

## Embedded-PC EPC-4000 Series



### Features

#### - Compatible with Intel® Core™ processor series Coffee Lake

The product is equipped with the 8th-generation Intel® Core™ processor and greatly realizes lower-power consumption while ensuring fine performance of operation tasks and drawing. Adopting embedded-type CPU contributes to a stable supply.

Three types of CPU are lined up.

Intel® Core™ i7-8700T

Intel® Core™ i5-8500T

#### - CPU built-in high-performance graphics

CPU corresponds to the Intel® HD Graphics 630.

Full HD video can be smoothly played.

It also supports full HD output of the two-screen with the DVI-D and DisplayPort.

#### - "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. 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.

#### - Adopt removable storage

The dual-slot model uses 2.5-inch SATA storage accessible from the front.

#### - Extend peripherals freely. Rich interface

This product is equipped with a variety of expansion interfaces such as DVI-D, DisplayPort, 1000BASE-T x 3, USB3.2 Gen2 (USB3.1) x 6, USB3.2 Gen1 (USB3.0) x 2, serial (RS-232C) x 1, serial (RS-232C/RS-422A/RS-485) x 1, audio, GPIO (Isolation, Input x 4, output x 4). You can assist our use in various scenes.

#### - Equipped with expansion slots that can house PCI-Express (x8) or PCI Express (x4) boards (Models with expansion slots only)

The model with two expansion slots is equipped with two PCI-Express (x8)-bus slots.

The model with four expansion slots is equipped with four PCI-Express (x4)-bus slots.

The maximum size of boards that can be installed is 176 (L) x 110 (H) mm.

### Supported OS

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

This product is a high-performance embedded-type personal computer equipped with the 8th-generation Intel® Core™ processor.

Embedded-type chipset and CPU have been adopted. The use of readily available parts ensures the ease of the use of the product.

The CONTEC offers the model without an expansion slot and also two types of models with expansion slots.

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

\* Visit the CONTEC website to check the latest details.

\* Visit the CONTEC website to check the latest OS.

\* The information in the data sheets is as of January, 2022.

### Packing List

|   | EPC-4000-xxxxxxx<br>[The model without an expansion slot] | EPC-4000P2-xxxxxxx<br>[The model with expansion slots (two slots)] | EPC-4000P4-xxxxxxx<br>[The model with expansion slots (four slots)] |
|---|---|--|---|
| Name  | Pcs.  | Pcs.   | Pcs.  |
| Product   | 1   | 1  | 1   |
| The Attachment Fittings   | 2   | 2  | 2   |
| Screws for Attachment Fittings (M4)                                       | 6   | 6  | 6   |
| Fixing screw for slot cover (M3)  | -   | 2  | 4   |
| Pan Head Screw with Nylon Washer for Fixing The 2.5-inch Storage in Place | 4 *1  | 4 *1   | 4 *1  |
| Bush for Fixing The 2.5-inch Storage                                      | 4 *1  | 4 *1   | 4 *1  |
| Recovery Disc / Driver Disc   | 1 *2  | 1 *2   | 1 *2  |
| Slot Cover  | -   | 2  | 4   |
| Warranty Certificate  | 1   | 1  | 1   |
| Product Guide   | 1   | 1  | 1   |
| Serial Number Label   | 1   | 1  | 1   |

\*1 The 2.5-inch storage type is already mounted on the main unit.

\*2 The recovery disc is included for the product with an OS pre-installing type. The driver disc is included for the product without an OS.

### List of Options

| Item       | Model       | Description                            |
|------------|-------------|--|
| CFAST Card | CFS-4GB-A   | 4GB (SLC)                              |
|            | CFS-8GB-A   | 8GB (SLC)                              |
|            | CFS-16GB-A  | 16GB (SLC)                             |
|            | CFS-32GBM-A | 32GB (MLC)                             |
|            | CFS-16GBQ-A | 16GB (Q-MLC)                           |
| Bracket    | EPC-BKT     | Bracket for EPC-4000 and 4000P2 Series |
|            | EPC-P4-BKT  | Bracket for EPC-4000P4 Series          |

#### CAUTION

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

\* Visit the CONTEC website for the latest optional products.

Intel, Intel Core and Celeron are registered trademarks of Intel Corporation. MS, Microsoft and Windows are trademarks of Microsoft Corporation. Other brand and product names are trademarks of their respective holder.

## Specification

### Function Specifications

| Item  | Description   |   |   |
|---|---|---|---|
|   | The model without an expansion slot   | The model with expansion slots (two slots)  | The model with expansion slots (four slots)   |
| CPU [Selection]                                 | Intel® Core™ i7-8700T Processor 2.4GHz<br>Intel® Core™ i5-8500T Processor 2.1GHz<br>Heat dissipation method : Heat sink +FAN  |   |   |
| Chipset   | Intel® Q370   |   |   |
| BIOS  | BIOS (mfd. by AMI)  |   |   |
| Memory [Selection]                              | Max16GB, 260pin SO-DIMM Socket x 2, DDR4-2666 SDRAM Non-ECC   |   |   |
| Graphic   | Intel® HD Graphics 630<br>DVI-D x 1, DisplayPort x 1  |   |   |
| Storage (System)                                | SATA III 2.5" SSD 256GB (3D-TLQ) or None  |   |   |
| CFast I/F                                       | CFast Slot x 1ch, With anti-release mechanism   |   |   |
| Audio   | HD Audio compliant, LINE OUT x 1, LINE IN x 1, MIC IN x 1   |   |   |
| LAN   | 1000BASE-T/100BASE-TX/10BASE-T RJ-45 connector x 3<br>Transmission speed *: 1000M/100M/10M bps<br>LAN-A, B: Intel I210AT Controller,<br>LAN-C: Q370 embedded controller + PHY I219LM<br>* Use a Category 5e or higher cable to operate at 1000Mbps. |   |   |
| USB   | USB 3.2 Gen2-compliant (10Gbps) x 6<br>USB 3.2 Gen1-compliant (5Gbps) x 2   |   |   |
| Serial  | RS-232C 9pin D-SUB x 1<br>RS-232C/RS-422A/RS-485 (Switchable in BIOS settings) 9pin D-SUB x 1<br>Baud rate : 50 - 115,200bps (Programmable)   |   |   |
| Expansion Card Slot [Selection]                 | None  | PCI-Express(x8) slot x 2 (x16 mounted connector)<br>Usable card dimension: Max 176mm(L) x 110mm(H)  | PCI-Express(x4) slot x 4<br>Usable card dimension: Max 176mm(L) x 110mm(H)  |
| Hardware Monitoring                             | Monitoring CPU temperature, fan speed, power voltage  |   |   |
| Watch Dog Timer                                 | Software programmable, 255 level (1sec - 255 sec),<br>Causes a reset upon time-out.   |   |   |
| RTC/CMOS  | The real-time clock is accurate within ±3 minutes (at 25°C) per month,<br>Lithium backup battery life : 10 years or more  |   |   |
| Power Management                                | Power management setup via BIOS, Power On by Ring / Wake On LAN   |   |   |
| Interface                                       |   |   |   |
| External Display                                | DVI-D x 1, DisplayPort x 1, Supports two displays   |   |   |
| Audio   | Line input/output : φ3.5 Stereo mini jack (LINE OUT, LINE IN, MIC IN)   |   |   |
| Serial ATA                                      | 1-slot, removable, 2.5-inch SATA storage, serial ATA3.0 standard port   |   |   |
|   | Built-in  | Removable   | Built-in  |
| LAN   | 3 port (RJ-45 connector)  |   |   |
| USB   | USB3.2 Gen2 (USB3.1) : 6 port (A-TYPE connector x 6)<br>USB3.2 Gen1 (USB3.0) : 2 port (A-TYPE connector x 6)  |   |   |
| RS-232C   | RS-232C : 1 port (9pin D-SUB connector [male])<br>RS-232C/RS-422A/RS-485 (Switchable in BIOS settings) : 1 port (9pin D-SUB connector [male])   |   |   |
| GPIO  | 15pin D-SUB [female] x 1(Maximum path length : 20m), Optocoupler isolated type<br>Input/output 4 points each, Disk access LED output  |   |   |
| Power Supply *1                                 |   |   |   |
| Rated Input Voltage                             | 12 - 24VDC  |   |   |
| Range of Input Voltage                          | 10.8 - 26.4VDC  |   |   |
| Power Consumption (Max)                         | < With USB supply ><br>6.9 A (Max) at 12 V input<br>3.5 A (Max) at 24 V input<br>< Without USB supply ><br>3.5 A (Max) at 12 V input<br>1.8 A (Max) at 24 V input   | <USB with expansion slot supply><br>14.5 A (Max) at 12 V input<br>7.2 A (Max) at 24 V input<br>< USB, without expansion slot supply ><br>4.1 A (Max) at 12 V input<br>2.0 A (Max) at 24 V input | < USB with expansion slot supply ><br>16.1 A (Max) at 12 V input<br>7.8 A (Max) at 24 V input<br>< USB, without expansion slot supply ><br>5.1 A (Max) at 12 V input<br>2.2 A (Max) at 24 V input |
| USB Supply Current                              | USB I/F +5VD : 7.2A   |   |   |
| Capacity for power supply to the expansion card | None  | +12V : 2.1A<br>+3.3V : 3A<br>*4   | +12V : 2.1A<br>+3.3V : 3A<br>*4   |
| Physical Dimensions (mm) *2                     | 230(W) x 220(D) x 70(H)<br>(Not including the attachment fitting or protrusions)  | 230(W) x 220(D) x 109(H)<br>(Not including the attachment fitting or protrusions)   | 230(W) x 220(D) x 160(H)<br>(Not including the attachment fitting or protrusions)   |
| Weight *3                                       | 2.8kg approx.   | 3.4kg approx.   | 4.1kg approx.   |

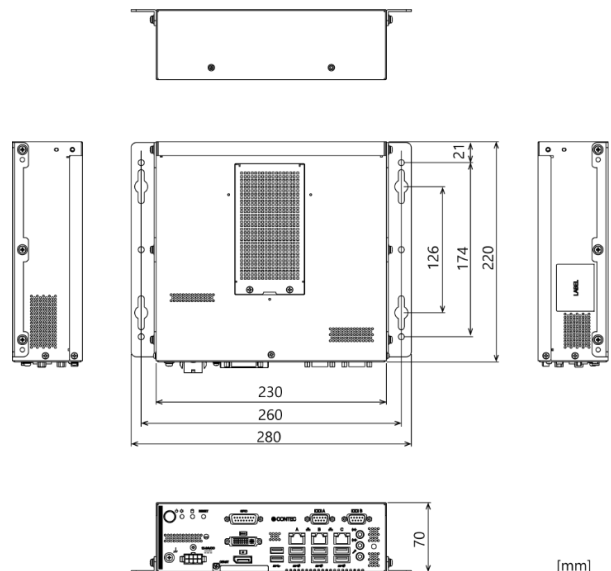
- \*1 To achieve reliable performance from the installed CPUs, the system must have a clean, stable power supply.  
Make sure the power supply voltage is within the range of the power supply specifications under any load condition. Use a DC power cable that is 3 m or less in length.
- \*2 The attachment fittings and protruding parts are not included.
- \*3 The weight (which does not include accessories) may vary depending on the product configuration.
- \*4 The total capacity for power supply to the expansion card of the expansion slot model (2 slots or 4slots) must fall within 50 W (25W or less per slot).

### Environment Requirements

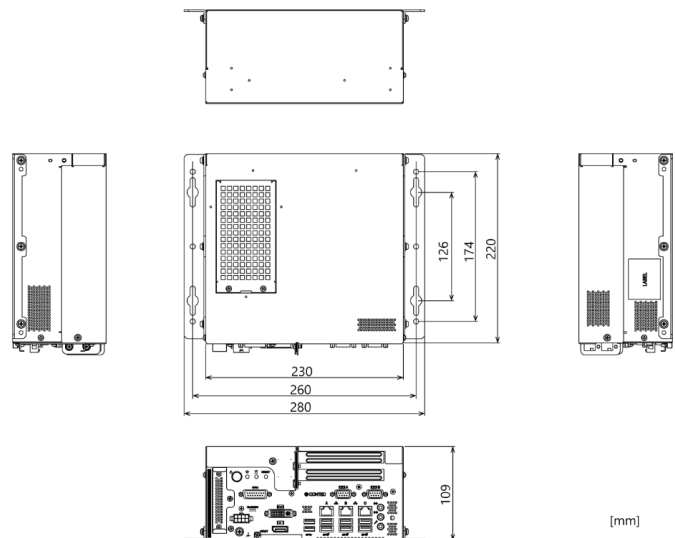
| Item                    | Description   |
|-------------------------|---|
| Operating Temperature   | 0 - 55°C  |
| Storage Temperature     | -20 - +85°C   |
| Humidity                | 20 - 85%RH (No condensation)  |
| Floating Dust Particles | Not to be excessive   |
| Corrosive Gases         | None  |
| Line-noise Resistance   | Line Noise<br>AC Line /±2kV (IEC61000-4-4 Level 3, EN61000-4-4 Level 3)<br>Signal Line /±1kV (IEC61000-4-4 Level 3, EN61000-4-4 Level 3)  |
|                         | Static Electricity Resistance<br>Contact discharge /±4kV (IEC61000-4-2 Level 2, EN61000-4-2 Level 2)<br>Air discharge /±8kV (IEC61000-4-2 Level 3, EN61000-4-2 Level 3)   |
| Vibration Resistance    | Sweep Resistance<br>During operation (with internal SSD) and when not energized:<br>10 - 57Hz/ semi-amplitude 0.075mm, 57 - 150Hz/ 1.0G<br>40minutes each in x, y, and z directions<br>(JIS C60068-2-6-compliant, IEC60068-2-6-compliant) |
| Shock Resistance        | 10G, half-sine shock for 11 ms in x, y, and z directions<br>(JIS C60068-2-27-compliant, IEC68-2-27-compliant)   |
| Grounding               | SG-FG / Separate  |
| Standard                | VCCI Class A, FCC Class A,<br>CE Marking (EMC Directive Class A, RoHS Directive)  |

## Physical Dimension

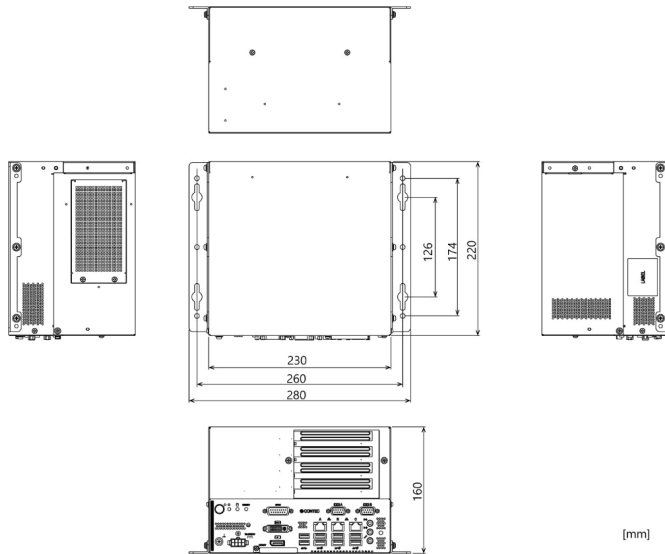
### The model without an expansion slot



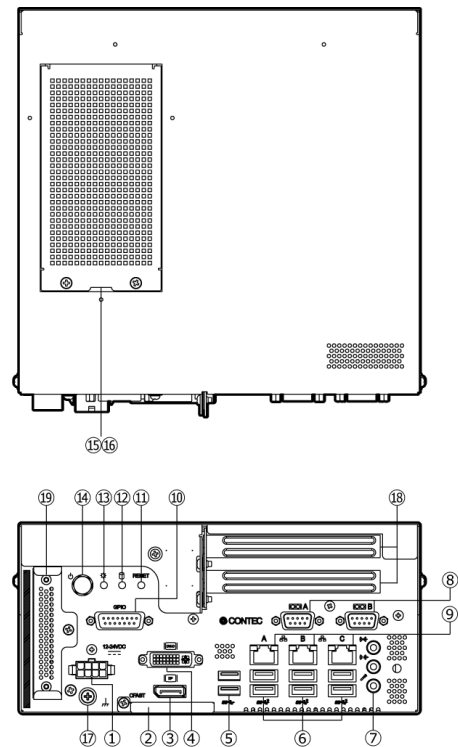
### The model with expansion slots (two slots)



### The model with expansion slots (four slots)

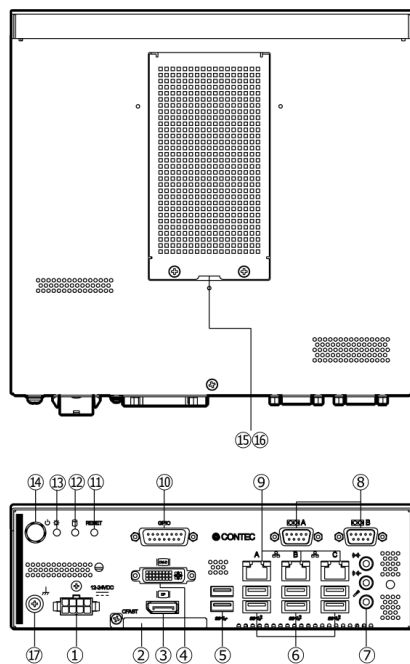


### The model with expansion slots (two slots)



## Nomenclature of Product Components

### The model without an expansion slot



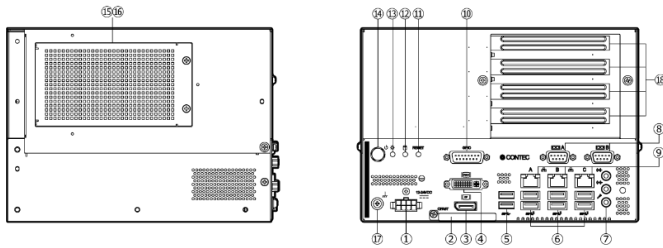
### Component Function

| No. | Name   | No. | Name                                   |
|-----|--|-----|--|
| 1   | DC inlet   | 11  | Reset switch : RESET SW                |
| 2   | CFast slot   | 12  | Disk access indicator LED : ACCESS LED |
| 3   | DisplayPort connector  | 13  | Power on indicator LED : POWER LED     |
| 4   | DVI-D connector  | 14  | Power switch : POWER SW                |
| 5   | USB3.2 Gen1 (USB3.0) connector   | 15  | Cooling fan                            |
| 6   | USB3.2 Gen2 (USB3.1) connector   | 16  | Cooling fan filter                     |
| 7   | Top: Line input (p3.5 phone jack): LINE IN<br>Middle: Line output (p3.5 phone jack): LINE OUT<br>Bottom: Microphone input (p3.5 phone jack): MIC | 17  | FG                                     |
| 8   | Serial port connector A B (9-pin D-SUB connector)  | 18  | Expansion slot                         |
| 9   | Ethernet A, B 1000BASE-T/100BASE-TX/10BASE-T RJ-45 connector   | 19  | Slot for 2.5" SATA storage1            |
| 10  | GPIO port connector (15-pin D-SUB female)  |     |  |

### Component Function

| No. | Name   | No. | Name                                   |
|-----|--|-----|--|
| 1   | DC inlet   | 11  | Reset switch : RESET SW                |
| 2   | CFast slot   | 12  | Disk access indicator LED : ACCESS LED |
| 3   | DisplayPort connector  | 13  | Power on indicator LED : POWER LED     |
| 4   | DVI-D connector  | 14  | Power switch : POWER SW                |
| 5   | USB3.2 Gen1 (USB3.0) connector   | 15  | Cooling fan                            |
| 6   | USB3.2 Gen2 (USB3.1) connector   | 16  | Cooling fan filter                     |
| 7   | Top: Line input (p3.5 phone jack): LINE IN<br>Middle: Line output (p3.5 phone jack): LINE OUT<br>Bottom: Microphone input (p3.5 phone jack): MIC | 17  | FG                                     |
| 8   | Serial port connector A B (9-pin D-SUB connector)  |     |  |
| 9   | Ethernet A, B 1000BASE-T/100BASE-TX/10BASE-T RJ-45 connector   |     |  |
| 10  | GPIO port connector (15-pin D-SUB female)  |     |  |

### The model with expansion slots (four slots)



### Component Function

| No. | Name   | No. | Name                                   |
|-----|--|-----|--|
| 1   | DC inlet   | 11  | Reset switch : RESET SW                |
| 2   | CFAST slot   | 12  | Disk access indicator LED : ACCESS LED |
| 3   | DisplayPort connector  | 13  | Power on indicator LED : POWER LED     |
| 4   | DVI-D connector  | 14  | Power switch : POWER SW                |
| 5   | USB3.2 Gen1 (USB3.0) connector   | 15  | Cooling fan                            |
| 6   | USB3.2 Gen2 (USB3.1) connector   | 16  | Cooling fan filter                     |
| 7   | Top: Line input (p3.5 phone jack) : LINE IN<br>Middle: Line output (p3.5 phone jack) : LINE OUT<br>Bottom: Microphone input (p3.5 phone jack) :MIC | 17  | FG                                     |
| 8   | Serial port connector A, B (9-pin D-SUB connector)   | 18  | Expansion slot                         |
| 9   | Ethernet A, B 1000BASE-T/100BASE-TX/10BASE-T RJ-45 connector   |     |  |
| 10  | GPIO port connector (15-pin D-SUB female)  |     |  |

## Product Lineup

The product has seven models.

| Model              | CPU           | Memory         | Storage 2.5-inch | OS             | Expansion slot    |
|--------------------|---------------|----------------|------------------|----------------|-------------------|
| EPC-4000-DC39000   | Core i7-8700T | 16GB (8GB x 2) | None             | None           | None              |
| EPC-4000-DC3941E   |               |                | 256GB SSD (TLC)  | Win10 IoT 2019 |                   |
| EPC-4000-DC28000   | Core i5-8500T | 8GB (8GB x 1)  | None             | None           |                   |
| EPC-4000-DC2841E   |               |                | 256GB SSD (TLC)  | Win10 IoT 2019 |                   |
| EPC-4000P2-DC39000 | Core i7-8700T | 16GB (8GB x 2) | None             | None           | 2slots (PCIe(x8)) |
| EPC-4000P2-DC3941E |               |                | 256GB SSD (TLC)  | Win10 IoT 2019 |                   |
| EPC-4000P2-DC28000 | Core i5-8500T | 8GB (8GB x 1)  | None             | None           |                   |
| EPC-4000P2-DC2841E |               |                | 256GB SSD (TLC)  | Win10 IoT 2019 |                   |
| EPC-4000P4-DC39000 | Core i7-8700T | 16GB (8GB x 2) | None             | None           | 4slots (PCIe(x4)) |
| EPC-4000P4-DC3941E |               |                | 256GB SSD (TLC)  | Win10 IoT 2019 |                   |
| EPC-4000P4-DC28000 | Core i5-8500T | 8GB (8GB x 1)  | None             | None           |                   |
| EPC-4000P4-DC2841E |               |                | 256GB SSD (TLC)  | Win10 IoT 2019 |                   |

Win10 IoT 2019 : Windows 10 IoT Enterprise 2019 LTSC 64bit (Japanese / English / Chinese / Korean)