

SIMATIC IPC647E (Rack PC, 19", 2U); 3x Gbit Ethernet (IE/PN), RJ45; 1x DVI-D, 2x displayport, 1x COM1, audio, 4x USB 3.1, 2x USB 3.1 (Typ C) rear side; 2x USB 3.0 front, 1x USB3.1 internally; 1x M.2 Slot internally; temperature and fan monitoring, watchdog; card retainer; Xeon E-2176G (6C/12T, 3.7 (4.7) GHz, 12 MB cache, TB, VT-D, AMT); Board 2 slots: 1x PCIe x16 (16 L), 1x PCIe x16 (4 L); RAID1, 2x 1 TB HDD (Enterprise) 3.5" SATA; Enclosure with drive support Type B (for internal installation/ 0.5 g vibration, 5 g shock); 100/240 V AC industrial power supply unit; 32 GB DDR4 SDRAM (2x 16 GB), Dual Channel; PCIe x16 graphics card (3x mDP: 3x adapter mDP to DP) (1 slot occupied); Windows 10 Enterprise 2016 LTSB, MUI (de, en, fr, es, it, es), 64 bit (for Core i7/Xeon); SIMATIC PC DiagMonitor and Image&Partition Creator Software enclosed; Power supply cable USA

Installation type/mounting	
Mounting	For horizontal installation; prepared for telescopic rails; 19" mounting bracket can be removed externally
Design	Rack PC, 19", 2U
Supply voltage	
Type of supply voltage	100/240 V AC (autorange) 50 / 60 Hz; optional redundant 100/240 V AC
Line frequency	
<ul style="list-style-type: none"> Rated value 50 Hz Rated value 60 Hz 	<p>Yes</p> <p>Yes</p>
Mains buffering	
<ul style="list-style-type: none"> 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)
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)
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
Capacity of main memory, max.	64 Gbyte

Hardware configuration

Slots	
<ul style="list-style-type: none"> free slots 	2 slots: 1x PCI Express (x16) (16 lanes), 1x PCI Express (x16) (4 lanes) or 4 slots: 2x PCI, 2x PCI Express (x16) (8 lanes) or 4 slots: 2x PCI Express (x16) (8 lanes), 1x PCI Express (x16) (4 lanes), 1x PCI Express (x16) (1 lane); expansion modules up to 312 mm in length can be used

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	
<ul style="list-style-type: none"> Audio In/Out Microphone In 	Yes Yes
Video interfaces	
<ul style="list-style-type: none"> 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	
<ul style="list-style-type: none"> Industrial Ethernet interface <ul style="list-style-type: none"> — 100 Mbps — 1000 Mbps 	3x Gigabit Ethernet (IE/PN), RJ45 Yes Yes

Integrated Functions

Monitoring functions	
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• Temperature monitoring	Yes
• Watchdog	Yes
• Status LEDs	Power, HDD, Ethernet 1, Ethernet 2, Ethernet 3, Watchdog, Temp, Fan, HDD1 alarm, HDD0 alarm
• 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
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
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

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	
<ul style="list-style-type: none"> Ambient temperature during operation 	0 °C to +50 °C with full configuration
Ambient temperature during storage/transportation	
<ul style="list-style-type: none"> min. max. 	-20 °C; Max. 20 °C/h (no condensation) 60 °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 85 % at 30 °C (no condensation), storage / transport: 5 % to 95 % at 25 / 55 °C (no condensation)
Vibrations	
<ul style="list-style-type: none"> 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/s ² (0.5 g)
Shock testing	
<ul style="list-style-type: none"> Shock load during operation 	Tested according to DIN IEC 60068-2-7: 50 m/s ² (5 g), 30 ms, 100 shocks

Operating systems

pre-installed operating system	Windows 10 Enterprise 2016 LTSB, multi-language (64-bit); Windows Server 2016 Standard Edition incl. 5 clients, multi-language (64-bit)
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	88 mm; 2U
Depth	444 mm
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