SIEMENS

September, 2013

IPC547E
Technical Information

SIMATIC IPC547E
Overview front

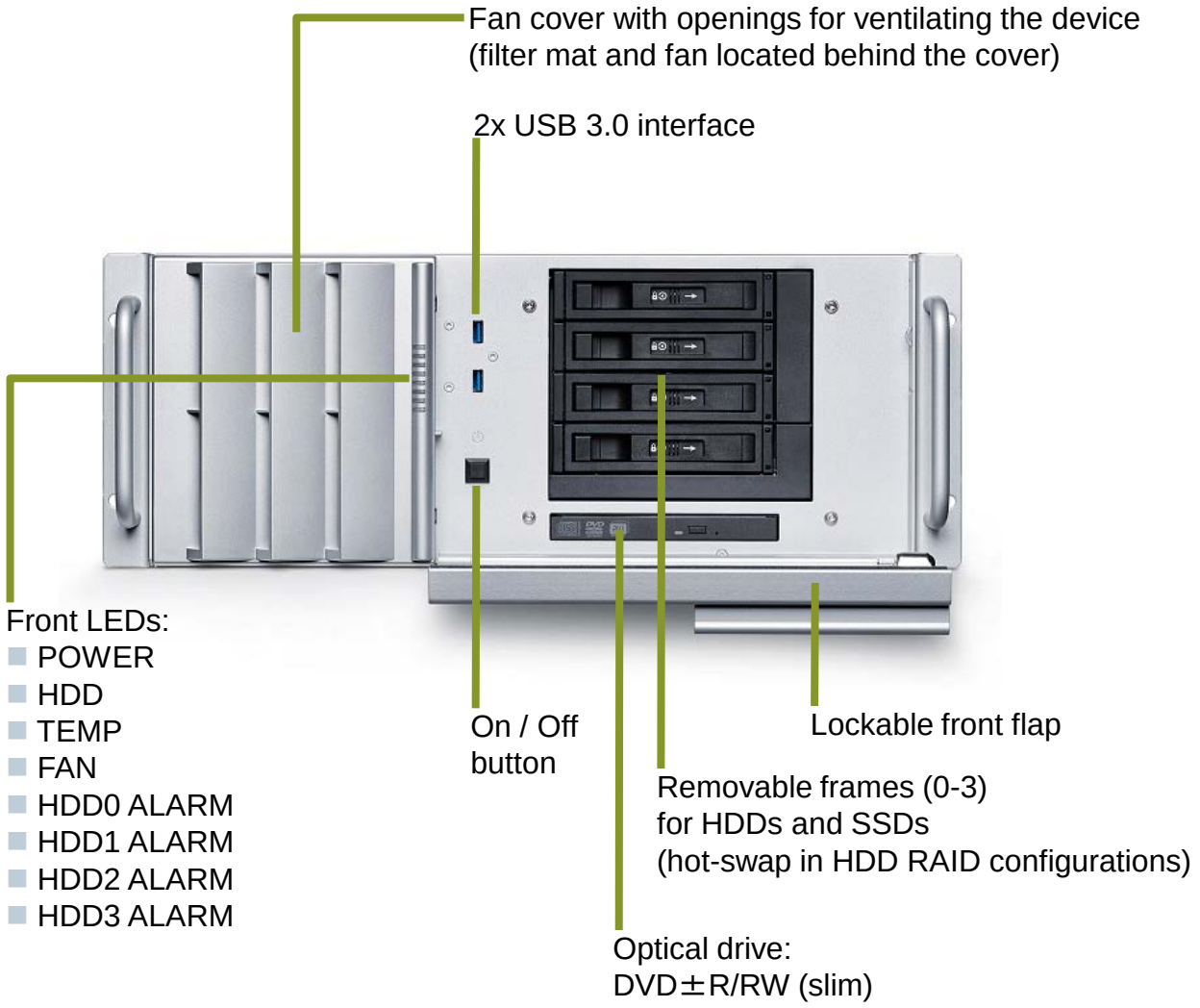

Image shows device with maximum configuration. Differences to your configuration may appear.

SIMATIC IPC547E
Overview rear

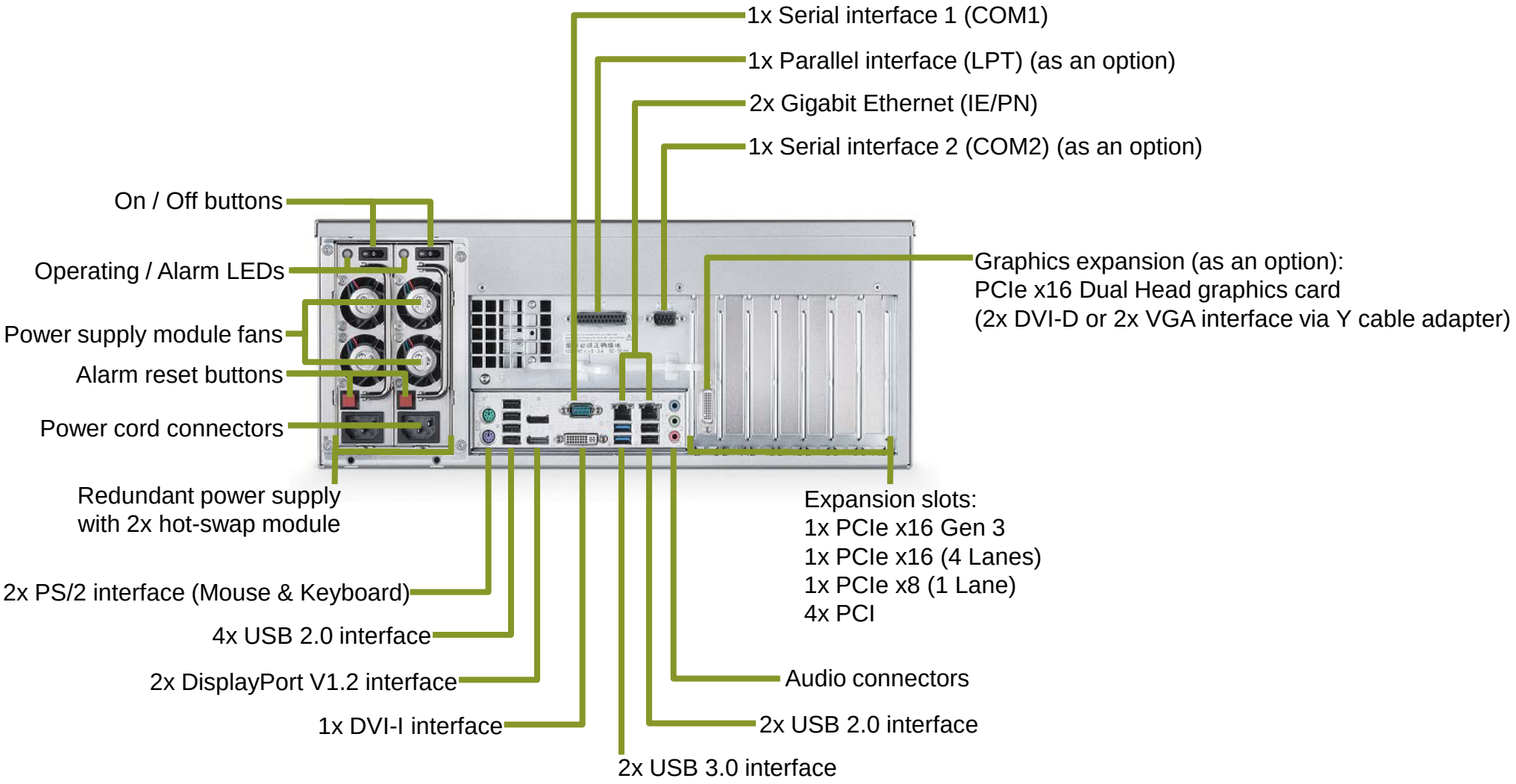

Image shows device with maximum configuration. Differences to your configuration may appear.

SIMATIC IPC547E
Overview internal

[1] Graphics card plugged (available as an option in the configurator)
[2] Retainer to interlock the internal USB interface mounted (available as accessory)

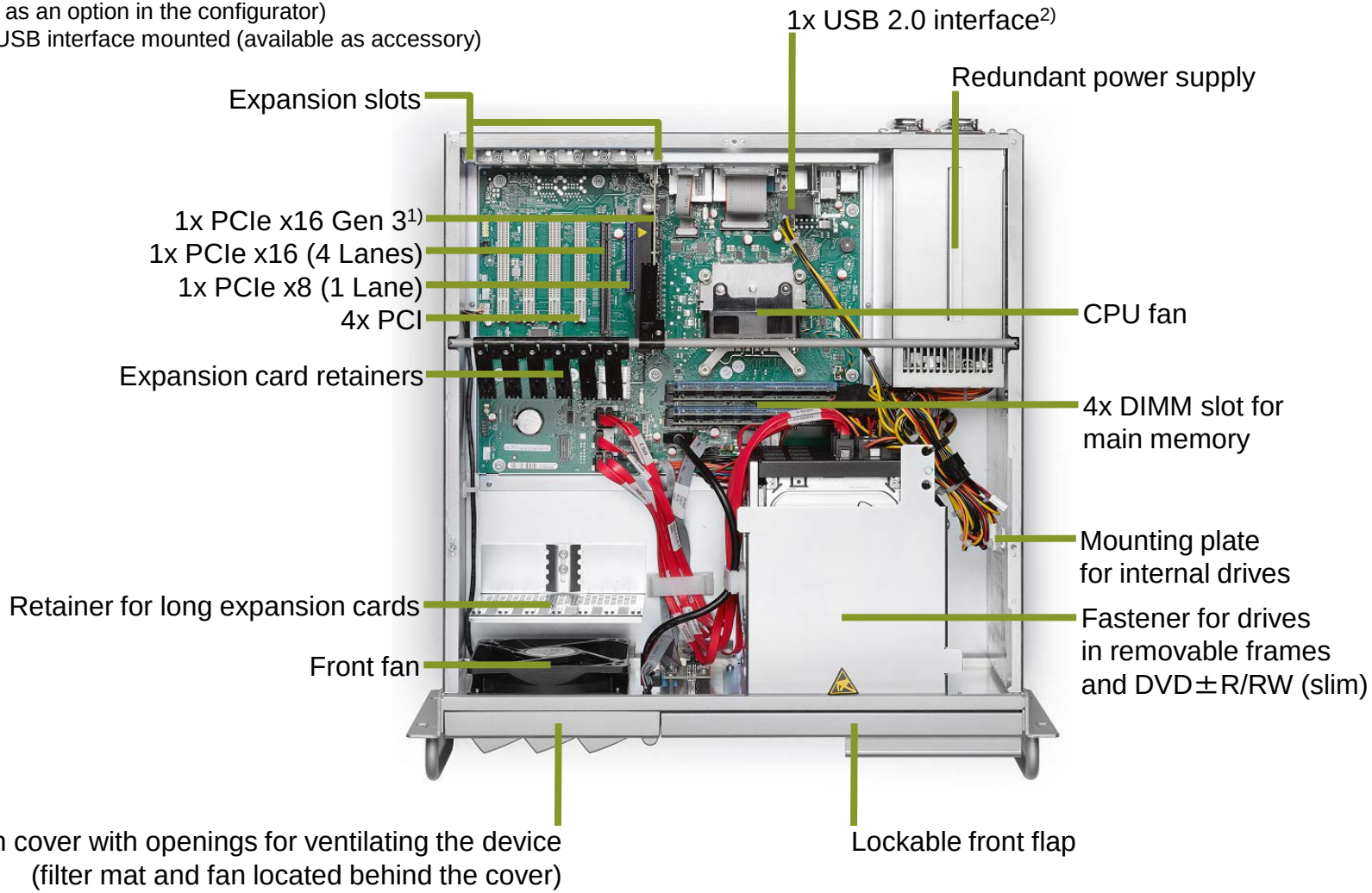

Image shows device with maximum configuration. Differences to your configuration may appear.

SIMATIC IPC547E
Processors Characteristics

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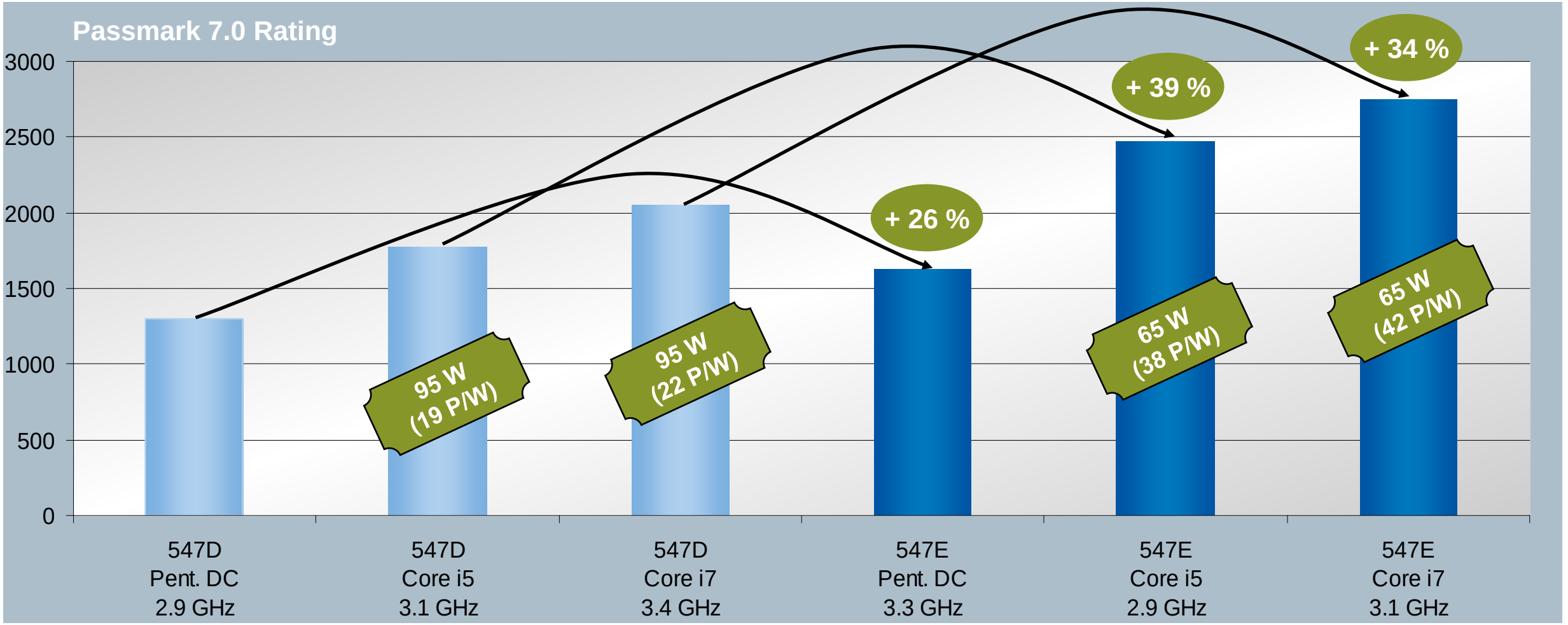
	Processor name	Processor number	Number of physical cores (Cores)	Number of virtual cores (Threads)	Clock rate / Clock rate with Turbo Boost (GHz)	Cache (MByte)	Turbo Boost 2.0	Virtualization (VT)	64 Bit (EM64T)	iAMT 9.0
	Core i7	4770S	4	8	3.1 / 3.9	8	✓	✓ 1)	✓	✓
	Core i5	4570S	4	4	2.9 / 3.6	6	✓	✓ 1)	✓	✓
	Pentium Dual Core	G3420	2	2	3.3 / -	3	-	✓	✓	-

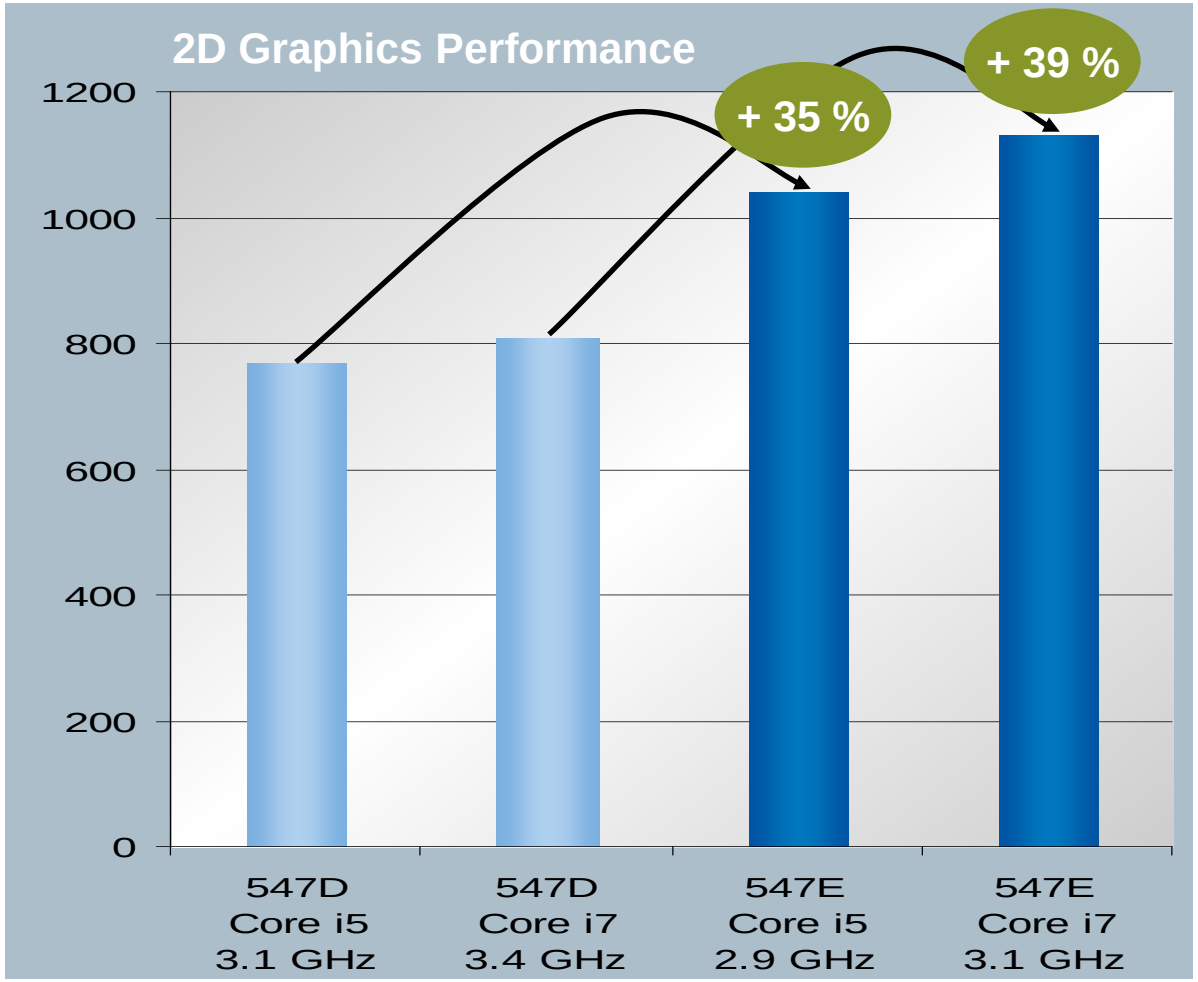
1) VT-x/-d

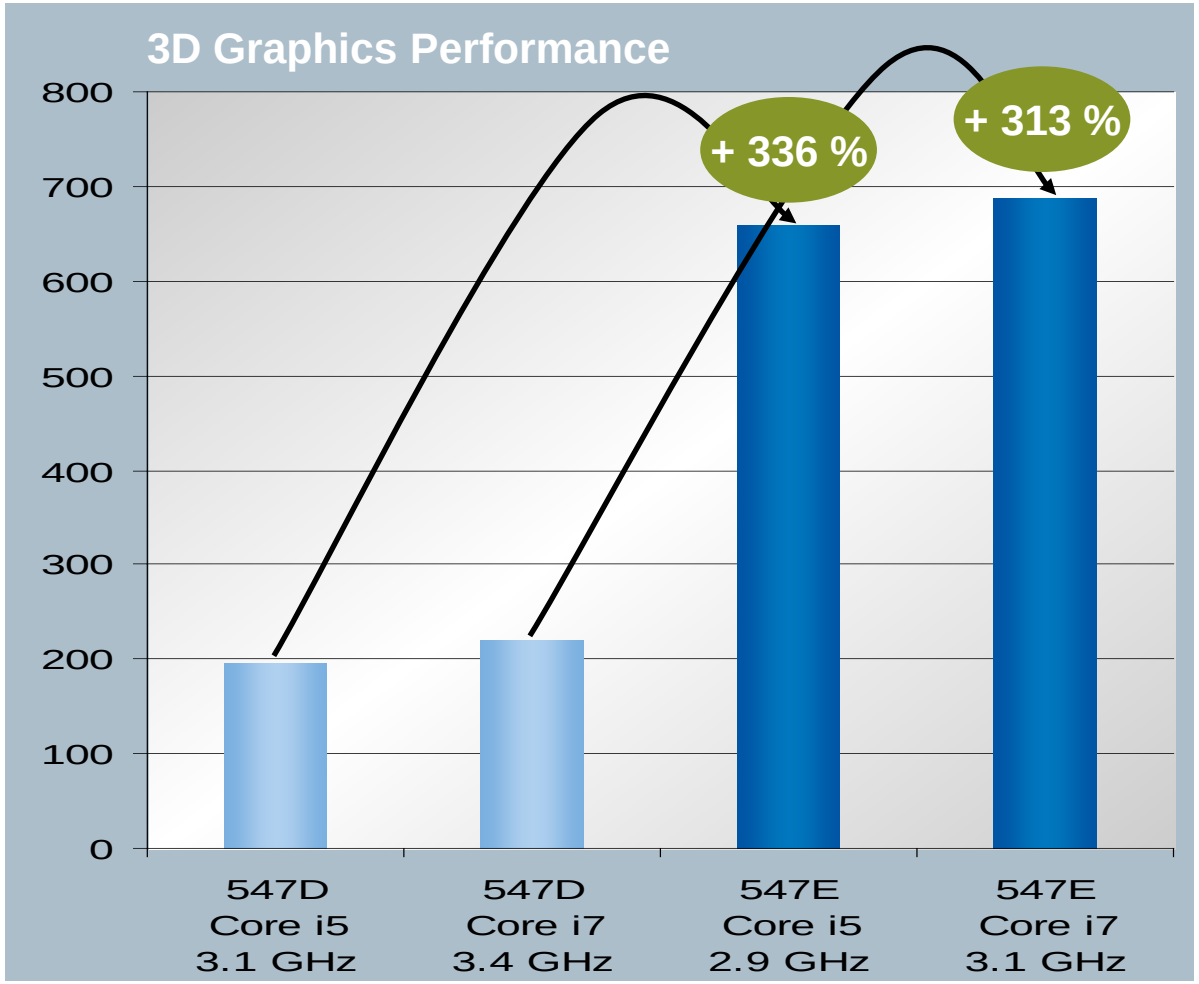
SIMATIC IPC547E
IPC547D vs. IPC547E: System Performance



Maximum performance with at the same time less power dissipation.

SIMATIC IPC547E
IPC547D vs. IPC547E: Graphics Performance





More productivity through highest graphics performance.

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Technical data

Housing, Chipset, Processors, Main Memory, and Expansion Slots	
Housing	• 19” Rack, 4U • Rugged all-metal housing with blue chromate, painted outside (as an option) and coated inside • Lockable front flap for access protection • Prepared for telescopic slides • For horizontal and vertical mounting • Tower arrangement using tower kit (available as accessory)
Chipset	• Q87
Processors	• Intel Core i7-4770S 4C/8T, 3.1 (3.9) GHz, 8 MByte Cache, Turbo Boost 2.0, EM64T, VT-x/-d, iAMT 9.0 • Intel Core i5-4570S 4C/4T, 2.9 (3.6) GHz, 6 MByte Cache, Turbo Boost 2.0, EM64T, VT-x/-d, iAMT 9.0 • Intel Pentium Dual Core G3420 2C/2T, 3.3 GHz, 3 MByte Cache, EM64T, VT
Main Memory	• From 2 GByte DDR3-1600 SDRAM, Dual Channel support • Expandable up to 32 GByte[1)]
Expansion Slots	• 1x PCIe x16 3.0 • 1x PCIe x16 2.0 (4 Lanes) • 1x PCIe x8 2.0 (1 Lane) • 4x PCI

[1)] For configurations up to 4 GByte, the visible memory could be reduced to ca. 3.5 GByte or less (when using 32 bit operating systems).
For configurations with 8 GByte, the visible memory could be reduced to ca. 7.5 GByte or less (depending on the system configuration).

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Installation Slots and Drives	
Installation Slots	• Internal: 2x 3.5" • Front: 3x 5.25“ / 4x low-profile removable frame; 1x 5.25” (slim)
Hard Disk Drives (HDD), SATA 3.5”, NCQ	Installation internal or in removable frame at the front: • 1x 500 GByte • 1x 1 TByte • 2x 1 TByte • RAID1[1) 2)], 1 TByte (2x 1 TByte, data mirroring) Installation only in removable frame at the front: • RAID1[1) 2)], 1 TByte (2x 1 TByte, data mirroring) + 1x 1 TByte[3)] • RAID1[1) 2)], 1 TByte (2x 1 TByte, data mirroring) + 1x SSD[4)] • RAID5[1) 2)], 2 TByte (3x 1 TByte, striping with parity) • RAID5[1) 2)], 2 TByte (3x 1 TByte, striping with parity) + 1x 1 TByte[3)]
Solid-State Drive (SSD), SATA 2.5“, MLC	Installation internal or in removable frame at the front: • 240 GByte
Optical Drive	• W/o • DVD±R/RW (slim)

[1)] RAID controller onboard
[2)] Hot-swap (only if installed in removable frames at the front)
[3)] Hot spare disk
[4)] Operating system if ordered is installed on SSD

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Technical data

Graphics, Power Supplies and Operating Systems	
Graphics	• Onboard Intel HD Graphics 4600 integrated in the processor with Dynamic Video Memory with up to 1.7 GByte VGA, DVI and DisplayPort with up to 3840 x 2160 pixels at 60 Hz image refresh rate and 32 bit colors • PCI-Express graphics card in PCIe x16 slot (as an option) NVIDIA NVS 300 graphics controller with 512 MByte graphics memory Dual Head: 2x VGA or 2x DVI-D with up to 2048 x 1536 pixels at 60 Hz image refresh rate and 32 bit colors
Power Supplies	• AC: 100-240 V, 400 W, wide range • AC redundant: 2x 100-240 V, 350 W, wide range (as an option)
Short-time voltage interruption	• Max. 20 ms
Operating Systems	• W/o Pre-installed and activated (and enclosed on Restore DVD): • Windows 7 Ultimate, MUI[1)] (32 / 64 bit), SP 1 • Windows Server 2008 R2 incl. 5 clients, MUI[1)] (64 bit), SP 1

[1)] Multi Language User Interface, 5 languages: English, German, French, Spanish, Italian

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Interfaces	
Ethernet	• 2x Gigabit Ethernet (IE/PN), RJ 45, teaming capable • Dual Intel Ethernet controller (i217LM and i210AT) • Wake on LAN (WoL) support
DisplayPort	• 2x (V1.2)
DVI-I	• 1x
VGA	• Via cable adapter (as an option)
USB 3.0 (high current)	• Front: 2x • Rear: 2x
USB 2.0 (high current)	• Rear: 6x • Internal: 1x
Serial	• 1x COM1 (V.24) • 1x COM2 (V.24) (as an option)
Parallel	• 1x LPT (EPP/ECP) (as an option)
PS/2	• 2x (Keyboard, Mouse)
Audio	• 1x Line In, 1x Line Out, 1x Micro

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Electromagnetic Compatibility (EMC)	
Noise emissions	• 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
Immunity against conducted interference on the supply lines	• ± 2 kV; according to IEC 61000-4-4; Burst • ± 1 kV; according to IEC 61000-4-5; Surge symm. • ± 2 kV; according to IEC 61000-4-5; Surge asymm.
Noise immunity on signal lines	• ± 2 kV; according to IEC 61000-4-4; Burst, length > 30 m • ± 1 kV; according to IEC 61000-4-4; Burst, length < 30 m • ± 2 kV, according to IEC 61000-4-5; Surge, length > 30 m
Immunity against discharge of static electricity	• ± 4 kV contact discharge; according to IEC 61000-4-2 • ± 8 kV discharge to air; according to IEC 61000-4-2
Immunity against high-frequency radiation	• 10 V/m, 80 MHz to 1 GHz, 80% AM; according to IEC 61000-4-3 • 3 V/m, 1.4 to 2 GHz, 80% AM; according to IEC 61000-4-3 • 1 V/m, 2 to 2.7 GHz, 80% AM; according to IEC 61000-4-3 • 10 V, 10 kHz to 80 MHz; according to IEC 61000-4-6
Immunity against magnetic fields	• 30 A/m, 50/60 Hz; according to IEC 61000-4-8

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System-tested SIMATIC Software, Approvals, Dimensions and Weight	
SIMATIC Software	• STEP 7 • WinAC • WinCC • SOFTNET
Safety regulations	• IEC60950-1 • EN60950-1 • UL60950-1 • CSA C22.2 No. 60950-1-07
Approvals	• CE • cULus (UL 60950) • KC • C-Tick
CE Mark	Operation in residential, office, and industrial areas • Interference emission: EN 61000-6-3:2007 • Noise immunity: EN 61000-6-2:2005
EU Directives	• RoHS
Installation dimensions	434 mm x 177 mm x 446 mm (W x H x D)
Weight	From 16 kg

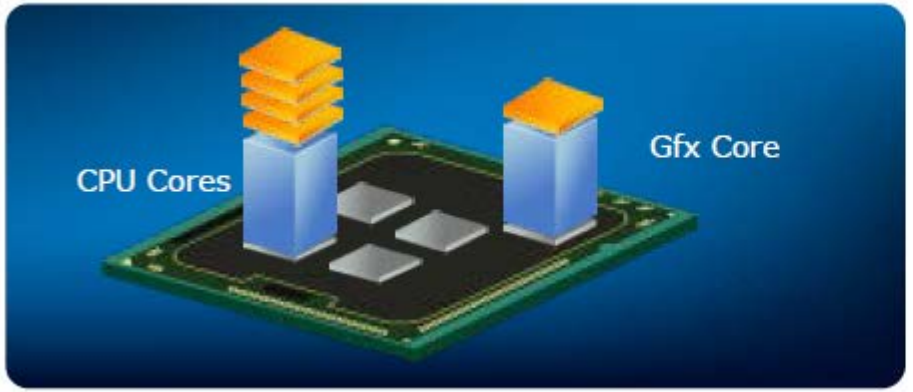
SIMATIC IPC547E
Turbo Boost 2.0 (Core i5/i7)

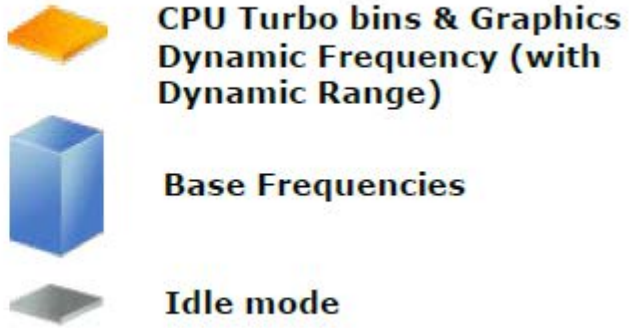
Depending on the CPU core utilization and the temperature levels (TDP and ambient temperature), some CPUs can automatically over clock one or both CPU cores.

In addition, Turbo Boost 2.0 offers

- Increase of the clock rate of the graphics unit as well
- Burst Mode: Increased over clocking of the cores by utilizing the thermal budget (TDP) of the CPU for a short time

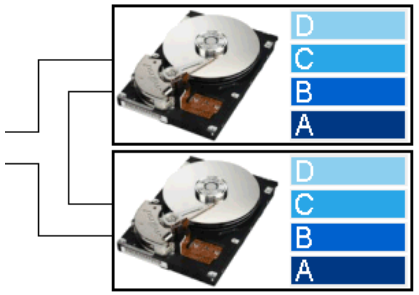
	1 Core	2 Cores	3 Cores	4 Cores
Core i5 4th Gen. 2.9 GHz	**3.6 GHz**	**3.4 GHz**	**3.2 GHz**	**2.9 GHz**
Graphics clock rate	**350 - 1150 MHz**			
Core i7 4th Gen. 3.1 GHz	**3.9 GHz**	**3.8 GHz**	**3.6 GHz**	**3.5 GHz**
Graphics clock rate	**350 - 1200 MHz**			





SIMATIC IPC547E
RAID1 vs. RAID5: Overview

RAID 1: Data mirroring



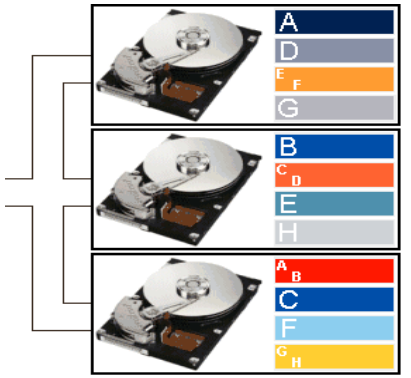
Process
Data is being duplicated and written in parallel on two HDDs

Advantages
- Same data set is secured automatically
- If one HDD fails, the system is still working
  → No data is lost

→ Simple data recovery

Disadvantage
- Only the capacity of one HDD can be effectively used

RAID 5: Data striping with parity



Process
Data is being written block by block (striping) on all HDDs (with check sums on all HDDs)

Advantages
- Very efficient with small data blocks
- High data transfer rates when reading
- If one HDD fails, the system is still working
  → No data is lost

→ Cost-effective possibility for redundant data storage on several HDDs with the available memory volume efficiently used

Disadvantages
- At least three HDDs are required
- Slower data transfer rates when writing compared to RAID1 as the error correction data (parity bits) has to be calculated

NEW: Additional HDD as hot spare in RAID configurations

Process
Hot spare disks are preparatory HDDs that are kept on active standby for use when a HDD in a RAID configuration fails

Advantages
- Automatic integration of the hot spare disk into the RAID configuration and start of the rebuild process in case of failure of a contained HDD

→ Maximum data availability

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RAID1 vs. RAID5: Feature comparison

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RAID features	RAID1 (Mirroring)	RAID5 (Striping with parity)
Minimum amount of HDDs	2 (2x 1 TByte)	3 (3x 1 TByte)
Data security	Failure of one HDD	Failure of one HDD
Read performance	Medium	High
Write performance	Medium	Low
Capacity utilization of HDDs	50% (1 TByte)	67% - 94% (2 TByte)
Benefits	High data availability in case of a single HDD failure	Optimal utilization of the used HDD capacity with high fault tolerance
Typical applications	Real-time critical applications, e.g. databases	Storage of large data volumes, e.g. archiving

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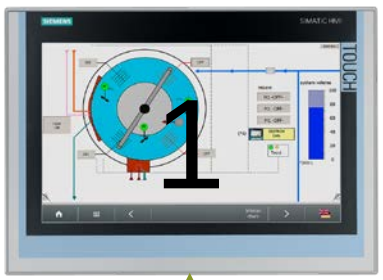
Multi-Monitoring (Intel Hybrid Multi-Monitor Support)

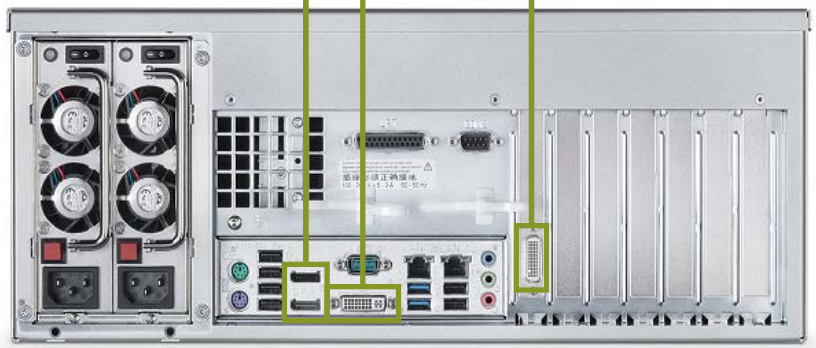


DisplayPort or DVI-D or VGA via adapter

DisplayPort or DVI-D or VGA via adapter

DVI-D or VGA via adapter

2x DVI-D or 2x VGA via optional graphics card and Y cable adapter



Possibility to connect up to 5 monitors:

- 3x via onboard graphics
- 2x via graphics card (as an option)

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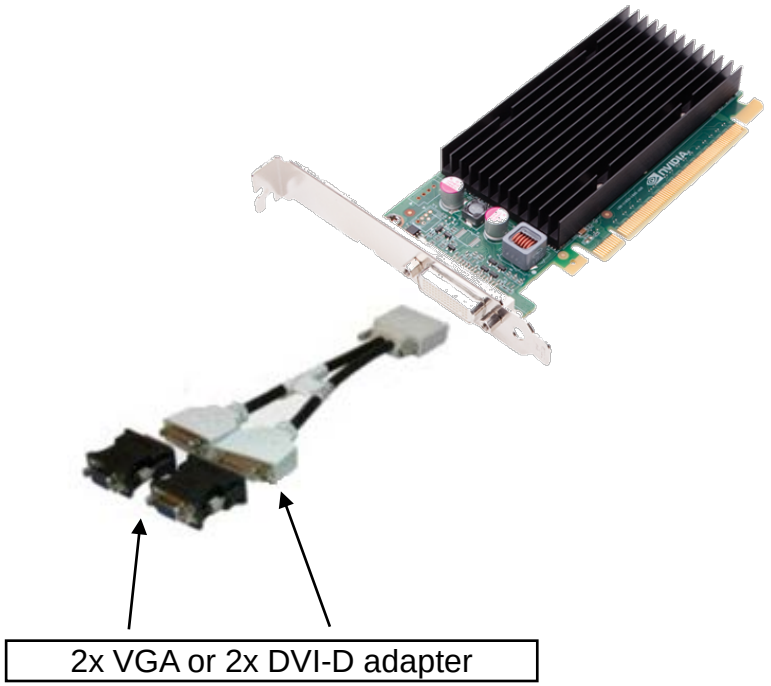
Graphics card

NVIDIA Quadro NVS 300 graphics card

NVIDIA Quadro graphics processor:	16 CUDA parallel computing cores[1)]
Overall frame buffer:	512 MByte
Width of the memory interface:	64 bit
Memory bandwidth:	12.6 Gbit/s
Max. digital monitor resolution at 60 Hz:	2560 x 1600
Graphics slot:	PCI-Express x16
Form factor:	69.37 mm x 167.64 mm (ATX bracket, 1 slot)
Interfaces:	2x DVI-D or 2x VGA
Max. power:	17 W
Cooling:	Fanless
Scope of supply in configurator:	DMS-59 to DVI-D adapter or DVI to VGA adapter
API:	OpenGL 3.3 DirectX 10.1 Shader Model 4.1



1) CUDA, the parallel calculation architecture from NVIDIA, enables a significant increase in computing performance, using the performance of the graphics processor.

SIMATIC IPC547E
Migration

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IPC547D  	to	  IPC547E	
Installation compatibility			
Housing measures	No changes		☑
Housing design	No major changes		☑
Interface compatibility			
Number of expansion slots	No changes		☑
Type of expansion slots	1x PCIe x16 Gen 3 instead of 1x PCIe x16 Gen 2		☑
Installation slots front	• 3x 5.25“ / 4x low-profile removable frame instead of 2x 5.25“ / 3x low-profile removable frame • 1x 5.25“ (slim) for DVD±R/RW instead of 1x 5.25“ for DVD-ROM / DVD±R/RW & 1x 3.5“		☑
External interfaces	• 2x DisplayPort V1.2 instead of 1x DisplayPort • 4x USB 3.0 & 7x USB 2.0 instead of 11x USB 2.0		☑
Software compatibility			
Software	Applications can still be used; maybe new drivers need to be loaded		☑
Operating system support	• Windows XP not available anymore • Windows Server 2008 (32 bit) not available anymore		❗
Miscellaneous compatibility			
Image	New chipset, therefore not image compatible		❗

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Order information

Body-MLFB	6AG4104-3....-....
Ordering system	▪ A&D Mall: http://www.siemens.de/automation/mall ▪ Online configurator: http://www.siemens.com/ipc-configurator
Support	▪ After sales: http://www.siemens.com/asis http://www.siemens.com/automation/support-request