Overview

SIMATIC IPC847E

SIMATIC IPC847E is a very robust, high-performance industrial PC in 19" rack design (4 U) with excellent industrial functionality.

It offers:
- Maximum expandability
- Extreme ruggedness
- Intel® Core® i / Xeon technology 8th generation

Technical specifications

Article number	**6AG4114-3....-....**
	SIMATIC IPC847E (Rack PC)
Installation type/mounting	
Mounting	For horizontal and vertical installation; prepared for telescopic rails; 19" mounting bracket can be removed externally; tower kit (optional)
Design	Rack PC, 19", 4U
Supply voltage	
Type of supply voltage	100/240 V AC (autorange) 50 / 60 Hz; optional redundant 100/240 V AC
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	Intel Xeon E-2176G (6C/12T, 3.7 (4.7) GHz, 12 MB cache, Turbo Boost 2.0, VT-x/-d technology, iAMT); Intel Core i7-8700 (6C/12T, 3.2 (4.6) GHz, 12 MB cache, Turbo Boost 2.0, VT-x/-d technology, iAMT); Intel Core i5-8500 (6C/6T, 3.0 (4.1) GHz, 9 MB cache, Turbo Boost 2.0, VT-x/-d technology, iAMT); Intel Core i3-8100 (4C/4T, 3.6 GHz, 6 MB cache, VT-x/-d technology)
Chipset	Intel C246
Graphic	
Graphics controller	Onboard Intel UHD graphics P630/630 integrated in processor; graphics card NVIDIA Quadro P400 PCIe (x16) triple head (optional)

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Technical specifications (continued)

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Drives	
Hard disk	1x 1 TB 3.5" SATA HDD, 2x 1 TB 3.5" SATA HDD, RAID1 2x 1 TB 3.5" SATA HDD, RAID1 2x 1 TB 3.5" SATA HDD [Enterprise], RAID1 2x 2 TB 3.5" SATA HDD [Enterprise], RAID1 2x 2 TB 3.5" SATA HDD [Enterprise] + 2 TB 3.5" SATA HDD [Enterprise] as hot spare, RAID1 2x 2 TB 3.5" SATA HDD [Enterprise] + 480 GB 2.5" SATA SSD, RAID5 3x 2 TB 3.5" SATA HDD [Enterprise], RAID5 3x 2 TB 3.5" SATA HDD [Enterprise] + 2 TB 3.5" SATA HDD [Enterprise] as hot spare
SSD	Yes; 1x 480 GB 2.5" SATA SSD, 1x 960 GB 2.5" SATA SSD, 2x 480 GB 2.5" SATA SSD, RAID1 2x 480 GB 2.5" SATA SSD; 1x 512 GB M.2 NVMe SSD, 1x 1 024 GB M.2 NVMe SSD
Slot for drives	Mounting internally in vibration/shock-absorbing drive cage Type B or mounting on the front in removable trays (hot swap in RAID configurations) in drive cage Type A; mounting internally on the fixed drive cage optional
Memory	
Main memory	4 GB to 64 GB DDR4 2666 SDRAM DIMM, ECC optional
Hardware configuration	
Slots	
• free slots	9 slots: 7x PCI, 2x PCI Express (x16) (8 lanes) or 11 slots: 3x PCI, 1x PCI Express (x16) (8 lanes), 5x PCI Express (x16) (4 lanes), 2x PCI Express (x4) (4 lanes) or 11 slots: 3x PCI, 1x PCI Express (x16) (16 lanes), 3x PCI Express (x16) (4 lanes), 2x PCI Express (x16) (1 lane), 2x PCI Express (x4) (4 lanes); expansion modules up to a length of 312 mm can be used

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Interfaces	
Interfaces/bus type	1x COM1, 1x COM2 (optional), 2x DisplayPort, 1x DVI-D, audio (microphone in, line in, line out), 9x USB, 3x Gigabit Ethernet
PROFIBUS/MPI	can be implemented with plug-in card
USB port	4x USB 3.1 Gen. 2 Type A, 2x USB 3.1 Gen. 2 Type C on the rear; 1x USB 3.1 Gen. 2 Type A internally, e.g. for software dongle with optional interlock, 2x USB 3.1 Gen. 1 Type A on the front, can be used with door closed
Connection for keyboard/mouse	USB
serial interface	COM1: 1x RS 232, COM2 (optional): 1x RS 232
Multimedia	
• Audio In/Out	Yes
• Microphone In	Yes
Video interfaces	
• Graphics interface	2x DisplayPort and 1x DVI-D onboard; 1x VGA via DP-VGA adapter cable (optional); graphics card PCIe (x16), Triple Head (3x mini DisplayPort, 2 GB graphics memory, 3x mini DisplayPort to DisplayPort adapter cable) (optional)
Industrial Ethernet	
• Industrial Ethernet interface	3x Gigabit Ethernet (IE/PN), RJ45
- 100 Mbps	Yes
- 1000 Mbps	Yes
Integrated Functions	
Monitoring functions	
• Temperature monitoring	Yes
• Watchdog	Yes
• Status LEDs	POWER, HDD, ETHERNET 1, ETHERNET 2, ETHERNET 3, WATCHDOG, TEMP, FAN, HDD3 ALARM, HDD2 ALARM, HDD1 ALARM, HDD0 ALARM
• Fan	Yes
• Monitoring function via network	Optional

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■ Technical specifications (continued)

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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 > 30 m	±2 kV acc. to IEC 61000-4-5, surge, length > 30 m
• Interference immunity on signal cables < 30 m	±1 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, CAN/CSA CISPR 22 Class B, EN 55032 Class B; FCC Class A; KN32 Class B, EN 61000-3-2 Class D; EN 61000-3-3
Degree and class of protection	
IP (at the front)	IP41
IP (rear)	IP20

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Standards, approvals, certificates	
CE mark	Yes; For use in industrial areas as well as domestic, business and commercial environments (emitted interference: EN 61000-6-3:2007 +A1:2011, noise immunity: EN 61000-6-2:2005)
CSA approval	Yes; CAN/CSA-C22.2 No. 61010-2-201 Second Edition
UL approval	Yes; UL 61010-2-201 Second Edition, File E115352 (I.T.E.)
cULus	Yes; UL 61010-2-201 Second Edition, File E115352 (I.T.E.)
RCM (formerly C-TICK)	Yes
KC approval	Yes
EAC (formerly Gost-R)	Yes
EMC	EN 61000-6-3; EN 61000-6-4, CAN/CSA CISPR 22 Class B, EN 55032 Class B; FCC Class A; KN32 Class B, EN 61000-3-2 Class D; EN 61000-3-3
Dust protection	With front door closed: G2 EN 779, 99% of particles > 0.5 mm are filtered
Ambient conditions	
Ambient temperature during operation	
• Ambient temperature during operation	0 °C to +50 °C with full configuration
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: 10 cycles, 10 Hz to 58 Hz: 0.0375 mm, 58 Hz to 500 Hz: 4.9 m/s² (0.5 g)
Shock testing	
• Shock load during operation	Tested according to IEC 60068-2-27, IEC 60068-2-29: half-sine: 50 m/s² (5 g), 30 ms, 100 shocks per axis
Operating systems	
Operating system	Windows 10 Enterprise 2016 LTSB, multi-language (64-bit); Windows Server 2016 Standard Edition incl. 5 clients, multi-language (64-bit)
pre-installed operating system	Yes
Additional info on operating system	Multi-Language User Interface (MUI): 5 languages (English, German, French, Spanish, Italian)
without operating system	Yes
Dimensions	
Width	430 mm
Height	177 mm; 4U
Depth	444 mm

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Rack PC, 19", 4 U Interfaces: 3x Gbit Ethernet (IE/PN), RJ45; 1x DVI-D; 2x DisplayPort; 1x COM1; audio; 4x USB 3.1, 2x USB 3.1 (type C) on the rear; 2x USB 3.0 on the front, 1x USB 3.1 internal. Temperature and fan monitoring, watchdog, card retainer	

Processors / Boards

• Core i3-8100 (4C/4T, 3.6 GHz, 6 MB cache, VT-d). Board 9 slots: 7x PCI, 2x PCIe x16 (8 L)	A
• Core i3-8100 (4C/4T, 3.6 GHz, 6 MB cache, VT-d). Board 11 slots: 3x PCI, 1x PCIe x16 (8 L), 5x PCIe x16 (4 L), 2x PCIe x4 (4 L)	B
• Core i3-8100 (4C/4T, 3.6 GHz, 6 MB cache, VT-d). Board 11 slots: 3x PCI, 1x PCIe x16 (16 L), 3x PCIe x16 (4 L), 2x PCIe x16 (1 L), 2x PCIe x4 (4 L)	C
• Core i5-8500 (6C/6T, 3.0 (4.1) GHz, 9 MB cache, TB, VT-d, AMT); Board 9 slots: 7x PCI, 2x PCIe x16 (8 L)	D
• Core i5-8500 (6C/6T, 3.0 (4.1) GHz, 9 MB cache, TB, VT-d, AMT); Board 11 slots: 3x PCI, 1x PCIe x16 (8 L), 5x PCIe x16 (4 L), 2x PCIe x4 (4 L)	E
• Core i5-8500 (6C/6T, 3.0 (4.1) GHz, 9 MB cache, TB, VT-d, AMT); Board 11 slots: 3x PCI, 1x PCIe x16 (16 L), 3x PCIe x16 (4 L), 2x PCIe x16 (1 L), 2x PCIe x4 (4 L)	F
• Core i7-8700 (6C/12T, 3.2 (4.6) GHz, 12 MB cache, TB, VT-d, AMT); Board 9 slots: 7x PCI, 2x PCIe x16 (8 L)	G
• Core i7-8700 (6C/12T, 3.2 (4.6) GHz, 12 MB cache, TB, VT-d, AMT); Board 11 slots: 3x PCI, 1x PCIe x16 (8 L), 5x PCIe x16 (4 L), 2x PCIe x4 (4 L)	H
• Core i7-8700 (6C/12T, 3.2 (4.6) GHz, 12 MB cache, TB, VT-d, AMT); Board 11 slots: 3x PCI, 1x PCIe x16 (16 L), 3x PCIe x16 (4 L), 2x PCIe x16 (1 L), 2x PCIe x4 (4 L)	J
• Xeon E-2176G (6C/12T, 3.7 (4.7) GHz, 12 MB cache, TB, VT-d, AMT); Board 9 slots: 7x PCI, 2x PCIe x16 (8 L)	K
• Xeon E-2176G (6C/12T, 3.7 (4.7) GHz, 12 MB cache, TB, VT-d, AMT); Board 11 slots: 3x PCI, 1x PCIe x16 (8 L), 5x PCIe x16 (4 L), 2x PCIe x4 (4 L)	L
• Xeon E-2176G (6C/12T, 3.7 (4.7) GHz, 12 MB cache, TB, VT-d, AMT); Board 11 slots: 3x PCI, 1x PCIe x16 (16 L), 3x PCIe x16 (4 L), 2x PCIe x16 (1 L), 2x PCIe x4 (4 L)	M

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Drives

• 1 TB HDD 3.5" SATA	A
• 2x 1 TB HDD 3.5" SATA	B
• RAID1, 2x 1 TB HDD 3.5" SATA	C
• RAID1, 2x 1 TB HDD [Enterprise] 3.5" SATA	D
• RAID1, 2x 2 TB HDD [Enterprise] 3.5" SATA	E
• RAID1, 2x 2 TB HDD [Enterprise] 3.5" SATA + 2 TB HDD [Enterprise] 3.5" SATA as HotSpare	F
• RAID1, 2x 2 TB HDD [Enterprise] 3.5" SATA + 480 GB 2.5" SSD SATA (for operating system if M.2 SSD not ordered)	G
• RAID5, 3x 2 TB HDD [Enterprise] 3.5" SATA	H
• RAID5, 3x 2 TB HDD [Enterprise] 3.5" SATA + 2 TB HDD [Enterprise] 3.5" SATA as HotSpare	J
• 1 TB HDD 3.5" SATA + 480 GB SSD 2.5" SATA (for operating system if M.2 SSD not ordered)	P
• 480 GB SSD 2.5" SATA	Q
• 960 GB SSD 2.5" SATA	R
• 2x 480 GB SSD 2.5" SATA	S
• RAID1, 2x 480 GB SSD 2.5" SATA	T
• Without drives	X

Type of enclosure/power supplies

• Enclosure with drive cage type B (for internal installation / 0.5 g vibration, 5 g shock); 100/240 V AC industrial power supply	0
• Enclosure with drive cage type A (for removable frames on the front); 100/240 V AC industrial power supply	1
• Enclosure with drive cage type B (for internal installation / 0.5 g vibration, 5 g shock); 2x 100/240 V AC redundant industrial power supply	2
• Enclosure with drive cage type A (for removable frames on the front); 2x 100/240 V AC redundant industrial power supply	3
• Enclosure with drive cage type B (for internal installation / 0.5 g vibration, 5 g shock) + COM2 port; 100/240 V AC industrial power supply	4
• Enclosure with drive cage type A (for removable frames on the front) + COM2 interface; 100/240 V AC industrial power supply	5
• Enclosure with drive cage type B (for internal installation / 0.5 g vibration, 5 g shock) + COM2 port; 2x 100/240 V AC redundant industrial power supply	6
• Enclosure with drive cage Type A (for removable frames on the front) + COM2 port; 2x 100/240 V AC redundant industrial power supply	7

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Memory configuration

• 4 GB DDR4 SDRAM (1x 4 GB), single channel	**0**
• 8 GB DDR4 SDRAM (2x 4 GB), dual channel	**1**
• 16 GB DDR4 SDRAM (2x 8 GB), dual channel	**2**
• 32 GB DDR4 SDRAM (2x 16 GB), dual channel	**3**
• 64 GB DDR4 SDRAM (4x 16 GB), dual channel	**4**
• 16 GB DDR4 SDRAM (2x 8 GB), ECC, dual channel (only with Core i3/Xeon)	**6**
• 32 GB DDR4 SDRAM (2x 16 GB), ECC, dual channel (only with Core i3/Xeon)	**7**
• 64 GB DDR4 SDRAM (4x 16 GB), ECC, dual channel (only with Core i3/Xeon)	**8**

Expansion hardware

• Without expansion	**0**
• PCIe x4 adapter card for M.2 NVMe module without SSD (1 slot occupied)	**1**
• PCIe x16 graphics card (3x mDP: 3x adapter mDP on DP) (1 slot occupied)	**2**
• PCIe x4 adapter card for M.2 NVMe module without SSD (1 slot occupied) + PCIe x16 graphics card (3x mDP: 3x adapter mDP on DP) (1 slot occupied)	**3**
• 512 GB SSD M.2 NVMe on PCIe x4 adapter card (1 slot occupied) (for operating system)	**4**
• 512 GB SSD M.2 NVMe on PCIe x4 adapter card (1 slot occupied) (for operating system) + PCIe x16 graphics card (3x mDP: 3x adapter mDP on DP) (1 slot occupied)	**5**
• 1 024 GB SSD M.2 NVMe on PCIe x4 adapter card (1 slot occupied) (for operating system)	**6**

Operating system (pre-installed and activated)

• Windows 10 Enterprise 2016 LTSB, multi-language (en, de, fr, it, sp), 64-bit (for Core i3/i5)	**A**
• Windows 10 Enterprise 2016 LTSB, multi-language (en, de, fr, it, sp), 64-bit (for Core i7/Xeon)	**B**
• Windows Server 2016 Standard Edition incl. 5 clients, 64-bit, MUI (en, de, fr, it, sp)	**H**
• Without operating system	**X**

Software / adapters / security expansions

• SIMATIC IPC DiagMonitor software enclosed	**A**
• SIMATIC IPC Image & Partition Creator software included	**B**
• SIMATIC IPC DiagMonitor + Image & Partition Creator software enclosed	**C**
• Adapter cable DP to VGA for onboard graphics	**H**
• Adapter cable DP to DVI-D for onboard graphics	**J**
• Without expansions	**X**
• TPM [1] 2.0 (not for China)	**Y**

[1] TPM = Trusted Platform Module

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Cables, country-specific versions

• Without power supply cord	**0**
• Power supply cord for Europe	**1**
• Power supply cord for USA	**2**
• Power supply cord for China	**3**

Accessories

	Article No.
Memory expansions	
• 4 GB DDR4 2666 SDRAM, DIMM	**6ES7648-2AL60-0QA0**
• 8 GB DDR4 2666 SDRAM, DIMM	**6ES7648-2AL70-0QA0**
• 16 GB DDR4 2666 SDRAM, DIMM	**6ES7648-2AL80-0QA0**
Removable drive bay for 3.5'' hard disk or 2.5'' solid-state drive, SATA (without hard disk drive/ solid-state drive)	**6ES7648-0EH00-1BA0**
Tower Kit To convert the computer into an industrial tower PC	**6ES7648-1AA01-0XC0**
Retainer For mechanically interlocking the internal USB port	**6ES7648-1AA00-0XK0**
Adapter cable	
• DisplayPort to DVI-D for onboard graphics	**6ES7648-3AF00-0XA0**
• DisplayPort to VGA for onboard graphics	**6ES7648-3AG00-0XA0**
• miniDisplayPort to VGA for graphics card	**6ES7648-3AL00-0XA0**
• miniDisplayPort to DVI-D for graphics card	**6ES7648-3AK00-0XA0**
• miniDisplayPort to DVI-D for graphics card (3 per package)	**6ES7648-3AK00-1XA0**
• miniDisplayPort to DisplayPort for graphics card	**6ES7648-3AJ00-0XA0**
• miniDisplayPort to DisplayPort for graphics card (3 per package)	**6ES7648-3AJ00-1XA0**

Note:

Please assemble the required IPC configuration using the TIA Selection Tool or the configurator in the Industry Mall in order to ensure suitability; 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: http://www.siemens.com/ipc-configurator

Further information can be found on the Internet at:

http://www.siemens.com/simatic-pc

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