Hz: 4.9 m/s ² ; tested according to IEC 60068-2-6	58 Hz to 200 Hz: 4.9 m/s ² ; tested according to IEC 60068-2-6
Operating systems			
pre-installed operating system	Windows 10 IoT Enterprise 2019 LTSC, 64 bit, MUI	Windows 10 IoT Enterprise 2019 LTSC, 64 bit, MUI	Windows 10 IoT Enterprise 2019 LTSC, 64 bit, MUI
without operating system	Yes; Optional	Yes; Optional	Yes; Optional
Dimensions			
Width	254 mm	254 mm	254 mm
Height	132 mm	132 mm	132 mm
Depth	73 mm	73 mm	73 mm

More information

More information is available on the internet at

<https://www.siemens.com/simatic-box-pc>.

Industrial Computing

Box PC

SIMATIC IPC BX-32A

Technical specifications

Article number	6AG4152-.....-.... SIMATIC IPC BX-32A
General information	
Product type designation	BX-32A
Installation type/mounting	
Mounting	DIN rail, wall mounting, portrait mounting
Design	Box PC, built-in unit
Supply voltage	
Type of supply voltage	9 - 36 V DC
Mains buffering	
• Mains/voltage failure stored energy time	20 ms
Processor	
Processor type	Intel® Celeron 6600HLE (2.1 GHz, 2C/2T) Intel® Xeon W-11155MLE (1.8/3.1 GHz, 4C/8T) Intel® Xeon W-11555MLE (1.9/4.4 GHz, 6C/12T) Intel® Xeon W-11865MLE (1.5/4.5 GHz, 8C/16T)
Chipset	Intel® RM590E
Graphic	
Graphics controller	Intel® UHD Graphics 16 EUs (for Intel® Celeron® 6600HLE and Intel® Xeon® W-11155MLE) / Intel® UHD Graphics 32 EUs (for Intel® Xeon® W-11555MLE and Intel® Xeon® W-11865MLE)
Drives	
Hard disk	M.2 SSD ≥ 240 GB
SSD	Yes; ≥ 240 GB optional
Memory	
Type of memory	DDR4-3200 SO-DIMM
Main memory	4 / 8 / 16 / 32 GB
Hardware configuration	
Slots	
• free slots	1x PCIe (x4); optional
Interfaces	
Number of industrial Ethernet interfaces	2; 2x Gigabit Ethernet (IE/PN), RJ45
USB port	4x USB 3.2 Gen2
Connection for keyboard/mouse serial interface version	USB / USB 2x / 4x (optional) COM (RS 232 / 485 / 422; selectable)
Video interfaces	
• Graphics interface	2x DisplayPort (DP1.4-capable); maximum 4096 × 2304 / 60 Hz / 36 bit
Industrial Ethernet	
• Industrial Ethernet interface	2x Ethernet (RJ45)
- 100 Mbps	Yes
- 1000 Mbps	Yes
Interrupts/diagnostics/status information	
LED status display	No
Integrated Functions	
Monitoring functions	
• Temperature monitoring	No
• Watchdog	No
• Fan	No
• Monitoring function via network	Optional

Article number	6AG4152-.....-.... SIMATIC IPC BX-32A
EMC	
Interference immunity against discharge of static electricity	
• Interference immunity against discharge of static electricity	±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2
Interference immunity against high-frequency electromagnetic fields	
• Interference immunity against high frequency radiation	10 V/m for 80 - 1 000 MHz and 1.4 - 2 GHz, 80% AM acc. to IEC 61000-4-3; 3 V/m for 2 - 2.7 GHz, 80% AM acc. to IEC 61000-4-3; 10 V for 10 kHz - 80 MHz, 80% AM acc. to IEC 61000-4-6
Interference immunity to cable-borne interference	
• Interference immunity on supply cables	±2 kV acc. to IEC 61000-4-4, burst; ±1 kV acc. to IEC 61000-4-5, surge symmetric; ±2 kV acc. to IEC 61000-4-5, surge asymmetric
• Interference immunity on signal cables > 30m	±2 kV acc. to IEC 61000-4-4, burst; ±2 kV acc. to IEC 61000-4-5, surge
• Interference immunity on signal cables < 30m	±1 kV acc. to IEC 61000-4-4, Burst
Interference immunity against voltage surge	
• asymmetric interference	±2 kV acc. to IEC 61000-4-5, surge asymmetric
• symmetric interference	±1 kV acc. to IEC 61000-4-5, surge symmetric
Interference immunity to magnetic fields	
• Interference immunity to magnetic fields at 50 Hz	100 A/m; to IEC 61000-4-8
Emission of conducted and non-conducted interference	
• Interference emission via line/ AC current cables	IEC 61000-6-3, IEC 61000-6-4, CAN/CSA CISPR 32 Class B, FCC Class A
Degree and class of protection	
IP degree of protection	IP20
Standards, approvals, certificates	
CE mark	Yes
UKCA mark	Yes
CSA approval	Yes
UL approval	Yes; UL 61010-2-201 Second Edition, File E472609
• UL 508	No
cULus	Yes
RCM (formerly C-TICK)	Yes
KC approval	Yes
EAC (formerly Gost-R)	No
FCC	Yes
BSMI	No; in preparation
BIS	Yes
EMC	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, CAN/CSA CISPR 32 Class B, EN 55032 Class B, FCC Class A, KN32

Industrial Computing

Box PC

SIMATIC IPC BX-32A

Technical specifications

Article number	6AG4152-.....-.... SIMATIC IPC BX-32A
Use in hazardous areas	
• ATEX Zone 2	No
• IECEx Zone 2	No
• cULus Class I Zone 2, Division 2	No
Marine approval	
• Germanischer Lloyd (GL)	No
• American Bureau of Shipping (ABS)	No
• Bureau Veritas (BV)	No
• Det Norske Veritas (DNV)	No
• Korean Register of Shipping (KRS)	No
• Lloyds Register of Shipping (LRS)	No
• Nippon Kaiji Kyokai (Class NK)	No
Ambient conditions	
Ambient temperature during operation	
• min.	0 °C
• max.	50 °C
Altitude during operation relating to sea level	
• Installation altitude above sea level, max.	3 000 m
Relative humidity	
• Relative humidity	Tested according to IEC 60068-2-78, IEC 60068-2-30: Operation: 5% to 80% at 25 °C (no condensation), Storage: 5% to 95% at 25 °C (no condensation)
• Operation, max.	85 %
Vibrations	
• Vibration resistance during operation acc. to IEC 60068-2-6	tested according to IEC 60068-2-6; 5 Hz to 9 Hz: 3.5 mm; 9 Hz to 500 Hz: 9.8 m/s ²
Shock testing	
• Shock load during operation	Tested according to IEC 60068-2-27: 150 m/s ² , 11 ms

Article number	6AG4152-.....-.... SIMATIC IPC BX-32A
Operating systems	
pre-installed operating system	Windows 10 IoT Enterprise 2021 LTSC, Industrial OS
without operating system	Yes; Optional
Mechanics/material	
Enclosure material (front)	Continuous-cast aluminum
Dimensions	
Width	255 mm
Height	133 mm
Depth	75 mm

More information

Note:

Please assemble the required IPC configuration using the TIA Selection Tool or configurator in the SiePortal in order to ensure availability; we do not accept any liability for configurations compiled by users themselves.

For an up-to-date overview, see the SIMATIC IPC online configurator at:

<https://www.siemens.com/ipc-configurators>

More information is available on the internet at

<https://www.siemens.com/simatic-box-pc>

Industrial Computing

Box PC

SIMATIC IPC BX-35A

Overview

The new SIMATIC IPC BX-35A with integrated GPU in a compact industrial design is specially designed for AI-based applications in industrial environments. SIMATIC Industrial OS with Linux-based OS is also available.

With the innovative NVIDIA® Jetson Orin™ NX processor, the theoretical AI performance of the IPC BX-35A is significantly better than that of its predecessor IPC520A.

The IPC BX-35A is characterized by high CPU and GPU computing power in combination with a compact design without fan for industrial applications. A large number of interfaces have been implemented to adapt to industrial applications.

Ordering data

SIMATIC IPC BX-35A (Box PC)	6ES7647-0JC	■ ■ - 0 J ■ 2
Standard device		
• 128 GB Eco SSD		
• 256 GB Eco SSD		
• 512 GB Eco SSD (available soon)	1	
• 1 TB Eco SSD (available soon)	2	
Operating system		
• None	0	
• Windows 10 IoT Enterprise 2021 LTSC, MUI (en, de, es, fr, it)	1	
• M.2 SSD 512 GB	2	
• M.2 SSD 1 TB	3	
Operating system		
• Without operating system		A
• SIMATIC Industrial OS		B

Note:

Select the required IPC configuration via the TIA Selection Tool or configurator in the SiePortal in order to ensure availability; we do not accept any liability for configurations compiled by users themselves.

The SIMATIC IPC online configurator offers a current overview at <http://www.siemens.com/ipc-configurators>

Technical specifications

Article number	6ES7647-0JC...-.... SIMATIC IPC BX-35A
General information	
Product type designation	BX-35A
Installation type/mounting	
Mounting	rail mounting, wall mounting
Design	Box PC, built-in unit
Supply voltage	
Type of supply voltage	rated 12 to 24 V DC, range 9 to 36 V DC
Mains buffering	
• Mains/voltage failure stored energy time	5 ms
Processor	
Processor type	NVIDIA 8 core Arm® Cortex®-A78AE v8.2 64-bit CPU 2MB L2 + 4MB L3 / 6 core Arm® Cortex®-A78AE v8.2 64-bit CPU 1.5MB L2 + 4MB L3
Graphic	
Graphics controller	1024 core NVIDIA Ampere GPU with 32 Tensor Core
Drives	
SSD	Yes; 256 GB / 512 GB / 1 T / no SSD
Memory	
Type of memory	LPDDR5
Main memory	8 GB, 16 GB
Hardware configuration	
Slots	
• free slots	1x nano SIM card slot
Digital inputs	
Number of digital inputs	4
Input voltage	
• Type of input voltage	24 V DC
• for signal "0"	< 5 V DC
• for signal "1"	> 12 V DC
Input current	
• for signal "0", max. (permissible quiescent current)	1 mA
• for signal "1", typ.	2.5 mA
Digital outputs	
Type of digital output	transistor
Number of digital outputs	4
Short-circuit protection	No
Output voltage	
• Type of output voltage	DC
• permissible voltage at output, min.	20.4 V
• permissible voltage at output, max.	28.8 V
Output current	
• for signal "1" rated value	0.5 A
Switching frequency	
• with resistive load, max.	10 Hz
• with inductive load, max.	0.5 Hz
• mechanical, max.	10 Hz

Industrial Computing

Box PC

SIMATIC IPC BX-35A

Technical specifications

Article number	6ES7647-0JC...-.... SIMATIC IPC BX-35A
Interfaces	
Number of industrial Ethernet interfaces	4; 4x RJ45 (4x support PoE PSE IEEE 802.3af 30 W total)
USB port	3x USB 3.1 Gen1 5 GB/s + 1x USB 2.0
Connection for keyboard/mouse serial interface version	USB / USB 1x COM (1x RS 232 / 422 / 485)
Video interfaces	
• Graphics interface	1x DisplayPort
Industrial Ethernet	
• Industrial Ethernet interface	4x Ethernet (RJ45)
- 100 Mbps	Yes
- 1000 Mbps	Yes
Protocols	
Protocols (Ethernet)	
• TCP/IP	Yes
Interrupts/diagnostics/status information	
LED status display	1x Power, 1x User, 8x DIO
Integrated Functions	
Monitoring functions	
• Temperature monitoring	Yes
• Watchdog	Yes
• Fan	No
EMC	
Interference immunity against discharge of static electricity	
• Interference immunity against discharge of static electricity	± 6 kV contact discharge at the front in accordance with IEC 61000-4-2; ±4 kV, housing contact discharge at the back in accordance with IEC 61000-4-2; ± 8 kV air discharge in accordance with IEC 61000-4-2
Interference immunity against high-frequency electromagnetic fields	
• Interference immunity against high frequency radiation	10 V/m for 80 ... 2 700 MHz, 80% AM acc. to IEC 61000-4-3; 3 V/m for 2.7 to 6 GHz, 80% AM acc. to IEC 61000-4-3; 10 V for 10 kHz to 80 MHz, 80% AM acc. to IEC 61000-4-6
Interference immunity to cable-borne interference	
• Interference immunity on supply cables	±2 kV (according to IEC 61000-4-4, burst); ±1 kV (according to IEC 61000-4-5, surge pulse/line to line); ±2 kV (according to IEC 61000-4-5, surge pulse/line to ground)
• Interference immunity on signal cables >30m	burst: ±2 kV (5 kHz / 100 kHz) in accordance with IEC 61000-4-4; length of signal port extension cable ≥ 30 m
• Interference immunity on signal cables < 30m	burst: ±1 kV (5 kHz / 100 kHz) in accordance with IEC 61000-4-4; length of signal port extension cable < 30 m

Article number	6ES7647-0JC...-.... SIMATIC IPC BX-35A
Interference immunity to magnetic fields	
• Interference immunity to magnetic fields at 50 Hz	100 A/m; to IEC 61000-4-8
Emission of conducted and non-conducted interference	
• Interference emission via line/ AC current cables	IEC 61000-6-4, CAN/CSA CISPR 32 class A, FCC class A
Degree and class of protection	
IP degree of protection	IP20
Standards, approvals, certificates	
CE mark	Yes
CSA approval	No
UL approval	Yes; UL 61010-2-201, UL 61010-1
• UL 508	No
cULus	Yes; UL 61010-1, UL 61010-2-201
FM approval	No
RCM (formerly C-TICK)	Yes; C-Tick
KC approval	No; in preparation
EAC (formerly Gost-R)	No
CCC	No
FCC	Yes
BSMI	No; in preparation
Ambient conditions	
Ambient temperature during operation	
• min.	0 °C; 15 W CPU, 30 W PoE, 3 W M.2 M-KEY, 3 W M.2 B-KEY or 2.5 W M.2 E-KEY, USB
• max.	50 °C; 15 W CPU, 30 W PoE, 3 W M.2 M-KEY, 3 W M.2 B-KEY or 2.5 W M.2 E-KEY, USB
Relative humidity	
• Relative humidity	5 ... 85 % at 30 °C, no condensation
Vibrations	
• Vibration resistance during operation acc. to IEC 60068-2-6	tested according to IEC 60068-2-6: 10 cycles; 5 to 8.4 Hz: deflection 3.5 mm; 8.4 to 200 Hz: acceleration 9.8 m/s ²
Shock testing	
• Shock load during operation	Tested according to IEC 60068-2-27: 150 m/s ² , 11 ms
Operating systems	
pre-installed operating system	SIMATIC Industrial OS optional
without operating system	Yes
Dimensions	
Width	196 mm
Height	131 mm
Depth	70 mm

More information

More information is available on the internet at <https://www.siemens.com/simatic-box-pc>

Industrial Computing

Box PC

SIMATIC IPC BX-39A

Overview



SIMATIC IPC BX-39A

SIMATIC IPC BX-39A (Microbox PC): The powerful embedded IPC – maintenance-free with versatile configuration
The overall turnkey solution:

- Ultra-compact
- Maintenance-free
- Intel CPU technology of the 11th generation

Ordering data

Ordering data	Article No.
SIMATIC IPC BX-39A (Box PC)¹⁾	6AG4142-
<u>Processor</u>	
• Intel® Celeron® 6600HLE 2 cores/2 threads, 2.1 GHz, 8 MB cache, TCC	1
• Intel® Xeon® W-11155MLE 4 cores/8 threads, 1.8 (3.1) GHz, 8 MB cache, ECC, TCC	3
• Intel® Xeon® W-11555MLE 6 cores/12 threads, 1.9 (4.4) GHz, 12 MB cache, vPro, ECC, TCC	5
• Intel® Xeon® W-11865MLE 8 cores/16 threads, 1.5 (4.5) GHz, 24 MB cache, vPro, ECC, TCC	7
<u>Mounting accessories/extension</u>	
• Without mounting accessories	A
• DIN rail	B
• Wall mounting	C
• Portrait mounting	D
• 1 x PCIe and DIN rail mounting	F
• 1 x PCIe and wall mounting	G
• 1 x PCIe and portrait mounting	H
• 2 x PCIe and DIN rail mounting	J
• 2 x PCIe and wall mounting	K
• 2 x PCIe and portrait mounting	L
<u>Work memory/ECC</u>	
• 4 GB	A
• 8 GB	B
• 16 GB	C
• 32 GB	D
• 16 GB with ECC	E
• 32 GB with ECC	F
• 8 GB and NVRAM (M.2 module)	G
• 16 GB and NVRAM (M.2 module)	H
• 32 GB and NVRAM (M.2 module)	J
• 16 GB with ECC and NVRAM (M.2 module)	K
• 32 GB with ECC and NVRAM (M.2 module)	L
<u>1st mass storage in SIMATIC Slider (incl. OS)</u>	
• Without 1st mass storage	0
• M.2 SSD 256 GB Eco	1
• M.2 SSD 512 GB Eco	2
• M.2 SSD 240 GB	4
• M.2 SSD 480 GB	5
• M.2 SSD 960 GB	6
• RAID1 with SSD 512 GB Eco (SSD 2 with 512 GB Eco required)	8

Article No.

Ordering data	Article No.
SIMATIC IPC BX-39A (Box PC)¹⁾	6AG4142-
<u>2nd mass storage in SIMATIC Slider</u>	
• Without 2nd mass storage	0
• M.2 SSD 256 GB Eco	1
• M.2 SSD 512 GB Eco	2
• M.2 SSD 240 GB	4
• M.2 SSD 480 GB	5
• M.2 SSD 960 GB	6
<u>Operating system</u>	
• Without operating system (Edge option with operating system)	0
• Windows 10 Enterprise 2021 LTSC with Celeron, Xeon W-11155MLE, Xeon W-11555MLE processors	1
• Windows 10 Enterprise 2021 LTSC with W-11865MLE processor	2
• SIMATIC Industrial OS	7
<u>Option 1</u>	
• Without option 1	A
• With 1 x Com (RS232/485/422)	B
<u>Option 2</u>	
• Restore stick image with D&D and software image (if selected) Only via OSD (Online Portal)	A
• USB Restore stick image with D&D and software image (if selected)	B
<u>Power supply</u>	
• 24 V DC industry power supply (Premium, NAU, isolated, "bridging time")	0
• 24 V DC industry power supply (Premium, NAU, isolated, "bridging time") with ATEX	7

¹⁾ For an up-to-date overview, see the SIMATIC IPC online configurator at <http://www.siemens.com/ipc-configurators>

Note:

Please select the required IPC configuration via the TIA Selection Tool or configurator in the SiePortal in order to ensure availability; we do not accept any liability for configurations compiled by users themselves.

The SIMATIC IPC online configurator offers a current overview at <http://www.siemens.com/ipc-configurators>

Industrial Computing

Box PC

SIMATIC IPC BX-39A

Technical specifications

Article number	6AG4142-.....-.... SIMATIC IPC BX-39A
General information	
Product type designation	BX-39A
Installation type/mounting	
Mounting	DIN rail, wall mounting, portrait mounting
Design	Box PC, built-in unit
Supply voltage	
Type of supply voltage	24 V DC
Rated value (DC)	24 V
Mains buffering	
• Mains/voltage failure stored energy time	20 ms
Processor	
Processor type	Intel® Celeron 6600HLE (2.1 GHz, 2C/2T) Intel® Xeon W-11155MLE (1.8/3.1 GHz, 4C/8T) Intel® Xeon W-11555MLE (1.9/4.4 GHz, 6C/12T) Intel® Xeon W-11865MLE (1.5/4.5 GHz, 8C/16T)
Chipset	Intel® RM590E
Graphic	
Graphics controller	Intel® UHD Graphics 16 EUs (for Intel® Celeron® 6600HLE and Intel® Xeon® W-11155MLE) / Intel® UHD Graphics 32 EUs (for Intel® Xeon® W-11555MLE and Intel® Xeon® W-11865MLE)
Drives	
Hard disk	M.2 SSD ≥ 240 GB
SSD	Yes; ≥ 240 GB optional, RAID1 optional
Memory	
Type of memory	DDR4-3200 SO-DIMM
Main memory	4 / 8 / 16 / 32 GB; ECC optional
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	512 kbyte; 128 KB can be stored in the buffer time; optional
Hardware configuration	
Slots	
• free slots	2x PCIe; optional: 1x PCIe (x4); 2x PCIe (x1, x4), with card retainer
Interfaces	
Number of industrial Ethernet interfaces	4; 4x Gigabit Ethernet (IE/PN)
USB port	4x USB 3.2 Gen2
Connection for keyboard/mouse serial interface version	USB / USB 1x / 2x (optional) COM (RS 232 / 485 / 422; selectable)
Video interfaces	
• Graphics interface	2x DisplayPort (DP1.4-capable); maximum 4096 × 2304 / 60 Hz / 36 bit
Industrial Ethernet	
• Industrial Ethernet interface	4x Ethernet (RJ45)
- 100 Mbps	Yes
- 1000 Mbps	Yes
Interrupts/diagnostics/status information	
LED status display	1x power, 3x user
Integrated Functions	
Monitoring functions	
• Temperature monitoring	Yes
• Watchdog	Yes
• Fan	No
• Monitoring function via network	Optional

Article number	6AG4142-.....-.... SIMATIC IPC BX-39A
EMC	
Interference immunity against discharge of static electricity	
• Interference immunity against discharge of static electricity	±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2
Interference immunity against high-frequency electromagnetic fields	
• Interference immunity against high frequency radiation	10 V/m for 80 ... 2 700 MHz, 80% AM acc. to IEC 61000-4-3; 3 V/m for 2.7 to 6 GHz, 80% AM acc. to IEC 61000-4-3; 10 V for 10 kHz to 80 MHz, 80% AM acc. to IEC 61000-4-6
Interference immunity to cable-borne interference	
• Interference immunity on supply cables	±2 kV acc. to IEC 61000-4-4, burst; ±1 kV acc. to IEC 61000-4-5, surge symmetric; ±2 kV acc. to IEC 61000-4-5, surge asymmetric
• Interference immunity on signal cables > 30m	±2 kV acc. to IEC 61000-4-4, burst; ±2 kV acc. to IEC 61000-4-5, surge
• Interference immunity on signal cables < 30m	±1 kV acc. to IEC 61000-4-4, Burst
Interference immunity against voltage surge	
• asymmetric interference	±2 kV acc. to IEC 61000-4-5, surge asymmetric
• symmetric interference	±1 kV acc. to IEC 61000-4-5, surge symmetric
Interference immunity to magnetic fields	
• Interference immunity to magnetic fields at 50 Hz	100 A/m; to IEC 61000-4-8
Emission of conducted and non-conducted interference	
• Interference emission via line/AC current cables	IEC 61000-6-3, IEC 61000-6-4, CAN/CSA CISPR 32 Class B, FCC Class A
Degree and class of protection	
IP degree of protection	IP20
Standards, approvals, certificates	
CE mark	Yes
UKCA mark	Yes
CSA approval	Yes
UL approval	Yes; UL 61010-2-201 Second Edition, File E85972
• UL 508	No
cULus	Yes
RCM (formerly C-TICK)	Yes
KC approval	Yes
EAC (formerly Gost-R)	Yes
FCC	Yes
BSMI	No; in preparation
BIS	Yes
EMC	EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, CAN/CSA CISPR 32 Class B, EN 55032 Class B, FCC Class A, KN32

Industrial Computing

Box PC

SIMATIC IPC BX-39A

Technical specifications

Article number	6AG4142-.....-.... SIMATIC IPC BX-39A
Marine approval	
• Germanischer Lloyd (GL)	Yes
• American Bureau of Shipping (ABS)	Yes
• Bureau Veritas (BV)	Yes
• Det Norske Veritas (DNV)	Yes
• Korean Register of Shipping (KRS)	Yes
• Lloyds Register of Shipping (LRS)	Yes
• Nippon Kaiji Kyokai (Class NK)	Yes
Ambient conditions	
Ambient temperature during operation	
• min.	0 °C
• max.	55 °C
Altitude during operation relating to sea level	
• Installation altitude above sea level, max.	3 000 m
Relative humidity	
• Relative humidity	tested according to IEC 60068-2-78, IEC 60068-2-30; operation: temperature 30 °C, relative humidity 85%; permissible range: 0 to 31 °C: 5 - 80%; decreasing linearly to 5 - 25% at 55 °C; storage: temperature 25 °C - 55 °C, relative humidity 95%
• Operation, max.	85 %
Vibrations	
• Vibration resistance during operation acc. to IEC 60068-2-6	tested according to IEC 60068-2-6; 5 Hz to 9 Hz: 3.5 mm; 9 Hz to 500 Hz: 9.8 m/s ²
Shock testing	
• Shock load during operation	Tested according to IEC 60068-2-27: 150 m/s ² , 11 ms

Article number	6AG4142-.....-.... SIMATIC IPC BX-39A
Operating systems	
pre-installed operating system	Windows 10 IoT Enterprise 2021 LTSC, Industrial OS
without operating system	Yes; Optional
Software	
SIMATIC Software	Optional package with SIMATIC WinCC
Mechanics/material	
Enclosure material (front)	Continuous-cast aluminum
Dimensions	
Width	262 mm
Height	139.7 mm
Depth	62.6 mm

More information

More information is available on the internet at

<https://www.siemens.com/simatic-box-pc>.

Industrial Computing

Box PC

SIMATIC IPC BX-56A

Overview



SIMATIC BX-56A (modular box PC): The high-end IPC with high performance, functionality and expansion capability

Industrial PC platform with extremely high industrial compatibility for demanding tasks in the field of PC-based automation.

Rugged construction: The IPC is resistant to even the harshest mechanical stress and extremely reliable in operation.

- Modular design
- High degree of investment security
- High degree of expandability
- High performance with flexibility and scalability
- Intel Core i technology

Ordering data

SIMATIC IPC BX-56A (Modular Box PC)¹⁾

Mainboard (chipset H610E);
2x DP; 1x DVI-D; 2x Gigabit Ethernet (IE/PN) RJ45;
4x USB 3.2 Gen. 2;
2x serial (COM1); watchdog, temperature/fan monitoring

Processor and power supply:

- Intel Pentium G7400E, 65 W; 2C/4T, 3.6 GHz, with 9-36 V DC, 220 W power supply
- Intel Core i3-13100TE, 35 W; 4C/8T, 2.4 (4.1) GHz, with 9-36 V DC, 220 W power supply
- Intel Core i5-13500E 14C/20T, 2.4 (4.6) GHz, with 9-36 V DC, 220 W power supply
- Intel Pentium G7400E, 65 W; 2C/4T, 3.6 GHz, with 24 V DC, 400 W power supply
- Intel Core i3-13100TE, 35 W; 4C/8T, 2.4 (4.1) GHz, with 24 V DC, 400 W power supply
- Intel Core i3-13100TE, 35 W; 4C/8T, 2.4 (4.1) GHz, with 9-36 V DC, 400 W power supply (operation without fan possible)
- Intel Core i3-13100TE, 35 W; 4C/8T, 2.4 (4.1) GHz, with 24 V DC, 220 W power supply (operation without fan possible)
- No basic unit, no CPU, no power supply in the basic unit

Drives in the basic unit:

- Basic unit without drives
- SSD 2.5" SATA 512 GB internal
- SSD 2.5" SATA 1 TB internal
- No basic unit, no drive

Note:

Please select the required IPC configuration via the TIA Selection Tool or configurator in the SiePortal in order to ensure availability; we do not accept any liability for configurations compiled by users themselves. The SIMATIC IPC online configurator offers a current overview at

<https://www.siemens.com/ipc-configurators>.

Article No.

Article No.	Configuration
6AG4132-0	0
	A
	B
	C
	D
	E
	N
	P
	X
	A
	B
	C
	X

Article No.

SIMATIC IPC BX-56A (Modular Box PC)¹⁾

Memory configuration:

- 8 GB DDR5-4800 (1x 8 GB)
- 16 GB DDR5-4800 (1x 16 GB)
- 32 GB DDR5-4800 (1x 32 GB)
- 64 GB DDR5-4800 (2x 32 GB)
- No basic unit, no RAM

Hardware extension

(M.2 Flex modules in the basic unit):

- Without hardware extension (M.2)
- NVRAM (M.2)

Power supply unit cable:

- No power supply unit cable

Additional software:

- Basic unit without operating system (without USB flash drive D&D)
- Basic unit without operating system (with USB flash drive D&D)
- Windows 10 IoT Enterprise LTSC 2021, 64-bit, MUI, for Pentium, Core i3, Core i5 (without USB flash drive, restore image, D&D)
- Windows 10 IoT Enterprise LTSC 2021, 64-bit, MUI, for Pentium, Core i3, Core i5 (without USB flash drive, restore image, D&D)

Expandability of the basic unit

(expansion module):

- EM2: PCIe x 16 gen4 and PCIe x 4
- No expansion module

Additional memory in the expansion module:

- Expansion module without memory
- No expansion module, no EM memory

Accessories

Memory expansion

- 8 GB DDR5 4800 SDRAM, SO-DIMM
- 16 GB DDR5 4800 SDRAM, SO-DIMM
- 32 GB DDR5 4800 SDRAM, SO-DIMM

Mounting kit for portrait or wall mounting plate

- Interface outlet to the right

Article No.	Configuration
6AG4132-0	0
	2
	4
	6
	8
	0
	1
	0
	A
	B
	C
	D
	B
	X
	0
	7

6ES7648-2AN70-0SA0

6ES7648-2AN80-0SA0

6ES7648-2AN81-0SA0

6ES7648-1AA10-3YB0

Industrial Computing

Box PC

SIMATIC IPC BX-56A

Technical specifications

Article number	6AG4132-0....-.... SIMATIC IPC BX-56A (Box PC)
General information	
Product type designation	BX-56A
Installation type/mounting	
Mounting	Wall mounting, book mounting, desk mounting, tower mounting
Design	Box PC, built-in unit
Supply voltage	
Type of supply voltage	400 W / 24 V / 19.2 - 28.8 VDC; 220 W / 12-24 V / 9 - 36 VDC
Rated value (DC)	24 V; 12...24 V DC on 220 W
Mains buffering	
• Mains/voltage failure stored energy time	20 ms
Processor	
Processor type	Core i5-13500E 14C (6P+8E)/20T, 2.4 (4.6) GHz, 24 MB cache; Core i3-13100TE 4C (4P+0E)/8T, 2.4 (4.1) GHz, 12 MB cache; Pentium G7400E 2C (2P+0E)/4T, 3.6 GHz, 6 MB cache
Chipset	Intel H610E
Graphic	
Graphics controller	Intel UHD Graphics 710 (Pentium); Intel UHD Graphics 730 (Core i3); Intel UHD Graphics 770 (Core i5)
Drives	
SSD	Yes; base module: 512 GB 2.5" SATA SSD; 1 TB 2.5" SATA SSD;
Memory	
Type of memory	DDR5-4800 SO-DIMM
Main memory	8 / 16 / 32 / 64 GB
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	512 kbyte; 128 KB can be stored in the buffer time; optional

Article number	6AG4132-0....-.... SIMATIC IPC BX-56A (Box PC)
Interfaces	
Number of industrial Ethernet interfaces	2; 2x Gigabit Ethernet (RJ45)
USB port	2x USB 3.2 GEN2 10G Type A, 2x USB 3.2 GEN1 5G Type A
Connection for keyboard/mouse serial interface version	USB / USB 2x / 4x (optional) COM (RS 232 / 485 / 422; selectable)
Multimedia	
• Audio In/Out	Yes
Video interfaces	
• Graphics interface	2x DisplayPort
Industrial Ethernet	
• Industrial Ethernet interface	2x Gigabit Ethernet (RJ45)
- 100 Mbps	Yes
- 1000 Mbps	Yes
Interrupts/diagnostics/status information	
LED status display	base module (1x power, 3x user, 1x HDD)
Integrated Functions	
Monitoring functions	
• Temperature monitoring	Yes
• Watchdog	Yes
• Fan	Yes
• Monitoring function via network	Optional

Industrial Computing

Box PC

SIMATIC IPC BX-56A

Technical specifications

Article number	6AG4132-0....-..... SIMATIC IPC BX-56A (Box PC)
EMC	
Interference immunity against discharge of static electricity	
<ul style="list-style-type: none"> Interference immunity against discharge of static electricity 	±6 kV contact; ±8 kV air (to IEC 61000-4-2, ESD)
Interference immunity against high-frequency electromagnetic fields	
<ul style="list-style-type: none"> Interference immunity against high frequency radiation 	10 V/m for 80 ... 2 700 MHz, 80% AM acc. to IEC 61000-4-3; 3 V/m for 2.7 to 6 GHz, 80% AM acc. to IEC 61000-4-3; 10 V for 10 kHz to 80 MHz, 80% AM acc. to IEC 61000-4-6
Interference immunity to cable-borne interference	
<ul style="list-style-type: none"> Interference immunity on supply cables 	±2 kV (according to IEC 61000-4-4, burst); ±1 kV (according to IEC 61000-4-5, surge pulse/line to line); ±2 kV (according to IEC 61000-4-5, surge pulse/line to ground)
<ul style="list-style-type: none"> Interference immunity on signal cables > 30m 	burst: ±2 kV (5 kHz / 100 kHz) in accordance with IEC 61000-4-4; length of signal port extension cable ≥ 30 m; surge: ±2 kV line-to-earth in accordance with IEC 61000-4-5; length of signal port extension cable ≥ 10 m
<ul style="list-style-type: none"> Interference immunity on signal cables < 30m 	burst: ±1 kV (5 kHz / 100 kHz) in accordance with IEC 61000-4-4; length of signal port extension cable < 30 m; surge: ±2 kV line-to-earth in accordance with IEC 61000-4-5; length of signal port extension cable ≥ 10 m
Interference immunity to magnetic fields	
<ul style="list-style-type: none"> Interference immunity to magnetic fields at 50 Hz 	100 A/m; to IEC 61000-4-8
Emission of conducted and non-conducted interference	
<ul style="list-style-type: none"> Interference emission via line/ AC current cables 	EN 61000-6-3, EN 61000-6-4, CISPR 22 Class B, FCC Class A
Compliance with line harmonic distortion limits	
<ul style="list-style-type: none"> Compliance with line harmonic distortion acc. to IEC 61000-3-2, IEC 61000-3-3 	Yes; EN 61000-3-2 Class D; EN 61000-3-3

Article number	6AG4132-0....-..... SIMATIC IPC BX-56A (Box PC)
Standards, approvals, certificates	
CE mark	Yes; also UKCA
cULus	Yes
RCM (formerly C-TICK)	Yes
FCC	Yes
BIS	Yes
EMC	EMC EN 61000-6-1, EN IEC 61000-6-1, EN 61000-6-2, EN IEC 61000-6-3, EN IEC 61000-6-4
Ambient conditions	
Ambient temperature during operation	
<ul style="list-style-type: none"> min. max. 	0 °C 55 °C; base module only: 40 °C at fanless and 2.5" non power loss protection SSD configuration; 50 °C at fanless and M.2 SSD configuration; with extension module: 40°C
Operating systems	
pre-installed operating system	Windows 10 Enterprise 2021 LTSC 64-bit, MUI
without operating system	Yes; Optional
Dimensions	
Width	79 mm
Height	194 mm
Depth	237 mm

More information

More information is available on the internet at

<https://www.siemens.com/simatic-box-pc>

Industrial Computing

Box PC

SIMATIC IPC BX-59A

Ordering data	Article No.
SIMATIC IPC BX-59A (modular box PC)¹⁾	6AG4132-2 ■ ■ ■ ■ - ■ ■ ■ ■
<u>Hardware extension (M.2 Flex modules in the basic unit):</u>	
<ul style="list-style-type: none"> Without hardware extension (M.2) NVRAM (M.2) 	0 1
<u>Power supply unit cable:</u>	
<ul style="list-style-type: none"> No power supply unit cable 	0
<u>Additional software:</u>	
<ul style="list-style-type: none"> Basic unit without operating system (without USB flash drive D&D) Basic unit without operating system (with USB flash drive D&D) Windows 10 IoT Enterprise LTSC 2021, 64-bit, MUI, for Core i5 (without USB flash drive, restore image, D&D) Windows 10 IoT Enterprise LTSC 2021, 64-bit, MUI, for Core i5 (with USB flash drive, restore image, D&D) Windows 10 IoT Enterprise LTSC 2021, 64-bit, MUI, for Core i7, for Core i9 (without USB flash drive, restore image, D&D) Windows 10 IoT Enterprise LTSC 2021, 64-bit, MUI, for Core i7, for Core i9 (with USB flash drive, restore image, D&D) Industrial Edge -SIMATIC No basic unit, no software 	A B C D E F W X
<u>Expandability of the basic unit (expansion module):</u>	
<ul style="list-style-type: none"> EM2: PCIe x 16 gen4 + graphics card NVIDIA L4 and PCIe x 4 EM2: PCIe x 16 + graphics card NVIDIA L4 and PCIe x 4 + 1 dual-port 10 GB fiber card; with 1 SFP+ transceiver No expansion module 	B N X
<u>Additional memory in the expansion module:</u>	
<ul style="list-style-type: none"> Expansion module without memory No expansion module, no EM memory 	0 7

1) For an up-to-date overview, see the SIMATIC PC online configurator at: <http://www.siemens.com/ipc-configurators>

2) TPM = Trusted Platform Module

Note:

Please assemble the required IPC configuration using the TIA Selection Tool or configurator in the SiePortal in order to ensure availability; we do not accept any liability for configurations compiled by users themselves.

Accessories	
Memory expansion	
<ul style="list-style-type: none"> 8 GB DDR5 4800 SDRAM, SO-DIMM 16 GB DDR5 4800 SDRAM, SO-DIMM 32 GB DDR5 4800 SDRAM, SO-DIMM 	6ES7648-2AN70-0SA0 6ES7648-2AN80-0SA0 6ES7648-2AN81-0SA0
Mounting kit for portrait or wall mounting	
<ul style="list-style-type: none"> Interface outlet to the right 	6ES7648-1AA10-3YB0

Technical specifications

Article number	6AG4133-0....-.... SIMATIC IPC BX-59A (Box PC)
General information	
Product type designation	BX-59A
Installation type/mounting	
Mounting	Wall mounting, book mounting, desk mounting, tower mounting
Design	Box PC, built-in unit
Supply voltage	
Type of supply voltage	400 W / 24 V / 19.2 - 28.8 VDC; 220 W / 12-24 V / 9 - 36 VDC
Rated value (DC)	24 V; 12...24 V DC on 220 W
Rated value (AC)	240 V
Line frequency	
<ul style="list-style-type: none"> Rated value 50 Hz Rated value 60 Hz 	Yes Yes
Mains buffering	
<ul style="list-style-type: none"> Mains/voltage failure stored energy time 	20 ms
Processor	
Processor type	Core i9-13900E 24C (8P+16E)/32T, 1.8 (5.2) GHz, 36 MB cache; Core i7-13700E 16C (8P+8E)/24T, 1.9 (5.1) GHz, 30 MB cache; Core i7-13700TE 16C (8P+8E)/24T, 1.1 (4.8) GHz, 30 MB cache; Core i5-13500E 14C (6P+8E)/20T, 2.4 (4.6) GHz, 24 MB cache
Chipset	Intel R680E
Graphic	
Graphics controller	Intel UHD Graphics 770 (Core i5, Core i7, Core i9)
Graphics card	Yes; Optional
Drives	
SSD	Yes; base module: 480 GB 2.5" SATA SSD (PLP); 960 GB 2.5" SATA SSD (PLP); 512 GB 2.5" SATA SSD; 1 TB 2.5" SATA SSD; 512 GB M.2 NVME onboard SSD; 1 TB M.2 NVME onboard SSD; 512 GB M.2 NVME onboard SSD with 1* 512 GB M.2 NVME on 1 exchangeable SSD slider; 512 GB M.2 NVME onboard SSD with 1* 1 TB M.2 NVME on 1 exchangeable SSD slider; RAID1 2* 512 GB M.2 NVME on 2 exchangeable SSD slider; RAID1 2* 1 TB M.2 NVME on 2 exchangeable SSD slider; 512 GB M.2 NVME onboard SSD with RAID1 2* 512 GB M.2 NVME on 2 exchangeable SSD slider
Memory	
Type of memory	DDR5-4800 SO-DIMM
Main memory	8 / 16 / 32 / 64 GB; ECC optional
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	512 kbyte; 128 KB can be stored in the buffer time

Industrial Computing

Box PC

SIMATIC IPC BX-59A

Technical specifications

Article number	6AG4133-0....-..... SIMATIC IPC BX-59A (Box PC)
Interfaces	
Number of industrial Ethernet interfaces	4; 4x Gigabit Ethernet (RJ45)
USB port	1x USB 3.2 Gen2 10G Type C, 6x USB 3.2 Gen 2 10G Type A
Connection for keyboard/mouse serial interface version	USB / USB 2x / 4x (optional) COM (RS 232 / 485 / 422; selectable)
Multimedia	
• Audio In/Out	Yes
Video interfaces	
• Graphics interface	2x DisplayPort
Industrial Ethernet	
• Industrial Ethernet interface	4x Gigabit Ethernet (RJ45)
- 100 Mbps	Yes
- 1000 Mbps	Yes
Integrated Functions	
Monitoring functions	
• Temperature monitoring	Yes
• Watchdog	Yes
• Fan	Yes
• Monitoring function via network	Optional
EMC	
Interference immunity against discharge of static electricity	
• Interference immunity against discharge of static electricity	±6 kV contact; ±8 kV air (to IEC 1000-4-2; ESD)
Interference immunity against high-frequency electromagnetic fields	
• Interference immunity against high frequency radiation	10 V/m, 80 MHz to 2 700 MHz, 80 % AM acc. to IEC 61000-4-3; 3 V/m, 2.7 GHz to 6 GHz, 80 % AM acc. to IEC 61000-4-3; 10 V, 10 kHz to 80 MHz, 80 % AM acc. to IEC 61000-4-6
Interference immunity to cable-borne interference	
• Interference immunity on supply cables	±2 kV (according to IEC 61000-4-4, burst); ±1 kV (according to IEC 61000-4-5, surge pulse/line to line); ±2 kV (according to IEC 61000-4-5, surge pulse/line to ground)
• Interference immunity on signal cables > 30m	burst: ±2 kV (5 kHz / 100 kHz) in accordance with IEC 61000-4-4; length of signal port extension cable ≥ 30 m; surge: ±2 kV line-to-earth in accordance with IEC 61000-4-5; length of signal port extension cable ≥ 10 m
• Interference immunity on signal cables < 30m	burst: ±1 kV (5 kHz / 100 kHz) in accordance with IEC 61000-4-4; length of signal port extension cable < 30 m; surge: ±2 kV line-to-earth in accordance with IEC 61000-4-5; length of signal port extension cable ≥ 10 m

Article number	6AG4133-0....-..... SIMATIC IPC BX-59A (Box PC)
Interference immunity to magnetic fields	
• Interference immunity to magnetic fields at 50 Hz	100 A/m; to IEC 61000-4-8
Emission of conducted and non-conducted interference	
• Interference emission via line/AC current cables	EN 61000-6-3, EN 61000-6-4, CISPR 22 Class B, FCC Class A
Compliance with line harmonic distortion limits	
• Compliance with line harmonic distortion acc. to IEC 61000-3-2, IEC 61000-3-3	Yes; EN 61000-3-2 Class D; EN 61000-3-3
Standards, approvals, certificates	
CE mark	Yes; also UKCA
cULus	Yes
RCM (formerly C-TICK)	Yes
FCC	Yes
BIS	Yes
EMC	EMC EN 61000-6-1, EN IEC 61000-6-1, EN 61000-6-2, EN IEC 61000-6-3, EN IEC 61000-6-4
Ambient conditions	
Ambient temperature during operation	
• min.	0 °C
• max.	55 °C; base module only: 40 °C at fanless and 2.5" non power loss protection SSD configuration; 50 °C at fanless and M.2 SSD configuration; with extension module: 40 °C
Operating systems	
pre-installed operating system	Windows 10 Enterprise 2021 LTSC 64-bit, MUI
without operating system	Yes; Optional
Software	
SIMATIC Software	optionally with pre-installed Industrial Edge - SIMATIC
Dimensions	
Width	79 mm
Height	194 mm
Depth	237 mm

More information

More information is available on the internet at

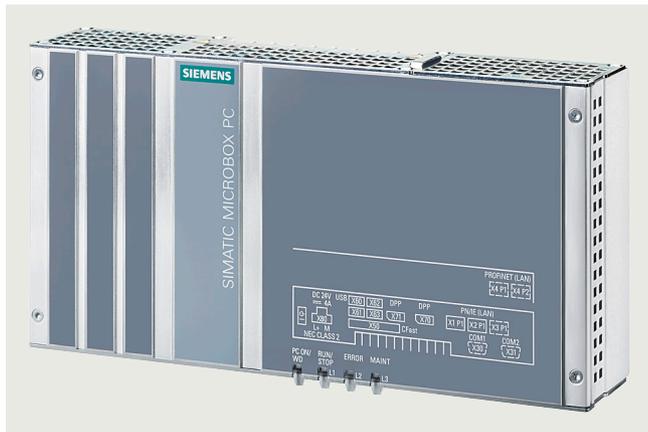
<https://www.siemens.com/simatic-box-pc>

Industrial Computing

Box PC

SIMATIC IPC427E

Overview



SIMATIC IPC427E (Microbox PC): The powerful embedded IPC – maintenance-free with versatile configuration

Ready-to-run, complete solution:

- Ultra-compact
- Maintenance-free
- 6th Generation Intel Core i technology

Ordering data

Article No.

SIMATIC IPC427E (Box PC) ¹⁾		6AG4141-	
<u>Processor and fieldbus</u>			
• Celeron G3902E; 2 x Gigabit Ethernet (IE/PN)			0
• Celeron G3902E; 3 x Gigabit Ethernet (IE/PN)			1
• Core i3-6102E; 3 x Gigabit Ethernet (IE/PN)			3
• Core i5-6442EQ; 3 x Gigabit Ethernet (IE/PN)			5
• Xeon E3-1505L; 3 x Gigabit Ethernet (IE/PN)			7
<u>Mounting accessories/ATEX</u>			
• Without mounting accessories			A
• DIN rail mounting			B
• Wall mounting			C
• Portrait mounting			D
• DIN rail mounting with ATEX/IECEX/UL HazLoc			F
• Wall mounting with ATEX/IECEX/UL HazLoc			G
• Portrait mounting with ATEX/IECEX/UL HazLoc			H
<u>Work memory/NVRAM/ECC</u>			
• 4 GB			A
• 8 GB			B
• 16 GB			C
• 8 GB with ECC			D
• 16 GB with ECC			E
• 4 GB and NVRAM			F
• 8 GB and NVRAM			G
• 16 GB and NVRAM			H
• 8 GB with ECC and NVRAM			J
• 16 GB with ECC and NVRAM			K
<u>Expansions/interfaces</u>			
• No RS232/RS485, without PCIe			0
• No RS232/RS485 and one PCIe			1
• No RS232/RS485 and two PCIe			2
• Two RS232/RS485, without PCIe			3
• Two RS232/RS485 and one PCIe			4
• Two RS232/RS485 and two PCIe			5
• Two RS232/RS485 and two PCIe (x4 and x1), PCI x4 occupied with AI Accelerator			6
<u>Operating system</u>			
• Without operating system			0
• Windows Embedded Standard 7 SP1, English, 32-bit			1
• Windows Embedded Standard 7 SP1, English, 64-bit			2
• Windows Embedded Standard 7 SP1, English, 64-bit, multi-touch			3
• Windows 7 Ultimate SP1, 64-bit, MUI (en, de, fr, it, es)			4
• Windows 10 IoT Enterprise 2019 LTSC (64-bit) for Celeron, Core i3 and Core i5 processors			5
• Windows 10 IoT Enterprise 2019 LTSC (64-bit) for Xeon processor			6
• Windows 10 Enterprise 2016 LTSC (64-bit) for Celeron, Core i3 and Core i5 processors			7
• Windows 10 Enterprise 2016 LTSC (64-bit) for Xeon processor			8

Industrial Computing

Box PC

SIMATIC IPC427E

Technical specifications

Article number	6AG4141-.....-.... SIMATIC IPC427E (MicroBOX PC)
General information	
Product type designation	IPC427E
Installation type/mounting	
Mounting	DIN rail, wall mounting, portrait mounting
Design	Box PC, built-in unit
Supply voltage	
Type of supply voltage	24 V DC
Rated value (DC)	24 V; PELV / SELV floating
Mains buffering	
• Mains/voltage failure stored energy time	20 ms
Processor	
Processor type	Celeron G3902 (2C/2T, 1.6 GHz, 2 MB Cache); Core i3-6102E (2C/4T, 1.9 GHz, 3 MB Cache); Core i5-6442EQ (4C/4T, 1.9 (2.7) GHz, 6 MB Cache, iAMT); Xeon E3-1505L v5 (4C/8T, 2.0 (2.8) GHz, 8 MB Cache, iAMT)
Chipset	Intel C236 / Intel H110
Graphic	
Graphics controller	Intel HD graphics controller
Drives	
Hard disk	2.5" SATA ≥ 320 GB
SSD	Yes; 128 / 240 / 480 GB
Memory	
Type of memory	DDR4-2400 SO-DIMM
Main memory	4 / 8 / 16 GB, ECC optional
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	512 kbyte; 128 KB can be stored in the buffer time; optional
Hardware configuration	
Slots	
• free slots	2x PCIe; optional: 1x PCIe (x4); 2x PCIe (x1, x4), with card retainer
Interfaces	
Number of industrial Ethernet interfaces	3; Ethernet (2x RJ45, optional 3x RJ45)
USB port	4x USB 3.0
Connection for keyboard/mouse serial interface version	USB / USB Without / 2x COM (RS 232 / 485 / 422; switchable)
Video interfaces	
• Graphics interface	2x DisplayPort
Industrial Ethernet	
• Industrial Ethernet interface	3x Ethernet (RJ45)
- 100 Mbps	Yes
- 1000 Mbps	Yes
Interrupts/diagnostics/status information	
LED status display	1x power, 3x user
Integrated Functions	
Monitoring functions	
• Temperature monitoring	Yes
• Watchdog	Yes
• Fan	No
• Monitoring function via network	Optional

Article number	6AG4141-.....-.... SIMATIC IPC427E (MicroBOX PC)
EMC	
Interference immunity against discharge of static electricity	
• Interference immunity against discharge of static electricity	±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2
Interference immunity against high-frequency electromagnetic fields	
• Interference immunity against high frequency radiation	10 V/m for 80 - 1 000 MHz and 1.4 - 2 GHz, 80% AM acc. to IEC 61000-4-3; 3 V/m for 2 - 2.7 GHz, 80% AM acc. to IEC 61000-4-3; 10 V for 10 kHz - 80 MHz, 80% AM acc. to IEC 61000-4-6
Interference immunity to cable-borne interference	
• Interference immunity on supply cables	±2 kV acc. to IEC 61000-4-4, burst; ±1 kV acc. to IEC 61000-4-5, surge symmetric; ±2 kV acc. to IEC 61000-4-5, surge asymmetric
• Interference immunity on signal cables > 30m	±2 kV acc. to IEC 61000-4-5, surge, length > 30 m
• Interference immunity on signal cables < 30m	±1 kV acc. to IEC 61000-4-4; burst; length < 3 m; ±2 kV acc. to IEC 61000-4-4; burst; length > 3 m
Interference immunity against voltage surge	
• asymmetric interference	±2 kV acc. to IEC 61000-4-5, surge asymmetric
• symmetric interference	±1 kV acc. to IEC 61000-4-5, surge symmetric
Interference immunity to magnetic fields	
• Interference immunity to magnetic fields at 50 Hz	100 A/m; to IEC 61000-4-8
Emission of conducted and non-conducted interference	
• Interference emission via line/AC current cables	EN 61000-6-3, EN 61000-6-4, CISPR 22 Class B, FCC Class A
Degree and class of protection	
IP degree of protection	IP20
Standards, approvals, certificates	
CE mark	Yes
UL approval	Yes
• UL 508	Yes
cULus	Yes
RCM (formerly C-TICK)	Yes
KC approval	Yes
EAC (formerly Gost-R)	Yes
FCC	Yes
EMC	CE, EN 55022A, EN 61000-6-4, EN 61000-6-2
Use in hazardous areas	
• ATEX Zone 2	Yes; for inscription on device rating plate
• ATEX Zone 22	No
• IECEx Zone 2	Yes; for inscription on device rating plate
• IECEx Zone 22	No
• CCC Ex	Yes; for inscription on device rating plate
• cULus Class I Zone 2, Division 2	Yes; for inscription on device rating plate
• cULus Class II Division 2	No
• FM Class I Division 2	No
• FM Class II Division 2	No

Industrial Computing

Box PC

SIMATIC IPC427E

Technical specifications

Article number	6AG4141-.....-.... SIMATIC IPC427E (MicroBOX PC)
Marine approval	
• Germanischer Lloyd (GL)	Yes
• American Bureau of Shipping (ABS)	Yes
• Bureau Veritas (BV)	Yes
• Det Norske Veritas (DNV)	Yes
• Korean Register of Shipping (KRS)	Yes
• Lloyds Register of Shipping (LRS)	Yes
• Nippon Kaiji Kyokai (Class NK)	Yes
Ambient conditions	
Ambient temperature during operation	
• min.	0 °C
• max.	55 °C
Relative humidity	
• Relative humidity	Tested according to IEC 60068-2-78, IEC 60068-2-30: Operation: 5% to 80% at 25 °C (no condensation), Storage: 5% to 95% at 25 °C (no condensation)
Vibrations	
• Vibration resistance during operation acc. to IEC 60068-2-6	tested to DIN IEC 60068-2-6: 10 Hz to 58 Hz: 0.075 mm, 58 Hz to 200 Hz: 9.8 m/s ² (1 g)
Shock testing	
• Shock load during operation	Tested to DIN IEC 60068-2-29: 50 m/s ² (5 g), 30 ms, 100 shocks

Article number	6AG4141-.....-.... SIMATIC IPC427E (MicroBOX PC)
Operating systems	
pre-installed operating system	Windows 7 Ultimate (Multi-Language) 64-bit, Windows Embedded Standard 7 E/P 32-bit / 64-bit, Windows 10
without operating system	Yes; Optional
Software	
Pre-installed software	Edge SW (Simatic, Sinumerik), optional
SIMATIC Software	Optionally with pre-installed SIMATIC WinCC RT Advanced / Software Controller CPU 1500S software bundle
Dimensions	
Width	262 mm
Height	139.7 mm
Depth	55.5 mm; without PCIe

Industrial Computing

Box PC

SIMATIC IPC427E

Technical specifications

Article number	6AG4141-1AA14-0FA0	6AG4141-1AA17-0FA0	6AG4141-5AB14-0FA0	6AG4141-5AB17-0FA0	6AG4141-5BC30-0FW8
	SIMATIC IPC427E (MicroBOX PC)	SIMATIC IPC427E (MicroBOX PC)	SIMATIC IPC427E (MicroBOX PC)	SIMATIC IPC427E (MicroBOX PC)	SIMATIC IPC427E (MicroBOX PC)
General information					
Product type designation	IPC427E	IPC427E	IPC427E	IPC427E	IPC427E
Installation type/mounting					
Mounting Design					standard rail Box PC, built-in unit
Supply voltage					
Type of supply voltage	24 V DC	24 V DC	24 V DC	24 V DC	24 V DC
Mains buffering					
• Mains/voltage failure stored energy time					20 ms
Processor					
Processor type	Celeron G3902E	Celeron G3902E	Core i5-6442EQ (4C/4T, 1.9 (2.7) GHz, 6 MB cache)	Core i5-6442EQ (4C/4T, 1.9 (2.7) GHz, 6 MB cache)	Core i5-6442EQ (4C/4T, 1.9 (2.7) GHz, 6 MB cache)
Chipset					Intel C236 / Intel H110
Graphic					
Graphics controller					Intel HD graphics controller
Graphics card	Yes	Yes	Yes	Yes	
Drives					
SSD					Yes; ≥ 240 GB optional
Memory					
Type of memory					DDR4-2400 SO-DIMM
Interfaces					
Number of industrial Ethernet interfaces	3	3	3	3	3; Ethernet (2x RJ45, optional 3x RJ45)
Number of PROFINET interfaces	3	3	3	3	
USB port					4x USB 3.0
Connection for keyboard/mouse serial interface version					USB / USB 2x COM (1x RS 232; 1x RS 232 / 422 / 485)
Video interfaces					
• Graphics interface					2x DisplayPort
Industrial Ethernet					
• Industrial Ethernet interface					3x Ethernet (RJ45)
- 100 Mbps					Yes
- 1000 Mbps					Yes
Interrupts/diagnostics/status information					
LED status display					1x power, 3x user
Integrated Functions					
Monitoring functions					
• Temperature monitoring					Yes
• Watchdog					Yes
• Fan					No
• Monitoring function via network					Optional

Industrial Computing

Box PC

SIMATIC IPC427E

Technical specifications

Article number	6AG4141-1AA14-0FA0	6AG4141-1AA17-0FA0	6AG4141-5AB14-0FA0	6AG4141-5AB17-0FA0	6AG4141-5BC30-0FW8
	SIMATIC IPC427E (MicroBOX PC)				
EMC					
Interference immunity against discharge of static electricity <ul style="list-style-type: none"> Interference immunity against discharge of static electricity 					±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2
Interference immunity against high-frequency electromagnetic fields <ul style="list-style-type: none"> Interference immunity against high frequency radiation 					10 V/m for 80 - 1 000 MHz and 1.4 - 2 GHz, 80% AM acc. to IEC 61000-4-3; 3 V/m for 2 - 2.7 GHz, 80% AM acc. to IEC 61000-4-3; 10 V for 10 kHz - 80 MHz, 80% AM acc. to IEC 61000-4-6
Interference immunity to cable-borne interference <ul style="list-style-type: none"> Interference immunity on supply cables Interference immunity on signal cables > 30m Interference immunity on signal cables < 30m 					±2 kV acc. to IEC 61000-4-4, burst; ±1 kV acc. to IEC 61000-4-5, surge symmetric; ±2 kV acc. to IEC 61000-4-5, surge asymmetric ±2 kV acc. to IEC 61000-4-5, surge, length > 30 m ±1 kV acc. to IEC 61000-4-4; burst; length < 3 m; ±2 kV acc. to IEC 61000-4-4; burst; length > 3 m
Interference immunity against voltage surge <ul style="list-style-type: none"> asymmetric interference symmetric interference 					±2 kV acc. to IEC 61000-4-5, surge asymmetric ±1 kV acc. to IEC 61000-4-5, surge symmetric
Interference immunity to magnetic fields <ul style="list-style-type: none"> Interference immunity to magnetic fields at 50 Hz 					100 A/m; to IEC 61000-4-8
Emission of conducted and non-conducted interference <ul style="list-style-type: none"> Interference emission via line/AC current cables 					EN 61000-6-3, EN 61000-6-4, CISPR 22 Class B, FCC Class A
Degree and class of protection					
IP degree of protection	IP20	IP20	IP20	IP20	IP20
Standards, approvals, certificates					
CE mark					Yes
UL approval					Yes
• UL 508					Yes
cULus					Yes
RCM (formerly C-TICK)					Yes
KC approval					Yes
EAC (formerly Gost-R)					Yes
FCC					Yes
EMC					CE, EN 55022A, EN 61000-6-4, EN 61000-6-2

Industrial Computing

Box PC

SIMATIC IPC427E

Technical specifications

Article number	6AG4141-1AA14-0FA0	6AG4141-1AA17-0FA0	6AG4141-5AB14-0FA0	6AG4141-5AB17-0FA0	6AG4141-5BC30-0FW8
	SIMATIC IPC427E (MicroBOX PC)	SIMATIC IPC427E (MicroBOX PC)	SIMATIC IPC427E (MicroBOX PC)	SIMATIC IPC427E (MicroBOX PC)	SIMATIC IPC427E (MicroBOX PC)
Use in hazardous areas					
<ul style="list-style-type: none"> • ATEX Zone 2 • IECEx Zone 2 • cULus Class I Zone 2, Division 2 					Yes; Optional Yes; Optional Yes; Optional
Marine approval					
<ul style="list-style-type: none"> • Germanischer Lloyd (GL) • American Bureau of Shipping (ABS) • Bureau Veritas (BV) • Det Norske Veritas (DNV) • Korean Register of Shipping (KRS) • Lloyds Register of Shipping (LRS) • Nippon Kaiji Kyokai (Class NK) 					Yes Yes Yes Yes Yes Yes Yes
Ambient conditions					
Ambient temperature during operation					
<ul style="list-style-type: none"> • min. • max. 	0 °C 45 °C	0 °C 45 °C	0 °C 45 °C	0 °C 45 °C	0 °C 55 °C
Relative humidity					
<ul style="list-style-type: none"> • Relative humidity 					Tested according to IEC 60068-2-78, IEC 60068-2-30: Operation: 5% to 80% at 25 °C (no condensation), Storage: 5% to 95% at 25 °C (no condensation)
Vibrations					
<ul style="list-style-type: none"> • Vibration resistance during operation acc. to IEC 60068-2-6 					tested to DIN IEC 60068-2-6: 10 Hz to 58 Hz: 0.075 mm, 58 Hz to 200 Hz: 9.8 m/s ² (1 g)
Shock testing					
<ul style="list-style-type: none"> • Shock load during operation 					Tested to DIN IEC 60068-2-29: 50 m/s ² (5 g), 30 ms, 100 shocks
Operating systems					
pre-installed operating system	Windows 7 Ultimate (Multi-Language) 64-bit	Windows 10 IoT Enterprise 2016 LTSP, 64bit, MUI	Windows 7 Ultimate (Multi-Language) 64-bit	Windows 10 IoT Enterprise 2016 LTSP, 64bit, MUI	SIMATIC Industrial OS
Software					
SIMATIC Software					Industrial Edge - SIMATIC
Dimensions					
Width	262 mm	262 mm	262 mm	262 mm	262 mm
Height	133 mm	133 mm	133 mm	133 mm	139.7 mm
Depth	55.5 mm	55.5 mm	55.5 mm	55.5 mm	55.5 mm; without PCIe

More information

More information is available on the internet at

<https://www.siemens.com/simatic-box-pc>.

Industrial Computing

Box PC

SIMATIC IPC520A

Overview



Based on Nvidia Xavier Nx technology, the SIMATIC IPC520A Box PC represents a new IPC platform that has been specially developed for AI-based applications in industry and industrial environments.

The Box PC is characterized above all by the high CPU and GPU computing power in combination with an extremely compact, fanless design for industry. Adapted especially for industrial applications, it features a large number of interfaces. Nvidia's extensive range of software enables numerous AI-based applications.

Ordering data

Article No.

SIMATIC IPC520A Tensorbox

Nvidia ARM Carmel (6C);
8GB RAM, Jetson NX;
4x Ethernet RJ45, 3x USB3.0;
16 GB eMMC;
without mounting accessories

6ES7647-0JB00-0YA2

Nvidia ARM Carmel (6C);
8 GB RAM, Jetson NX;
4x Ethernet RJ45, 3x USB3.0;
16 GB eMMC, 256 GB SSD;
with preinstalled operating system
Industrial OS

6ES7647-0JB02-1YA2

Technical specifications

Article number	6ES7647-0JB00-0YA2 SIMATIC IPC520A
General information	
Product type designation	IPC520A
Installation type/mounting	
Mounting	rail mounting, wall mounting, desk mounting
Design	Box PC, built-in unit
Supply voltage	
Type of supply voltage	24 V DC
Mains buffering	
• Mains/voltage failure stored energy time	5 ms
Processor	
Processor type	NVIDIA Carmel ARM ® v8.2 64-bit CPU, 2x @ 1.5 GHz, 4x @ 1.2 GHz
Graphic	
Graphics controller	384-core NVIDIA Volta™ GPU with 48 Tensor Cores @ 800 MHz
Drives	
SSD	Yes; 16 GB eMMC
Memory	
Type of memory	LPDDR4
Main memory	8 GB RAM
Hardware configuration	
Slots	
• free slots	1x nano SIM card slot
Digital inputs	
Number of digital inputs	4
Input voltage	
• Type of input voltage	24 V DC
• for signal "0"	< 5 V DC
• for signal "1"	> 12 V DC
Input current	
• for signal "0", max. (permissible quiescent current)	1 mA
• for signal "1", typ.	2.5 mA

Industrial Computing

Box PC

SIMATIC IPC520A

Technical specifications

Article number	6ES7647-0JB00-0YA2 SIMATIC IPC520A
Digital outputs	
Type of digital output	transistor
Number of digital outputs	2
Short-circuit protection	No
Output voltage	
• Type of output voltage	DC
• permissible voltage at output, min.	20.4 V
• permissible voltage at output, max.	28.8 V
Output current	
• for signal "*" rated value	0.5 A
Switching frequency	
• with resistive load, max.	10 Hz
• with inductive load, max.	0.5 Hz
• mechanical, max.	10 Hz
Interfaces	
Number of industrial Ethernet interfaces	4; 4x RJ45 (2x support PoE PSE IEEE 802.3af 15 W)
USB port	3x USB 3.0, 1x USB 2.0
Connection for keyboard/mouse serial interface version	USB / USB 1x COM (1x RS 232 / 422 / 485)
Video interfaces	
• Graphics interface	1x DisplayPort
Industrial Ethernet	
• Industrial Ethernet interface	4x Ethernet (RJ45)
- 100 Mbps	Yes
- 1000 Mbps	Yes
Protocols	
Protocols (Ethernet)	
• TCP/IP	Yes
Interrupts/diagnostics/status information	
LED status display	1x Power, 1x User, 6x DIO
Integrated Functions	
Monitoring functions	
• Temperature monitoring	Yes
• Watchdog	Yes
• Fan	No
EMC	
Interference immunity against discharge of static electricity	
• Interference immunity against discharge of static electricity	±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2
Interference immunity against high-frequency electromagnetic fields	
• Interference immunity against high frequency radiation	10 V/m for 80 - 1 000 MHz and 1.4 - 2 GHz, 80% AM acc. to IEC 61000-4-3; 3 V/m for 2 - 2.7 GHz, 80% AM acc. to IEC 61000-4-3; 10 V for 10 kHz - 80 MHz, 80% AM acc. to IEC 61000-4-6

Article number	6ES7647-0JB00-0YA2 SIMATIC IPC520A
Interference immunity to cable-borne interference	
• Interference immunity on supply cables	±2 kV (according to IEC 61000-4-4, burst); ±1 kV (according to IEC 61000-4-5, surge pulse/line to line); ±2 kV (according to IEC 61000-4-5, surge pulse/line to ground)
• Interference immunity on signal cables > 30m	±2 kV acc. to IEC 61000-4-4, burst; ±2 kV acc. to IEC 61000-4-5, surge
• Interference immunity on signal cables < 30m	±1 kV (5 kHz/100 kHz) acc. to IEC 61000-4-4; burst; length < 30 m; ±2 kV (5 kHz/100 kHz) acc. to IEC 61000-4-4; burst; length > 30 m
Interference immunity to magnetic fields	
• Interference immunity to magnetic fields at 50 Hz	100 A/m; to IEC 61000-4-8
Emission of conducted and non-conducted interference	
• Interference emission via line/AC current cables	EN 61000-6-4:2007 +A1:2011 (industrial environments), EN 61000-6-3:2007 +A1:2011 (residential environments), CISPR 22 Class B, FCC Class A
Degree and class of protection	
IP degree of protection	IP20
Standards, approvals, certificates	
CE mark	Yes
CSA approval	No; in preparation
UL approval	Yes; UL 61010-2-201, UL 61010-1
cULus	Yes; UL 61010-1, UL 61010-2-201
FM approval	in preparation
RCM (formerly C-TICK)	Yes; C-Tick
KC approval	Yes; Reg. No.:R-R-S53-IPC520A
EAC (formerly Gost-R)	Yes; EAC
FCC	Yes
BSMI	in preparation
Ambient conditions	
Ambient temperature during operation	
• min.	0 °C
• max.	45 °C
Relative humidity	
• Relative humidity	5 ... 85 % at 30 °C, no condensation
Vibrations	
• Vibration resistance during operation acc. to IEC 60068-2-6	Tested according to IEC 60068-2-6: 5 Hz to 8.4 Hz: 3.5 mm, 8.4 Hz to 500 Hz: 9.8 m/s ²
Shock testing	
• Shock load during operation	Tested according to IEC 60068-2-27: 150 m/s ² , 11 ms
Operating systems	
pre-installed operating system	No
Dimensions	
Width	234 mm
Height	129 mm
Depth	71 mm

More information

More information is available on the internet at
<https://www.siemens.com/simatic-box-pc>.

Industrial Computing

Box PC

SIMATIC IPC527G

Overview



The SIMATIC IPC527G Box PC is a new product in the SIMATIC Industrial PC portfolio, which is characterized by high performance and flexibility at an extremely attractive price.

Powerful processors (Intel Core i Desktop CPUs), numerous interfaces, and the support of existing systems make the SIMATIC IPC527G a robust and low-cost platform for a wide range of industrial applications.

Ordering data

Article No.

Ordering data	Article No.
SIMATIC IPC527G	6AG4025- 0 ■ ■ ■ 0 - ■ ■ ■ 0
All-metal enclosure for high EMC and mechanical ruggedness, flexible installation: Desktop, wall, portrait and tower mounting, opening of the enclosure cover for expansion and replacement of PC components (e.g. PC cards or HDD) without a tool, dust protection through overpressure ventilation, front LEDs: POWER, HDD	
<u>Processor</u>	
<ul style="list-style-type: none"> Pentium G4400 ((2C/2T) 3.3 GHz, 3 MB cache) 	A
<ul style="list-style-type: none"> Core i5-6500 ((4C/4T) 3.2 (3.6) GHz, 6 MB cache) 	C
<ul style="list-style-type: none"> Core i7-6700 ((4C/4T) 3.4 (4.0) GHz, 8 MB cache) 	D
<u>Drives</u>	
<ul style="list-style-type: none"> 1 TB HDD 	B
<ul style="list-style-type: none"> 256 GB SSD 	E
<ul style="list-style-type: none"> 512 GB SSD 	F
<ul style="list-style-type: none"> Without drive, prepared for 1x 2.5" SATA 	L
<u>Work memory</u>	
<ul style="list-style-type: none"> 4 GB DDR4 RAM 	1
<ul style="list-style-type: none"> 8 GB DDR4 RAM 	2
<ul style="list-style-type: none"> 16 GB DDR4 RAM 	3
<u>Operating system</u>	
<ul style="list-style-type: none"> Without operating system 	0
<ul style="list-style-type: none"> Windows Ultimate SP1, 32-bit MUI (en, de, fr, es, it) 	1
<ul style="list-style-type: none"> Windows Ultimate SP1, 64-bit MUI (en, de, fr, es, it) 	2
<ul style="list-style-type: none"> Windows 10 Enterprise LTSC 2016, 64-bit MUI (en, de, fr, es, it) for Pentium, Core i5 	3
<ul style="list-style-type: none"> Windows 10 Enterprise LTSC 2016, 64-bit MUI (en, de, fr, es, it) for Pentium Core i7 	4
<ul style="list-style-type: none"> Windows 10 Enterprise LTSC 2019, 64-bit MUI (de, en, fr, sp, it) for Pentium, Core i5 	5
<ul style="list-style-type: none"> Windows 10 Enterprise LTSC 2019, 64-bit, MUI (de, en, fr, it, es) for Core i7 	6
<u>Expansion</u>	
<ul style="list-style-type: none"> 1x PCIe x16 	A
<ul style="list-style-type: none"> 1x PCIe x16; 1x PCIe x1; 2x PCI 	B
<ul style="list-style-type: none"> 1x PCIe x 16; 1x PCIe x4, 2x PCIe x1 	C
<u>Specific expansions:</u>	
<ul style="list-style-type: none"> None 	A
<ul style="list-style-type: none"> 2x RS232, 2x USB2.0 additionally 	B
<ul style="list-style-type: none"> 1x Gbit LAN additionally (1 PCIe slot occupied) 	C
<ul style="list-style-type: none"> 1 x Gbit LAN (1x PCIe slot occupied) and 2x RS232; 2x USB2.0 additionally 	D

Note:

Please select the required IPC configuration via the TIA Selection Tool or configurator in the SiePortal in order to ensure availability; we do not accept any liability for configurations compiled by users themselves. The SIMATIC IPC online configurator offers a current overview at

<http://www.siemens.com/ipc-configurators>

Industrial Computing

Box PC

SIMATIC IPC527G

Ordering data

Article No.

SIMATIC IPC527G

All-metal enclosure for high EMC and mechanical ruggedness, flexible installation: Desktop, wall, portrait and tower mounting, opening of the enclosure cover for expansion and replacement of PC components (e.g. PC cards or HDD) without a tool, dust protection through overpressure ventilation, front LEDs: POWER, HDD; slots: 1 x PCIe x16, 1 x PCIe x1, 2 x PCI or 1 x PCIe x16, 1 x PCIe x4, 2 x PCIe x1 interfaces: 4 x USB 3.0, 3 x USB 2.0 (2 x front, 1 x internal), 2 x GB Ethernet, 2x RS232/485/422 selectable, 2x RS232, 1x 8-bit DIO, 1x DP, 1x VGA, audio

- Intel Pentium G4400, 4 GB RAM, 1 TB HDD mass storage
- Intel Core i5-6500, 8 GB RAM, 1 TB HDD mass storage
- Intel Core i5-6500, 8 GB RAM, 1 TB HDD mass storage, Windows 7 Ultimate
- Intel Core i5-6500, 8 GB RAM, 256 GB SSD mass storage, Windows 7 Ultimate
- Intel Core i5-6500, 8 GB RAM, 256 GB SSD mass storage, Windows 10 Enterprise LTSB 2016
- Intel Core i7-6700, 8 GB RAM, 512 GB SSD mass storage, Windows 7 Ultimate
- Intel Core i7-6700, 8 GB RAM, 512 GB SSD mass storage, Windows 10 Enterprise LTSB 2016
- Intel Core i5-6500, 8 GB RAM, 256 GB SSD mass storage, Windows 10 Enterprise LTSB 2019
- Intel Core i7-6700, 8 GB RAM, 256 GB SSD mass storage, Windows 10 Enterprise LTSB 2019

6AG4025-0AB10-0BB0

6AG4025-0CB20-0BB0

6AG4025-0CB20-2BB0

6AG4025-0CE20-2BB0

6AG4025-0CE20-3BB0

6AG4025-0DF20-2BB0

6AG4025-0DF20-4BB0

6AG4025-0CE20-5CA0

6AG4025-0DE20-6CA0

Technical specifications

Article number	6AG4025-0...0-...0 SIMATIC IPC527G (Box PC)
General information	
Product type designation	IPC527G
Installation type/mounting	
Mounting	Wall mounting, portrait mounting, desktop mounting
Design	Box PC, built-in unit
Supply voltage	
Type of supply voltage	100/240V AC (autorange) 50/60 Hz
Line frequency	
• Rated value 50 Hz	Yes
• Rated value 60 Hz	Yes
Processor	
Processor type	Core i7-6700 (4C/8T, 3.4 (4.0) GHz, 8 MB cache); Core i5-6500 (4C/4T, 3.2 (3.6) GHz, 6 MB cache); Pentium G4400 (2C/2T, 3.3 GHz, 3 MB cache)
Chipset	Intel H110
Graphic	
Graphics controller	Onboard Intel HD graphics 530/510 integrated in processor
Drives	
Hard disk	1 TB HDD
SSD	Yes; Optional
Memory	
Type of memory	DDR4-2133 SO-DIMM
Main memory	4 / 8 / 16 GB, supports up to 32 GB
Hardware configuration	
Slots	
• free slots	1x PCIe (x16), optional 1x PCIe (x1), 2x PCI additionally

Industrial Computing

Box PC

SIMATIC IPC527G

Technical specifications

Article number	6AG4025-0...0-...0 SIMATIC IPC527G (Box PC)
Interfaces	
Number of industrial Ethernet interfaces	3; 3x Gigabit Ethernet (IE/PN), RJ45 optional; 2x Gigabit Ethernet (IE/PN), RJ45 basic configuration
Number of PROFINET interfaces	3; 2 ports base configuration, 3 ports optional
USB port	4x USB 3.0, 1x USB 2.0 internal, 2x USB 2.0 optional
Connection for keyboard/mouse serial interface version	USB / USB 2x RS 232 / 485 / 422 combined, 2x RS 232 optional
Multimedia	
• Audio In/Out	Yes
• Microphone In	Yes
Video interfaces	
• Graphics interface	1x DisplayPort, 1x VGA
Industrial Ethernet	
• Industrial Ethernet interface	2x Ethernet (RJ45), 1x Ethernet (RJ45) additional option
- 100 Mbps	Yes
- 1000 Mbps	Yes
Interrupts/diagnostics/status information	
LED status display	POWER, HDD
EMC	
Interference immunity against discharge of static electricity	
• Interference immunity against discharge of static electricity	±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2
Degree and class of protection	
IP (at the front)	IP20
IP (rear)	IP20

Article number	6AG4025-0...0-...0 SIMATIC IPC527G (Box PC)
Standards, approvals, certificates	
CE mark	Yes
CSA approval	Yes; No. 61010-1-12, No. 61010-2-201
UL approval	Yes
cULus	Yes; UL 61010-1, UL 61010-2-201
RCM (formerly C-TICK)	Yes
KC approval	Yes
EAC (formerly Gost-R)	Yes
FCC	Yes
Ambient conditions	
Ambient temperature during operation	
• min.	0 °C
• max.	45 °C
Relative humidity	
• Relative humidity	8 ... 85 % at 30 °C, no condensation
Vibrations	
• Vibration resistance during operation acc. to IEC 60068-2-6	tested according to IEC 60068-2-6: 10 Hz to 58 Hz: 0.0375 mm, 58 Hz to 200 Hz: 4.9 m/s ²
Shock testing	
• Shock load during operation	Tested in accordance with IEC 60068-2-27: With SSD: 150 m/s ² , 11 ms; with HDD: 9.8 m/s ² , 20 ms
Operating systems	
pre-installed operating system	Windows 7 Ultimate (Multi-Language) 32-bit / 64-bit; Windows 10 Enterprise 2016 LTSC
Additional info on operating system	Multi-Language User Interface (MUI): 5 languages (English, German, French, Spanish, Italian)
without operating system	Yes
Dimensions	
Width	260 mm
Height	135 mm
Depth	225 mm

Industrial Computing

Box PC

SIMATIC IPC527G

Technical specifications

Article number	6AG4025-0AB10-0BB0 SIMATIC IPC527G (Box PC)
General information	
Product type designation	IPC527G
Installation type/mounting	
Mounting	Wall mounting, portrait mounting, desktop mounting
Design	Box PC, built-in unit
Supply voltage	
Type of supply voltage	100/240V AC (autorange) 50/60 Hz
Line frequency	
• Rated value 50 Hz	Yes
• Rated value 60 Hz	Yes
Processor	
Processor type	Pentium G4400 (2C/2T, 3.3 GHz, 3 MB Cache)
Chipset	Intel H110
Graphic	
Graphics controller	Onboard Intel HD graphics 530/510 integrated in processor
Graphics card	Yes
Drives	
Hard disk	1 TB HDD
Memory	
Type of memory	DDR4-2666 SO-DIMM
Main memory	4 GB RAM
Hardware configuration	
Slots	
• free slots	1x PCIe (x16), 1x PCIe (x1), 2x PCI
Interfaces	
Number of industrial Ethernet interfaces	2; 2x Gigabit Ethernet (IE/PN), RJ45
Number of PROFINET interfaces	2
USB port	4x USB 3.0, 1x USB 2.0 internal, 2x USB 2.0 optional
Connection for keyboard/mouse serial interface version	USB / USB
Multimedia	2x RS 232 / 485 / 422, 2x RS 232
• Audio In/Out	Yes
• Microphone In	Yes
Video interfaces	
• Graphics interface	1x DisplayPort, 1x VGA
Industrial Ethernet	
• Industrial Ethernet interface	2x Ethernet (RJ45)
- 100 Mbps	Yes
- 1000 Mbps	Yes

Article number	6AG4025-0AB10-0BB0 SIMATIC IPC527G (Box PC)
Interrupts/diagnostics/status information	
LED status display	POWER, HDD
EMC	
Interference immunity against discharge of static electricity	
• Interference immunity against discharge of static electricity	±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2
Degree and class of protection	
IP degree of protection	IP20
IP (at the front)	IP20
IP (rear)	IP20
Standards, approvals, certificates	
CE mark	Yes
CSA approval	Yes; No. 61010-1-12, No. 61010-2-201
UL approval	Yes
cULus	Yes; UL 61010-1, UL 61010-2-201
RCM (formerly C-TICK)	Yes
KC approval	Yes
EAC (formerly Gost-R)	Yes
FCC	Yes
Ambient conditions	
Ambient temperature during operation	
• min.	0 °C
• max.	40 °C
Relative humidity	
• Relative humidity	8 ... 85 % at 30 °C, no condensation
Vibrations	
• Vibration resistance during operation acc. to IEC 60068-2-6	IEC 60068-2-6; 10 Hz to 58 Hz 0.015 mm; 58 Hz to 200Hz 1.96 m/s ²
Shock testing	
• Shock load during operation	Tested in accordance with IEC 60068-2-27: With SSD: 150 m/s ² , 11 ms; with HDD: 9.8 m/s ² , 20 ms
Operating systems	
pre-installed operating system	without operating system
without operating system	Yes
Dimensions	
Width	260 mm
Height	135 mm
Depth	225 mm

Industrial Computing

Box PC

SIMATIC IPC527G

Technical specifications

Article number	6AG4025-0CB20-0BB0 SIMATIC IPC527G (Box PC)	6AG4025-0CB20-2BB0 SIMATIC IPC527G (Box PC)	6AG4025-0CE20-2BB0 SIMATIC IPC527G (Box PC)	6AG4025-0CE20-3BB0 SIMATIC IPC527G (Box PC)	6AG4025-0CE20-5CA0 SIMATIC IPC527G (Box PC)
General information					
Product type designation	IPC527G	IPC527G	IPC527G	IPC527G	IPC527G
Installation type/mounting					
Mounting	Wall mounting, portrait mounting, desktop mounting	Wall mounting, portrait mounting, desktop mounting	Wall mounting, portrait mounting, desktop mounting	Wall mounting, portrait mounting, desktop mounting	Wall mounting, portrait mounting, desktop mounting
Design	Box PC, built-in unit				
Supply voltage					
Type of supply voltage	100/240V AC (autorange) 50/60 Hz				
Line frequency					
• Rated value 50 Hz	Yes	Yes	Yes	Yes	Yes
• Rated value 60 Hz	Yes	Yes	Yes	Yes	Yes
Processor					
Processor type	Core i5-6500 (4C/4T, 3.2 (3.6) GHz, 6 MB Cache)				
Chipset	Intel H110				
Graphic					
Graphics controller	Onboard Intel HD graphics 530/510 integrated in processor				
Graphics card	Yes	Yes	Yes	Yes	Yes
Drives					
Hard disk	1 TB HDD	1 TB HDD	1 TB HDD	1 TB HDD	
SSD					Yes; 256 GB SSD
Memory					
Type of memory	DDR4-2666 SO-DIMM				
Main memory	8 GB RAM				
Hardware configuration					
Slots					
• free slots	1x PCIe (x16), 1x PCIe (x1), 2x PCI	1x PCIe (x16), 1x PCIe (x4), 2x PCIe (x1)			
Interfaces					
Number of industrial Ethernet interfaces	2; 2x Gigabit Ethernet (IE/PN), RJ45				
Number of PROFINET interfaces	2	2	2	2	2
USB port	4x USB 3.0, 1x USB 2.0 internal, 2x USB 2.0 optional	4x USB 3.0, 1x USB 2.0 internal, 2x USB 2.0 optional	4x USB 3.0, 1x USB 2.0 internal, 2x USB 2.0 optional	4x USB 3.0, 1x USB 2.0 internal, 2x USB 2.0 optional	4x USB 3.0, 1x USB 2.0 internal, 2x USB 2.0 optional
Connection for keyboard/mouse serial interface version	USB / USB 2x RS 232 / 485 / 422, 2x RS 232	USB / USB 2x RS 232 / 485 / 422, 2x RS 232	USB / USB 2x RS 232 / 485 / 422, 2x RS 232	USB / USB 2x RS 232 / 485 / 422, 2x RS 232	USB / USB 2x RS 232 / 485 / 422, 2x RS 232
Multimedia					
• Audio In/Out	Yes	Yes	Yes	Yes	Yes
• Microphone In	Yes	Yes	Yes	Yes	Yes
Video interfaces					
• Graphics interface	1x DisplayPort, 1x VGA				
Industrial Ethernet					
• Industrial Ethernet interface	2x Ethernet (RJ45)	2x Ethernet (RJ45)	2x Ethernet (RJ45), 1x Ethernet (RJ45) additional option	2x Ethernet (RJ45), 1x Ethernet (RJ45) additional option	2x Ethernet (RJ45), 1x Ethernet (RJ45) additional option
- 100 Mbps	Yes	Yes	Yes	Yes	Yes
- 1000 Mbps	Yes	Yes	Yes	Yes	Yes

Industrial Computing

Box PC

SIMATIC IPC527G

Technical specifications

Article number	6AG4025-0CB20-0BB0 SIMATIC IPC527G (Box PC)	6AG4025-0CB20-2BB0 SIMATIC IPC527G (Box PC)	6AG4025-0CE20-2BB0 SIMATIC IPC527G (Box PC)	6AG4025-0CE20-3BB0 SIMATIC IPC527G (Box PC)	6AG4025-0CE20-5CA0 SIMATIC IPC527G (Box PC)
Interrupts/diagnostics/ status information					
LED status display	POWER, HDD				
EMC					
Interference immunity against discharge of static electricity					
• Interference immunity against discharge of static electricity	±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2	±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2	±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2	±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2	±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2
Degree and class of protection					
IP degree of protection	IP20	IP20	IP20	IP20	IP20
IP (at the front)	IP20	IP20	IP20	IP20	IP20
IP (rear)	IP20	IP20	IP20	IP20	IP20
Standards, approvals, certificates					
CE mark	Yes	Yes	Yes	Yes	Yes
CSA approval	Yes; No. 61010-1-12, No. 61010-2-201				
UL approval	Yes	Yes	Yes	Yes	Yes
cULus	Yes; UL 61010-1, UL 61010-2-201				
RCM (formerly C-TICK)	Yes	Yes	Yes	Yes	Yes
KC approval	Yes	Yes	Yes	Yes	Yes
EAC (formerly Gost-R)	Yes	Yes	Yes	Yes	Yes
FCC	Yes	Yes	Yes	Yes	Yes
Ambient conditions					
Ambient temperature during operation					
• min.	0 °C				
• max.	40 °C	40 °C	45 °C	45 °C	45 °C
Relative humidity					
• Relative humidity	8 ... 85 % at 30 °C, no condensation	8 ... 85 % at 30 °C, no condensation	8 ... 85 % at 30 °C, no condensation	8 ... 85 % at 30 °C, no condensation	8 ... 85 % at 30 °C, no condensation
Vibrations					
• Vibration resistance during operation acc. to IEC 60068-2-6	IEC 60068-2-6; 10 Hz to 58 Hz 0.015 mm; 58 Hz to 200Hz 1.96 m/s ²	IEC 60068-2-6; 10 Hz to 58 Hz 0.015 mm; 58 Hz to 200Hz 1.96 m/s ²	tested according to IEC 60068-2-6: 10 Hz to 58 Hz: 0.0375 mm, 58 Hz to 200 Hz: 4.9 m/s ²	tested according to IEC 60068-2-6: 10 Hz to 58 Hz: 0.0375 mm, 58 Hz to 200 Hz: 4.9 m/s ²	tested according to IEC 60068-2-6: 10 Hz to 58 Hz: 0.0375 mm, 58 Hz to 200 Hz: 4.9 m/s ²
Shock testing					
• Shock load during operation	Tested in accordance with IEC 60068-2-27: With SSD: 150 m/s ² , 11 ms; with HDD: 9.8 m/s ² , 20 ms	Tested in accordance with IEC 60068-2-27: With SSD: 150 m/s ² , 11 ms; with HDD: 9.8 m/s ² , 20 ms	Tested in accordance with IEC 60068-2-27: With SSD: 150 m/s ² , 11 ms; with HDD: 9.8 m/s ² , 20 ms	Tested in accordance with IEC 60068-2-27: With SSD: 150 m/s ² , 11 ms; with HDD: 9.8 m/s ² , 20 ms	Tested in accordance with IEC 60068-2-27: With SSD: 150 m/s ² , 11 ms; with HDD: 9.8 m/s ² , 20 ms
Operating systems					
Pre-installed operating system	without operating system	Windows 7 Ultimate (Multi-Language) 64-bit	Windows 7 Ultimate (Multi-Language) 64-bit	Windows 10 Enterprise 2016 LTSP, 64 bit, MUI	Windows 10 IoT Enterprise 2019 LTSC, 64 bit, MUI
Additional info on operating system		Multi-Language User Interface (MUI): 5 languages (English, German, French, Spanish, Italian)			
without operating system	Yes				
Dimensions					
Width	260 mm				
Height	135 mm				
Depth	225 mm				

Industrial Computing

Box PC

SIMATIC IPC527G

Technical specifications

Article number	6AG4025-0DF20-2BB0 SIMATIC IPC527G (Box PC)	6AG4025-0DF20-4BB0 SIMATIC IPC527G (Box PC)	6AG4025-0DE20-6CA0 SIMATIC IPC527G (Box PC)
General information			
Product type designation	IPC527G	IPC527G	IPC527G
Installation type/mounting			
Mounting	Wall mounting, portrait mounting, desktop mounting	Wall mounting, portrait mounting, desktop mounting	Wall mounting, portrait mounting, desktop mounting
Design	Box PC, built-in unit	Box PC, built-in unit	Box PC, built-in unit
Supply voltage			
Type of supply voltage	100/240V AC (autorange) 50/60 Hz	100/240V AC (autorange) 50/60 Hz	100/240V AC (autorange) 50/60 Hz
Line frequency			
• Rated value 50 Hz	Yes	Yes	Yes
• Rated value 60 Hz	Yes	Yes	Yes
Processor			
Processor type	Core i7-6700 (4C/4T, 3.6 (4.0) GHz, 8 MB Cache)	Core i7-6700 (4C/4T, 3.6 (4.0) GHz, 8 MB Cache)	Core i7-6700 (4C/4T, 3.6 (4.0) GHz, 8 MB Cache)
Chipset	Intel H110	Intel H110	Intel H110
Graphic			
Graphics controller	Onboard Intel HD graphics 530/510 integrated in processor	Onboard Intel HD graphics 530/510 integrated in processor	Onboard Intel HD graphics 530/510 integrated in processor
Graphics card	Yes	Yes	Yes
Drives			
Hard disk	1 TB HDD	1 TB HDD	
SSD			Yes; 256 GB SSD
Memory			
Type of memory	DDR4-2666 SO-DIMM	DDR4-2666 SO-DIMM	DDR4-2666 SO-DIMM
Main memory	8 GB RAM	8 GB RAM	8 GB RAM
Hardware configuration			
Slots			
• free slots	1x PCIe (x16), 1x PCIe (x1), 2x PCI	1x PCIe (x16), 1x PCIe (x1), 2x PCI	1x PCIe (x16), 1x PCIe (x4), 2x PCIe (x1)
Interfaces			
Number of industrial Ethernet interfaces	2; 2x Gigabit Ethernet (IE/PN), RJ45	2; 2x Gigabit Ethernet (IE/PN), RJ45	2; 2x Gigabit Ethernet (IE/PN), RJ45
Number of PROFINET interfaces	2	2	2
USB port	4x USB 3.0, 1x USB 2.0 internal, 2x USB 2.0 optional	4x USB 3.0, 1x USB 2.0 internal, 2x USB 2.0 optional	4x USB 3.0, 1x USB 2.0 internal, 2x USB 2.0 optional
Connection for keyboard/mouse	USB / USB	USB / USB	USB / USB
serial interface version	2x RS 232 / 485 / 422, 2x RS 232	2x RS 232 / 485 / 422, 2x RS 232	2x RS 232 / 485 / 422, 2x RS 232
Multimedia			
• Audio In/Out	Yes	Yes	Yes
• Microphone In	Yes	Yes	Yes
Video interfaces			
• Graphics interface	1x DisplayPort, 1x VGA	1x DisplayPort, 1x VGA	1x DisplayPort, 1x VGA
Industrial Ethernet			
• Industrial Ethernet interface	2x Ethernet (RJ45), 1x Ethernet (RJ45) additional option	2x Ethernet (RJ45), 1x Ethernet (RJ45) additional option	2x Ethernet (RJ45), 1x Ethernet (RJ45) additional option
- 100 Mbps	Yes	Yes	Yes
- 1000 Mbps	Yes	Yes	Yes
Interrupts/diagnostics/status information			
LED status display	POWER, HDD	POWER, HDD	POWER, HDD
EMC			
Interference immunity against discharge of static electricity			
• Interference immunity against discharge of static electricity	±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2	±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2	±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2
Degree and class of protection			
IP degree of protection	IP20	IP20	IP20
IP (at the front)	IP20	IP20	IP20
IP (rear)	IP20	IP20	IP20

Industrial Computing

Box PC

SIMATIC IPC527G

Technical specifications

Article number	6AG4025-0DF20-2BB0 SIMATIC IPC527G (Box PC)	6AG4025-0DF20-4BB0 SIMATIC IPC527G (Box PC)	6AG4025-0DE20-6CA0 SIMATIC IPC527G (Box PC)
Standards, approvals, certificates			
CE mark	Yes	Yes	Yes
CSA approval	Yes; No. 61010-1-12, No. 61010-2-201	Yes; No. 61010-1-12, No. 61010-2-201	Yes; No. 61010-1-12, No. 61010-2-201
UL approval	Yes	Yes	Yes
cULus	Yes; UL 61010-1, UL 61010-2-201	Yes; UL 61010-1, UL 61010-2-201	Yes; UL 61010-1, UL 61010-2-201
RCM (formerly C-TICK)	Yes	Yes	Yes
KC approval	Yes	Yes	Yes
EAC (formerly Gost-R)	Yes	Yes	Yes
FCC	Yes	Yes	Yes
Ambient conditions			
Ambient temperature during operation			
• min.	0 °C	0 °C	0 °C
• max.	45 °C	45 °C	45 °C
Relative humidity			
• Relative humidity	8 ... 85 % at 30 °C, no condensation	8 ... 85 % at 30 °C, no condensation	8 ... 85 % at 30 °C, no condensation
Vibrations			
• Vibration resistance during operation acc. to IEC 60068-2-6	tested according to IEC 60068-2-6: 10 Hz to 58 Hz: 0.0375 mm, 58 Hz to 200 Hz: 4.9 m/s ²	tested according to IEC 60068-2-6: 10 Hz to 58 Hz: 0.0375 mm, 58 Hz to 200 Hz: 4.9 m/s ²	tested according to IEC 60068-2-6: 10 Hz to 58 Hz: 0.0375 mm, 58 Hz to 200 Hz: 4.9 m/s ²
Shock testing			
• Shock load during operation	Tested in accordance with IEC 60068-2-27: With SSD: 150 m/s ² , 11 ms; with HDD: 9.8 m/s ² , 20 ms	Tested in accordance with IEC 60068-2-27: With SSD: 150 m/s ² , 11 ms; with HDD: 9.8 m/s ² , 20 ms	Tested in accordance with IEC 60068-2-27: With SSD: 150 m/s ² , 11 ms; with HDD: 9.8 m/s ² , 20 ms
Operating systems			
pre-installed operating system	Windows 7 Ultimate (Multi-Language) 64-bit	Windows 10 Enterprise 2016 LTSB, 64 bit, MUI	Windows 10 IoT Enterprise 2019 LTSC, 64 bit, MUI
Additional info on operating system	Multi-Language User Interface (MUI): 5 languages (English, German, French, Spanish, Italian)	Multi-Language User Interface (MUI): 5 languages (English, German, French, Spanish, Italian)	Multi-Language User Interface (MUI): 5 languages (English, German, French, Spanish, Italian)
Dimensions			
Width	260 mm	260 mm	260 mm
Height	135 mm	135 mm	135 mm
Depth	225 mm	225 mm	225 mm

More information

More information is available on the internet at

<https://www.siemens.com/simatic-box-pc>.

Industrial Computing

Box PC

SIMATIC IPC627E

Ordering data

Article No.

SIMATIC IPC627E (Box PC)¹⁾

6AG4131- 3 ■ ■ ■ ■ - ■ ■ ■ ■

Power supply:

- 24 V DC industrial power supply
- 110/230 V AC industrial power supply unit with NAMUR; without power cable
- 110/230 V AC industrial power supply unit with NAMUR; power supply cord Europe
- 110/230 V AC industrial power supply unit with NAMUR; power supply cord USA
- 110/230 V AC industrial power supply unit with NAMUR; power supply cord China
- 24 V DC industrial power supply; UL HazLoc device certification

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Operating system:

- Windows 10 Enterprise 2016 LTSB, 64-bit, MUI (en, de, fr, it, es); for Celeron and i3
- Windows 10 Enterprise 2016 LTSB, 64-bit, MUI (en, de, fr, it, es); for Core i7
- Windows 10 IoT Enterprise 2019 LTSC, 64-bit, MUI (en, de, fr, it, es); for Celeron and i3
- Windows 10 IoT Enterprise 2019 LTSC, 64-bit, MUI (en, de, fr, it, sp), for Core i7
- Windows 10 IoT Enterprise 2021 LTSC, 64-bit, MUI (en, de, fr, it, es); for Celeron and i3
- Windows 10 IoT Enterprise 2021 LTSC, 64-bit, MUI (en, de, fr, it, es); for Celeron and i3
- Without operating system

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¹⁾ For an up-to-date overview, see the SIMATIC PC <https://mall.industry.siemens.com/mall/en/ww/Catalog/Configurators>

²⁾ TPM = Trusted Platform Module

Note:

Please assemble the required IPC configuration using the TIA Selection Tool or configurator in the SiePortal in order to ensure availability; we do not accept any liability for configurations compiled by users themselves.

Article No.

SIMATIC IPC627E (Box PC)¹⁾

6AG4131- 3 ■ ■ ■ ■ - ■ ■ ■ ■

Expansion (SW):

- Without expansion
- SIMATIC IPC DiagMonitor included
- SIMATIC IPC Image & Partition Creator included
- SIMATIC IPC DiagMonitor, Image & Partition Creator included
- TPM²⁾ (not for Russia)

A
B
C
D
X

Expansion (HW):

- Without expansion (HW)
- 2 x USB in addition (1 slot occupied)
- Device without CMOS battery (CR2450N)

A
B
C

2nd expansion (HW):

- 2 x PCI
- 1 x PCIe (x16); 1 x PCI
- 1 x PCIe (x16); 1 x PCIe (x4)
- 3 x PCI, 2 x PCIe (x16, x4)
- 5 x PCIe (1 x16, 1 x4, 3 x1)
- 2 x PCI; enclosure painted
- 1 x PCIe (x16), 1 x PCI; enclosure painted
- 2 x PCIe (x16, x4); enclosure painted

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Accessories

Memory expansion

- 4 GB DDR4 2666 SDRAM, DIMM
- 8 GB DDR4 2666 SDRAM, DIMM
- 16 GB DDR4 2666 SDRAM, DIMM

6ES7648-2AL60-0QA0
6ES7648-2AL70-0QA0
6ES7648-2AL80-0QA0

Assembly kit for portrait mounting

- Upward or downward interface outlet (2-slot design)
- Interface outlet on the front (2-slot design)
- Upward or downward interface outlet (5-slot design)
- Interface outlet on the front (5-slot design)

6ES7648-1AA10-2YA0
6ES7648-1AA10-2YB0
6ES7648-1AA30-2YA0
6ES7648-1AA30-2YB0

SIMATIC PC power cable

For Box PC and Panel PC, 230 V AC, angled, 3 m

- For Germany, France, Spain, the Netherlands, Belgium, Sweden, Austria, Finland
- For United Kingdom
- For Switzerland
- For the USA
- For Italy
- For China

6ES7900-1AA00-0XA0
6ES7900-1BA00-0XA0
6ES7900-1CA00-0XA0
6ES7900-1DA00-0XA0
6ES7900-1EA00-0XA0
6ES7900-1FA00-0XA0

Industrial Computing

Box PC

SIMATIC IPC627E

Technical specifications

Article number	6AG4131-3....-.... SIMATIC IPC627E (Box PC)
General information	
Product type designation	IPC627E
Installation type/mounting	
Mounting	Wall mounting, portrait mounting
Design	Box PC, built-in unit
Supply voltage	
Type of supply voltage	100/240 V AC (autorange); 24 V DC
Line frequency	
• Rated value 50 Hz	Yes
• Rated value 60 Hz	Yes
Mains buffering	
• Mains/voltage failure stored energy time	20 ms
Processor	
Processor type	Celeron G4900 (2C/2T, 3.1 GHz, 2 MB cache; VT-d); Core i3-8100 (4C/4T, 3.6 GHz, 6 MB cache, VT-d); Core i7-8700 (6C/12T, 3.2 (4.6) GHz, 12 MB cache, VT-d, AMT)
Chipset	Intel C246
Graphic	
Graphics controller	Intel UHD Graphics 630 (Core i); Intel UHD Graphics 610 (Celeron)
Drives	
Hard disk	2.5" SATA ≥ 320 GB
SSD	Yes; SSD M.2 NVMe 512 GB; SSD 2.5" SATA 480 / 960 GB; RAID1 2x SSD 2.5" SATA 480 / 960 GB in removable drive bay
Memory	
Type of memory	DDR4-2666 DIMM
Main memory	4 / 8 / 16 / 32 / 64 GB
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	512 kbyte; 128 KB can be stored in the buffer time
Hardware configuration	
Slots	
• free slots	2x PCI; optional: 1x PCI & 1x PCIe (x16); 2x PCIe (x4, x16); 3x PCI & 2x PCIe (x16, x4); 5x PCIe (1x16, 2x4, 2x1); with card retainer

Article number	6AG4131-3....-.... SIMATIC IPC627E (Box PC)
Interfaces	
Number of industrial Ethernet interfaces	3; 3x Ethernet (RJ45)
USB port	6x USB 3.1 Gen. 2 (2x type C)
Connection for keyboard/mouse serial interface version	USB / USB 1x COM
Video interfaces	
• Graphics interface	2x DisplayPort; 1x DVI-D
Industrial Ethernet	
• Industrial Ethernet interface	3x Ethernet (RJ45)
- 100 Mbps	Yes
- 1000 Mbps	Yes
Interrupts/diagnostics/status information	
LED status display	1x power, 3x user
Integrated Functions	
Monitoring functions	
• Temperature monitoring	Yes
• Watchdog	Yes
• Fan	Yes
• Monitoring function via network	Optional
EMC	
Interference immunity against discharge of static electricity	
• Interference immunity against discharge of static electricity	±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2
Interference immunity against high-frequency electromagnetic fields	
• Interference immunity against high frequency radiation	10 V/m for 80 ... 2 700 MHz, 80% AM acc. to IEC 61000-4-3; 3 V/m for 2.7 to 6 GHz, 80% AM acc. to IEC 61000-4-3; 10 V for 10 kHz to 80 MHz, 80% AM acc. to IEC 61000-4-6

Industrial Computing

Box PC

SIMATIC IPC627E

Technical specifications

Article number	6AG4131-3....-.... SIMATIC IPC627E (Box PC)
Interference immunity to cable-borne interference	
<ul style="list-style-type: none"> Interference immunity on supply cables 	±2 kV acc. to IEC 61000-4-4, burst; ±1 kV acc. to IEC 61000-4-5, surge symmetric; ±2 kV acc. to IEC 61000-4-5, surge asymmetric
<ul style="list-style-type: none"> Interference immunity on signal cables > 30m 	±2 kV acc. to IEC 61000-4-5, surge, length > 30 m
<ul style="list-style-type: none"> Interference immunity on signal cables < 30m 	±1 kV acc. to IEC 61000-4-4; burst; length < 3 m; ±2 kV acc. to IEC 61000-4-4; burst; length > 3 m
Interference immunity against voltage surge	
<ul style="list-style-type: none"> asymmetric interference 	±2 kV acc. to IEC 61000-4-5, surge asymmetric
<ul style="list-style-type: none"> symmetric interference 	±1 kV acc. to IEC 61000-4-5, surge symmetric
Interference immunity to magnetic fields	
<ul style="list-style-type: none"> Interference immunity to magnetic fields at 50 Hz 	100 A/m; to IEC 61000-4-8
Emission of conducted and non-conducted interference	
<ul style="list-style-type: none"> Interference emission via line/ AC current cables 	EN 61000-6-3, EN 61000-6-4, CISPR 22 Class B, FCC Class A
Degree and class of protection	
IP degree of protection	IP20
Standards, approvals, certificates	
CE mark	Yes
UL approval	Yes
cULus	Yes; UL 61010-2-201 Second Edition; CAN/CSA-C22.2 No. 61010-2-201 Second Edition
RCM (formerly C-TICK)	Yes
KC approval	Yes
EAC (formerly Gost-R)	Yes
FCC	Yes
BSMI	Yes
EMC	CE, EN 61000-6-3:2007 +A1:2011, EN 61000-6-2:2005
Use in hazardous areas	
<ul style="list-style-type: none"> cULus Class I Zone 2, Division 2 	Yes; Optional
Marine approval	
<ul style="list-style-type: none"> American Bureau of Shipping (ABS) 	Yes; Only with SSD
<ul style="list-style-type: none"> Bureau Veritas (BV) 	Yes; Only with SSD
<ul style="list-style-type: none"> Det Norske Veritas (DNV) 	Yes; Only with SSD
<ul style="list-style-type: none"> Korean Register of Shipping (KRS) 	Yes; Only with SSD
<ul style="list-style-type: none"> Lloyds Register of Shipping (LRS) 	Yes; Only with SSD
<ul style="list-style-type: none"> Nippon Kaiji Kyokai (Class NK) 	Yes; Only with SSD
<ul style="list-style-type: none"> Chinese Classification Society (CCS) 	Yes; Only with SSD

Article number	6AG4131-3....-.... SIMATIC IPC627E (Box PC)
Ambient conditions	
Ambient temperature during operation	
<ul style="list-style-type: none"> min. 	5 °C
<ul style="list-style-type: none"> max. 	55 °C
Relative humidity	
<ul style="list-style-type: none"> Relative humidity 	Tested according to IEC 60068-2-78, IEC 60068-2-30: Operation: 5% to 80% at 25 °C (no condensation), Storage: 5% to 95% at 25 °C (no condensation)
Vibrations	
<ul style="list-style-type: none"> Vibration resistance during operation acc. to IEC 60068-2-6 	tested according to DIN IEC 60068-2-6: 10 Hz to 58 Hz: 0.075 mm; 58 Hz to 500 Hz 9.8 m/s ² (1 g)
Shock testing	
<ul style="list-style-type: none"> Shock load during operation 	Tested to DIN IEC 60068-2-29: 50 m/s ² (5 g), 30 ms, 100 shocks
Operating systems	
pre-installed operating system	Windows 10 Enterprise 2016 LTSC or 2019 LTSC or 2021 LTSC 64 bit, MUI
without operating system	Yes; Optional
Dimensions	
Width	314 mm
Height	93 mm; For variant 5x PCI(e): 155 mm
Depth	301 mm; incl. mounting rail

More information

More information is available on the internet at
<https://www.siemens.com/simatic-box-pc>.