PANEL-PC
Atom E3845, CFast, 1PCI slot, 12.1 inch

PT-956SLXP1 Series

* Specifications, color and design of the products are subject to change without notice.
* The contents in this document are subject to change without notice.
* Visit the CONTEC website to check the latest details in the document.
* Visit the CONTEC website to check the latest OS.
* The information in the data sheets is as of October, 2022.

This product is a fanless computer for embedded applications. It features an Intel Atom processor E3845 1.91GHz chipset. Thanks to a quad-core CPU, simultaneous stable high-speed processing for four applications is possible with four cores. This CPU also allows for computing power almost four times that of conventional products in addition to three times the graphics performance, a significant improvement. Moreover, power consumption has been significantly reduced, resulting in nearly double the power efficiency compared with the previous generation's architecture. This "resource-saving PC" helps you design more compact, energy efficient equipment to reduce running costs and promote energy efficiency.

It is equipped with extended interfaces such as DVI-I, 1000BASE-T, USB 3.0, USB 2.0, and serial interfaces, and it is also equipped with a single PCI bus slot. It adopts CFast card for the storage and is fanless, which demonstrate the totally spindleless design that simplifies the maintenance.

Embedded-type CPU have been adopted. The use of readily available parts ensures the ease of the use of the product. In addition, the use of Contec-customized BIOS allows support to be provided at the BIOS level.

Features

- Multilingual OS is adopted for globalization support

Windows Embedded Standard 7 RUNTIME P and Windows 10 IoT Enterprise LTSB that support multiple languages of Japanese/English/Chinese/Korean are adopted as the OS installation model. As the language on the screen can be switched, this feature is ideal for such as manufacturing sites where multilingualization is inevitable.

- Contributing to reduction of running cost and promotion of energy efficiency

With the low power consumption platform Intel® AtomTM processor E3845, this product achieves low power consumption while ensuring adequate performance.

- Fanless design that reduces maintenance work

This product's spindleless design eliminates the heat dissipating slit and CPU fan and adopts CFast card for the storage. It is free from dusts and foreign objects, and the use the parts that degrades over the years is avoided in most case, resulting in drastic alleviation of the maintenance burden.

- High definition supported DVI external display output

This product has the up to 1920 x 1080 pixels DVI external display output as standard feature. A stand-alone two-displays application which, for example, displays the screen on a big LCD TV separately from the main LCD, can be built. Also, with the accompanying analog RGB (15 pin HD-SUB) conversion adapter, connecting to an analog RGB display is supported.

- Remote power management function to reduce operation tasks

It supports system start-up externally via network (Wake On LAN) and modem (Power On by Ring). It encourages significant labor saving in operation.

- Major types of peripherals are supported with rich interfaces including the two CFast card slots

It has a variety of extended interface such as DVI-I x1, 1000BASE-T x 2, USB3.0 x 1, USB2.0 x 3, serial (RS-232C) x 2.

It has 2 CFast card slots that can use for OS and data. They are very useful because you can use one slot for system start-up and the other for maintenance, system log, or taking away the collected data.

- Expansion slots to hold PCI bus boards.

This product has one PCI slot. Board size that can be attached is 177(L) x 107(H) [mm].

- CFast retention fitting and cable tie provided to avoid trouble caused by disconnected cable

This product stays trouble-free, being equipped with CFast card retention metal and USB removal prevention fitting and cable tie for connectors with no locking mechanism, such as USB cable, and with hardware to properly mount and avoid falling out of CFast card.

- Safety design required for embedded applications

Retention of CMOS data by EEPROM allows the system to start up even when the battery has run out.
For Windows Embedded Standard installed model or Windows 10 IoT Enterprise LTSB 2016 installed model, it is possible to use the Write Filter*1 function of OS. It is designed for safety required for embedding purpose, for example, prohibiting unwanted writing to the CFast card with Write Filter function will relieve the concern about the writing limits to the CFast card and prevent an unintentional system alteration..

*1 Windows® Embedded Standard contains EWF (Enhanced Write Filter) function, and Windows 10 IoT Enterprise LTSB 2016 contains UWF(Unified Write Filter) function. They redirect writing data into such as RAM, which stops writing in the actual disk and data can be protected.

- A wide range of power supplies (10.8 - 31.2VDC) supported

As the product supports a wide range of power (10.8 - 31.2VDC), it can be used in a variety of power environments. The separately available AC adapter adds support for 100VAC power.*2

*2 When using the AC adapter, limits are placed on the expansion board power supply capacity and the external device power supply capacity.

- Touch panel enables keyboard-less operation.

These products have analog touch panel enabling mouse emulation using driver software.

- "Power failure protection system" features power-off without OS shutdown

Equipped with the "Power failure protection system" function that protects data and prohibits writing to storage in the event of power failure *3. Along with the lockdown (disk writing suppression) function of Windows IoT Enterprise, power can be safely turned off without a shutdown process. Moreover, file system damage or data damage caused by sudden power failure can be avoided.

*3 Only the CFast Card 40GB (iSLC) model and CFast Card 128GB (TLC) model are compatible with the " Power failure protection system ".

- CONTEC-customized BIOS provides useful utility

Useful utility of BIOS *4 customized by CONTEC is provided. The "CONTEC Fast Boot" achieves Windows startup in less than half the normal time.*5
The "Disk Copy" function provides secure disk backup at the BIOS level, and also supports backup in file format or compressed file format.

We also offer the CONTEC tools "BIOS update tool" for updating BIOS.*6

*4 For details, see each setting in the [BIOS Setup] section.
*5 It is the actual measured value when Windows 10 and HORM function are enabled at the factory. Time may vary depending on configuration. Note that TXE, TPM, Network Stack, and SMART Self Test are not supported when the CONTEC Fast Boot is enabled.
*6 Contact your retailer for more information.

Specification

Functional Specifications

Model		PT-956SLXP1-DC7xxxxx
Assembly type		Panel mounted
CPU		Intel® Atom™ Processor E3845 1.91GHz
BIOS		BIOS (mfd. by AMI)
Memory		4GB (204pin SO-DIMM x 1), PC3-10600 DDR3L 1333 ECC
Graphic Controller		Intel® HD Graphics (Built-in CPU)
LCD type	LCD type	12.1-inch TFT color LCD, XGA(1024 x 768), 260,000 colors
	Backlight	LED method, The ON/OFF software can control.
Touch panel *1*2	Resolution	4096 x 4096 (emulated in 1024 x 768 mode)
	Detection method	Five-wire resistive film analog method
	Connection	Internal serial port
External display output	DVI *3	640 x 480, 800 x 600, 1,024 x 768, 1,152 x 864, 1,280 x 600, 1,280 x 720, 1,280 x 768,1,280 x 800, 1,280 x 960, 1,280 x 1,024, 1,360 x 768, 1366 x 768, 1,400 x 1,050,1,440 x 900, 1,600 x 900, 1,680 x 1,050, 1,92 x 1,080 (16,770,000 colors)
	Analog RGB	640 x 480, 800 x 600, 1,024 x 768, 1,152 x 864, 1,280 x 600, 1,280 x 720, 1,280 x 768, 1,280 x 800, 1,280 x 960, 1,280 x 1,024, 1,360 x 768, 1,366 x 768, 1,400 x 1,050,1,440 x 900, 1,600 x 900, 1,680 x 1,050, 1,920 x 1,080, 1,920 x 1,200 (16,770,000 colors)
Audio		HD Audio compliant, LINE OUT x 1, MIC IN x 1
LAN *4		Intel I210 Controller 1000BASE-T/100BASE-TX/10BASE-T x 2 (Wake On LAN support)
USB		USB3.0-compliant 1port (TYPE-A connector x 1) USB2.0-compliant 3 port (TYPE-A connector x 3)
Serial		RS-232C 3 port (one of the ports is used for touch panel), Baud rate: 50 - 115,200bps
Hardware monitoring		Monitoring CPU temperature, board temperature, power voltage
Watch dog timer		Software programmable, 255 level (1sec - 255 sec), Causes a reset upon time-out.
Real-time clock		Lithium backup battery life : 10 years or more The real-time clock is accurate within ±3 minutes (at 25°C) per month (Built-in CPU)
Power Management		Power management setup via BIOS, Power On by Ring / Wake On LAN, Supports PC98/PC99 ACPI Power management
Interface	External display	1 port (29 pin DVI-I connector), DVI-analog RGB conversion adapter attachment
	Audio	LINE OUT : ϕ3.5 Stereo mini jack, Full-scale output level 1.4Vrms (Typ.), MIC IN : ϕ3.5 Stereo mini jack, Full-scale input level 1.4Vrms (Typ.)
	CFast card slot	2 slots, CFast CARD Type I x 2, bootable
		PT-956SLXP1-DC700000 : --- PT-956SLXP1-DC73xxxx : with CFast card (SLC) within (16GB, 1 partition) *5 PT-956SLXP1-DC78xxxx : with CFast card (Q-MLC) within(32GB, 1 partition) *5 PT-956SLXP1-DC7Cxxxx : with CFast card (iSLC) within (40GB, 1 partition) *5 PT-956SLXP1-DC7Dxxxx : with CFast card (TLC) within(128GB, 1 partition) *5
	LAN *4	2 port (RJ-45 connector)
	USB	USB3.0 compliant 1 port (A-TYPE connector x 1) USB2.0 compliant 3 port (A-TYPE connector x 3)
	RS-232C	2 port (9pin D-SUB connector [male])
	Expansion board slot	PCI slot x 1, Usable board dimension: 177mm (L) x 107mm (H)
Power supply	Power supply connector	12 - 24VDC *6
	Input power supply voltage	10.8 - 31.2VDC
	Current consumption	12VDC: 3.7A (Typ.) 5.5A (Max.) 24VDC: 2.1A (Typ.) 2.9A (Max.)
	External device power supply capacity	CFast card slot : +3.3VDC 1A (500mA per slot), USB3.0 I/F : +5V : 0.9A (900mA per port) USB2.0 I/F : +5V : 1.5A (500mA per port)
	External board power supply capacity *8	+12VDC 0.5A +5VDC 1A *7 +3.3VDC 0.5A *7 -12V 80mA
Waterproofing and dust-proofing		Front panel IP65 standard
Panel cut dimensions (mm)		303.0(W) x 243.0(H)
Physical dimensions (mm)		316(W) x 102.8(D) x 256(H) (internal-panel depth) (Storage device isn't included)
Weight		About 4.5kg (without mounting bracket) About 4.6kg (with mounting bracket)

*1 : Accuracy is within the error of 1.5% for the periphery of the touchable area, and the other areas are within 1%.
*2 : When using Windows 10, the mouse cursor is not displayed if the mouse device is not connected. The virtual mouse driver is required to display the cursor. Please download it from the Contec website.
*3 : Display of the DVI-connected screen becomes active after the Windows starts up.
*4 : Care about ambient temperature when using 1000BASE-T. Refer to "Installation Requirements" in chapter 3 for details.
*5 : The capacity of CFast is a value when 1GB is calculated by 1 billion bytes. The capacity that can be recognized from OS might be displayed fewer than an actual value.
*6 : Use a power cable shorter than 3m.
*7 : Ensure that the total current for the USB port power supply capacity and the expansion board power supply capacity (+5 V) is 2.4 A or lower. When using a total current 1.9 A or higher, be careful of the ambient temperature.
*8 : The maximum power for an expansion board that can be equipped is 7.5 W or lower.

Installation Environment Requirements

Model		PT-956SLXP1-DC7xxxxx
Operating temperature		< When using 100BASE-TX/10BASE-T > 0 - 50°C (When the total current for the USB port power supply capacity and the expansion board power supply capacity (+5 V) is 1.9 A or higher: 0 - 45°C) < When using 1000BASE-T > 0 - 45°C
Storage temperature		-10 - +60°C
Operating humidity		10 - 90%RH (No condensation)
Floating dust particles		Not to be excessive
Corrosive gas		None
Noise resistance	Line noise	AC line /±2kV *9, 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	10 - 57Hz / semi-amplitude 0.075 mm 57 - 150Hz / 1.0G, 40 min. each in x, y, and z directions (JIS C60028-2-6-compliant, IEC68-2-6-compliant)
Impact resistance		10G, half-sine shock for 11 ms in x, y, and z directions (JIS C60068-2-27-compliant, IEC60068-2-27-compliant)
Grounding		Class D grounding, SG-FG / continuity
Standard		VCCI Class A, FCC Class A, CE Marking (EMC Directive Class A, RoHS Directive), UKCA

*9 : When AC adapter "PWA-90AWD1" is used.

Included Items

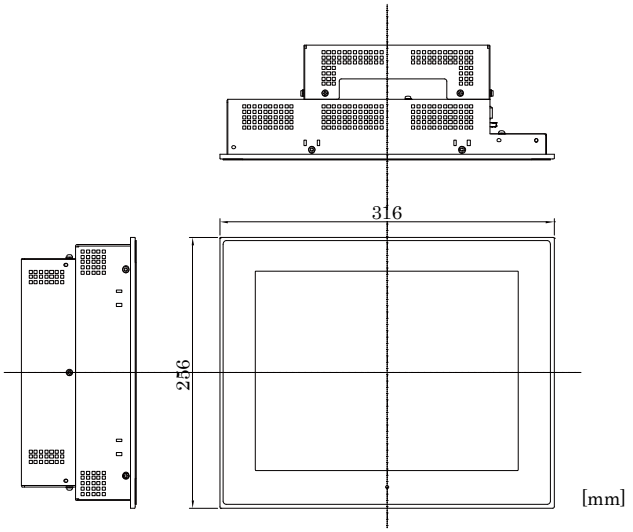
	PT-956SLXP1-DC700000	PT-956SLXP1-DC7xxxxx *1
	Panel Mount	Panel Mount
	[Base Model]	[OS-installed model]
Name	Pcs.	Pcs.
Panel-PC	1	1
Waterproof packing	1	1
The attachment fittings	8	8
CFast card removal prevention fitting	1	1 *2
Washer assembled screw (M3x6)	1	1
Slot cover	1	1
Power supply connector complete set		
Power connector	1	1
Contact	4	4
Cable Tie	1	1
DVI-analog RGB conversion adapter	1	1
Product guide	1	1

*1 Except for base model.
*2 It is attached to the main body.

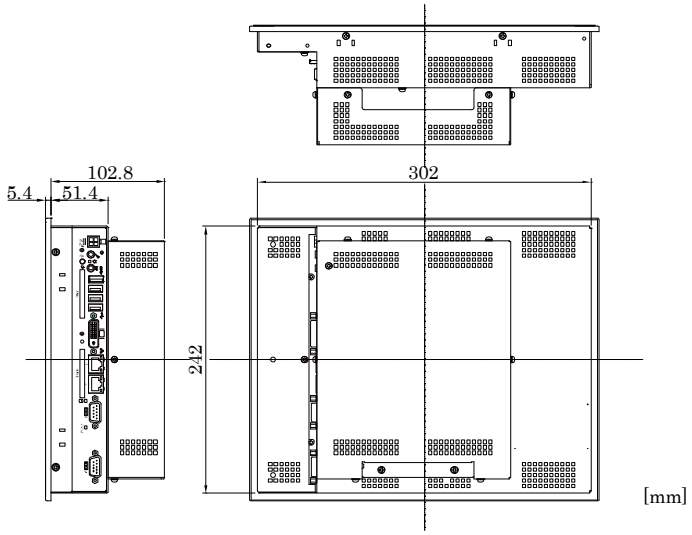
※ The User's Guide of this product is offered as the PDF file in our web page. With it, since information such as a setup of hardware, each component function and BIOS setup is indicated, please refer to it if needed.

Physical Dimensions

[Front]



[Back face]



Supported OS

- Windows Embedded Standard 7 RUNTIME P (Japanese, English, Chinese, Korean), 32bit
- Windows 10 IoT Enterprise LTSB 2016 (Japanese, English, Chinese, Korean), 64bit

Optional Products

AC adapter

ACAP12-06A	AC adapter (Input: 90-264VAC, Output: 12VDC 7A)
PWA-90AWD1	AC adapter (Input: 100-240VAC, Output: 12VDC 7.5A)

Caution
When the product is used with this AC adapter (ACAP19-01), ensure that the total consumption current for the four USB ports and the total consumption current for the expansion board power supply +5 V is 1.0 A or lower.

Screen protective sheets

IPC-CV12	12.1-inch screen protective sheets (10 sheets)

Caution
Note that the sheets may not protect the screen because it is a few millimeters smaller than the screen size.

Protective sheets		PT-956SLXP1 Series	
Model	Sheet size (mm)	Model	Sheet size (mm)
IPC-CV12	250.0 x 188.0	IPC-CV12	250.0 x 188.0

CFast Card (SLC)

CFS-4GB-A	4GB CompactFlash for Fix Disk
CFS-8GB-A	8GB CompactFlash for Fix Disk
CFS-16GB-A	16GB CompactFlash for Fix Disk

CFast Card (Q-MLC)

CFS-16GBQ-A	16GB CompactFlash for Fix Disk
CFS-32GBQ-B	32GB CompactFlash for Fix Disk (Higher environmental resistance type)

CFast Card (iSLC)

CFS-40GBIP-A	40GB CompactFlash for Fix Disk (Power Failure Protection Supported type)

CFast Card (iSLC)

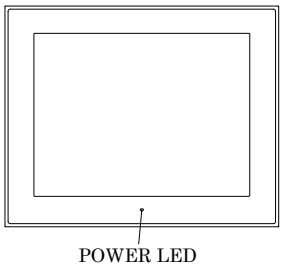
CFS-128GBTP-A	128GB CompactFlash for Fix Disk (Power Failure Protection Supported type)

Caution
If a product other than our option is used, the normal operation may be impaired or the functions may be limited.

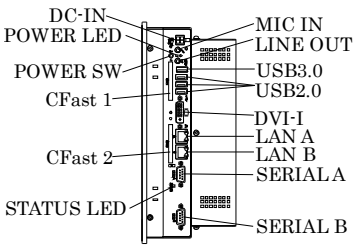
* Check the CONTEC's Web site for the latest information on these options.

Component Name

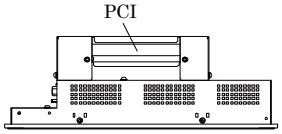
Front view



Side view



Bottom view



Component Function

Name	Function
POWER-SW	Power switch
POWER LED	Power ON display LED
ACCESS LED	CFast disk access display LED
STATUS LED	Status LED
DC-IN	DC power input connector
LINE OUT	Line out (ϕ3.5 PHONE JACK)
MIC IN	Mic in (ϕ3.5 PHONE JACK)
LAN A	Ethernet 1000BASE-T/100BASE-TX/10BASE-T RJ-45 connector
LAN B	Ethernet 1000BASE-T/100BASE-TX/10BASE-T RJ-45 connector
USB 3.0	USB 3.0 port connector x 1
USB 2.0	USB 2.0 port connector x 3
SERIAL A	Serial port A connector (9pin D-SUB/male)
SERIAL B	Serial port B connector (9pin D-SUB/male)
DVI-I	Display (29pin female)
CFast1	CFast card slot (SATA connection)
CFast2	CFast card slot (SATA connection)
PCI	Expansion Slot

Differences between the PT-956SLXP1 Series and PT-955LXP1 Series

Model		PT-956SLXP1 Series	PT-955LXP1 Series
CPU		Intel® Atom™ Processor E3845 1.91GHz	Intel® Atom™ Processor N270 (1.60GHz/FSB533MHz)
Chipset		None	Intel® 945GSE + ICH7M-DH
BIOS		BIOS (mfd. By AMI)	BIOS (mfd. By Award)
Memory		4GB (204pin SO-DIMM x 1), PC3-10600 DDR3L 1333 ECC	1GB (200pin SO-DIMM x 1), PC2-4300 DDR2 SDRAM
Graphic Controller		Intel® HD Graphics (Built inCPU)	Intel® GMA950 (Built in 945GSE chipset)
External display output	DVI	640 x 480, 800 x 600, 1,024 x 768, 1,152 x 864, 1,280 x 600, 1,280 x 720, 1,280 x 768, 1,280 x 800, 1,280 x 960, 1,280 x 1,024, 1,360 x 768, 1366 x 768, 1,400 x 1,050, 1,440 x 900, 1,600 x 900, 1,680 x 1,050, 1,920 x 1,080 (1,6770,000 colors)	640 x 480, 800 x 600, 1,024 x 768, 1,152 x 864, 1,280 x 600, 1,280 x 720, 1,280 x 768, 1,280 x 960, 1,280 x 1,024, 1,360 x 768, 1,400 x 1,050, 1,600 x 900, 1,600 x 1,200, 1,856 x 1,392, 1,920 x 1,080, 1,920 x 1,200 (1,6770,000 colors)
	Analog RGB	640 x 480, 800 x 600, 1,024 x 768, 1,152 x 864, 1,280 x 600, 1,280 x 720, 1,280 x 768, 1,280 x 800, 1,280 x 960, 1,280 x 1,024, 1,360 x 768, 1,366 x 768, 1,400 x 1,050, 1,440 x 900, 1,600 x 900, 1,680 x 1,050, 1,920 x 1,080, 1,920 x 1,200 (1,6770,000 colors)	640 x 480, 800 x 600, 1,024 x 768, 1,280 x 768, 1,280 x 1,024, 1,360 x 768, 1,400 x 1,050 (1,6770,000 colors)
Audio		HD Audio compliant, LINE OUT x 1, MIC IN x 1	AC97 compliant, LINE OUT x 1, MIC IN x 1
IDE		None	Primary IDE Master / Slave (Max. 2devices), CF card slot connection
LAN		Intel I210 Controller 1000BASE-T/100BASE-TX/10BASE-T 2 port (Wake On LAN support)	Intel® 82573L Controller 1000BASE-T/100BASE-TX/10BASE-T 2 port (Wake On LAN support)
USB		USB3.0 compliant 1port (TYPE-A connector x 1) USB2.0 compliant 3port (TYPE-A connector x 3)	USB 2.0 compliant 4 port (TYPE-A connector x 4)
Real time clock		Lithium backup battery life: 10 years or more, The real-time clock is accurate within ±3 minutes (at 25°C) per month (CPU built-in RTC)	Lithium backup battery life: 10 years or more, The real-time clock is accurate within ±3 minutes (at 25°C) per month (Built-in ICH7M-DH)
Interface	Audio	LINE OUT: 3.5φStereo mini jack, Full-scale output level 1.4Vrms (Typ.) MIC IN: 3.5φStereo mini jack, Full-scale input level 1.4Vrms(Typ.)	LINE OUT:3.5φ Stereo mini jack, Full-scale output level 1.5Vrms(Typ.), Dual 50mW Amplifier MIC IN: 3.5φ Stereo mini jack, Full-scale input level 1.3Vrms(Typ.)
	CF card slot	None	2 slot, CF CARD Type I x 2, bootable
	CFast card slot	2slot, CFast CARD Type I x 2, bootable	None
Power supply	Power consumption	12VDC: 3.7A (Typ.) 5.5A (Max.) 24VDC: 2.1A (Typ.) 2.9A (Max.)	12VDC: 3.5A (Typ.) 5.5A (Max.) 24VDC: 1.7A (Typ.) 2.8A (Max.)
	External device power supply capacity	CFast card slot : +3.3VDC 1A (500mA per slot), USB3.0 I/F: +5V : 0.9A (900mA per port) USB2.0 I/F: +5V : 1.5A (500mA per port)	CF card slot : +3.3VDC 1A (500mA per slot), USB2.0 I/F : +5V : 2A (500mA per port)
Weight		About 4.5kg (without mounting bracket) About 4.6kg (with mounting bracket)	About 4.8kg (without mounting bracket) About 4.9kg (with mounting bracket)

Model

Base model with Intel Atom Processor E3845 1.91GHz, Panel Mount type

PT-956SLXP1-DC700000
(12.1 inch touchpanel, LCD (XGA), Memory 4GB, without OS, without CFast, 1 x PCI slot)
OS-installed model with Intel Atom Processor E3845 1.91GHz, Panel Mount type

PT-956SLXP1-DC731314
(12.1 inch touchpanel, LCD (XGA), Memory 4GB, Windows Embedded Standard 7 RUNTIME P 32bit (Japanese, English, Chinese, Korean), CFast card (SLC) 16GB, 1 x PCI slot)

PT-956SLXP1-DC781724
(12.1 inch touchpanel, LCD (XGA), Memory 4GB, Windows 10 IoT Enterprise LTSB 2016 64bit (Japanese, English, Chinese, Korean), CFast card (Q-MLC) 32GB, 1 x PCI slot)

PT-956SLXP1-DC7C1724
(12.1 inch touchpanel, LCD (XGA), Memory 4GB, Windows 10 IoT Enterprise LTSB 2016 64bit (Japanese, English, Chinese, Korean), CFast card (iSLC) 40GB, 1 x PCI slot)

PT-956SLXP1-DC7D1724
(12.1 inch touchpanel, LCD (XGA), Memory 4GB, Windows 10 IoT Enterprise LTSB 2016 64bit (Japanese, English, Chinese, Korean), CFast card (TLC) 128GB, 1 x PCI slot)