SIEMENS

Quality, Reliability, Performance

SIMATIC IPC: The More Industrial PC

siemens.com/ipc

Brochure

Edition
April 2014

Answers for industry.

PC innovations for industry.

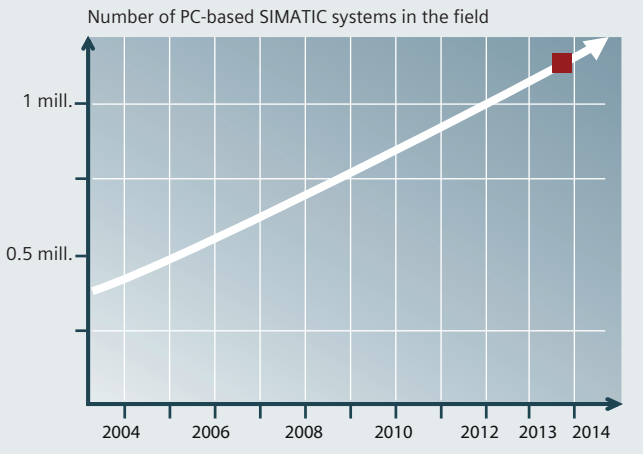
For almost three decades now, Siemens has offered industrial PCs that are both innovative and designed to remain available over the long term to enable you to implement tasks of increasing complexity with less risk and less effort.

The offering encompasses compact, maintenance-free embedded IPCs, high-end IPCs, and industrial PCs that can be flexibly adapted to any requirements. They all have particularly high reliability and durability in common. We develop and manufacture the mainboards ourselves to meet increased industrial requirements.

System availability can be individually further expanded via a range of hardware and software options, making SIMATIC IPCs the more industrial PC.

The success story made in Germany

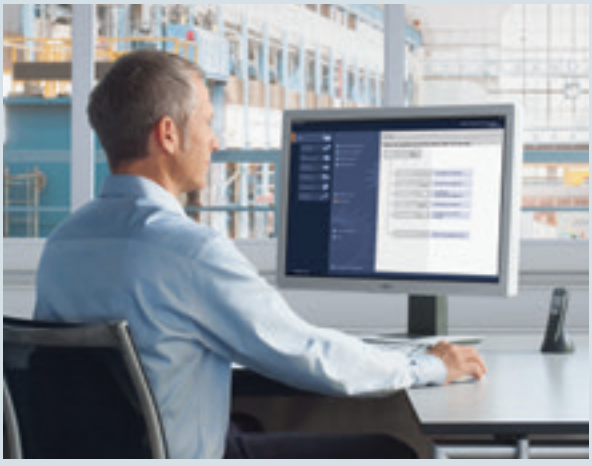
Back in 1983, Siemens combined standard PC technology with industrial characteristics. Since then, SIMATIC IPCs have continuously set new milestones. Over the past 9 years, Siemens has more than doubled the number of PC-based systems in the field to over a million devices and is the world market leader in industrial PCs with a market share of 19 % in the industrial sector (IHS Research 2014).



New productivity standards thanks to Totally Integrated Automation

Efficient interaction between all automation components means requirements for optimized processes and enables a reduction in the total cost of ownership, shortening of the time to market, and improvement in quality. This perfect balance between quality, time and costs is the decisive success factor for industry, today more than ever.
Totally Integrated Automation, industrial automation from Siemens, is the name given to efficient interaction between all automation components, and is open to third-party systems through the consistent use of international standards.

As an integral component part of Totally Integrated Automation, SIMATIC IPCs can be configured and programmed easily and efficiently via the TIA Portal integrated engineering framework. For control, visualization, or drive solutions, you always benefit from integrated and safe engineering with a high level of data transparency.



An overview of the most important documents and links relating to PC-based automation:

siemens.com/pc-based-overview

Greatest engineering efficiency with the TIA Portal, the common engineering framework for all automation tasks:

siemens.com/tia-portal

Embedded IPCs –
rugged, compact, maintenance-free

High-end IPCs –
excel in performance and expandability

Industrial PCs –
high performance, attractive price

Device variants for special requirements

Distributed operator control and monitoring

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As varied as the requirements in industry.

More product diversity, more selection options

SIMATIC IPCs are available in various designs and with different functionalities. You can order more than 90 million configurations directly from the catalog, in order quantities as small as one unit. We can also supply you with individual products and systems based on the SIMATIC standard, precisely tailored to your special requirements.

The quick and simple way to a suitable system – with the TIA Selection Tool

The TIA Selection Tool supports you with selecting processors, memory configurations, drives, add-on cards, and preinstalled, already activated operating systems. A wizard also enables you to select according to technical requirements or according to the type of application. To order, you can export your configuration directly to the cart of the Industry Mall or the CA 01 catalog.

Benefits of an identical mainboard base

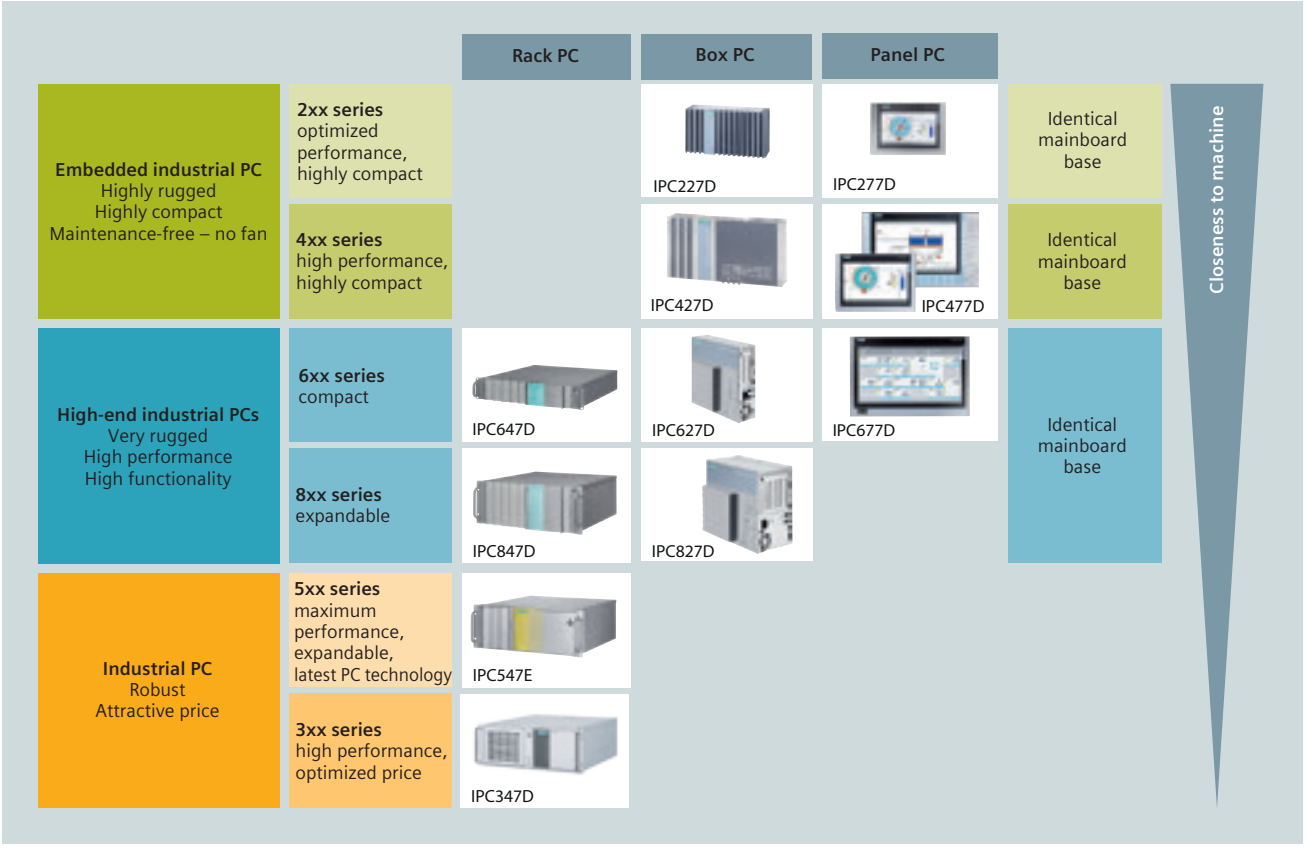
- Same system software and drivers due to identical processors and chipsets
- Reduced evaluation effort when using different SIMATIC IPCs
- Reduced spare parts inventory (e.g. memory, hard disks)

Long-term availability and defined further development

- In-house development and production in Germany
- Long-term availability of 4 to 6 years
- 5 years repair and spare parts service

This results in a total service and support period of 9 to 11 years.

siemens.com/tia-selection-tool



More networking options with PROFINET onboard

SIMATIC IPCs optionally offer PROFINET onboard. This simplifies integration into PROFINET networks – for integrated real-time-capable communication from the corporate management level down to the field level. Real-time, IT communication, and TCP/IP are thus possible on a single line. Compared with conventional solutions, PROFINET reduces costs for the installation and integration of system components by 30 to 35%.

More service and support

For SIMATIC IPCs, we provide a well-developed service and support offer that you can rely on anytime.

- Online support: comprehensive help at the click of a mouse – with FAQs, tools, downloads, newsletter, etc.
- SIMATIC hotline: experts answer you questions 24 hours a day, even in difficult cases
- PC-based competence center: competent support with planning a PC-based automation project – and support with engineering
- Local service, worldwide: 35 repair centers in 30 countries and branch offices in 190 countries provide comprehensive support – from PC repair in our repair centers to servicing your plant.

Advantages at a glance

- The PROFINET onboard interface saves one slot, which can be used for other PC cards
- The intelligent controller architecture with integrated 3-port switch (ERTEC 400) increases the PC system performance by reducing the load on the CPU
- Full support of the WinAC RTX software PLC and the fail-safe WinAC RTX F variant
- Optimized integration of SIMATIC IPCs in PROFINET configuration (STEP 7 and NCM-PC)
- Efficient self-diagnostics via status LEDs for easier commissioning and diagnostics

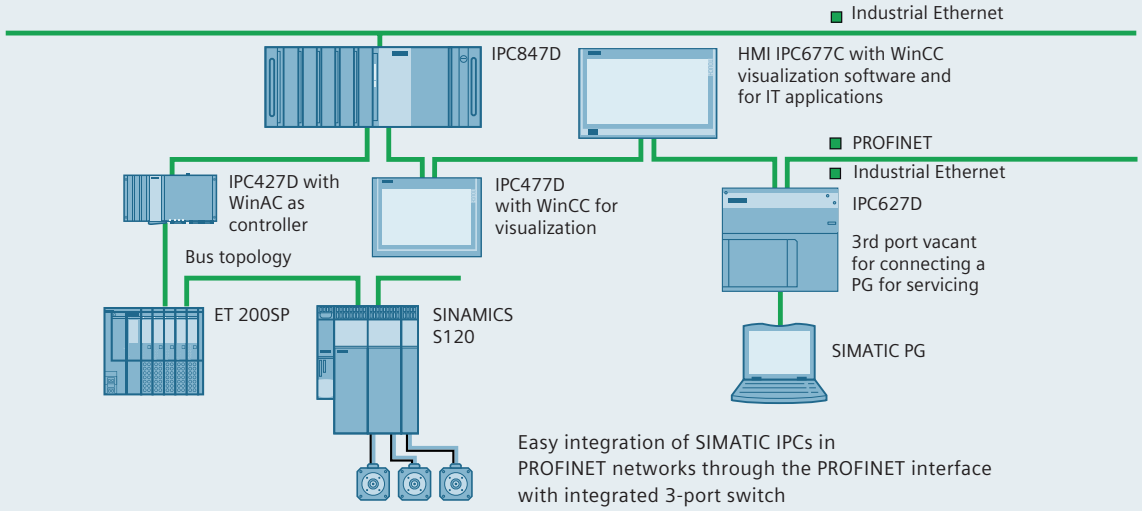
Comprehensive support – from the support service to the forum:

siemens.com/automation/support

After Sales Information System (ASIS) – news about our products:

siemens.com/asis

Integration into higher-level networks via Gigabit Ethernet interface



Easy integration of SIMATIC IPCs in PROFINET networks through the PROFINET interface with integrated 3-port switch

Quality and continuity

More quality

SIMATIC IPCs provide top quality for reliable continuous operation in an industrial environment. One reason for this is our well-developed, gapless concept for quality assurance – from in-house development and production, to the test center, to logistics, use in the field, and environmental protection. Starting with development, we do not leave anything to chance and conduct two test runs with 40 prototypes each, for example. Production in climate-controlled halls with constant temperature/air humidity and special test procedures, series-accompanying type tests and trials ensure 100% correct functioning and compliance with all technical specifications. The highest packaging and transportation quality ensures that the product reaches you in its manufactured quality. And as for quality in the field, regular inspections show that the CE and UL certifications are not only complied with but exceeded by far. Finally, Siemens standard SN 36350-1 on environmentally sound product design reduces the environmental impact, from production to disposal.

Experience:

siemens.com/simatic-ipc-video-quality

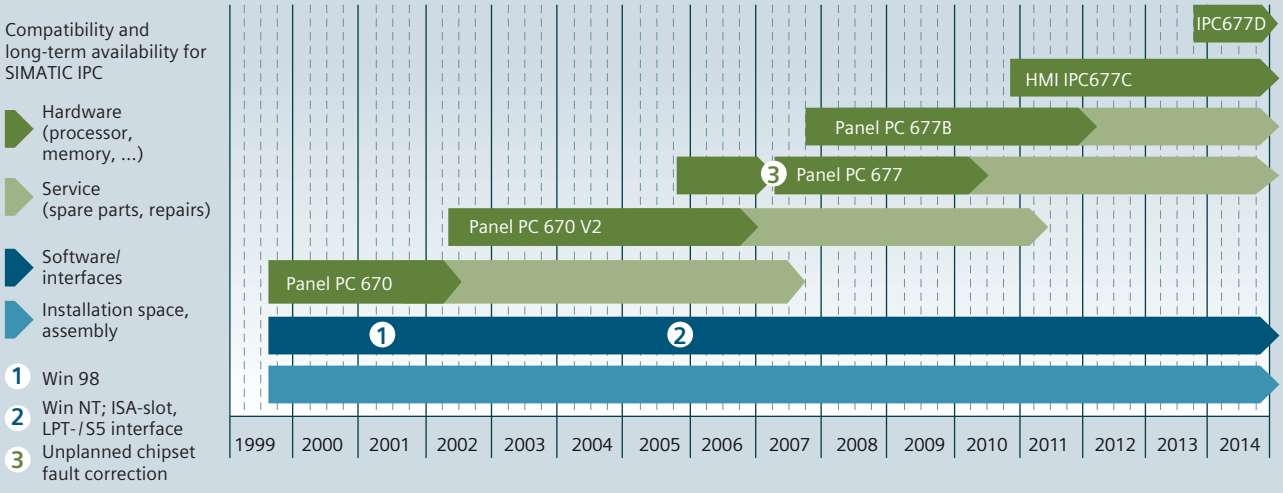
More continuity

SIMATIC IPCs stand for a very high level of compatibility and long-term availability – with at least 6 months overlap as innovations and new generations are adopted. For example, we usually guarantee availability of four to six years and a repair and spare parts service for five years. On request, you can also be provided with systems permanently tailored to a specific application, so-called design freeze systems – complete and ready for operation. Where practical, the mechanical dimensions of SIMATIC IPCs are compatible with the design of their predecessors. This enables quick and simple integration. A high level of image compatibility within each device generation also minimizes adaptation effort.

Advantages at a glance

- Top quality and reliable compliance with all specifications
- Full performance even in continuous operation and in especially harsh and demanding ambient conditions
- High continuity and long-term availability
- Easy on resources and environmentally friendly

More continuity and long-term availability



Designed for industry

Meeting the high demands of industrial compatibility starts with product design of the SIMATIC IPCs. Their special features include:

- Mainboards developed in-house
- Rugged enclosure designs with high electromagnetic compatibility (EMC) and degrees of protection up to IP65/NEMA 4
- Integrated industrial power supplies (to NAMUR) and redundant power supplies that can be swapped during normal operation
- High MTBF even in the extended temperature range
- High vibration/shock resistance thanks to special hard disk holders
- Lockable plug connectors and card retainers
- Internal USB interface, e.g. for a software dongle
- Microsoft operating systems already installed and activated for fast installation
- Service-friendly, modular device design
- Restore CD/DVD for recovery to the as-delivered condition

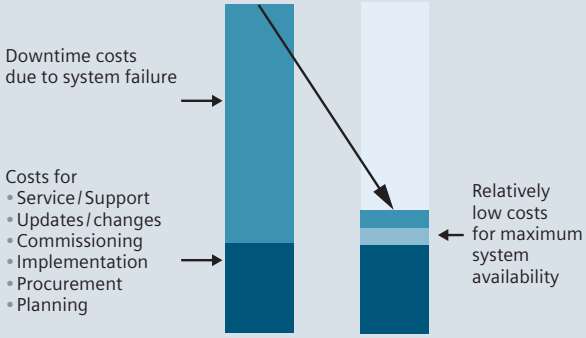
Further information on the system highlights of our SIMATIC IPCs:

siemens.com/the-more-industrial-pc

Higher system availability

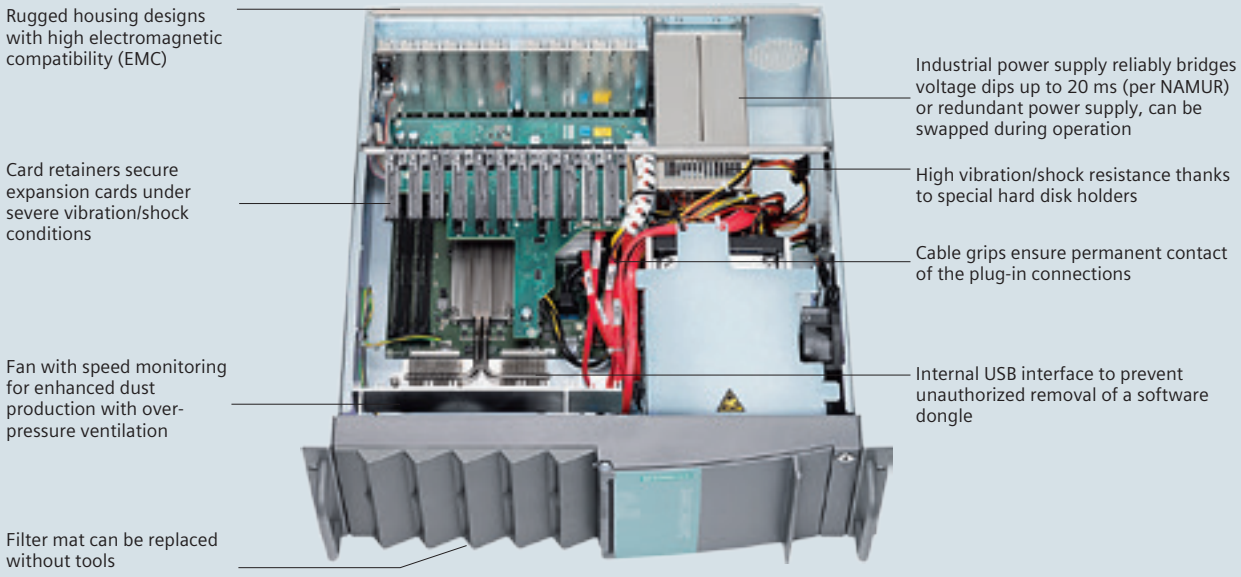
Thanks to their product features and additional components for enhancing system availability, SIMATIC IPCs ensure high plant availability in the long term, with reduced subsequent costs. This creates the conditions for maximum productivity and economic efficiency.

Reduction of total costs with SIMATIC IPCs system availability components



Total cost of ownership (TCO) analysis for plants with higher availability requirements

Measures for greater ruggedness and industrial compatibility, based on a SIMATIC Rack PC



SIMATIC Embedded IPCs

Rugged, compact, and maintenance-free

For universal installation in machines, control enclosures, and control cabinets, the fan-free embedded devices from SIMATIC are available in Box PC and Panel PC formats.

The Embedded Industrial PCs SIMATIC IPC2x7D/IPC4x7D enable particularly flexible and compact handling of the most diverse tasks:

- Measuring, open-loop and closed-loop control of process and machine data
- Industrial image processing with data acquisition and processing
- Distributed visualization in conjunction with SIMATIC Industrial Flat Panels
- Used as a data concentrator or gateway

General features	IPC227D – Nanobox PC – compact, flexible mounting and dust protection	IPC277D – Nanopanel PC – compact with displays from 7"
Operating systems (preinstalled and activated)	Windows Embedded Standard 7 / Windows Embedded Standard 2009 / Windows 7 Ultimate / XP Professional	
Processor	Intel Atom E660 – 1.3 GHz; Atom E640 – 1.0 GHz; Atom E620 – 600 MHz [1]	
SATA HDD, SATA SSD, CF Drive	HDD 250 GB [1]; SSD 50 GB (high endurance); SSD 80 GB (standard); 1 x CFC up to 16 GB (can be replaced from outside)	
Networking options (onboard)	2 x Gigabit-Ethernet, 1 x PROFINET (real-time over standard Ethernet)	
Expandability with cards	1 x PCIe (optional)	–
Integrated non-volatile memory	MRAM 512 KB (optional), 128 KB of which usable for WinAC	
Long-term availability		
Availability [2]	4 to 6 years	
Repair and spare parts service	Additional 5 years	
Industrial compatibility		
Shock/vibration	15 g/1 g	
Ambient temperature during operation	0 ... 50 °C	
Options for increased system availability		
DiagMonitor diagnostics software		
Remote access (Intel AMT for Core i5/i7)	–	
Image & Partition Creator backup software		

[1] Only IPC227D [2] As of the start of delivery

The benefits of embedded devices

- Extremely high system availability and data security
- High degree of flexibility for interfaces and expansions
- Universal installation orientations and mounting options
- Fast commissioning thanks to preinstalled and activated operating system
- Ready-to-use bundles with visualization and control software

Configure your ideal system quickly and simply with the TIA Selection Tool:

siemens.com/tia-selection-tool

IPC427D – Microbox PC – flexibly configurable	IPC477D – Panel PC – flexibly configurable, displays from 12"	IPC477C PRO – Panel PC – IP65 allround with 15" and 19" displays
Windows Embedded Standard 7 / Windows 7 Ultimate MUI		Microsoft Windows Embedded Standard 7 Windows Embedded Standard 2009 Windows 7 Ultimate (32 bit)
Intel Core i7-3517UE – 1.7 GHz (2.8 GHz); Core i3-3217UE – 1.6 GHz; Celeron U827E – 1.4 GHz		Intel Core2 Duo SU9300 (2 x 1.2 GHz; 800 MHz FSB; 3 MB SLC); Intel Core2 Solo ULV SU3300 (1 x 1.2 GHz; 800 MHz FSB; 3 MB SLC); Intel Celeron M ULV 723 (1.2 GHz; 800 MHz FSB; 1 MB SLC)
HDD 250 GB; SSD 50 GB (high endurance); SSD 80/160 GB (Standard); to 16 GB (can be changed from outside), second CFast up to 16 GB internal		2 x slot for CFC to 16 GB; SSD 50 GB 1 x CFast (SATA; high endurance) or SSD 80 GB (SATA; Standard)
2 x Gigabit Ethernet, 1 x MPI/PROFIBUS (optional), 1 x PROFINET (3 ports, opt.)		
Up to 2 x PCIe (optional)	1 x PCIe (optional)	–
512 KB NVRAM, 128 KB of which usable for WinAC		Static RAM 2 MB
4 to 6 years		
Additional 5 years		
15 g/1 g	5 g/1 g	
0 ... 55 °C	0 ... 50 °C	0 ... 45 °C
■		
■ / and via SIMATIC IPC Remote Manager		–
■		

Highlights of the SIMATIC Embedded IPCs

Extremely high system availability and data security

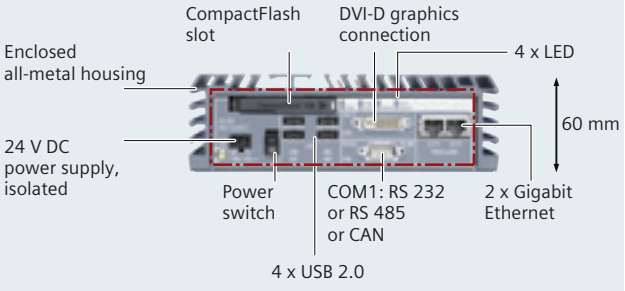
SIMATIC Embedded IPCs are extremely rugged and reliable devices, partly thanks to:

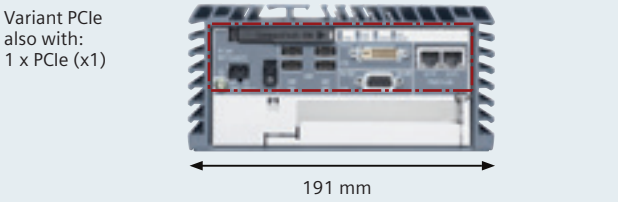
- Rugged mass storage device:
  - Solid-state drive (SSD) with 50 GB (high endurance)
  - Solid-state drive (SSD) with 80 / 160 GB (standard)
  - CompactFlash drive up to 16 GB (IPC2x7D)
  - CFast drive up to 16 GB (IPC4x7D)
- 512 KB non-volatile memory (opt.), e.g. for backing up process data during a power failure
- Front LED display for efficient self-diagnostics
- Pre-installed local diagnostics software for monitoring mass storage device, battery, temperature, and program execution

High degree of flexibility for interfaces and expansions

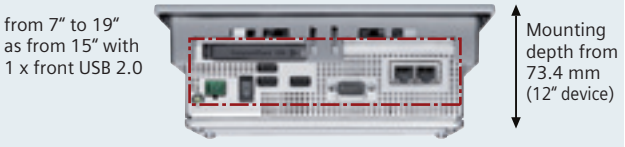
SIMATIC IPC227D / IPC277D: Connectors and expansions

IPC227D basic unit



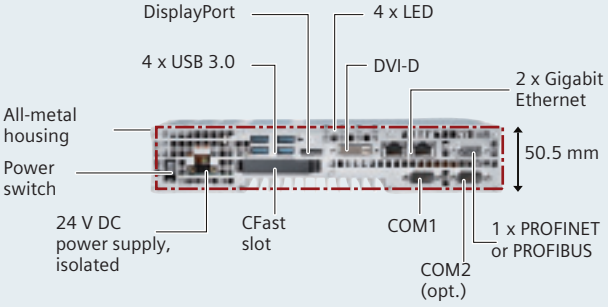


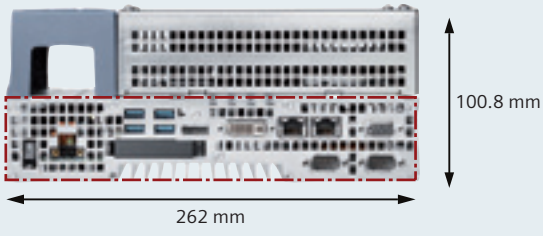
IPC277D basic unit 7"



SIMATIC IPC427D / IPC477D: Connectors and expansions

IPC427D basic unit



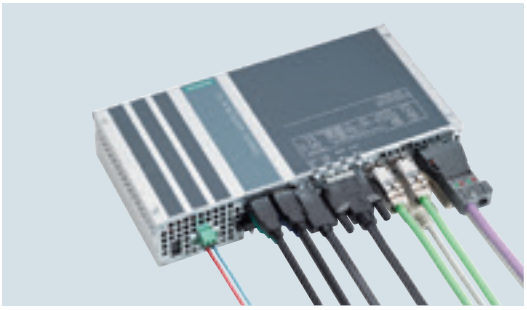


IPC477D basic unit 12"
from 12"–22", from 15" with 1 x front USB 2.0

Universal installation orientations and mounting options

The compact SIMATIC IPC227D and IPC427D Box PCs are optimized for flexible use in confined spaces in the control cabinet and directly at the machine.
They offer versatile mounting options and orientations while retaining assured properties, such as ambient temperatures up to 55 °C (IPC427D).

- More than 20% space saving. For easy installation and fast cabling, all the interfaces are conveniently accessible from one side.
- Simple, tool-free mounting on standard rail, e.g. in conjunction with a SITOP power supply.



Mounting options on the SIMATIC IPC227D

Tool-free mounting on standard rail

Flexible wall mounting with interfaces above or below

Space-saving portrait mounting with a small footprint

Side mounting with minimum space requirements

Visualization and control software installed and ready to use

Fast commissioning with Embedded Bundles

You can purchase embedded industrial PCs as ready-to-use SIMATIC Embedded Bundles complete with a Windows Embedded operating system and preinstalled and preconfigured SIMATIC software.

Advantages at a glance

- Extremely high system availability and data security
- High degree of security thanks to perfectly matched and tested hardware and software combinations
- Extremely time-saving thanks to ready-to-use system with fast, problem-free commissioning
- As-delivered condition can be restored at any time with the Restore CD/DVD
- High level of data security since retentive machine data can be saved and secured against loss resulting from power failure
- The IPC onboard interfaces can be used by the SIMATIC WinAC software controller for connecting distributed I/O over PROFIBUS/PROFINET
- Problem-free modular expansion of the S7-mEC Embedded Controller with SIMATIC I/O modules, such as a PROFIBUS card
- Efficient, cost-effective overall package as an alternative to ordering individual components

SIMATIC Embedded Bundles for fast commissioning:

siemens.com/simatic-embedded-bundles

SIMATIC Embedded Bundles operating system	IPC2x7D WES 2009 / WES 7	IPC4x7D WES 7	IPC477C PRO WES 2009	 WES 7
Operator control and monitoring				
WinCC RT Professional (TIA Portal)		●		●
WinCC RT Advanced (TIA Portal)	● ●	● ●		● ●
Open-loop and closed-loop control				
WinAC RTX	●	●	●	●
WinAC RTX F	●	●	●	●

● Combination that can be ordered preinstalled and preconfigured

WES 2009 = Windows Embedded Standard 2009
WES 7 = Windows Embedded Standard 7

Device variants for special requirements

All-round protection with degree of protection IP65, flexible use

The Embedded Panel PC SIMATIC HMI IPC477C is also available with all-round protection with degree of protection IP65 – with 15-inch and 19-inch displays. The SIMATIC HMI PRO devices (PRO = Protected) with degree of protection IP65 all-round are perfect for harsh ambient conditions. They can be mounted on support bracket and stand systems from different manufacturers using an adapter. This means they can be used directly at the machine outside the control cabinet, for ergonomic operation at different points in the plant or production line. The removable rear wall cover with degree of protection IP20 makes for high servicing convenience. The PRO devices are available with different functionalities as a Flat Panel Monitor, Thin Client, and Panel PC.

The SIMATIC HMI IPC477C PRO 15" and 19" can be supplemented with expansion units such as the KP8 Key Panel.

Advantages at a glance

- Operator panels with all-round IP65 protection for mounting on support brackets or stands
- Removable rear wall cover for optimum servicing convenience, with degree of protection IP20
- Maximum compactness and low weight for easy mounting
- Easy adjustability to changing requirements thanks to modular expandability

Intrinsically safe for the hazardous area

The intrinsically-safe SIMATIC HMI Panel PC Ex and SIMATIC HMI Thin Client Ex devices can be used directly in hazardous areas of Zones 1/21 and 2/22, without special measures such as inconvenient and costly enclosures or additional certification procedures. They are highly resistant to vibration and shock and are certified for marine use.

SIMATIC HMI PRO devices with degree of protection IP65 all-round:

siemens.com/ip65-hmi-devices

Intrinsically safe SIMATIC HMI devices for hazardous areas:

siemens.com/simatic-hmi-ex

Customized solutions:

siemens.com/customized-automation

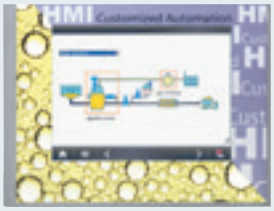
Individual SIMATIC IPCs

Wherever SIMATIC standard products (IPC, HMI, S7) do not fully meet your requirements, we offer you Customized Automation for the perfect solution in our familiar high quality.

An offer that covers all the bases:

- Changes in design (e.g. company logo, color)
- OEM products (e.g. with special expansion cards)
- Software products (e.g. with special drivers and customer images)
- Turnkey products (e.g. with ready-to-use HMI operator stations)
- Industry solutions (e.g. for oil & gas, chemicals, food & beverages)
- Individual service, support, and logistics solutions (e.g. tests, certification, approvals, just-in-time delivery)

Individual design in less than 20 days:



With Digital Express Design, the operator panel fronts can be designed in less than 20 days even for small ordered quantities. Photo-realistic images with a resolution up to 600 dpi are also possible.

SIMATIC High-end IPCs

Rugged and powerful with high functionality

The rugged high-end industrial PCs from SIMATIC offer a high degree of functionality, and are particularly powerful for high-speed processing of large volumes of data.

The following device variants are available:

- 19" rack PCs for the control cabinet, or as desktop IPCs
- Integrated box and panel PC platform for direct installation in machines

The benefits of high-end devices

- High performance and extremely fast system response
- Platform with identical performance features
- High system availability and data security
- High energy efficiency
- High service-friendliness

Configure your ideal system quickly and simply with the TIA Selection Tool:

siemens.com/tia-selection-tool

General features	IPC647D – Rack PC high performance, functionality, and compactness	IPC847D – Rack PC high performance, functionality, and expandability	IPC627D – Box PC high performance, functionality and compactness
Operating systems (preinstalled and activated)	Windows 7 Ultimate (32/64 bit); Windows Server 2008 R2 (64 bit)		
Processor	Intel Xeon E3-1268L v3 – 2.3 GHz (3.3 GHz) Core i5-4570TE – 2.7 GHz (3.3 GHz) Core i3-4330TE – 2.4 GHz		
Drives	Internal/removable drive bay: 500 GB; 1 TB; 2 x 1 TB; SSD 240 GB; RAID1: 2 x 1 TB, 2 x 1 TB (optional plus SSD 240 GB)	Internal/removable drive bay: 500 GB; 1 TB; 2 x 1 TB; SSD 240 GB; RAID1: 2 x 1 TB (optional plus 1 TB as hot spare or SSD 240 GB); RAID5: 3 x 1 TB (optional plus 1 TB as hot spare)	
Networking options (onboard)	2 x Gigabit Ethernet, 1 x PROFINET 3 ports optional, 1 x PROFIBUS/MPI optional		
Expandability with cards	3 x PCI Express x 16 (4 lanes); 1 x PCI Express x 16 (8 lanes) or 2 x PCI; 2 x PCIe x 16 (8 lanes)	7 x PCI, 1 x PCI Express x 16, 3 x PCI Express x 4 or 3 x PCI, 5x PCI Express x 16, 3 x PCI Express x 4	2 x PCI or 1 x PCI and 1 x PCIe x16
Integrated non-volatile memory	–		Battery-
Long-term availability			
Availability [1]	4 to 6 years		
Repair/spare parts service	Additional 5 years		
Industrial compatibility			
Shock/vibration	5 g/0.5 g		
Ambient temperature	in operation: 5 ... 50 °C		
Options for increased system availability			
Diagnostics software	SIMATIC IPC DiagMonitor		
Remote access	Intel AMT 9.0 (for Core i5, Core i7, and Xeon) and via SIMATIC IPC Remote Manager		Intel AMT 9.0 (for
Backup software	SIMATIC IPC Image & Partition Creator		SIMATIC IPC Ima

[1] As of start of delivery

SIMATIC High-end IPCs are the first choice for tasks with the highest demands for performance and system availability:

- Measuring, and open/closed-loop control of industrial processes
- Visualization of production sequences – centrally with the IPC677D or distributed, e.g. with the Industrial Flat Panel Monitors
- Image processing, e.g. for quality inspections
- Data acquisition and management, e.g. for recipe management
- Intelligent energy management
- Industrial server applications with maximum system performance, availability and data security

		
	IPC827D – Box PC high performance, functionality, and expandability	**IPC677D – Panel PC high performance and functionality with single-touch and multitouch displays as of 19"**
	Windows 7 Ultimate (32/64 bit)	
	Intel Xeon E3-1269L v3 – 2.3 GHz (3.3 GHz) Core i3-4330TE – 2.4 GHz Celeron G1820TE – 2.2 GHz	
	without; 250 GB; 500 GB; SSD 240 GB; RAID1: 2 x 250 GB	
	2 x Gigabit Ethernet; 1 x PROFINET (3 ports) optional; 1 x PROFIBUS / MPI optional	
	3 x PCI, 1 x PCIe x 16 and 1 x PCIe x 4	2 x PCI or 1 x PCI and 1 x PCIe x16
	backed SRAM 2 MB, 128 KB of which usable for WinAC	
	4 to 6 years	
	Additional 5 years	
	5 g/1 g	
	in operation: 5 ... 55 °C	
	SIMATIC IPC DiagMonitor	
	Core i5, Core i7 and Xeon) and via SIMATIC IPC Remote Manager	
	ge & Partition Creator	

Universal use and easy installation

SIMATIC Box PCs are optimized for flexible implementation in confined spaces in the switching cabinet and directly at the machine:

Stainless steel fronts

The SIMATIC HMI IPC677C Panel PC with 15" touch display is also available with a stainless front, designed for use in the food and beverages industry.

It is characterized by:

- Simple cleaning and disinfecting
- High resistance
- Splinter protection of the display
- High degree of protection

The Panel PC SIMATIC HMI IPC677C can also be customized as an ergonomic operator station to a high degree of protection (up to IP66K all-round) built into a stainless-steel control box.

SIMATIC IPC677C 15" Touch INOX	
Material and surface	Stainless steel 1.4301, polyester foil/polished, grain size 240
Seal	EPDM
Special features	Optimized rack profile, angled surfaces, tested hygiene with LGA symbol 5664018
Degree of protection	Front: IP66K, rear: IP20

Protection against explosion

The SIMATIC IPC627C Box PC and the SIMATIC HMI IPC677C 19" Panel PC have UL certification Class I / Division 2 for operation in potentially explosive atmospheres, for example, in the oil and gas or petrochemical industries.

SIMATIC IPC 677 15" Touch INOX:

siemens.com/inox-hmi-devices

Highlights of the SIMATIC High-end IPCs

Maximum performance and particularly fast system response

- 4th generation Intel processors
- Powerful onboard HD graphics integrated into the CPU
- Now also with Intel Xeon processors
- PCI Express x16 and USB 3.0
- High data transfer rates thanks to two Gigabit Ethernet ports

Platform with identical performance features

- High robustness against vibrations and shocks
- Full performance even at higher temperatures
- Great expandability via PCI Express slots
- High degree of compatibility regarding installation, interfaces and software
- Optional PROFIBUS or PROFINET interface with three ports for cost-effective connection of distributed field devices or to couplings with SIMATIC S7

Special features of the SIMATIC Rack PCs

High-quality industrial design

- Vibration- and shock-absorbing hard disk holder
- Reliable dust protection and low noise due to fan-controlled overpressure ventilation
- Painted enclosure for increased corrosion protection

High service-friendliness

- Front fan can be replaced without tools
- Only one screw needs to be removed to quickly open the enclosure
- Hard disks and power supply unit can be replaced during operation

High level of security

- Lockable front door protects drives, on/off button, and reset button on the front from misuse
- USB flash drive can be operated while the front door is locked
- Additional internal USB interface for protection against unauthorized removal of a USB flash drive (e.g. for a software dongle).

Efficient self-diagnostics

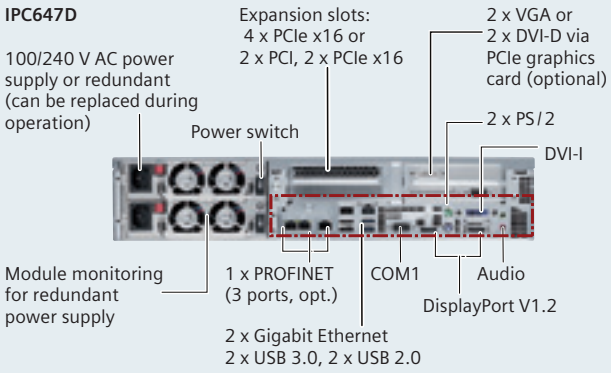
Front LED display, e.g. for simple identification of a faulty hard disk in the RAID group by HDD1, HDD2, or HDD3 ALARM (IPC847D)

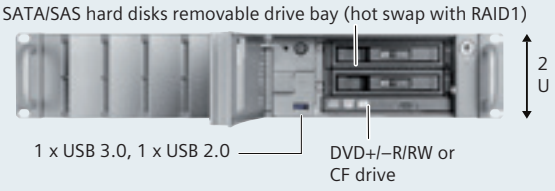
Multi-monitoring

Up to 5 monitors – via optional PCI Express x16 graphics card and onboard graphics

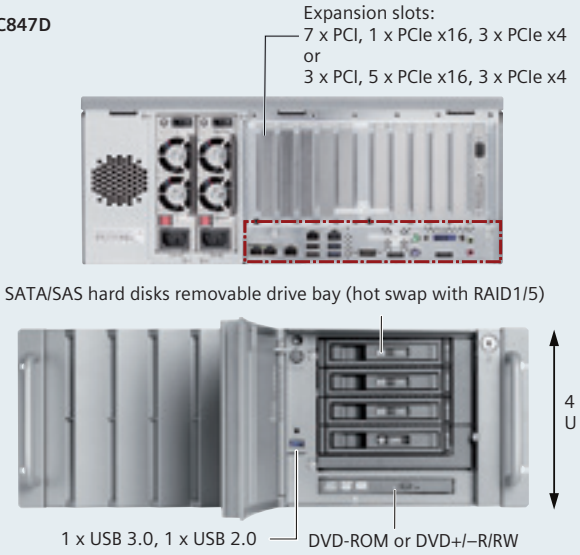
SIMATIC IPC647D/IPC847D: Connectors and expansions

IPC647D





IPC847D



Maximum system availability and data security

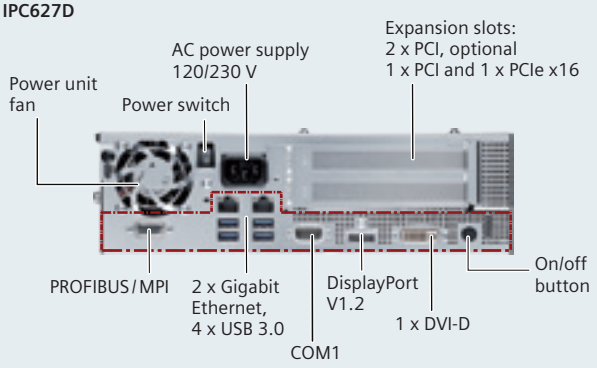
- High-quality industrial design with vibration/shock-absorbing hard-disk holders
- RAID controller onboard or hardware RAID[1] and additional hot spare hard disk
- SAS controller[1] with 1 TB SAS HDD
- Robust mass storage device, solid-state drive with 240 GB
- ECC RAM main memory with error correction
- Non-volatile data memory for storing the process data after a power failure
- Redundant power supply (hot swap) [1]
- Redundancy thanks to two teaming-capable Gigabit Ethernet connections
- Secure remote access via Intel AMT [2] and SIMATIC IPC Remote Manager

High energy efficiency

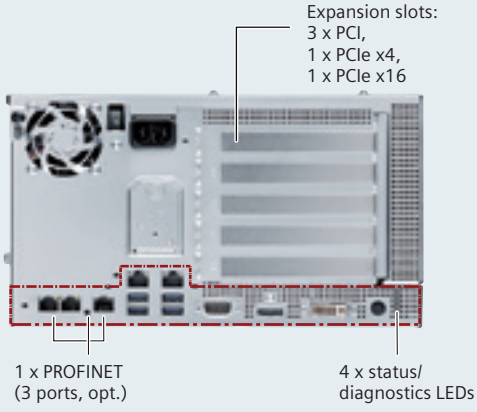
- Low power consumption thanks to mobile processors
- Wake-on-LAN functionality for timed start-up from a central point, over the network (e.g. after a shutdown weekend)

IPC627D / IPC827D / IPC677D: Connectors and expansions

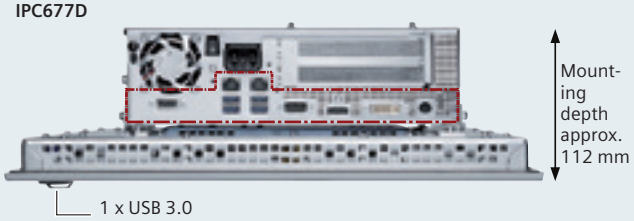
IPC627D



IPC827D



IPC677D



Special features of IPC627D / IPC827D / IPC677D

Fast replacement of the CMOS battery even when installed due to externally accessible battery compartment.

Fast diagnostics of the operating condition and display of the BIOS start procedure by four status and signaling LEDs:
1x LED: BIOS
2x LEDs: user/WinAC RTX 1 x LED: WinAC RTX.

The SIMATIC IPC677D is available as a single-touch or multitouch device.

[1] On Rack PC
[2] With Intel Core i7 / i5

SIMATIC Software Packages:
Secure price advantages for yourself with our package offers for all available SIMATIC IPCs

siemens.com/simatic-ipc-packages

High performance, attractive price

With the new SIMATIC IPC347D, we offer you the ideal entry into the world of SIMATIC IPCs. The new 19-inch rack PC in a rugged all-metal housing is especially suitable for applications in production, requiring greater ruggedness than office PCs. These include visualization tasks, data collection, management, and storage, and measurement and testing tasks, for example, in building or process automation, logistics, and mail-order business, and medical engineering.
Four fixed configurations are available that differ by their processor type, RAM, optical drives, and operating system.

SIMATIC IPC347D: Advantages at a glance

- Industrial functionality at an optimized price
- Ideal for visualization and SCADA applications
- Clearly enhanced system availability over office PCs

Highlights at a glance: IPC347D

- Powerful processors of the 3rd generation up to Intel Core i5
- No additional dust protection required thanks to filter mat and overpressure ventilation (replacement without tools)
- RAM up to 16 GB expandable
- Lockable front covers
- Front USB interface (lockable with front cover)
- Space-saving mounting in cabinets with depths starting at 500 mm
- Prepared for mounting on telescopic rails

General features	IPC347D – ideal entry-level device in a rugged metal housing	IPC547E – short rack PC – high performance at an attractive price with small mounting depth
Operating systems (preinstalled and activated)	Windows 7 Ultimate (64 bit)	Windows 7 Ultimate (32/64 bit)
Processor	Intel Pentium G2010, Intel Core i5-3340S	Intel Pentium Dual Core G3420 – 3.2 GHz Celeron G1820 – 2.7 GHz
Drive	500 GB HDD	500 GB, 1 TB, 2 x 1 TB
Networking options (onboard)	2 x Gigabit Ethernet	1 x Gigabit Ethernet
Expandability with cards	1 x PCIe x 16, 1 x PCIe x 8, 1 x PCIe x 1, 4 x PCI	4 x PCI, 2 x PCIe x 16, 1 x PCIe x 8
Integrated non-volatile memory	–	–
Long-term availability		
Availability [1]	At least 1 year	At least 1.5 years
Repair and spare parts service	Approx. 1 further year	Additional 3 years
Industrial compatibility		
Shock/vibration	Not specified	1 g/0.2 g
Ambient temperature during operation	5 ... 40 °C	5 ... 40 °C
Options for increased system availability		
Diagnostics software	–	SIMATIC IPC DiagMonitor
Remote access	–	–
Backup software	–	SIMATIC IPC Image & Partition Creator

[1] As of start of delivery

For the high-performance range, too, we offer an industrial PC at an attractive price – the SIMATIC IPC547E: The powerful and flexibly expandable rack PC in 19" format (4U) is especially suitable as an industrial workstation and server for fast parallel processing of large volumes of data in industrial image processing, process visualization, data acquisition and processing. In addition to the high performance, the IPC547E impresses with its high system and data availability. For example, failures can be avoided and continuous operation ensured. For a better overview in the control room, up to five monitors or displays can be connected.

SIMATIC IPC547E: Advantages at a glance

- Maximum performance and fast system response
- Extremely high system availability and data security
- High data transfer rates and redundancy
- Targeted start-up from a central position via network with wake-on-LAN functionality

Highlights at a glance: IPC547E

- Intel Core processors of the 4th generation (up to i7 with 4C/8T)
- Powerful onboard Intel HD graphics 4600
- DDR3 memory technology up to 32 GB
- RAID controller onboard for up to 3 hard disks in RAID5 network in removable drive bay plus optional hot-spare hard disk
- Solid-state drive (SSD) with 240 GB (SATA 2.5")
- Redundant power supply (hot swap)
- Front LED displays for efficient self-diagnostics
- Multi-monitoring with up to 5 monitors via onboard graphics
- 11 x USB ports
- Wake-on-LAN functionality for timed start-up from a central point, over the network

IPC547E – Rack PC – maximum performance at an attractive price
Windows 7 Ultimate (32/64 bit); Windows Server 2008 R2 (64 bit)
Intel Core i7-4770S – 3.1 GHz (3.9 GHz) Core i5-4570S – 2.9 GHz (3.6 GHz) Pentium Dual Core G3420 – 3.2 GHz
Internal/removable drive bay: 500 GB; 1 TB; 2 x 1 TB; SSD 240 GB; RAID1 2 x 1 TB (optional plus 1 TB as hot spare or SSD 240 GB); RAID5 3 x 1 TB (optional plus 1 TB as hot spare)
2 x Gigabit Ethernet
4 x PCI, 2 x PCIe x 16, 1 x PCIe x 8
–
At least 1.5 years
Additional 3 years
1 g/0.2 g
5 ... 40 °C
SIMATIC IPC DiagMonitor
Intel AMT 9.0 (for Core i5, Core iU)/ via SIMATIC IPC Remote Manager
SIMATIC IPC Image & Partition Creator

Special features IPC547E

Maximum data availability with hot spare HDD and RAID1 or RAID5 support

Optimum system availability thanks to redundant power supply

Space-saving installation in the cabinet is enabled by two housing variants (depths 356 mm and 446 mm)

Distributed operator control and monitoring

with industrial flat panel monitors and thin clients

For solutions with detached operator unit, SIMATIC offers two different concepts: Industrial flat panel monitors for small-scale separated solutions over a distance of up to 30 meters and Industrial thin clients, for one or more operator stations, any distance apart over Industrial Ethernet.

SIMATIC IFP Industrial Flat Panel Monitors – for fast response times

SIMATIC IFPs are available in the following variants: with widescreen fronts in 15", 19", and 22" as pure display devices, with touch operation, in a 15" touch/key variant with front USB and multitouch variant. The devices can be separated from the industrial PC up to a distance of 30 m via a DisplayPort or DVI interface, and they offer quick response times, for example, for jog mode or curve display. Devices with 4:3 displays are still available – also with degree of protection IP65 all-round.

Industrial Thin Clients SIMATIC ITC – for cost-optimized and versatile client-server architectures

SIMATIC ITCs are powerful operator terminals with high-resolution widescreen touch displays in the sizes 12", 15", 19", and 22". They are especially user-friendly in implementing distributed HMI solutions with client-server architecture, and they can be used flexibly from machine-level operator control and monitoring, right up to connection to control systems (SCADA) and numerical controls (SINUMERIK, available soon).

The devices can be almost any distance from the server system over Industrial Ethernet. A Gigabit LAN interface, integrated web browser, and diverse supported protocols offer high flexibility and high-speed communication with other systems. Intrinsically-safe devices for hazardous areas are available, as well as devices with degree of protection IP65 all-round.

Advantages at a glance

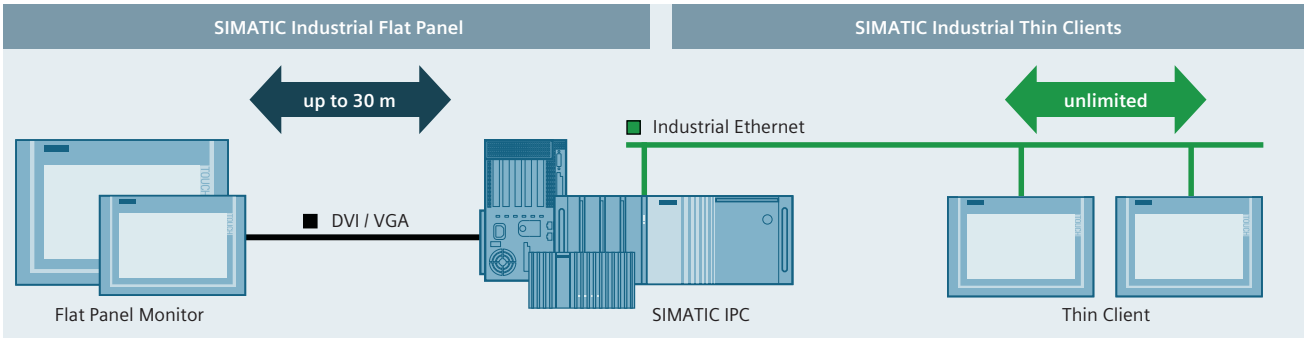
- Cast aluminum fronts for 24-hour continuous operation, also for high temperature, vibration, shock, and EMC requirements
- Energy-saving LED backlighting (100% dimmable), especially long service life
- High-resolution widescreen display for clear display and operator input, with good readability from all directions
- Integrated front design in widescreen format like Panel PCs and Comfort Panels, for uniform appearance of machines and plants
- Very long-term availability

Industrial Flat Panel Monitors SIMATIC IFP:

siemens.com/simatic-ifp

Industrial Thin Clients SIMATIC ITC:

siemens.com/simatic-itc



SIMATIC IFP Industrial Flat Panel Monitors and SIMATIC ITC Industrial Thin Clients offer maximum flexibility with distributed operator control and monitoring

Intuitive and fast operation with multitouch display

The trend toward operation with gestures and/or more than one finger at a time is all around us – and is now entering automation. The best example: the new Flat Panel Monitors and Panel PCs. They offer an attractive design, industrial standard widescreen displays and projected capacitive touch displays specially designed for industrial applications. This innovative touch technology enables fast and efficient operation of machines and plants with intuitive single-touch and multitouch gestures or two-hand operation. Approvals for hazardous areas and marine use will be available soon.

Advantages at a glance

- Completely anti-glare glass front, scratchproof, and resistant to chemicals, with metal surround for protection against damage
- Sharp and high-contrast displays, uniform brightness improves legibility
- Detection of 5 fingers simultaneously with high touch resolution for exact operation
- Intelligent operating error detection (e.g. ball of hand detection, drop detection, soiling, etc.)
- High shock and vibration resistance as well as high EMC ensure reliability and a long service life
- Degree of protection IP65 on the front
- Software support
  - Individual programming using the tablet functions of Windows 7/8
  - SIMATIC TIA Portal V13 with Windows 7
  - SIMATIC WinCC V7.2 with Windows 7
  - SIMATIC WinCC OA V3.12 with Windows 7

More information on our multitouch devices:

siemens.com/hmi-multitouch

PC-based Control and HMI software

Software for operator control and monitoring

A range of hardware and software options is available for PC-based automation. Their optimized interaction with SIMATIC IPCS is ensured by joint development and extensive system tests.

SIMATIC WinCC (TIA Portal) – innovative HMI software

SIMATIC WinCC in the Totally Integrated Automation Portal (TIA Portal) is part of a new, integrated engineering concept that offers a uniform engineering environment for programming and configuration of control, visualization, and drive solutions.

WinCC in the TIA Portal is the software for all HMI applications ranging from the simplest operation solutions with Basic Panels to SCADA applications on PC-based multi-user systems.

Maximum configuration efficiency

Compared with the predecessor product WinCC flexible, you benefit from still better engineering efficiency – especially if other Siemens components are part of the automation solution (e.g. SIMATIC S7 controller). Efficient interaction with STEP 7 in the TIA Portal avoids multiple entry and ensures consistent data management at all times. All the common functions are uniform – including in the way they appear on the screen. The list of advantages resulting from this is long. It ranges from intuitive operation, to integrated intelligence of editors, to the common database to ensure best transparency and absolute consistency.

SIMATIC WinCC V7 – scalable process visualization with plant intelligence

SIMATIC WinCC is a price- and performance-graded process visualization system for all sectors, including the pharmaceutical industry, where the applicable options meet the requirements of 21 CFR Part 11. WinCC offers SCADA functionality – from single-user to distributed multi-user systems with redundant servers and multi-site solutions with web clients. In particular, WinCC is characterized by absolute openness. Via open interfaces, system houses can develop individual applications and install system expansions on WinCC. With the integrated process database, WinCC forms the information hub for company-wide, vertical integration.

Advantages of WinCC to you at a glance

- Universally usable worldwide – in all industries
- Meets requirements according to 21 CFR Part 11
- Can be integrated in all automation and IT solutions
- Can be configured simply and efficiently
- Continuously scalable – also via the web
- Open standards for easy integration
- Integrated MS SQL server for data archiving as an information hub
- Increased production transparency through Plant Intelligence
- Expandable using options and add-ons

SIMATIC WinCC can be run with server functionality under Windows Server 2008. This is possible for the SIMATIC Rack PCs.

Software for HMI applications – SIMATIC WinCC:

siemens.com/simatic-wincc

STEP 7 in the TIA Portal:

siemens.com/tia-portal

Software for controlling

PC-based control with SIMATIC WinAC RTX

WinAC RTX enables control on the PC. The software controller is used when requirements for high performance, high data volumes, and strict real time coincide. The optimized runtime system supports the processing of extensive and demanding PC applications in parallel with the control task. It executes under the operating systems Windows Embedded Standard 2009/Standard 7 or Windows 7 and uses a real-time core for real-time and deterministic behavior.

WinAC RTX uses the latest innovations for SIMATIC Controllers when communicating over PROFINET. Particular features are the isochronous mode over PROFINET and IRT, and the web server functionality. Isochronous mode is used for extremely fast and accurate automation solutions. Input signals are acquired, processed, and output at fixed intervals. The web server automatically generates web pages that can also be used for remote diagnostics and, with the relevant authorization, permits access to a plant from any PC.

Use of SIMATIC know-how

WinAC RTX is programmed with the usual SIMATIC programming tools: with STEP 7 or, if required, also with the field-proven engineering tools, such as the IEC 61131-3-compliant languages S7-SCL or S7-GRAPH. WinAC RTX is code-compatible with SIMATIC S7. That means: program code developed for SIMATIC S7-300 and S7-400 can be used in WinAC RTX and vice versa.

Software packages – ordering with a price advantage

With our Software Packages, which we offer for all available SIMATIC IPCs, you benefit from real price advantages. You only have to select your SIMATIC IPC, configure it, and order it together with the SIMATIC software.

Fail-safe variant SIMATIC WinAC RTX F

WinAC RTX F provides a TÜV-certified (German Technical Inspectorate), fail-safe software controller for safety-related applications. The S7 Distributed Safety software (a STEP 7 option) is used for programming the fail-safe program. The PROFIsafe profile permits fail-safe communication via PROFIBUS DP and PROFINET IO.

Openness and know-how protection

WinAC RTX is open to the integration of technological applications, such as barcode readers, image processing, measured value acquisition, and numerical controls. C / C++ / C# programs can be integrated into the WinAC RTX control program for this purpose. This makes for highly flexible solutions with access to all the hardware and software components of the PC. C / C++ / C# is frequently used to program complex technology functions. These often contain valuable know-how. C / C++ / C# encapsulates these programs. The openness of WinAC RTX can therefore also be used to protect know-how in customized functions.

Integration of complex closed-loop controllers with MATLAB/Simulink

Siemens is a partner of "The MathWorks" in the MathWorks Connection Program. Its software MATLAB/Simulink enables graphical modeling and simulation of processes and PID controllers. With Embedded Coder, the Simulink subsystems can be translated into C/C++ code. This code can be integrated into a WinAC ODK project and can be called and executed from the S7 program using DLL/RTDLL. Example templates for integration are available on the Internet. These are provided as free downloads.

SIMATIC WinAC software controller:

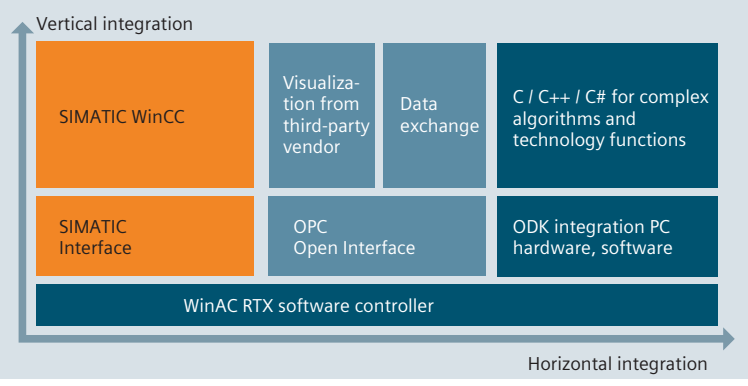
siemens.com/simatic-winac

Integrating complex controller structures with MATLAB/Simulink:

siemens.com/simulink

SIMATIC Software Packages –
complete offers at attractive prices:

siemens.com/simatic-ipc-packages



Individually expandable system availability

Prevention of potential failures

With its rugged design and high industrial suitability, SIMATIC IPCs set standards in availability – despite the heavy loads placed on both the hardware and software in industry. For applications with individual requirements for system availability, we offer a coordinate spectrum of optional expansion components with which potential failures can be detected early and actual downtimes can be effectively minimized. They include:

- Uninterruptible power supplies (UPS)
- The redundant power supply unit can be replaced during operation
- Flash disk and SSD as safe mass storage media
- RAID1/RAID5 configuration with automatic multiple data backup and restore

Uninterruptible power supplies (UPS)

The rugged SITOP DC-UPS 24 V devices ensure safe storage of data, controlled shutdown, and correct start-up on power failures lasting longer than 20 ms.

More information about uninterruptible power supplies:

siemens.cm/sitop/usv

Expansion options to increase system availability of SIMATIC IPCs:

siemens.com/ipc-expansion-components

SIMATIC IPC DiagMonitor – intelligent and comprehensive diagnostics, local or remote

With SIMATIC IPC DiagMonitor, potential failures in the field can be detected early. The software tool provides intelligent and extensive diagnostic and alarming functions that permit preventive maintenance in good time.

Minimization of downtimes

Once a fault has brought a plant to a standstill, it must be started up again as quickly as possible to minimize costs. The expansion options required to achieve this are therefore available for SIMATIC IPCs.
They include:

- SIMATIC IPC Remote Manager software for implementing low-cost maintenance, troubleshooting, and administration of SIMATIC IPCs by means of encrypted remote access
- SIMATIC IPC Image & Partition Creator software for preventive data backup and efficient partition management

More application options

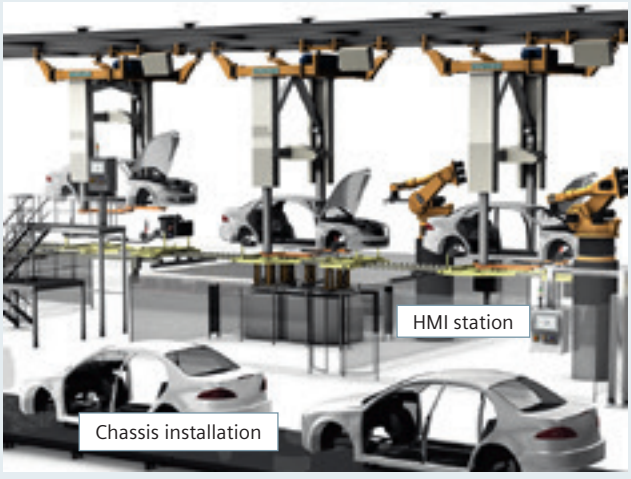
SIMATIC IPCs are perfectly equipped and suitable for open- and closed-loop control, visualization, measuring and testing, data processing and communication tasks, as well as as a gateway or network transition. They are used increasingly also for intelligent energy management or in shipbuilding.

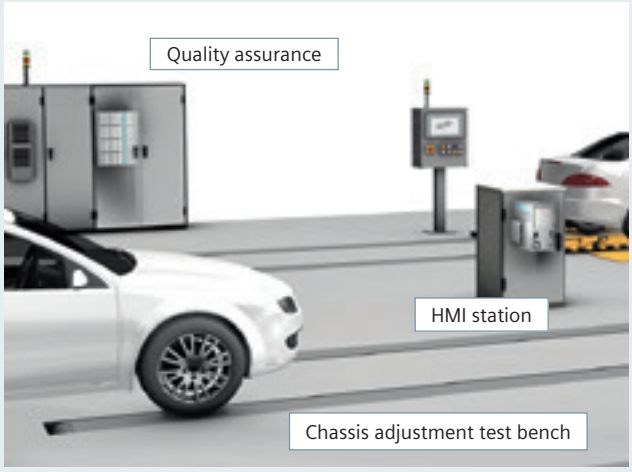
SIMATIC IPCs – at home in many industries

- Automotive industry (e.g. test bays, paint lines)
- Semiconductor and electronics industry (e.g. diffusion plants)
- Regenerative energy (solar, wind)
- Chemicals and pharmaceuticals industry (e.g. tablet presses, fermenters)
- Oil, gas and water (e.g. water treatment, water supply)
- Food and beverages industry (e.g. filling systems, fruit presses)
- Stock keeping and logistics (e.g. high-bay warehouses, conveyor technology)
- Mechanical engineering (e.g. printing machines, textile machines, CD/DVD production)

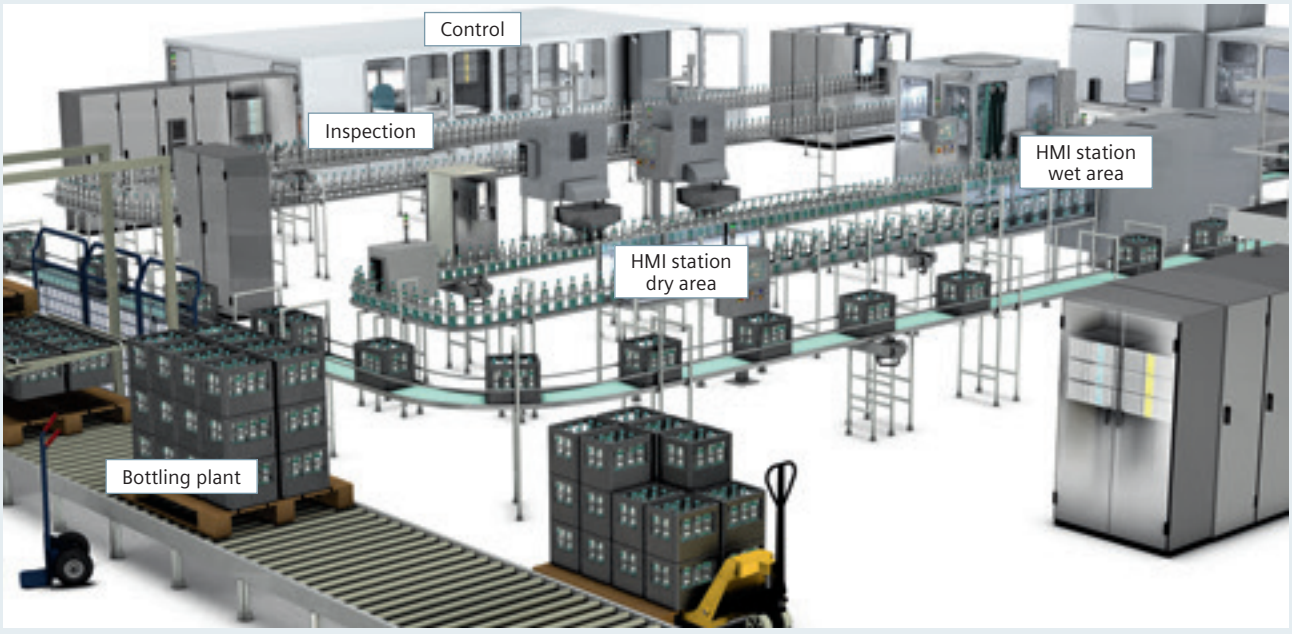
Application examples

Automotive industry





Food and beverages industry



Examples of use animated in 3D:

siemens.com/pc-based-applications

References for PC-based automation

Machine data acquisition optimizes production

AGCO GmbH, one of the largest manufacturers and suppliers of tractors and farming machinery worldwide, offers high-tech solutions for agriculture. For more economic production processes with reduced consumption of resources, centralized and integrated machine data acquisition has been introduced by means of panel PCs with all-round protection. With easy, cost-saving retrofitting of the panel PCs direct in the production plant on a stand, there was no need for additional installation of a control desk, permitting a reduction in costs.

Retrofit for high performance and precision

Heinrich Kuper GmbH & Co. KG, a global player in the woodworking and plastics processing industry, is a specialist in retrofitting older machines. New automation and safety engineering with a fail-safe software controller on a maintenance-free embedded PC multiplied the performance and precision of a customer plant, and integrated diagnostics capability. The control cabinet size was reduced by 20 percent, wiring by 50 percent, and machine downtimes were shortened, too.

Retrofit with safety:

siemens.com/reference-video-kuper

Control and monitoring of wind turbine generator systems

All Siemens turbines for offshore wind power plants feature technical characteristics that ensure long-term, low-maintenance operation. A rugged Box PC in a shock-proof and vibration-proof all-metal enclosure with high electromagnetic compatibility ensures safe 24-hour continuous operation at ambient temperatures up to 55 °C. A RAID1 mirror disk system has been selected for a high level of data security. International standards, CE and UL certification, as well as worldwide service ensure global use.

References in many industries:

siemens.com/automation/references

Find out more:

siemens.com/pc-based-automation

SIMATIC IPC
The more industrial PC

- Comprehensive range of rugged and reliable industrial PCs
- Innovative, high-quality hardware and software with long-term availability

SIMATIC IPC – all information!

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Article No.: 6ZB5370-1BF02-0BC5
Dispo 06303
WS 04143.
Printed in Germany

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Industrial security

Siemens offers automation and drives products with industrial security functions that support safe operation of the plant or machine. They are an important component in a holistic industrial security concept. With this in mind, our products undergo continuous development. We therefore recommend that you regularly check for updates of our products and that you only use the latest versions.
You will find information on this at:
http://support.automation.siemens.com.
There you can also register for a newsletter specifically about these products.

For the secure operation of a plant/machine, it is also necessary to take suitable protective measures (e.g. cell protection concept), and to integrate the automation and drives components into a holistic, state-of-the-art industrial security concept for the entire plant/machine. Products used from other manufacturers should also be taken into account here.
You will find further information at:
www.siemens.com/industrialsecurity.

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GERMANY

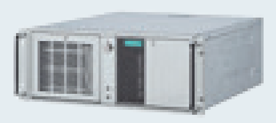
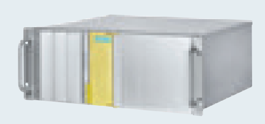
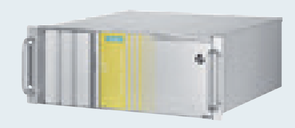
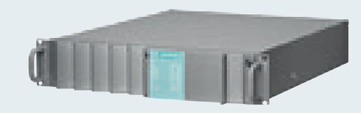
SIMATIC Embedded IPC

	SIMATIC IPC227D	SIMATIC IPC277D					SIMATIC IPC427D	SIMATIC IPC477D					
													
General features	**Box PC**	**Panel PC, 7″ Touch**	**Panel PC, 9″ Touch**	**Panel PC, 12″ Touch**	**Panel PC, 15″ Touch**	**Panel PC, 19″ Touch**	**Box PC**	**Panel PC, 12″ Touch**	**Panel PC, 15″ Touch**	**Panel PC, 15″ Touch / Keys**	**Panel PC, 19″ Touch**	**Panel PC, 22″ Touch**	**General features**
Processor	Intel Atom E660 (1.3 GHz, 2 GB RAM); Intel Atom E640 (1.0 GHz, 1 GB RAM); Intel Atom E620 (600 MHz, 512 MB RAM, not on IPC277D)						Intel Core i7-3517UE 2 x 1.7 GHz (TB to 2.8 GHz); 4 MB SLC; Intel Core i3-3217UE 2 x 1.6 GHz; 3 MB SLC; Intel Celeron 827E 1.4 GHz; 1.5 MB SLC						**Processor**
Main memory	512 KB MRAM, of which 128 KB can be written to within the buffer time (optional)						From 1 GB DDR3-SDRAM SODIMM (without ECC); From 4 GB DDR3-ECC SODIMM (with ECC); 512 KB NVRAM, of which 128 KB can be written to by the WinAC RTX within the buffer time	From 1 GB DDR3-SDRAM SODIMM (without ECC); 512 KB NVRAM, of which 128 KB can be written to by the WinAC RTX within the buffer time					**Main memory**
Free expansion slots	1 x PCIe (optional); 4 digital inputs and outputs 24 V (optional)	–					Up to 2 x PCIe cards; depending on enclosure variant (1 x PCIe x4 and 1 x PCIe x1); max. 5 W / 10 W	Only for device expansions: 1 x PCIe-x4 expansion card can be used; max. 5 W					**Free expansion slots**
Operating system	Windows Embedded Standard 2009; Windows XP Professional MUI[1]; Windows Embedded Standard 7 32-bit; Windows 7 Ultimate MUI[1] 32-bit; Linux[2] and others project-specifically on request						Windows 7 Ultimate MUI[1]; Windows Embedded Standard 7; Linux, QNX and VxWorks project-specifically on request	Windows 7 Ultimate MUI[1]; Windows Embedded Standard 7; Linux, QNX and VxWorks project-specifically on request					**Operating system**
Packages / bundles	Packages with WinCC flexible, WinCC RT Advanced and WinAC RTX (F) / ready-to-use bundles with WinCC RT Advanced and/or WinAC RTX (F)						Packages with WinCC RT Advanced, other packages / bundles available soon	Packages with WinCC RT Advanced; others available soon / bundles available soon					**Packages / bundles**
Current supply	24 V DC; 20.4 to 28.8 V; isolated / max. 10 ms (in accordance with NAMUR); On/Off switch						24 V DC; 19.2 to 28.8 V, isolated / max. 15 ms (in accordance with NAMUR); On/Off switch	24 V DC; 19.2 to 28.8 V; isolated / max. 20 ms (in accordance with NAMUR); or 100–240 V AC, 50/60 Hz; On/Off switch					**Current supply**
MTBF backlighting	–	Up to 80,000 h (with 24 h continuous operation, depending on temperature), dimmable from 0 to 100%					–	Up to 80,000 h (with 24 h continuous operation, depending on temperature); dimmable from 0 to 100%					**MTBF backlighting**
Drives													**Drives**
Mass storage	Slot for CFast up to 16 GB (externally accessible); SSD 50 GB (High Endurance) or SSD 80 GB; HDD from 250 GB (IPC227D only)						Connection via USB port	Slot for CFC up to 16 GB (externally accessible); SSD 50 GB (High Endurance) or SSD 80 GB (Standard); HDD from 250 GB					**Mass storage**
Optical drives	Connection via USB port						Connection via USB port	Connection via USB port; slot for DVD-RW for device with expansion					**Optical drives**
Ports													**Ports**
Fieldbus	PROFINET with RT (Real-Time) over Ethernet						PROFIBUS DP/MPI: 1 x 12 Mbps (isolated, compatible with CP 5622); PROFINET: 1 x 10/100 Mbps (3-port switch, compatible with CP 1616) optional	PROFIBUS DP/MPI: 1 x 12 Mbps (isolated, compatible with CP 5622); PROFINET: 1 x 10/100 Mbps (3-port switch, compatible with CP 1616) optional					**Fieldbus**
Ethernet	2 x 10/100/1000 Mbps (RJ45); teaming						2 x 10/100/1000 Mbps (RJ45), teaming; 1 x 10/100/1000 Mbps on PROFINET variant	2 x 10/100/1000 Mbps (RJ45), teaming; 1 x 10/100/1000 Mbps on PROFINET variant					**Ethernet**
USB (2.0 high-current)	4 x V2.0	Rear: 3 x V2.0		Rear: 3 x V2.0; Front: 1 x V2.0			4 x USB 3.0	Rear: 4 x USB 3.0	Rear: 4 x USB 3.0; Front: 1 x USB 2.0				**USB (2.0 high-current)**
Serial / parallel	COM1: (RS 232, RS 485 or CAN); COM2–4 (RS 232, opt.)	COM1: 1 x V.24 (RS 232)					COM1: RS 232; COM2: RS 232 (optional)	COM1: RS 232; COM2: RS 232 (optional)					**Serial / parallel**
Graphics interface	1 x DVI-D	–					1 x DVI-I (VGA/DVI-D); 1 x DisplayPort	1 x DVI-I (VGA/DVI-D); 1 x DisplayPort					**Graphics interface**
Monitoring / diagnostics functions													**Monitoring / diagnostics functions**
Basic functionality	Temperature; watchdog; CFC; SSD; CMOS battery (alarm locally by means of SIMATIC IPC DiagBase software); HDD (IPC227D only)						Temperature; watchdog; HDD; CFast; SSD; CMOS battery (alarm locally by means of SIMATIC IPC DiagBase software)	Temperature; watchdog; HDD; CFast; SSD; CMOS battery (alarm locally by means of SIMATIC IPC DiagBase software)					**Basic functionality**
Advanced functions / remote access	System monitoring: Operating hours counter for preventive maintenance, maintenance mode, networking (LAN), SNMP and OPC interface (optionally via SIMATIC IPC DiagMonitor software)						System monitoring: Operating hours counter for preventive maintenance, maintenance mode, networking (LAN), SNMP and OPC interface (optionally via SIMATIC IPC DiagMonitor software) / remote access via Intel AMT with Core i7 and SIMATIC IPC Remote Manager						**Advanced functions / remote access**
Ambient conditions													**Ambient conditions**
Degree of protection / EMC	IP40 / EN 55022B; EN 61000-6-3; EN 61000-6-4; FCC A	IP65 (front) / EN 55022A; EN 61000-6-4; EN 61000-6-2; FCC A					IP20 according to IEC 60529 / EN 61000-6-3; EN 61000-6-4; CISPR220 Class B; FCC Class A	IP65 (at the front) in accordance with IEC 60529 / EN 61000-6-4; CISPR220 Class B; FCC Class A; IP20 (at the rear)					**Degree of protection / EMC**
Vibration during operation [3]	10 to 58 Hz: 0.0375 mm; 58 to 200 Hz: 9.8 m/s² (approx. 1 *g*)						5 to 9 Hz: 3.5 mm; 9 to 500 Hz: 9.8 m/s² (approx. 1 *g*) when operated with CFast / SSD	5 to 9 Hz: 3.5 mm; 9 to 500 Hz: 9.8 m/s² (approx. 1 *g*) when operated with CFast / SSD					**Vibration during operation [3]**
Shock during operation [4]	150 m/s²; 30 ms (approx. 15 *g*) when operated with CFC / SSD	50 m/s²; 30 ms (approx. 5 *g*) when operated with CFC / SSD					150 m/s²; 11 ms (approx. 15 *g*) when operated with CFast / SSD	50 m/s²; 30 ms (approx. 5 *g*) when operated with CFast / SSD					**Shock during operation [4]**
Relative humidity [9]	Up to 95% (CFC / SSD); up to 80% (HDD)	Up to 80% at 25 °C (no condensation)					Up to 80% at 25 °C (no condensation)	Up to 85% at 30 °C (no condensation)					**Relative humidity [9]**
Ambient temperature during operation [9]	0 ... 50 °C	0 °C to 50 °C; 19″ variant: 0 °C to 45 °C					0 to 55 °C	0 to 50 °C		0 to 45 °C			**Ambient temperature during operation [9]**
Certification / EU directives	CE; cULus (508); shipbuilding: WEEE / RoHS; C-Tick	CE, cULus (508), shipbuilding approvals available for 7″/9″/12″, 15″/19″: GL, LRS, BV, DNV, ABS, Class NK					CE; cULus (508); shipbuilding approval available soon; WEEE / RoHS; C-Tick	CE; cULus (508); shipbuilding approval available soon; WEEE / RoHS; C-Tick					**Certification / EU directives**
Dimensions													**Dimensions**
Operator panel (W x H)	–	214 x 158 mm	274 x 190 mm	330 x 241 mm	415 x 310 mm	483 x 337 mm	–	330 x 241 mm	415 x 310 mm	483 x 310 mm	483 x 337 mm	560 x 380 mm	**Operator panel (W x H)**
Installation dimensions (W x H x D)	Base unit: approx. 191 x 100 x 60 mm	197 x 141 x 71 mm	251 x 166 x 71 mm	310 x 221 x 66 mm	396 x 291 x 73 mm	465 x 319 x 73 mm	Base unit: approx. 262 x 134 x 50.5 mm Depth with 1 x PCIe / 2 x PCIe expansion: 80.5 mm / 100.8 mm	310 x 221 x 83 mm	395 x 290 x 83 mm	450 x 290 x 83 mm	464 x 318 x 83 mm	542 x 360 x 83 mm	**Installation dimensions (W x H x D)**
Article number	6ES7647-8A…-….	6AV7881-1A.00-…0	6AV7881-2A.00-…0	6AV7881-3A.00-…0	6AV7881-4A.00-…0	6AV7881-5A.00-…0	6AG4140-……-…A0	6AV7240-.A…-..A0	6AV7240-.B…-..A0	6AV7240-.C…-..A0	6AV7240-.D…-..A0	6AV7240-.E…-..A0	**Article number**

1) MUI (multi-language user interface); 5 languages (ENG, GER, FR, SP, IT)

	SIMATIC HMI Panel PC Ex		SIMATIC HMI Thin Client Ex		SIMATIC PRO devices				SIMATIC Industrial Thin Client				SIMATIC Industrial Flat Panel				
																	
Design	**15″ Touch[1]**	**19″ Touch**	**15″ Touch[1]**	**19″ Touch**	**SIMATIC HMI IPC477C 15″ Touch**	**SIMATIC HMI IPC477C 19″ Touch**	**Flat Panel Monitor 15″ Touch**	**Flat Panel Monitor 19″ Touch**	**12″ Touch widescreen**	**15″ Touch widescreen**	**19″ Touch widescreen**	**22″ Touch widescreen**	**15″ Touch**	**15″ Keys**	**19″ Touch**	**22″ Touch**	**Design**
Size in inches / resolution in pixels	15″ / XGA (1024 x 768)	19″ / SXGA (1280 x 1024)	15″ / XGA (1024 x 768)	19″ / SXGA (1280 x 1024)	15″ / XGA (1024 x 768)	19″ / SXGA (1280 x 1024)	15″ / XGA (1024 x 768)	19″ / SXGA (1280 x 1024)	12″ wide (1280 x 800)	15″ wide (1280 x 800)	19″ wide (1366 x 768)	22″ wide (1920 x 1080)	15″ wide (1280 x 800)	15″ wide (1280 x 800)	19″ wide (1366 x 768)	22″ wide (1920 x 1080)	**Size in inches / resolution in pixels**
Front type	Touch screen; keys		Touch screen; keys		Touch screen		Touch screen with very smooth plastic front membrane		Touch screen with extended viewing angle				Touch screen with extended viewing angle, touch devices also for vertical display				**Front type**
Max. distance to computer	–	–	unlimited via Ethernet		–		30 m		Unlimited via Ethernet				Standard: 5 m; extended: 30 m				**Max. distance to computer**
General features																	**General features**
Processor / chip set	Intel Atom N270 (1.6 GHz) / Mobile Intel 945GSE		Based on x86		Intel Core2 Duo SU9300 (2 x 1.2 GHz; 800 MHz FSB; 3 MB SLC); Intel Core2 Solo ULV SU3300 (1 x 1.2 GHz; 800 MHz FSB; 3 MB SLC); Intel Celeron M ULV 723 (1.2 GHz; 800 MHz FSB; 1 MB SLC)		–		Intel Celeron (1.2 GHz)				–				**Processor / chip set**
Main memory	1 GB DDR2 SDRAM, optionally available with 2 GB		–		From 1 GB DDR3 1066 SDRAM; SODIMM; configurable up to 4 GB; non-volatile memory: Static RAM 2 MB		–		–				–				**Main memory**
Operating system	Microsoft Windows XP Professional; Microsoft Windows Embedded Standard 2009; Windows 7 Ultimate (only on HDD)		Closed system on the basis of Windows Embedded Standard 2009		Microsoft Windows Embedded Standard 7; Windows Embedded Standard 2009; Windows 7 Ultimate (32-bit) or Windows XP Professional		–		–				–				**Operating system**
Graphics	Intel GMA 950 graphics controller integrated in chip set		–		Onboard Intel GMAX4500 graphics controller; DVM up to 512 MB		–		16 million colors				16 million colors				**Graphics**
Power supply / max. power consumption	24 V DC / approx. 60 W	24 V DC / approx. 65 W	24 V DC / approx. 45 W	24 V DC / approx. 50 W	24 V DC; 20.4 to 28.8 V, isolated / max. 15 ms (in accordance with NAMUR); On/Off switch		24 V DC; 110/230 V AC / 40 W	24 V DC; 110/230 V AC / 55 W	24 V DC / approx. 28 W	24 V DC / approx. 36 W	24 V DC / approx. 32 W	24 V DC / approx. 53 W	24 V DC; 19.2 to 28.8 V, isolated / max. 20 ms (in accordance with NAMUR) / approx. 40 W; Extended version: 100–240 V AC, 50/60 Hz;				**Power supply / max. power consumption**
Supported protocols / MTBF backlighting	– / Typically 50,000 h		RDP; VNC / Typically 50,000 h		– / Typically 50,000 h (at 24 h continuous operation; depending on temperature)				RDP; VNC; Web; Sm@rt Access; SINUMERIK (available soon) / 80,000 h (depending on temperature); dimmable from 0 to 100%				– / 80,000 h (depending on temperature); dimmable from 0 to 100%				**Supported protocols / MTBF backlighting**
Drives																	**Drives**
Mass storage	CompactFlash 4 GB or 16 GB (not swappable) or HDD 100 GB; USB 16 GB available as an accessory		–		2 x slot for CFC up to 16 GB; SSD 50 GB (SATA; High Endurance) or SSD 80 GB (SATA; Standard)		–		USB flash drive available as accessory				–				**Mass storage**
Optical drives	Optionally over USB (not for hazardous areas)		–		Optional		–		–				–				**Optical drives**
Ports																	**Ports**
Ethernet	1 x 100 Mbps Ex e; or fiber optics 100 Mbps (SC)				2 x onboard; 10/100/1000 Mbps; RJ45; teaming		–		1 x 10/100/1000 Mbps; RJ45				–				**Ethernet**
USB	2 x Ex e ("Zone 1" variant) or 2 x Ex nA ("Zone 2" variant)	2 x Ex i; 2 x Ex e ("Zone 1" variant) or 2 x Ex nA ("Zone 2" variant)			4 x at the rear		Up to 2 x for additional I/O devices (optional)		2 x at the rear (USB 2.0 high-current)				Extended: 2 x USB 2.0 (at the rear); 15″ Key variant: 1 x USB 2.0 (at the rear) and 1 x USB 2.0 (at the front)				**USB**
Serial / parallel	1 x RS 232 or 1 x RS 422/485				COM1: 1 x V.24 (RS 232)		–		–				–				**Serial / parallel**
Graphics interface	–				DVI-I can be used for additional display unit		DVI-D, VGA		–				1 x DVI-D; 1 x DisplayPort				**Graphics interface**
Ambient conditions																	**Ambient conditions**
Degree of protection	IP66 (at the front); IP65 (at the rear)				IP65 (at the front) according to EN 60529, NEMA 4 tested		IP65 all-round; enclosure type 4		IP65 (at the front; enclosure type 4); IP20 (at the rear)				IP65 (at the front; enclosure type 4); IP20 (at the rear)				**Degree of protection**
EMC	CE; FCCA; 55022A; EN 61000-6-4/61000-6-2	CE; EN 55011; EN 61000-6-4			CE; FCCA; 55022A; EN 61000-6-4/61000-6-2		CE; EN 55011; EN 61000-6-2; EN 61000-6-4		CE; EN 61000-6-4				CE; EN 61000-6-4; EN61000-6-2				**EMC**
Vibration during operation [3]	3 to 22 Hz: 1 mm; 22 to 500 Hz: 9.8 m/s² (1 *g*)				10 to 58 Hz: 0.0375 mm; 58 to 200 Hz: 9.8 m/s² (1 *g*)				10 to 58 Hz: 0.0375 mm; 58 to 200 Hz: 9.8 m/s² (1 *g*)				10 to 58 Hz: 0.0375 mm; 58 to 200 Hz: 9.8 m/s² (1 *g*)				**Vibration during operation [3]**
Shock during operation [4]	150 m/s² (approx. 15 *g*); 11 ms				50 m/s² (5 *g*); 30 ms				50 m/s² (5 *g*); 30 ms				150 m/s²; 11 ms (approx. 15 *g*)				**Shock during operation [4]**
Relative humidity [9]	90% at 40 °C (no condensation)				5 to 80% at 25 °C (no condensation)				5 to 85% at 25 °C (no condensation)				95% at 25 °C (no condensation)				**Relative humidity [9]**
Ambient temperature during operation [9]	–20 to 50 °C				0 to 45 °C		5 to 45 °C		0 to 50 °C		0 to 45 °C		0 to 50 °C		0 to 45 °C		**Ambient temperature during operation [9]**
Certification / EU directives	Variant "Zone 1": II 2 (2) G Ex d e mb ib [ib] [op is], IIC T4, II 2 D Ex tD A21 IP65 T90 °C, DNV (shipbuilding), GOST-R, UL-Inmetro[23] Variant "Zone 2": II 3 (3) G Ex d e mb nA nL [nL] [op is], IIC T4, II 3 (2) G Ex d e mb nA nL [ib] [op is], IIC T4, II 3 (2) D Ex tD A22 IP65 [ibD] T90 °C, GOST-R; UL Class 1 Div. 2				CE; cULus (508); C-Tick		CE; cULus (508); ATEX 22 (Ex)		CE; cULus; C-Tick; KCC; FM				CE; KC; cULus / cULus Hazardous Location; ATEX; C-Tick; FM; GL; ABS; BV; DNV; LRS: Class NK				**Certification / EU directives**
Dimensions																	**Dimensions**
Operator panel (W x H)	440 x 340 mm	535 x 425 mm	440 x 340 mm	535 x 425 mm	400 x 350 mm	483 x 400 mm	400 x 310 mm	483 x 400 mm	330 x 241 mm	415 x 310 mm	483 x 337 mm	560 x 380 mm	415 x 310 mm	483 x 310 mm	483 x 337 mm	560 x 380 mm	**Operator panel (W x H)**
Installation dimensions (W x H x D)	427.5 x 327.5 x 165 mm	522.5 x 412.5 x 165 mm	427.5 x 327.5 x 165 mm	522.5 x 412.5 x 165 mm	None installed	None installed	None installed	None installed	310 x 221 x 82 mm	396 x 291 x 75 mm	465 x 319 x 75 mm	542 x 362 x 75 mm	396 x 291 x 63 mm	450 x 391 x 63 mm	465 x 319 x 63 mm	542 x 362 x 63 mm	**Installation dimensions (W x H x D)**
Article number	6AV7200-1….-…A0		6AV7200-0….-…A0		6AV7883-6A….-…0	6AV7883-7A…-…0	6AV7861-5TB10-1BA0	6AV7861-6TB10-1BA0	6AV6646-1AA22-0AX0	6AV6646-1AB22-0AX0	6AV6646-1AC22-0AX0	6AV6646-1AD22-0AX0	6AV7863-2T..0-.AA0	6AV7863-2B..0-.AA0	6AV7863-3…0-.AA0	6AV7863-4…0-.AA0	**Article number**

1) Optionally with daylight display 2) Panel PC only 3) Tested according to: IEC 60068-2-6 4) Tested according to: IEC 60068-2-27 5) With full processor performance (without throttling) 6) In accordance with the specifications of the Siemens manufacturer declaration "Suitable for Linux" 7) Microbox PC with PROFINET onboard only 1 x Ethernet 8) Requires IPC with Core i7, i5 processors 9) Tested according to DIN IEC 60068-2-78, DIN IEC 60068-2-30, -60068-2-56

	SIMATIC Industrial PCs			SIMATIC High-end IPC							
	SIMATIC IPC347D	SIMATIC IPC547E		SIMATIC IPC647D	SIMATIC IPC847D	SIMATIC IPC627D	SIMATIC IPC827D	SIMATIC IPC677D	SIMATIC HMI IPC677C		
											
Design / display	Rack PC, 19", 4HE	Rack PC, 19", 4HE short enclosure	Rack PC, 19", 4HE	Rack PC, 19", 2HE	Rack PC, 19", 4HE	Box PC	Box PC	Panel PC, 22" Single Touch and Multitouch, from 19"	Panel PC, from 12" Touch or Key, 4:3 display	Panel PC, 15" Touch INOX	Panel PC, 19" Touch
Mounting	Ready for telescopic rails; for horizontal installation	Ready for telescopic rails; for horizontal installation; 19" mounting bracket detachable from the outside	Ready for telescopic rails; for horizontal and vertical installation; 19" mounting bracket can be removed externally; tower kit (optional)	Ready for telescopic rails; for horizontal installation; 19" mounting bracket can be removed from the outside	Ready for telescopic rails; for horizontal and vertical installation; 19" mounting bracket can be removed externally; tower kit (optional)	Wall mounting using any mounting bracket, portrait mounting using front/portrait mounting kits (optional)	Wall mounting using any mounting bracket; portrait mounting using front/portrait mounting kits (optional)	Built-in unit for centralized configuration	Built-in unit for centralized configuration	Built-in unit with stainless steel front for centralized configuration	Built-in unit for centralized configuration
General features											
Processor	Intel Core i5-3340S (4C/4T, 2.8 (3.3) GHz, 6 MB cache, VT-x/-d); Intel Pentium Dual Core G2010 (2C/2T, 2.8 GHz, 3 MB cache, VT-x)	Intel Pentium Dual Core G3420 (2C/2T, 3.2 GHz, 3 MB cache, VT-x); Intel Celeron available soon	Intel Core i7-4770S (4C/8T, 3.1 (3.9) GHz, 8 MB cache, VT-x/-d, AMT 9.0); Intel Core i5-4570S (4C/4T, 2.9 (3.6) GHz, 6 MB cache, VT-x/-d, AMT 9.0); Intel Pentium Dual Core G3420 (2C/2T, 3.2 GHz, 3 MB cache, VT-x)	Intel Xeon E3-1268L v3 (4C/8T; 2.3 (3.3) GHz; 8 MB cache; VT-x/-d; AMT 9.0); Core i5-4570TE (2C/4T; 2.7 (3.3) GHz; 4 MB cache; VT-x/-d; AMT 9.0); Core i3-4330TE (2C/4T; 2.4 GHz; 4 MB cache; VT-x)		Intel Xeon E3-1268L v3 (4C/8T; 2.3 (3.3) GHz; 8 MB cache; VT-d; AMT 9.0); Core i3-4330TE (2C/4T; 2.4 GHz; 4 MB cache; VT-x); Celeron G1820TE (2C/2T; 2.2 GHz; 2 MB cache)		Intel Xeon E3-1268L v3 (4C/8T; 2.3 (3.3) GHz; 8 MB cache; VT-d; AMT 9.0); Core i3-4330TE (2C/4T; 2.4 GHz; 4 MB cache; VT-x); Celeron G1820TE (2C/2T; 2.2 GHz; 2 MB cache)	Intel Core i7-610E (2C/4T; 2.53 GHz; 4 MB cache; TB; VT-x/-d); Intel Core i3-330E (2C/4T; 2.13 GHz; 3 MB cache; VT-x); Intel Celeron P 4502 (2C/2T; 1.86 GHz; 2 MB cache)		
Main memory	2 GB and 4 GB DDR3 SDRAM; 2 x DIMM	From 2 GB DDR3-1600 SDRAM (dual-channel support); 2 x DIMM; configurable up to 16 GB	From 2 GB DDR3-1600 SDRAM (dual-channel support); 4 x DIMM; configurable up to 32 GB	Intel Xeon E3-1268L v3 (4C/8T; 2.3 (3.3) GHz; 8 MB cache; VT-x/-d; AMT 9.0); Core i5-4570TE (2C/4T; 2.7 (3.3) GHz; 4 MB cache; VT-x/-d; AMT 9.0); Core i3-4330TE (2C/4T; 2.4 GHz; 4 MB cache; VT-x)		From 2 GB DDR3-1600 SDRAM; 2 x DIMM; configurable up to 16 GB; ECC optional; non-volatile memory: NVRAM 2 MB optional		From 2 GB DDR3-1600 SDRAM; 2 x DIMM; configurable up to 16 GB; ECC optional; non-volatile memory: NVRAM 2 MB optional	From 1 GB DDR3 1066 SDRAM; DIMM; configurable up to 8 GB; ECC optional; non-volatile memory: Static RAM 2 MB (optional), 128 KB of which usable for WinAC		
Free expansion slots	4 x PCI; 1 x PCIe x 16; 1 x PCIe x 8, 1 x PCIe x 1	4 x PCI; 2 x PCIe x 16; 1 x PCIe x 8 (all 260 mm)	4 x PCI; 2 x PCIe x 16; 1 x PCIe x 8 (all 312 mm)	3 x PCIe x16; 1 x PCIe x16 or 2 x PCI and 2 x PCIe x 16	7 x PCI; 1 x PCIe x16; 3 x PCIe x 4 or 3 x PCI; 5 x PCIe x16; 3 x PCIe x 4	2 x PCI (185 mm) or 1 x PCI and 1 x PCIe x16 (185 / 185 mm)	2 x PCI (240 mm); 1 x PCI (185 mm); 1 x PCIe x 16 (185 mm); 1 x PCIe x 4 (185 mm)	2 x PCI (185 mm) or 1 x PCI and 1 x PCIe x16 (185 / 185 mm)	1 x PCI (265 mm) and 1 x PCI (185 mm) or 1 x PCI (265 mm) and 1 x PCIe x16 (185 mm)		
Graphics	Onboard Intel HD Graphics / Intel HD Graphics 2500 integrated in processor, Dynamic Video Memory up to 1.05 GB, max. resolution VGA / DVI-I: 1920 x 1200	Intel HD Graphics 4600/4400 integrated in the processor with Dynamic Video Memory up to 1.7 GB; max. DisplayPort resolution: 3840 x 2160 / 130 Hz / 32-bit color depth; DVI: 1920 × 1200 / 60 Hz / 24-bit; Graphics card: NVIDIA NVS 300 optional, dual-head: 2 x VGA or 2 x DVI-D; PCIe x16, 512 MB; max. resolution 2048 x 1536 / 60 Hz / 32-bit color depth		Intel HD Graphics 4600 integrated in the processor with Dynamic Video Memory up to 1.7 GB; max. DisplayPort resolution: 3840 x 2160 / 130 Hz / 32-bit color depth; DVI: 1920 × 1200 / 60 Hz / 24-bit; Graphics card: NVIDIA NVS 300 optional; Dual Head: 2 x VGA or 2 x DVI-D; PCIe x16, 512 MB; max. resolution 2048 x 1536 / 60 Hz / 32-bit color depth	Intel HD Graphics 4600 integrated in the processor with Dynamic Video Memory up to 1.7 GB; max. DisplayPort resolution: 3840 x 2160 / 130 Hz / 32-bit color depth; DVI: 1920 × 1200 / 60 Hz / 24-bit: Graphics card: NVIDIA NVS 300 optional; Dual Head: 2 x VGA or 2 x DVI-D; PCIe x16, 512 MB; max. resolution 2048 x 1536 / 60 Hz / 32-bit color	Intel HD Graphics 4600 (Xeon, Core i3) integrated in the processor with Dynamic Video Memory up to 512 MB; max. DisplayPort resolution: 3840 x 2160 / 130 Hz / 32-bit color depth; DVI: 1920 × 1200 / 60 Hz / 24-bit		Intel HD Graphics 4600 (Xeon, Core i3) integrated in the processor with Dynamic Video Memory up to 512 MB; max. DisplayPort resolution: 3840 x 2160 / 130 Hz / 32-bit color depth; DVI: 1920 × 1200 / 60 Hz / 24-bit	Intel HD graphics controller integrated in processor; Dynamic Video Memory up to 256 MB; up to 2048 x 1536 pixels / 16-bit / 75 Hz; Graphics card: NVIDIA Quadro NVS 295 (optional) (Dual-Head: 2 x VGA or 2x DVI-D via DP adapter); PCIe x16; 256 MB; max. resolution: analog (VGA): 2048 x 1536 pixels / 75 Hz; digital (DVI): 1920 x 1200 pixels / 60 Hz		
Power supply / temporary voltage interruption	100–240 V AC, 50–60 Hz	AC: 100–240 V; 50–60 Hz / max. 20 ms	AC: 100–240 V, 50–60 Hz / max. 20 ms; optional AC, redundant: 100–240 V, 50–60 Hz / max. 20 ms	AC: 100–240 V; 50–60 Hz / max. 20 ms (in accordance with NAMUR); optional AC, redundant: 100–240 V, 50–60 Hz / max. 20 ms		AC: 100–240 V; 50–60 Hz / max. 20 ms (in accordance with NAMUR); 24 V DC: 20.4 to 28.8 V		AC: 100–240 V; 50–60 Hz / max. 20 ms (in accordance with NAMUR); 24 V DC: 20.4 to 28.8 V	AC: 100–240 V; 50–60 Hz / max. 20 ms (in accordance with NAMUR); 24 V DC: 20.4 to 28.8 V		
Operating system											
Installed and activated	Windows 7 Ultimate (64-bit)	Windows 7 Ultimate (32/64-bit)	Windows 7 Ultimate (32/64-bit); Windows Server 2008 R2 (64-bit)	Windows 7 Ultimate (32/64-bit); Windows Server 2008 R2 (64-bit)		Windows 7 Ultimate (32/64-bit)		Windows 7 Ultimate (32/64-bit)	Windows 7 Ultimate (32/64-bit); Windows XP Professional (32-bit); Windows Embedded Standard 2009		
Others	–	Project-specific: Linux on request		Project-specific: Linux on request		Linux on request		–	Can be ordered separately: RMOS3 V3.50 real-time operating system; project-specific: Linux; others on request		
Packages, bundles	–	Packages with WinCC flexible; WinCC V7; WinCC RT Advanced; WinCC RT Professional and WinAC RTX (F)		Packages with WinCC flexible; WinCC V7; WinCC RT Advanced; WinCC RT Professional and WinAC RTX (F)		Packages with WinCC flexible; WinCC V7; WinCC RT Advanced; WinCC RT Professional and WinAC RTX (F)		Packages with WinCC flexible; WinCC V7; WinCC RT Advanced; WinCC RT Professional and WinAC RTX (F)	Packages with WinCC flexible; WinCC V7; WinCC RT Advanced; WinCC RT Professional and WinAC RTX (F)		
Drives											
Hard disks	Installed internally: 500 GB	Installed internally: 500 GB; 1 TB; 2 x 1 TB	Installed internally or front-mounted in removable frame: 500 GB; 1 TB; 2 x 1 TB; SSD 240 GB; RAID1 2 x 1 TB (optional plus 1 TB as hot-spare or SSD 240 GB); RAID5 3 x 1 TB (optional plus 1 TB as hot-spare)	Installed internally or front-mounted in removable frame: 500 GB; 1 TB; 2 x 1 TB; SSD 240 GB; RAID1 2 x 1 TB; RAID1 2 x 1 TB and 1 x 240 GB SSD	Internal installation or in withdrawable frame at the front: 500 GB; 1 TB; 2 x 1 TB; SSD 240 GB; RAID1 2 x 1 TB; RAID1 2 x 1 TB and 1 x 1 TB HDD as hot-spare; RAID1 2 x 1 TB and 1 x 240 GB SSD; RAID5 3 x 1 TB; RAID5 3 x 1 TB and 1 x 1 TB HDD as hot-spare	250 GB 3.5" or 500 GB 3.5"; RAID1: 2 x 250 GB 2.5" or 2nd delivery stage mid-2014: RAID1 on 2 x removable HDD SSD 240 GB (optional)		S-ATA: 250 GB 3.5" or 500 GB 3.5"; RAID1: 2 x 250 GB 2.5" or 2nd delivery stage mid-2014 RAID1 on 2 x removable HDD SSD 240 GB, 2.5" SATA MLC (optional)	none; 250 GB; 500 GB; 2 x 250 GB, 2.5"; SSD 50 GB (SATA, High Endurance); RAID1; 2 x 250 GB, 2.5" (RAID controller onboard)		
Optical drives	DVD±R/RW or DVD ROM	–	DVD±R/RW (slim)	DVD±R/RW (slim)		DVD ± R/RW/-DL/-RAM		DVD ± R/RW/-DL/-RAM	DVD±R±RW (not in combination with option for second CFC holder internally)		
Slots	4 (internal: 1 x 3.5"; Front 3 x 5.25")	2 (internal: 2 x 3.5")	6 (internal: 2 x 3.5"; Front: 3 x 5.25"; 1 x 12.7 mm slimline) or 7 (internal: 2 x 3.5"; Front: 4 x low-profile withdrawable frames; 1 x 12.7 mm slimline)	3 (internal: 2 x 3.5"; Front: 1 x 12.7 mm slimline) or 3 (front: 2 x low-profile withdrawable frame; 1 x 12.7 mm slimline)	6 (internal: 2 x 3.5"; Front: 3 x 5.25", 1 x 12.7 mm slimline) or 7 (internal: 2 x 3.5"; Front: 4 x low-profile withdrawable frame; 1 x 12.7 mm slimline)	–		–	–		
Ports											
PROFIBUS/MPI	–			1 x 12 Mbps (isolated, compatible with CP 5622) optional		1 x 12 Mbps (isolated, compatible with CP 5622) optional		1 x 12 Mbps (isolated, compatible with CP 5622) optional	1 x 12 Mbps (isolated, compatible with CP 5611) optional		
PROFINET	2 x Realtek: 10/100/1000 Mbps (RJ45);			PROFINET (IRT; 3 ports; CP 1616-compatible) optional		PROFINET (IRT, 3 ports, CP 1616-compatible), optional		PROFINET (IRT, 3 ports, CP 1616-compatible), optional	1 x 10/100 Mbps (with integrated 3-port switch; compatible with CP 1616) optional		
Ethernet		1x Intel: 10/100/1000 Mbps (RJ45)	2 x Intel: 10/100/1000 Mbps (RJ45); teaming	2 x Intel: 10/100/1000 Mbps (RJ45); teaming		2 x Intel: 10/100/1000 Mbps (RJ45); teaming		2 x Intel: 10/100/1000 Mbps (RJ45); teaming	2 x 10/100/1000 Mbps (RJ45); teaming		
USB (2.0 high-current)	USB 2.0: 4 x at the rear, 2 x at the front	USB 3.0: 2 x at the front; USB 2.0: 6 x at the rear	USB 3.0: 2 x at the front; 2 x at the rear; USB 2.0: 6 x at the rear; 1 x internal	USB 3.0: 1 x at the front; 2 x at the rear; 1 x internal; USB 2.0: 1 x at the front; 2 x at the rear		4 x USB 3.0		4 x USB 3.0; 1 x USB 3.0 at the front	4 x USB at the rear; 1 x USB at the front (not on 15" INOX variant)		
Serial / parallel	1 x COM1 (V.24); 1 x COM2 (V.24)	1 x COM2 (V.24) (optional); 1 x LPT (optional)	1 x COM1 (V.24); 1 x COM2 (V.24) (optional); 1 x LPT (optional)	1 x COM1 (V.24); 1 x COM2 (V.24) (optional); 1 x LPT (optional)		1 x COM1		1 x COM1	COM1: 1 x V.24 (RS 232)		
VGA / DVI / DisplayPort	1 x VGA / 1 x DVI-D	VGA via adapter cable; 1 x DVI-I / 1 x DisplayPort V1.2; 2 x VGA or 2 x DVI-D via PCIe graphics card (optional)	VGA via adapter cable; 1 x DVI-I / 2 x DisplayPort V1.2; 2 x VGA or 2 x DVI-D via PCIe graphics card (optional)	VGA via adapter cable; 1 x DVI-I / 2 x DisplayPort V1.2; 2 x VGA or 2 x DVI-D via PCIe graphics card (optional)		1 x DVI-D / 1 x DisplayPort		1 x DVI-D / 1 x DisplayPort	1 x DVI-I (VGA via adapter)		
Keyboard, mouse	2 x PS/2			2 x PS/2		Connection via USB interface		Connection via USB interface	Connection via USB interface		
Audio	1 x Line In; 1 x Line Out; 1 x Mic.			1 x Mic.; 1 x Line Out		–		–	–		
Monitoring / diagnostics functions											
Basic functionality	–	Temperature; fan; watchdog; HDD; CMOS battery (alarm locally by means of SIMATIC IPC DiagBase software)	Temperature; fan; watchdog; HDD; RAID; SSD; CMOS battery (alarm locally by means of SIMATIC IPC DiagBase software)	Temperature; fan; watchdog; HDD; RAID; SSD; CMOS battery; redundant power supply (alarm locally via SIMATIC IPC DiagBase software)		Temperature; fan; watchdog; HDD; RAID; SSD; CMOS battery (alarm locally by means of SIMATIC IPC DiagBase software)		Temperature; fan; watchdog; HDD; RAID; SSD; CMOS battery (alarm locally by means of SIMATIC IPC DiagBase software)	Temperature; fan; watchdog; HDD; RAID; CFC; SSD; CMOS battery (alarm locally by means of SIMATIC IPC DiagBase software)		
Advanced functions	–	Temperature; fan; watchdog; hard drives (SMART) • System/Ethernet monitoring • Operating hours counter • Communication via Ethernet; SNMP and OPC interface (optionally via SIMATIC IPC DiagMonitor software)		Temperature; fan; watchdog; hard drives (SMART) • System/Ethernet monitoring • Operating hours counter • Communication via Ethernet; SNMP and OPC interface (optionally via SIMATIC IPC DiagMonitor software)		Temperature; fan; watchdog; hard drives (SMART) • System/Ethernet monitoring • Operating hours counter • Communication via Ethernet; SNMP and OPC interface (optionally via SIMATIC IPC DiagMonitor software)		Temperature; fan; watchdog; hard drives (SMART) • System/Ethernet monitoring • Operating hours counter • Communication via Ethernet; SNMP and OPC interface (optionally via SIMATIC IPC DiagMonitor software)	System monitoring: Operating hours counter for preventive maintenance, maintenance mode, network (LAN); SNMP and OPC interface (optionally via SIMATIC IPC DiagMonitor software)		
Remote access	–	–	Via Intel Active Management Technology (iAMT) 9.0 and SIMATIC IPC Remote Manager	Via Intel Active Management Technology (iAMT) 9.0 (with Core i5, and Xeon) and SIMATIC IPC Remote Manager		Via Intel Active Management Technology (iAMT) 9.0 (Xeon) and SIMATIC IPC Remote Manager		Via Intel Active Management Technology (iAMT) 9.0 and SIMATIC IPC Remote Manager	Via Intel Active Management Technology (iAMT) 6.0 and SIMATIC IPC Remote Manager		
Front LEDs	POWER; HDD	POWER; HDD; TEMP; FAN	POWER; HDD; TEMP; FAN; HDD ALARM 1/2/3/4	POWER; HDD; ETHERNET 1/2; PROFIBUS/PROFINET; WATCHDOG; TEMP; FAN; HDD 0/1 ALARM	POWER; HDD; ETHERNET 1/2; PROFIBUS/PROFINET; WATCHDOG; TEMP; FAN; HDD 0/1/2/3 ALARM	1 x power; 3 x users (WinAC)		1 x power; 3 x users (WinAC)	–		
Ambient conditions											
Degree of protection	IP20 front; IP20 rear	IP30 front; IP20 rear		IP41 front; IP20 rear		IP20		IP65 front; IP20 elsewhere	IP65 (at the front) tested according to EN 60529, NEMA 4; 15" Touch INOX: IP66K (at the front)		
Protection class	Protection class I according to IEC 61140	Protection class I according to IEC 61140		Protection class I according to IEC 61140		Protection class I according to IEC 61140		Protection class I according to IEC 61140	Protection class I according to IEC 61140		
Vibration during operation	–	20 to 58 Hz: 0.015 mm; 58 to 200 Hz: 2 m/s² (approx. 0.2 *g*)		10 to 58 Hz: 0.0375 mm; 58 to 500 Hz: 5 m/s² (approx. 0.5 *g*)		10 to 58 Hz: 0.075 mm; 58 to 500 Hz; 9.8 m/s² (approx. 1 *g*)		10 to 58 Hz: 0.075 mm; 58 to 500 Hz; 9.8 m/s² (approx. 1 *g*)	10 to 58 Hz: 0.075 mm; 58 to 500 Hz: 9.8 m/s² (ca. 1 *g*)		
Shock during operation	–	9.8 m/s²; 20 ms (approx. 1 *g*)		50 m/s²; 30 ms (approx. 5 *g*)		50 m/s²; 30 ms (approx. 5 *g*)		50 m/s²; 30 ms (approx. 5 *g*)	50 m/s²; 30 ms (approx. 5 *g*)		
Relative humidity	–	5 to 80% at 25 °C (no condensation)		5 to 85% at 30 °C (no condensation)		5 to 80% at 25 °C (no condensation)		5 to 80% at 25 °C (no condensation)	5 to 80% at 25 °C (no condensation)		
Ambient temperature during operation	5 to 40 °C	5 to 40 °C at full processor performance		5 to 50 °C at full processor performance		55 °C/ 50 °C / 5 to 45 °C (10 W on PCI / 20 W on PCI / maximum configuration)		5 to 45 °C (maximum configuration)	5 to 45 °C (maximum configuration)		
Electromagnetic Compatibility (EMC)											
Emitted interference	EN 61000-6-3; EN 61000-6-4; EN 61000-3-2 Class D	EN 61000-6-3; EN 61000-6-4; CISPR 22 / EN 55022 Class B; FCC Class A; EN 61000-3-2 Class D; EN 61000-3-3		EN 61000-6-3; EN 61000-6-4; CISPR 22 / EN 55022 Class B; FCC Class A; EN 61000-3-2 Class D; EN 61000-3-3		EN 61000-6-3; EN 61000-6-4; CISPR220 Class B; FCC Class A		EN 61000-6-3; EN 61000-6-4; CISPR220 Class B; FCC Class A	EN 61000-6-4 Class A; EN 61000-3-3; FCC Class A		
Approvals / directives											
Safety	IEC 60950-1; IEC 61131-2	IEC 60950-1; EN 60950-1; UL 60950-1; CSA C22.2 No. 60950-1-07		IEC 60950-1; EN 60950-1; UL 60950-1; CSA C22.2 No. 60950-1-07		AC: EN 60950-1; UL 60950-1; CAN/CSA C22.2 No. 60950-1-03; DC: EN 61131-2; UL 508; CSA C22.2 No. 142		IEC/EN/DIN EN 60950-1	AC: EN 60950-1; UL 60950-1; CAN/CSA C22.2 No. 60950-1-03 DC: EN 61131-2; UL 508, CSA C22.2 No. 142		
CE Mark / EU Directives, Certifications	CE for industrial use; cULus (UL 60950)	CE for use in residential, commercial and industrial sector; cULus (UL 60950); RoHS, KC; C-Tick		CE for use in residential, commercial and industrial sector; cULus (UL 60950); RoHS, KC; C-Tick		CE for residential, commercial and industrial use; cULus (UL 60950); RoHS, KC; C-Tick		CE for industrial sector; cULus according to UL 508	Industrial use; cULus (UL 508 and UL 60950); UL Class 1[1)] Div. 2; RoHS; KCC; C-Tick; shipbuilding; ATEX 22 (Ex)		add. with UL Class1 Div. 2; ATEX 22; KEMA 10ATEX0182 X Issue 1; C-Tick
Dimensions and weight											
Installation dimensions (W x H x D) in mm	430 x 177 x 463	434 x 177 x 356	434 x 177 x 446	430 x 88 x 448	430 x 170 x 448	312 x 301 x 100 (with mounting rails; with DVD)	312 x 301 x 170 (with mounting rails; with DVD)	(W x H): 541 x 362	368 x 290 x 123 Front: 400 x 310	450 x 325 x 124 Front: 483 x 355	450 x 380 x 130 Front: 483 x 400
Weight	from 13 kg	from 15 kg	from 16 kg	from 16 kg	from 16 kg	approx. 6 kg	approx. 7 kg	approx. 15 kg	approx. 12.5 kg	approx. 15 kg	approx. 16.8 kg
Article number	6AG4012-0....-....	6AG4104-3...0-....	6AG4104-3....-....	6AG4112-2...	6AG4114-2...	6AG4131-2...	6AG4132-2....-....	6AV7260-.....-....	6AV789.-.....-....	6AV7892-2....-....	6AV7894-.....-....

Specifications subject to change without prior notice

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Article No.: 6ZB5370-1BF02-0BC5
Dispo 06303
0414 3.
Printed in Germany

Intuitive and fast operation through multitouch

The trend toward operation via gestures and/or multiple fingers can be found everywhere today – and its use in automation is no exception. The best example is the new Flat Panel monitors and Panel PCs. They offer an attractive design, industrially compatible widescreen displays and capacitive touch especially designed for industrial applications. This innovative touch technology enables fast and efficient operation of machinery and plant with intuitive single-finger and multiple-finger gestures or two-handed operation.

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The original SIMATIC accessories ensure the reliability of your automation solution. They are system-tested with SIMATIC IPCs as well as SIMATIC programming devices and meet the high quality requirements specific to EMC and functional applications in an industrial environment.

Further information about the SIMATIC accessories:
www.siemens.com/ipc-expansion-components

SIMATIC IPC USB flash drive

With the 8 GB SIMATIC IPC USB flash drive (USB 2.0) in SLC technology we offer you a fast and reliable memory facility for mobile data transport in a rugged metal housing.

Uncomplicated handling thanks to plug & play, they are flexible and ready for immediate use – also as a boot medium, or in low-maintenance applications that do not include floppy or optical drives.

SIMATIC IPC CompactFlash and CFast

CompactFlash and CFast cards (up to 16 GB) ensure safe data storage at higher temperatures, vibration levels and shock loads.

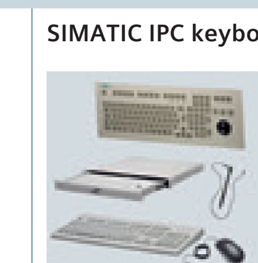
Further benefits:
- long-term availability
- diagnostics capability for monitoring with the SIMATIC IPC DiagMonitor

SIMATIC IPC Service USB flash drive

The 8 GB Service USB flash drive is an indispensable tool for setting up, maintaining and servicing SIMATIC IPCs – ready for immediate use thanks to preinstalled software products:

- SIMATIC IPC BIOS Manager
- SIMATIC IPC Image & Partition Creator

SIMATIC IPC keyboards / mouse / touch pen



SIMATIC IPC offers suitable ergonomic input devices especially for industrial use:
- 19" slide-in, full-stroke or IP65 membrane keyboard
- Touch pen, mounted in a special holder next to the Panel PC (cannot be detached)
- Optical mouse with non-slip surface coating, three buttons, including a large scroll wheel, and symmetrical housing design for right-handed and left-handed operators. Thanks to innovative BlueTrack technology, it can also be used without a mouse pad on a host of surfaces, such as granite.