

19 inch rack mount type Solution-ePC series SPF14SQ1700



Features

Compatible with Intel® Core™ processor series Skylake/Kaby Lake
Available with a power-saving, high-performance 6th- or 7th-generation Core processor for advanced computation and drawing performance while minimizing power consumption.

19-inch rack-mountable housing

The product dimensions are [430mm(W)×465mm(D)×174.8mm(H)] and designed to be mounted in a 19 inch rack.

CPU and chipset designed for embedded devices

The adoption of embedded CPUs and chipsets makes it possible to ensure supply stability.

Expandable up to 11 slots of PCI and PCI Express

Take advantage of PCI ×9, PCI Express (x16)×1, and PCI Express (x8) ×1 (x4 signal) bus expansion slots.

Rich variety of interfaces for freely expandable peripherals

It has a variety of extended interface such as PCI Express (×16) ×1 slot, PCI Express (×8) (x4 signal) ×1 slot, PCI ×9, DVI-I ×1, 1000BASE-T ×2, USB3.2 Gen1 (USB3.0) ×8 (Max.), serial (RS-232C) ×2 (Max.), serial (RS-232C/RS-422A/RS-485) ×2 (Max.).

Reliable, Japan-made power supply

The power supply an essential component of the product is made in Japan for superior reliability and system performance.

Adopted industrial motherboard

An industrial motherboard is used to achieve high reliability and a long-term product life. Furthermore, RAID function (selectable from hardware mirroring or software mirroring) is also equipped and these features ensure a longer service life.

Supported OS

Windows 10 IoT Enterprise 2019 LTSC 64bit (Japanese / English / Chinese / Korean)

Windows 7 Professional for Embedded Systems SP1 32bit (Japanese / English)

(*When selecting a 6th-generation CPU processor only)

Windows 7 Embedded Systems 32bit (Japanese)

(*When selecting a 6th-generation CPU processor only)

This product is a compact-sized industrial computer that is compatible with 6th-generation (Skylake) and 7th-generation (Kaby Lake) of Intel® Core™ series processors and adopts the Q170 chipset. In addition to a wide range of interfaces, the product also includes seven PCI bus expansion slots and one PCI Express (x16) bus expansion slot. The product adopts a reliable, Japan-made power supply (made by Nipron).

Solution-ePC is an industrial-use computer that offers BTO (Build to Order) specifications to suit the requests of customers. Only carefully selected components offering high reliability and stable supply are used, making the product suitable for industrial use. Various selections and options are available to meet customer requests, including OS, CPU, memory, and storage options.

*The contents in this document are subject to change without notice.

*Visit the CONTEC website to check the latest details.

*The information in the data sheets is as of June, 2023.

Specifications

Function specification < 1 / 2 >

Item		Description			
		Celeron Type	Core-i3 Type	Core-i5 Type	Core-i7 Type
CPU [Selection]	6th-generation (Skylake)	Intel® Celeron® Processor G3900 2.8GHz	Intel® Core™ i3 Processor 6100 3.7GHz	Intel® Core™ i5 Processor 6500 3.2GHz	Intel® Core™ i7 Processor 6700 3.4GHz
	7th-generation (Kaby Lake)	Intel® Celeron® Processor G3930E 2.9GHz	Intel® Core™ i3 Processor 7101E 3.9GHz	Intel® Core™ i5 Processor 7500 3.4GHz	Intel® Core™ i7 Processor 7700 3.6GHz
Chip set		Intel® Q170			
BIOS		BIOS (mfd. by AMI)			
Memory [Selection]		Max16GB, 288pin SO-DIMM Socket ×2, PC4-17000(DDR4 2133) DDR4 SDRAM 4GB: 4GB DDR4 SO-DIMM 2133MHz ×1 8GB: 8GB DDR4 SO-DIMM 2133MHz ×1 16GB: 8GB DDR4 SO-DIMM 2133MHz ×2			
Graphic*1		DVI-I ×1			
Controller		Intel® HD Graphics 530 (6th-generation), 630 (7th-generation)			
System resolution	Analog RGB	800 × 600, 1,024 × 768, 1,152 × 864, 1,280 × 600, 1,280 × 720, 1,280 × 768, 1,280 × 800, 1,280 × 960, 1,280 × 1,024, 1,360 × 768, 1,366 × 768, 1,400 × 1,050, 1,440 × 900, 1,600 × 900, 1,600 × 1,200, 1,680 × 1,050, 1,920 × 1,080 (16,770,000 colors)			
	DVI-D	800 × 600, 1,024 × 768, 1,152 × 864, 1,280 × 600, 1,280 × 720, 1,280 × 768, 1,280 × 800, 1,280 × 960, 1,280 × 1,024, 1,360 × 768, 1,366 × 768, 1,400 × 1,050, 1,440 × 900, 1,600 × 900, 1,600 × 1,200, 1,680 × 1,050, 1,920 × 1,080, 1,920 × 1,200 (16,770,000 colors)			
Storage [Selection]		5-inch bay ×2 SATA III 3.5-inch HDD 2TB (Max. 2pcs) SATA III 2.5-inch SSD 256GB (MLC) or 512GB 3D TLC or 1TB 3D TLC (Max. 2pcs) Installed with a removable case 3.5-inch bay ×3(Shadow bay) SATA III 3.5-inch HDD 2TB (Max. 2pcs) SATA III 2.5-inch SSD 256GB (MLC) or 512GB 3D TLC or 1TB 3D TLC (Max. 2pcs) Install using 2.5-inch to 3.5-inch conversion bracket			
Optical drive [Selection]		5-inch bay ×1 Super Multi drive			
Audio		None			
LAN		2 ports (RJ-45 connector) LAN-1: Intel I219-LM Controller, LAN-2: Intel I210-AT Controller 1000BASE-T/100BASE-TX/10BASE-T			
USB		A-TYPE connector Front: USB3.2 Gen1 (USB3.0) ×2 ports Rear: USB3.2 Gen1 (USB3.0) ×1 port [Selection] USB3.2 Gen1 (USB3.0) ×4 ports * Expansion slot region (2 ports/1 slot)			
Serial [Selection]		9pin D-SUB connector (male) * Expansion slot region (2 ports/1 slot) COM1/COM2 RS-232C COM3/COM4 RS-232C/RS-422A/RS-485 (Switchable via BIOS) Baud rate: 50 - 115,200bps			
Expansion slot		PCI bus ×9 slot Usable board dimension: Max. 313.8mm(L) × 107mm(H) PCI Express(x16) bus ×1 slot, PCI Express(x8) bus ×1 slot (x4 signal) Usable board dimension: Max. 312.0mm(L) × 111.15mm(H) *1			

*1 If the display cable is connected after the PC turns on, Monitor may not be displayed.

Function specification < 2 / 2 >

Item	Description			
	Celeron Type	Core-i3 Type	Core-i5 Type	Core-i7 Type
Security (TPM)	TCG TPM2.0			
Hardware monitoring	Monitoring CPU temperature, system temperature, power voltage			
RTC/CMOS	The real-time clock is accurate within ±3 minutes (at 25°C) per month, Lithium backup battery life : 7 years or more			
Power Management	Power management setup via BIOS			
Supportable OS [Selection]	Windows 10 IoT Enterprise 2019 LTSC 64bit (Japanese / English / Chinese / Korean) Windows 7 Professional for Embedded Systems SP1 32bit (Japanese / English) *1 Windows 7 Embedded Systems 32bit (Japanese) *1			
Power supply				
Rated input voltage	Voltage : 100 - 240VAC (50/60Hz) Capacity : Standard specification (370W mfd. by NIPRON), 450VA or less High capacity specification (500W mfd. by NIPRON), 754VA or less (at maximum instantaneous output)			
Range of input voltage	90 - 264VAC			
Power capacity	Standard specification (370W mfd. by NIPRON) : 370W (Peak) High capacity specification (500W mfd. by NIPRON) : 500W (Peak)			
Allowable momentary power outage time	20mS or less			
External device power supply capacity	Allowed external devices: USB3.2 Gen1 (USB3.0) devices, USB 2.0 devices, PCI bus cards, PCI Express bus cards < Standard specification (370W mfd. by NIPRON) > Total for all external devices : 86W (Max) Power capacity by voltage : +5V : 50W (Max), +3.3V : 38W (Max) +12V : 66W (Max), -12V : 4W (Max), 5VSB : 3W (Max) <High capacity specification (500W mfd. by NIPRON) > Total for all external devices : 134W (Max) Power capacity by voltage : +5V : 53W (Max), +3.3V : 45W (Max) [+5V & +3.3V : 88W(Max)] +12V : 100W (Max), -12V : 4W (Max), 5VSB : 5W (Max)			
Physical dimensions (mm)	430(W)×465(D)×174.8(H) (No protrusions)			
Weight	About 18.0kg (Excluding attachment fittings)			

*1 When selecting a 6th-generation CPU processor only

Installation Environment Requirements

Item	Description
Operating temperature	5 - 40°C
Storage temperature	-20 - +60°C
Operating Humidity	20 - 80%RH (No condensation)
Storage Humidity	20 - 80%RH (No condensation)
Floating dust particles	Not to be excessive
Corrosive gases	None
Line-noise resistance	Line noise AC line / ±2kV, Signal line / ±1kV (IEC61000-4-4 Level 3, EN61000-4-4 Level 3)
	Static electricity resistance Contact discharge / ±4kV (IEC61000-4-2 Level 2, EN61000-4-2 Level 2) Atmospheric discharge / ±8kV (IEC61000-4-2 Level 3, EN61000-4-2 Level 3)
Vibration resistance	Sweep resistance - HDD built-in type (when current is applied) : 10 - 50Hz / 4.9m/s ² (0.5G), 25 min. each in x, y, and z directions (JIS C60068-2-6 compliant, IEC60068-2-6 compliant) * Excluding when the product is vertically placed or using the optical drive - HDD built-in type (when current is not applied) and other types : 10 - 57Hz / semi-amplitude : 0.075 mm, 57 - 150Hz / 9.8m/s ² (1G), 40 min. each in x, y, and z directions (JIS C60068-2-6 compliant, IEC60068-2-6 compliant) * Excluding when the product is vertically placed or using the optical drive
Impact resistance	98m/s ² (10G) / 11ms / half-sine shock for 3 times in x, y, and z directions (JIS C60068-2-27 compliant, IEC60068-2-27 compliant) * Excluding when the product is vertically placed or using the optical drive
Grounding	Class D grounding
Standard	VCCI Class A, FCC Class A, CE Marking (EMC Directive Class A, Low Voltage Directive, RoHS Directive), UKCA, CCC *1, KC Class A *2

*1 The following configurations are not eligible for CCC certification.

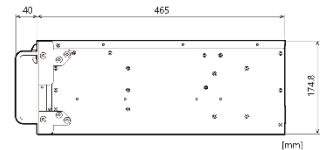
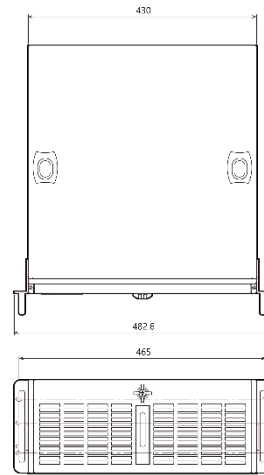
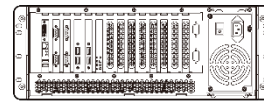
- Models with no storage or models with 512GB SSD or 1TB SSD
- Models with a high-capacity power supply (500W mfd. by NIPRON)

*2 The following table lists KC configuration.

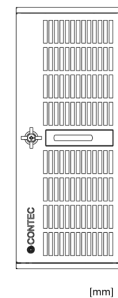
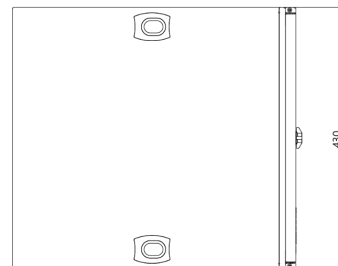
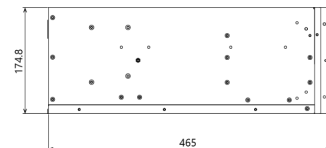
Item	Korea Certification Configuration		
CPU	Core i3 7101E (7th-generation : KabyLake)	Core i5 6500 (6th-generation : Sky Lake)	Core i7 7700 (7th-generation : KabyLake)
Memory	8GB x 1 or 8GB x 2		
Storage 1	2TB HDD or 256GB SSD		
Storage 2	No storage or the same device as storage 1		
RAID1	None or HARD or SOFT		
Removable case	No case or with the case (*storage 1 and 2 follow the same configuration)		
Optical drive	DVD-Super Multi drive		
OS	Windows 10 IoT Enterprise 2019 LTSC 64bit (Japanese / English / Chinese / Korean)		
COM with expansion option	COM1/2 or COM1/2/3/4		
USB3.2 Gen1 (USB3.0) with expansion ports	USB4/5/6/7		
Keyboard	None		
Mouse	None		
Power supply	Standard specification (370W mfd. by NIPRON)		

External Dimensions

Horizontally placed



Vertically placed



Included Items

Product [SPF14SQ1700] ...1

AC Cable...1

DVI-Analog RGB Branch Cable...1

COM Cable...1 *1

Flat Screw (#6-32UNCx4)...18 *1

Mouse...1 *1

AC Cable (For specific use in China or Korea) ...1 *2

Hazardous Substances Management ...1 *1

Keyboard...1 *1

Front Bezel Key...1

Security Key...2 *1

Product Guide ... 1

Logo Label...1

Slot Cover...1 *2

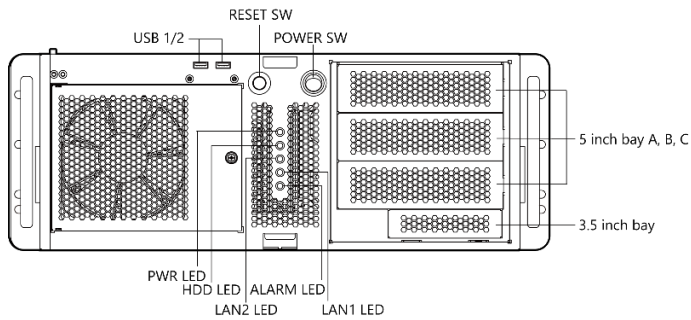
*1 Configuration differs depending on the selection.

*2 The number of included items varies depending on the selection.

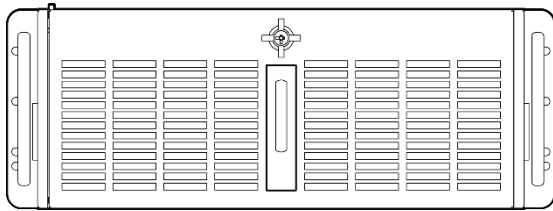
*2 These are exclusively used in expansion slots.

Component Name

Front View

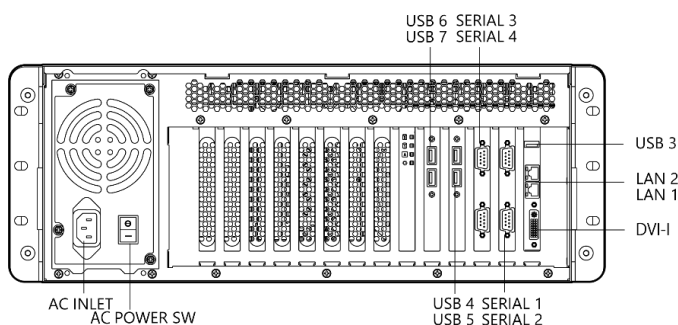


< With front bezel attached >



Name	Function
Front	
PWR LED	Power ON display LED
HDD LED	SATA device access display LED
LAN1 LED	LAN1 link LED
LAN2 LED	LAN2 link LED
ALARM LED	unused
POWER.SW	Power switch
RESET SW	Reset switch
USB 1/2	USB3.2 Gen1 (USB3.0) (TYPE-A connector) 2 port
5-inch bay A	DVD : Super multi drive
5-inch bay B	Storage (HDD, SSD) * 1
5-inch bay C	Storage (HDD, SSD) * 1
3.5-inch bay	Built-in hardware RAID mirror card *1

Rear View



Name	Function
Rear	
USB 3	USB3.2 Gen1 (USB3.0) (TYPE-A connector) 1 port
LAN 1	1000BASE-T/100BASE-TX/10BASE-T (RJ-45 connector) I219-LM: Ethernet
LAN 2	1000BASE-T/100BASE-TX/10BASE-T (RJ-45 connector) I210-AT: Ethernet 2
DVI-I	DVI-I 1 port
SERIAL 1/2 *1	RS-232C (9pin D-SUB connector (male)) 2 port COM1/COM2
SERIAL 3/4 *1 *2	RS-232C/RS-422A/RS-485 (9pin D-SUB connector (male)) 2 port COM3/COM4
USB 4/5 *1*2	USB3.2 Gen1 (USB3.0) (TYPE-A connector) 2 port
USB 6/7 *1*2	USB3.2 Gen1 (USB3.0) (TYPE-A connector) 2 port
AC power SW	Main power switch
AC INLET	AC100 - 240V Power input connector

*1 These may not be installed depending on the product configuration.

Model List

SPF14SQ1700 Model Rule

Model Name **SPF14SQ1700**Type Name **S72 - S 2 2 1 1 1 R 1 0 0 0 0 0**

No. 1 2 3 4 5 6 7 8 9 10 11 12 13

No.	Item	Type Name	Description
1	Power	S	Standard specification (370W mfd. by NIPRON)
2	CPU	1	Celeron G3900 (Skylake)
		2	Core i3 6100 (Skylake)
		3	Core i5 6500 (Skylake)
		4	Core i7 6700 (Skylake)
		5	Celeron G3930E (Kaby Lake)
		6	Core i3 7101E (Kaby Lake)
		7	Core i5 7500 (Kaby Lake)
		8	Core i7 7700 (Kaby Lake)
3	Memory	1	DDR4 DIMM 4GB (4GB x 1)
		3	DDR4 DIMM 8GB (8GB x 1)
		4	DDR4 DIMM 16GB (8GB x 2)
4	Storage 1 (3.5inch shadow bay)	0	None
		2	2TB 3.5inch HDD
		3	2TB 3.5inch HDD (Removable *2)
		A	256GB 2.5inch SSD (MLC)
		B	256GB 2.5inch SSD (Removable *2)
		D	512GB 2.5inch SSD (3D TLC)
		E	512GB 2.5inch SSD (3D TLC, Removable)
		F	1TB 2.5inch SSD (3D TLC)
		G	1TB 2.5inch SSD (3D TLC, Removable)
5	Storage 2 (3.5inch shadow bay)	0	None
		2	2TB 3.5inch HDD
		3	2TB 3.5inch HDD (Removable *2)
		A	256GB 2.5inch SSD (MLC)
		B	256GB 2.5inch SSD (MLC, Removable *2)
		D	512GB 2.5inch SSD (3D TLC)
		E	512GB 2.5inch SSD (3D TLC, Removable)
		F	1TB 2.5inch SSD (3D TLC)
		G	1TB 2.5inch SSD (3D TLC, Removable)
6	Optics system drive (5inch bay)	0	None
		1	DVD Multi Drive
7	RAID	0	None
		R	Software RAID (Mirroring)
		H	Hardware RAID (Mirroring)
8	OS	0	None
		1	Windows 7 Professional for Embedded Systems SP1 32bit (Japanese / English) *1
		3	Windows 7 Embedded Systems 32bit (Japanese) *1
		5	Windows 10 IoT Enterprise 2019 LTSC 64bit (Japanese / English / Chinese / Korean)
		A	Ubuntu (Linux) *3
9	Mouse, Keyboard (Option)	0	None
		1	Mouse (USB)
		2	Japanese Keyboard (USB)
		3	Mouse (USB), Japanese Keyboard (USB)
		4	English Keyboard (USB)
		5	Mouse (USB), English Keyboard (USB)
10	COM / USB (Option)	0	None
		1	COM port x 2 (COM1/COM2)
		2	COM port x 2 (COM1/COM2), USB3.2 Gen1 (USB3.0) port x 2
		3	COM port x 2 (COM1/COM2), USB3.2 Gen1 (USB3.0) port x 4
		4	COM port x 2 (COM3/COM4)
		5	COM port x 2 (COM3/COM4), USB3.2 Gen1 (USB3.0) port x 2
		6	COM port x 2 (COM3/COM4), USB3.2 Gen1 (USB3.0) port x 4
		7	COM port x 4 (COM1/COM2/COM3/COM4)
		8	COM port x 4 (COM1/COM2/COM3/COM4), USB3.2 Gen1 (USB3.0) port x 2
		9	COM port x 4 (COM1/COM2/COM3/COM4), USB3.2 Gen1 (USB3.0) port x 4

No.	Item	Type Name	Description
		A	USB3.2 Gen1 (USB3.0) port x 2
		B	USB3.2 Gen1 (USB3.0) port x 4
11	Easy Assembly Service	0	None
12	Partitioning Service	0	None
		1	Yes
13	China Compulsory Certification [CCC] / Korea Certification [KC]		Bit7 Bit6 Bit5 Bit4 Bit3 Bit2 Bit1 Bit0 Not in use AC cable suitable for China standard AC cable suitable for Korea standard CCC KC Bit0 : AC cable suitable for China standard (0: none, 1: bundled) Bit1 : AC cable suitable for Korea standard (0: none, 1: bundled) Bit2 : CCC (0 : not certified, 1 : certified) Bit3 : KC (0 : not certified, 1 : certified)
		0	None
		4	CCC
		5	CCC, AC cable suitable for China standard is bundled.
		C	CCC, KC
		D	CCC, KC, AC cable suitable for China standard is bundled.
		E	CCC, KC, AC cable suitable for Korea standard is bundled.

*1 Selectable only when 6th-generation CPUs are selected for CPU 1 to 4. *2 Install in 3.5-inch bay

*3 The Linux OS is installed on the product for startup checking. The pre-installed Linux OS is outside the scope of CONTEC's support coverage. Please format the storage before use.

* COM1/COM2 : RS-232C, COM3/COM4 : RS-232C/RS-422A/RS-485