

SIMATIC Box PC – compact and rugged industrial PCs



simatic pc

SIMATIC PC – the more industrial PC

With SIMATIC Box PC, mechanical engineers as well as control cabinet and system manufacturers are offered particularly compact and rugged industrial PC systems for both powerful and space-optimized applications.

To meet the individual requirements, three device classes are available:

- **SIMATIC Microbox PC 420** – ultra-compact and maintenance-free
- **SIMATIC Box PC 627** – maximum performance in minimum space
- **SIMATIC Box PC 840** – powerful and flexible

SIEMENS

SIMATIC Box PC – the compact and rugged industrial PCs

Are you looking for rugged and reliable industrial PCs in compact designs for universal installation in machines, control enclosures and control cabinets to master your both powerful and space-optimized applications?

Then opt for our SIMATIC Box PC range, which offers just the right industrial PC platform for these requirements. From the ultra-compact and maintenance-free variant for DIN rails down to PCs with optimum expandability and maximum performance – our compact PCs leave almost nothing to be desired.

You can order the SIMATIC Box PCs in various configurations. Our online configurator supports you with the individual selection from a pool of different processors, memory configurations, drive configurations, add-on cards and pre-installed operating systems.

www.siemens.com/ipc-configurator

Industrial suitability in compact design

Already the product design meets high requirements in terms of industrial suitability. The SIMATIC Box PCs are characterized by the following special features:

- Rugged enclosure with high electromagnetic compatibility (EMC) and integrated industrial power supply;
- High-quality components and parts with a high MTBF (mean time between failure), which facilitate 24-hours continuous operation even in the extended temperature range;
- Ventilation concept with durable temperature-controlled fan (Microbox PC fan-free) for max. performance – without power loss (throttling) – up to the specified maximum ambient temperature during operation in full configuration;
- CompactFlash drive for hard-disk-free systems with ambient temperatures up to 55 °C (Microbox PC up to 50 °C);
- High vibration/impact resistance due to special hard disk suspensions, locked plug connectors and retaining card holders/fixations;
- Service-friendly modular device design for fast replacements in service cases;
- Restore CD for a fast restoration of the delivery state.

Long-term availability

With SIMATIC Box PC, you can rely upon innovative PC technologies featuring a high degree of continuity, long-term availability and improved investment protection due to:

- Application of in-house developed and produced long-term available PC components and motherboards for guaranteed innovation cycles of at least 2.5 years;
- Guaranteed spare parts supply of at least 5 years

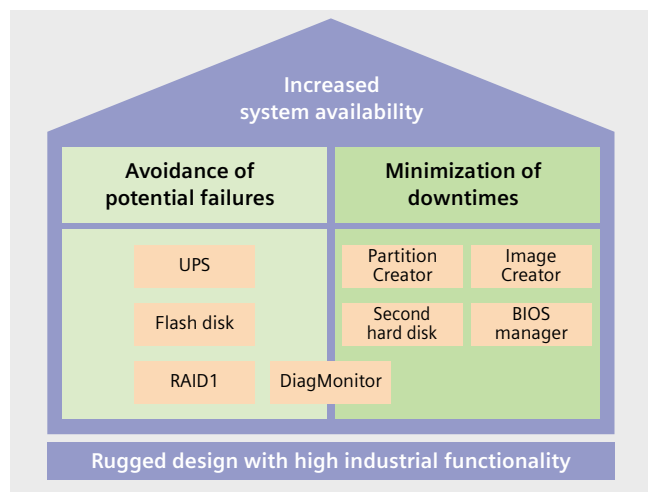


Improved system availability

Already in their standard design, SIMATIC Box PCs feature a high system availability (e.g. due to the integrated diagnostics and signaling functions for temperature, fan and watchdog). With perfectly matched hardware and software expansion components, the system availability can be individually increased to prevent potential failures and minimize downtimes.

For example by:

- Uninterrupted SITOP and Masterguard power supplies with 24 V DC or 115/230 V AC for non-stop employment over prolonged power failures and for safe shutdown without data loss;
- Flash disk systems for safe data storage under particularly high requirements in terms of temperature, vibration, impact;
- Preventive data back-up with a second hard disk and the SIMATIC PC/PG Image Creator for an easy back-up and restoration of complete hard disk contents (images) or RAID1 mirror disk system (except for Microbox PC 420);
- Early diagnostics of internal enclosure temperature, fan and program sequence (watchdog) as well as hard disks – locally or via LAN – with the SIMATIC PC DiagMonitor PC diagnostics and signaling software.



SIMATIC Box PC – the three device classes

SIMATIC Microbox PC 420 – ultra-compact and maintenance-free

The SIMATIC Microbox PC 420 is an ultra-compact industrial PC for DIN rail mounting. Due to its rugged PC technology, it is suitable for applications inside machines.

High industrial suitability:

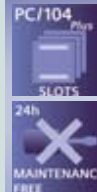
- High vibration and impact load during operation
- Maintenance-free 24-hours continuous operation due to fan-free design and the employment of CompactFlash (accessible from the outside)
- High temperature application range – up to 50 °C

High industrial functionality:

- Expandable with up to 3 PC/104-Plus modules
- High adjustability and flexibility due to 4 USB V2.0 and 2 Ethernet interfaces
- PROFIBUS DP/MPI interface integrated (optional)

High investment protection:

- In-house developed and produced motherboards
- Innovation cycle of at least 2.5 years
- Guaranteed spare parts availability of at least 5 years



SIMATIC Box PC 627 – maximum performance in minimum space

The extremely compact SIMATIC Box PC 27 stands out with its high performance regarding the rapid processing of large data volumes and demanding visualization tasks.

High industrial suitability:

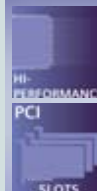
- High vibration and impact resistance during operation ¹⁾
- Low-maintenance 24-hours continuous operation with CompactFlash drive slot accessible from the outside
- High temperature application range – up to 55 °C
- Space-saving portrait assembly for particularly compact solutions

High industrial functionality:

- High adjustability and flexibility due to 4 USB V2.0 and 2 Ethernet interfaces
- PROFIBUS DP/MPI interface integrated (optional)

High investment protection:

- In-house developed and produced motherboards
- Innovation cycle of at least 2.5 years
- Guaranteed spare parts availability of at least 5 years



SIMATIC Box PC 840 V2 – powerful and flexible

The SIMATIC Box PC 840 V2 is predestined for industrial PC applications requiring a high processor power and expandability.

High industrial suitability:

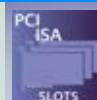
- High vibration and impact resistance during operation ¹⁾
- Low-maintenance 24-hours continuous operation with CompactFlash drive instead of hard disk
- High temperature application range – up to 55 °C

High industrial functionality:

- ISA and PCI slots
- High component flexibility and expandability
- PROFIBUS DP/MPI interface integrated (optional)

High investment protection:

- In-house developed and produced motherboards
- Innovation cycle of at least 2.5 years
- Guaranteed spare parts availability of at least 5 years



1) special hard disk suspension

SIMATIC Microbox PC 420 – ultra-compact and maintenance-free

The SIMATIC Microbox PC 420 is a DIN rail PC with minimum space requirements and scalable computing power.

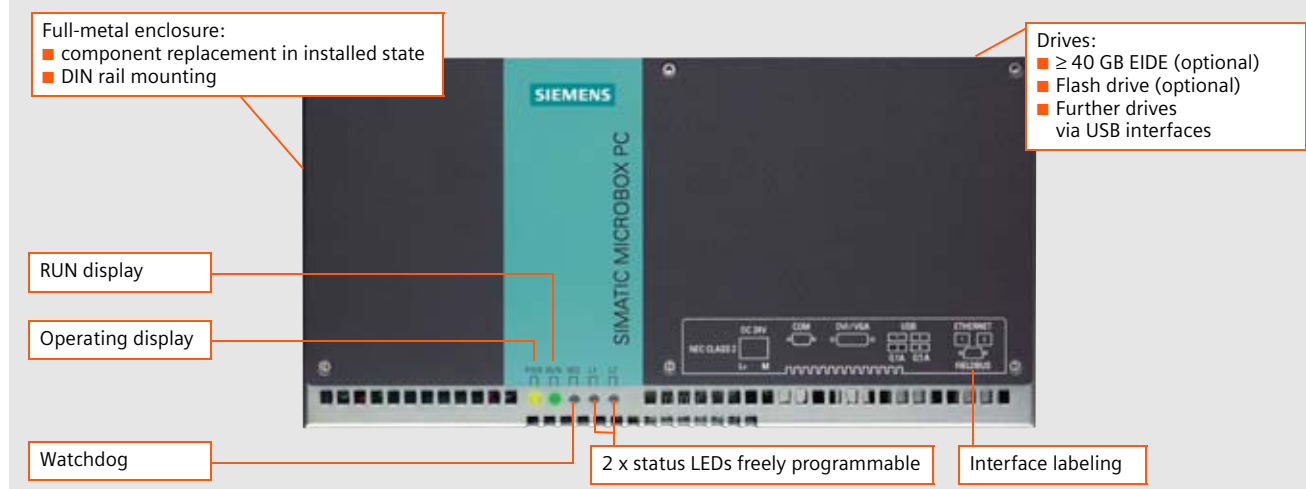
Due to its fan-free design and the application of CompactFlash cards, the Microbox PC is particularly suitable for maintenance-free 24-hours continuous operation – at an ambient temperature of up to 50 °C.

4 USB and 2 Ethernet interfaces as well as the optional PROFIBUS connection offer a high adjustability and flexibility for measuring as well as open- and closed-loop control tasks. Expansions can be realized with up to 3 PC/104-Plus modules with expansion racks.

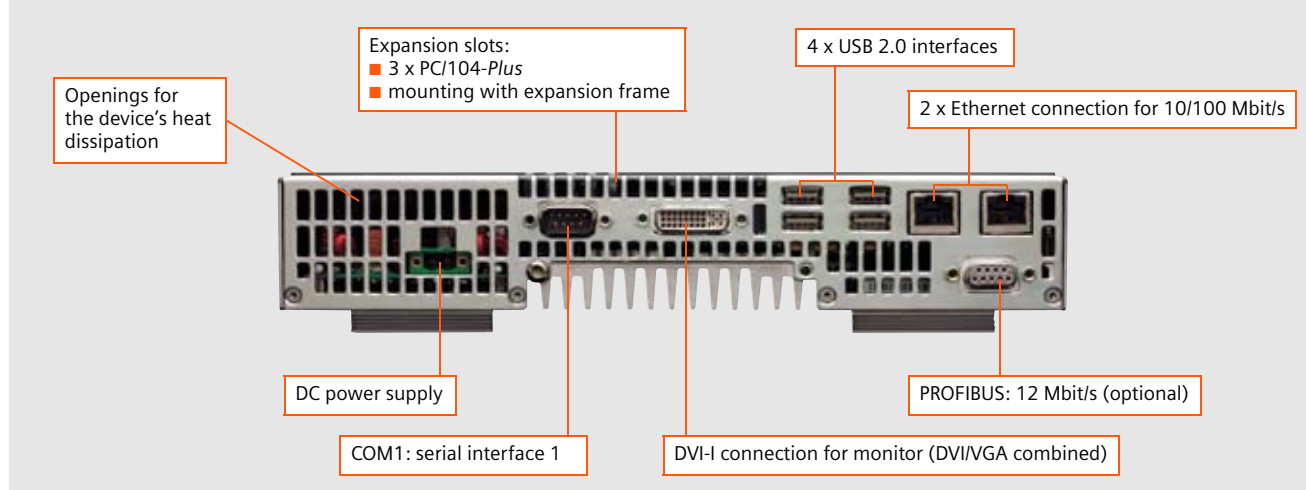
The SIMATIC Microbox PC features a modular and service-friendly design. Its components such as expansion or memory modules can also be comfortably replaced and supplemented in an installed state.



SIMATIC Microbox PC 420: Front side design



SIMATIC Microbox PC 420: Rear side design



Technical data



	SIMATIC Microbox PC 420	SIMATIC Box PC 627
Design	DIN rail, wall mounting	Installation device
Processor	<ul style="list-style-type: none"> Intel® Pentium® III 933 MHz, 133 FSB, 512 KB SLC Intel® Celeron® 650 MHz, 100 FSB, 256 KB SLC Intel® Celeron® 400 MHz, 100 FSB, 256 KB SLC 	<ul style="list-style-type: none"> Intel® Pentium® M 760, 2.0 GHz, 533 MHz FSB, 2 MB SLC Intel® Pentium® M 730, 1.6 GHz, 533 MHz FSB, 2 MB SLC Intel® Celeron® M 370, 1.5 GHz, 400 MHz FSB, 1 MB SLC
Main memory	128 / 256 / 512 MB SDRAM PC133	128 MB DDR2 SODIMM, expandable up to 2 GB
Free slots for expansions³⁾	Up to 3 x PCI/104-Plus (with expansion frame)	2 x PCI (175/265 mm long)
Graphics	S3 ProSavage4 via AGP, up to 32 MB (UMA), CRT: 640 x 480 up to 1280 x 1024, 75 Hz, 32 bit color depth, up to 1600 x 1200, 60 Hz, 16 bit color depth, DVI-D: 640 x 480 up to 1024 x 768, 60 Hz, 32 bit color depth	UXGA-LCD controller at the AGP bus, 8 to 128 MB dynamic shared memory, CRT: 1600 x 1200, 85 Hz, 32 bit color depth DVI-I: 1600 x 1200, 60 Hz, 32 bit color depth
Operating system	<ul style="list-style-type: none"> Without Microsoft® Windows® XP embedded (pre-installed on CompactFlash ≥ 512 MB or hard disk) Microsoft® Windows® XP Professional MUI⁵⁾ (pre-installed on hard disk) SICOMP RMOS3 V3.30 (realtime operating system) Linux⁴⁾; others upon request 	<ul style="list-style-type: none"> Without Microsoft® Windows® XP embedded (pre-installed on CompactFlash 1 GB) Microsoft® Windows® 2000 Professional MUI⁵⁾ Microsoft® Windows® XP Professional MUI⁵⁾ SICOMP RMOS3 V3.30 (realtime operating system) Linux⁴⁾; others upon request
<ul style="list-style-type: none"> incl. in scope of supply, pre-installed & provided on restore DVD separately available project-specific 		
Power supply	24 V DC; 20.4 ... 28.8 V, isolated	<ul style="list-style-type: none"> 120/230 V AC; 85-132 V/170-264 V, autorange 24 V DC; 20.4 ... 28.8 V
Drives		
Hard disk	≥ 40 GB EIDE optional	≥ 40 GB SATA; or 2 x 60 GB / RAID1 (onboard)
Optical drives	Connectable via USB interface	CD-R/RW/DVD-ROM (combo) or DVD-RW, optional
Flash drive	256 MB, 512 MB or 1 GB optional	CompactFlash card pluggable from the outside
Floppy drive	Connectable via USB interface	Connectable via USB interface
Interfaces		
PROFIBUS / MPI	12 Mbit/s (isolated, CP 5611 compatible) optional	12 Mbit/s (isolated, CP 5611 compatible) optional
Ethernet	2 x 10/100 Mbit/s (RJ45)	2 x 10/100 Mbit/s (RJ45)
USB	2 x USB 2.0 (high-current); 2 x USB 2.0 (low-current)	4 x USB 2.0 (high current)
Serial / parallel	COM1	COM1
VGA / DVI / LVDS	1 x DVI-I (DVI and VGA combined)	1 x DVI-I (VGA via adapter) 1 x internal LVDS for connection of an LCD monitor
PS2 (keyboard, mouse)	Connectable via USB interface	Connectable via USB interface
Monitoring and safety functions		
Functionalities	<ul style="list-style-type: none"> Temperature, watchdog, hard disks (SMART) 5 LEDs for system status display (2 freely programmable) Short-time voltage interruptions up to 5 ms (followed by buffering for at least further 10 ms) Buffer memory 128 KB, battery-buffered 	<ul style="list-style-type: none"> Temperature, watchdog, fans, hard disks (SMART) System/Ethernet monitoring, hour meter Communication via Ethernet, SNMP, OPC interface optional Two 7-segment displays and two LEDs for status output (freely programmable)
Ambient conditions		
Degree of protection	IP20	IP20
Protection class	–	Protection class I in acc. with VDE 0106 Part 1 (IEC 536)
Vibration	10 to 58 Hz: 0.075 mm; 58 to 150 Hz: 9.8m/s ² when operated with CompactFlash memory	10 to 58 Hz: 0.075 mm; 58 to 500 Hz: 9.8 m/s ² (approx. 1 g) when operated with optical drives: 10 to 58 Hz: 0.019 mm; 58 to 500 Hz: 2.5 m/s ² (approx. 0.25 g), no vibration / impact during CD burning
Impact	150 m/s ² , 11 ms, when operated with CompactFlash memory	50 m/s ² , 30 ms (approx. 5 g), with optical drives: 50 m/s ² , 11 ms (approx. 5 g)
Ambient temperature during operation	0 to 50 °C (with CompactFlash memory) 5 to 40 °C (with hard disk)	55 °C / 50 °C / 5 to 45 °C (10 watts at PCI / 20 watts at PCI / full configuration)
Humidity	5 to 80% at 25 °C (no condensation)	5 to 80% at 25 °C (no condensation)
System-tested software		
SIMATIC industrial software¹⁾	WinAC®, WinCC flexible	STEP 7®, STEP 5®, WinAC®, ProTool/Pro®, WinCC flexible, WinCC®, SOFTNET
Approvals/directives		
Safety standards	IEC 60950	IEC 60950
Approvals	cULus (UL508 and UL60950)	UL, CSA, cULus (UL508 and UL60950)
CE marks	Industrial/residential areas	Industrial/residential areas
EU directives	RoHS (as of 07/01/2006)	RoHS (as of 10/01/2006)
Dimensions and weights		
Installation dimensions (W x H x D in mm)	Basic unit: approx. 262 x 134 x 47; depth from DIN rail's contact surface: 50 mm; additional depth per expansion (1-3): +17 mm	298 x 301 (incl. rail) x 100; (298 x 301 x 80 without optical drives)
Weight	Approx. 2 kg	Approx. 6 kg
Body of order no.	6AG4040-0A...	6ES7647-6A...

1) In compliance with the system requirements
2) Only in connection with Pentium 4 Mobile

3) RAID1 option occupies one PCI slot



SIMATIC Box PC 840 V2

Installation device

- Intel® Pentium® 4 2.8 GHz, 533 MHz FSB, 512 KB SLC
- Intel® Pentium® 4 2.4 GHz, 533 MHz FSB, 512 KB SLC
- Intel® Pentium® 4 Mobile 2.2 GHz, 400 MHz FSB, 512 KB SLC
- Intel® Celeron® 2.0 GHz, 400 MHz FSB, 128 KB SLC

256 MB DDR SODIMM; expandable up to 2 GB

- PCI: 1 x short, 1 x long
- PCI/ISA (shared): 2 x long
- ISA: 1 x long

UXGA-LCD controller at the AGP bus;
8, 16 or 32 MB shared memory,
CRT: 1600 x 1200, 60 Hz, 16 bit color depth
DVI-I: 1600 x 1200, 60 Hz, 32 bit color depth

- Without
- MS-DOS 6.22 English
- Microsoft® Windows® NT German/English
- Microsoft® Windows® 2000 Professional MUI ⁵⁾
- Microsoft® Windows® XP Professional MUI ⁵⁾
- SICOMP RMOS3 V3.30 (realtime operating system)
- Others upon request
- 120 to 240 V AC; 85 ... 264 V, wide range
- 24 V DC; 20.4 ... 28.8 V ²⁾

≥ 40 GB EIDE; or 2 x 40 GB; or RAID1 (2 x 40 GB)

CD-R/RW/DVD-ROM (combo) or DVD-RW, optional

512 MB or 1 GB (optional instead of hard disk)

1.44 MB

12 Mbit/s (isolated, CP 5611 compatible) optional

1 x 10/100 Mbit/s (RJ45)

2 x USB 2.0 (high-current)

COM1, COM2, LPT1

1 x DVI-I (VGA via adapter)

1 x internal LVDS for connection of an LCD monitor

2 x

- Temperature, watchdog, fans, hard disks (SMART)
- System/Ethernet monitoring, hour meter
- Communication via Ethernet, SNMP and OPC interface option

IP20

Protection class I in acc. with VDE 0106 Part 1 (IEC 536)

10 to 58 Hz: 0.075 mm; 58 to 500 Hz: 9.8m/s² (approx. 1 g)
when operated with optical drives: 10 to 58 Hz: 0.019 mm;
58 to 500 Hz: 2.5 m/s² (approx. 0.25 g),
no vibration / impact during CD burning

50 m/s², 30 ms (approx. 5 g),
when operated with optical drives: 50 m/s², 11 ms (approx. 5 g)

5 to 55 °C (full configuration with Pentium 4 Mobile)

5 to 45 °C (full configuration)

5 to 80% at 25 °C (no condensation)

STEP 7®, STEP 5®, WinAC®, ProTool/Pro®, WinCC flexible,
WinCC®, SOFTNET

IEC 60950

UL, CSA

Industrial/residential areas

-

388 x 331 (incl. rail) x 166

Approx. 11 kg

6ES7647-6M...

4) According to the specifications of the Siemens manufacturer declaration "Suitable for Linux"

5) MUI (multi-language user interface); 5 languages (Ger/Eng/Fr/Sp/It)

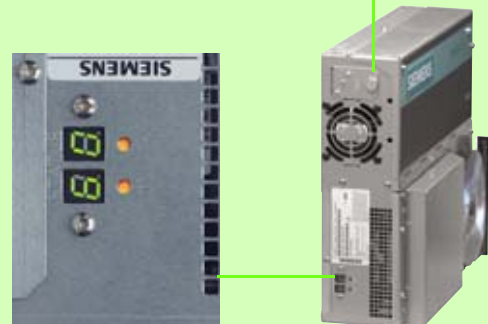
Portrait assembly



For particularly compact solutions (e.g. in the control cabinet), the Box PC 627 can also be installed in space-saving portrait assembly.

CMOS battery and LED status monitor

The Box PC 627 has a modular design and features a high service-friendliness. Thanks to the externally accessible battery compartment, the CMOS battery can be quickly replaced even when built-in.



For fast diagnostics of the operating state and display of the BIOS startup, the Box PC 627 comes with a freely programmable LED status monitor with two additional status LEDs, e.g. for the acknowledgment of the data transfer.

Subject to technical changes/improvements

SIMATIC Box PC 627 / 840 V2 – powerful, flexible and compact

The extremely compact **SIMATIC Box PC 627** stands out with its high performance. Equipped with powerful processors, it is excellently suited for the fast processing of large data volumes as well as for demanding visualization solutions at ambient temperatures of up to 55°C. For particularly compact solutions (e.g. in the control cabinet), the Box PC 627 can also be installed in space-saving portrait assembly. For the assembly of low-maintenance, highly available and hard-disk-free systems, a CompactFlash drive slot is provided, which is easily accessible from the outside.

The **SIMATIC Box PC 840 V2** offers both a high processing power as well as optimum expandability. It is based on a motherboard featuring a future-oriented high-performing Intel processor architecture with Celeron and Pentium 4 processors. An Intel® Pentium® 4 Mobile variant with 2.2 GHz even facilitates applications up to 55 °C in full configuration.



With 5 free slots for PCI/ISA modules, 2 USB interfaces and up to 2 GB main memory expansion, the Box PC 840 V2 offers a high degree of flexibility while requiring minimum space.

SIMATIC Box PC 627: Connection side design

Full-metal enclosure, installation device, also suitable for portrait assembly

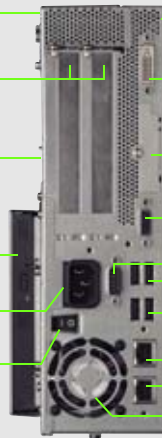
Expansion slots:
■ 2 x PCI (1 x short, 1 x long)

LED status monitor rear:
■ freely programmable
■ 2 x 7 segment display, 2 x LED

Optical drives:
■ CD-R/RW/DVD-ROM (combo)
■ DVD-RW optional

AC power supply, 120 / 230 V

ON/OFF button



1 x internal LVDS for the connection of an LCD monitor

1 x DVI-I (VGA via adapter)

Installation spot CompactFlash card (accessible from the outside)

PROFIBUS: 12 Mbit/s (optional)

COM1: serial interface 1

4 x USB 2.0 interfaces

2 x Ethernet connection for 10/100 Mbit/s

Power unit fan

SIMATIC Microbox PC 840 V2: Connection side design

Full-metal enclosure, installation device

Expansion slots:
■ 2 x PCI (1 x short, 1 x long)
■ 2 x PCI/ISA (shared, long)
■ 1 x ISA (long)

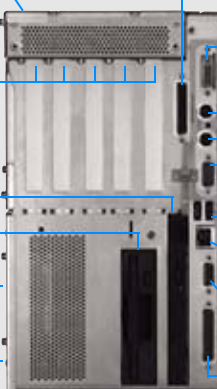
Optical drives:
■ CD-R/RW/DVD-ROM (combo)
■ DVD-RW optional

Floppy drive

Flash drive internal (instead of HDD)

Power supply rear:
■ 120 to 240 V AC
■ 24 V DC

LPT: parallel interface



1 x internal LVDS for the connection of an LCD monitor

1 x DVI-I (VGA via adapter)

PS/2 connections for keyboard and mouse

COM2: serial interface 2

2 x USB 2.0 interfaces

Ethernet connection for 10/100 Mbit/s

PROFIBUS: 12 Mbit/s (optional)

COM1: serial interface 1

SIMATIC Box PC

The right decision



More quality and safety

Due to their long service life and high availability, the high-quality industrial PCs substantially contribute to the prevention of costly machine downtimes. This is assured by particularly complex quality checks as well as system and load tests during the development and production stages. Within the scope of additional system/integration tests, we check the devices' smooth functioning when connected to other SIMATIC components. Furthermore, the CE certification for industrial applications make laborious tests for quality assurance by the users unnecessary.

RoHS

To us, quality also includes the supply of environmentally-compatible devices in accordance with the RoHS directives (also refer to the technical data section)*.

And with original SIMATIC PC accessories such as mouse and keyboard, the SIMATIC PC USB flash drive or the SIMATIC PC BIOS Manager, you are optimally equipped for your automation solutions as they combine the design and comfort with the ruggedness of industrial devices.



For detached solutions, the SIMATIC flat panel monitors with 12", 15" and 19" display sizes are an optimum add-on to the SIMATIC Box PC. They are characterized by maximum image quality, a long service life and a design suited for industrial applications. They are available with touch operation or as plain display unit, equipped both with DVI-D and VGA interface.

SIMATIC PC – the more industrial PC

Global service and support

Whether important technical documentations, detailed FAQs, tools and downloads or newsletters – we provide fast 24/7 help and support via the Internet by offering you our comprehensive know-how from all sectors and industrial areas. In service cases, the PED online service tool (Product Equipment Data) rapidly provides you with information on equipment of your SIMATIC PC and suitable spare parts worldwide. This saves time and money.

www.siemens.com/ped

The SIMATIC hotline is available 24 hours on 365 days a year. Our engineers have experience in the fields of development, system commissioning as well as system tests and also consult our development and production departments for solving your problem.

Siemens is represented by subsidiaries in 190 countries and maintains repair centers for SIMATIC PC in 33 countries. This assures competent support for users – from repair to on-site service. All SIMATIC Box PCs are covered by a warranty of two years and offer a long-term spare parts availability of at least 5 years.

For accelerated engineering and the planning of PC-based automation projects, our expert teams based in Cologne, Milan and Shanghai, who closely cooperated with our development and product marketing departments, will be able to competently support you with your requirements in terms of PC-based automation.

Order further brochures on the subject of SIMATIC at:

www.siemens.com/simatic/printmaterial

Your local SIMATIC partners for personal assistance are listed at:

www.siemens.com/automation/partner

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www.siemens.com/automation/mall

www.siemens.com/simatic-pc

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