



INDUSTRIAL COMPUTER

# RCO-3000-CFL-2E

Superior Fanless Embedded System with LGA 1151 for Intel 8th/9th Gen CPU & Q370 PCH

**Features**

- Support 9th Gen Intel® CFL-R S Processor (LGA 1151, 35W TDP)
- 2x 260-Pin DDR4 2400/2666MHz SODIMM, Max. up to 64GB
- Intel® Q370 Chipset
- Triple Independent Display: 2x DisplayPort, 1x DVI-I
- 2x Intel® GbE supporting Wake-on-LAN and PXE
- 2x Full-size Mini PCIe (shared by 1x mSATA), and 2x SIM socket
- 2x 2.5" SATA HDD Bay with RAID 0, 1, 5 support, 1x mSATA (Shared by 1x Mini PCIe)
- 1x M.2 (E Key, PCIe x1, USB 2.0, 2230, Support CNVi)
- 5x RS-232/422/485 (2x internal)
- 4x USB 3.2 Gen 2 (10 Gbps), 4x USB 2.0 (2x internal)
- 8x DI + 8x DO with isolation
- 9 to 48VDC Wide Range Power Input Supporting AT/ATX Mode
- Wide Operating Temperature (-25°C to 60°C)
- TPM 2.0 Supported
- 2x PCIe x16 (8-Lane)



**Specifications**

| System   |  |
|--|--|
| Processor  | Support 8th/9th Gen Intel® CFL-R S Processor (LGA 1151, 65W/35W TDP)<br>- Intel® Core™ i7-9700E, 8 Cores, 12MB cache, up to 4.4 GHz<br>- Intel® Core™ i5-9500E, 6 Cores, 9MB Cache, up to 4.2 GHz<br>- Intel® Core™ i3-9100E, 4 Core, 6MB Cache, 3.7 GHz<br>- Intel® Core™ i7-9700TE, 8 Cores, 12MB cache, up to 3.8 GHz<br>- Intel® Core™ i5-9500TE, 6 Cores, 9MB Cache, up to 3.6 GHz<br>- Intel® Core™ i3-9100TE, 4 Core, 6MB Cache, 3.2 GHz<br>- Intel® Core™ i7-8700T, 6 Cores, 12MB cache, up to 4.0 GHz<br>- Intel® Core™ i5-8500T, 6 Cores, 9MB Cache, up to 3.5 GHz<br>- Intel® Core™ i3-8100T, 4 Cores, 6MB Cache, 3.1 GHz<br>- Intel® Pentium® G5400T, 2 Cores, 4MB Cache, up to 3.1 GHz<br>- Intel® Celeron® G4900T, 2 Cores, 2MB Cache, up to 2.9 GHz |
| System Chipset   | Intel® Q370 Express Chipset  |
| LAN Chipset  | GbE1: Intel I219LM (Support Wake-on-LAN and PXE)<br>GbE2: Intel I210-AT (Support Wake-on-LAN and PXE)  |
| Audio Codec  | Realtek ALC888S  |
| System Memory  | 2x 260-Pin DDR4 2400/2666MHz SODIMM.<br>Max. up to 64GB (Un-buffered and Non-ECC)  |
| Graphics   | Intel® UHD Graphics 610/630  |
| BIOS   | AMI 256Mbit SPI BIOS   |
| Watchdog   | Software Programmable Supports 1~255 sec. System Reset   |
| TPM  | TPM 2.0  |
| Display  |  |
| Display Port   | 2x DisplayPort, support resolution 4096 x 2304   |
| DVI  | 1x DVI-I, support resolution 1920 x 1200   |
| Multiple Display   | Triple Display   |
| VGA  | Yes (by optional split cable)  |
| Storage  |  |
| M.2  | 1x M.2 (E Key, PCIe x1, USB 2.0, 2230, Support CNVi)   |
| mSATA  | 1x mSATA (shared by 1x Mini PCIe)  |
| SIM Socket   | 2x External SIM socket   |
| SSD/HDD  | 1x Internal 2.5" SATA HDD Bay (support H=9mm)<br>1x Hotswap 2.5" SATA HDD Bay (support H=7mm)<br>Support RAID 0, 1, 5  |
| Expansion  |  |
| Mini PCIe  | 2x Full-size Mini PCIe (1x Shared with mSATA)  |
| PCIe   | 2x PCIe x16 (8-lane)   |
| Expansion Modules  |  |
| 4-port GbE module with Intel® I350-AT4 Chipset, RJ-45 or M12 connector |  |
| 4-Port USB with Renesas uPD720201K8 host controller                    |  |
| 2-Port RJ45 10GbE with Intel X710-AT2 Chipset                          |  |
| Card Dimension   | 175 (L) x 111.15 (H) mm  |
| I/O  |  |
| Audio  | 1x Line-out  |

|                       |   |
|-----------------------|---|
| COM                   | 3x RS-232/422/485 ; 2x RS-232/422/485 (internal)  |
| DIO                   | 8 in / 8 out (Isolated)   |
| LAN                   | 2x RJ45   |
| Universal I/O Bracket | 1x Universal I/O Bracket (By mini PCIe interface)   |
| USB                   | 4x USB 3.2 Gen 2 (10Gbps)<br>4x USB 2.0 (2x Internal)   |
| Others                | 5x WiFi Antenna Holes<br>1x Power Switch, 1x AT/ATX Switch, 1x Remote Power On/Off<br>1x PC/Car Mode Switch, 1x Delay Time Switch |

| Operating System |              |
|------------------|--------------|
| Windows          | Windows 10   |
| Linux            | Linux kernel |

| Power                  |   |
|------------------------|---|
| Power Adapter          | Optional AC/DC 24V/11.67A, 280W<br>Optional AC/DC 24V/9.2A, 220W                                    |
| Power Mode             | AT, ATX   |
| Power Ignition Sensing | Power Ignition Management   |
| Power Supply Voltage   | 9~48VDC   |
| Power Connector        | 3-pin Terminal Block  |
| Power Protection       | Over-Voltage Protection (OVP)<br>Over-Current Protection (OCP)<br>Reverse Polarity Protection (RPP) |

| Environment           |  |
|-----------------------|--|
| Operating Temperature | -25°C to 60°C (35W CPU)<br>-25°C to 50°C (65W CPU)                             |
| Storage Temperature   | -30°C ~ 85°C   |
| Relative Humidity     | 10% to 95% (non-condensing)  |
| Certification         | CE, FCC Class A  |
| Vibration             | 5 Grms, 5 ~ 500 Hz, 0.5 hr/axis (SSD)<br>1 Grms, 5 ~ 500 Hz, 0.5 hr/axis (HDD) |
| Shock                 | 50G, half-sine, 11 ms (SSD)  |

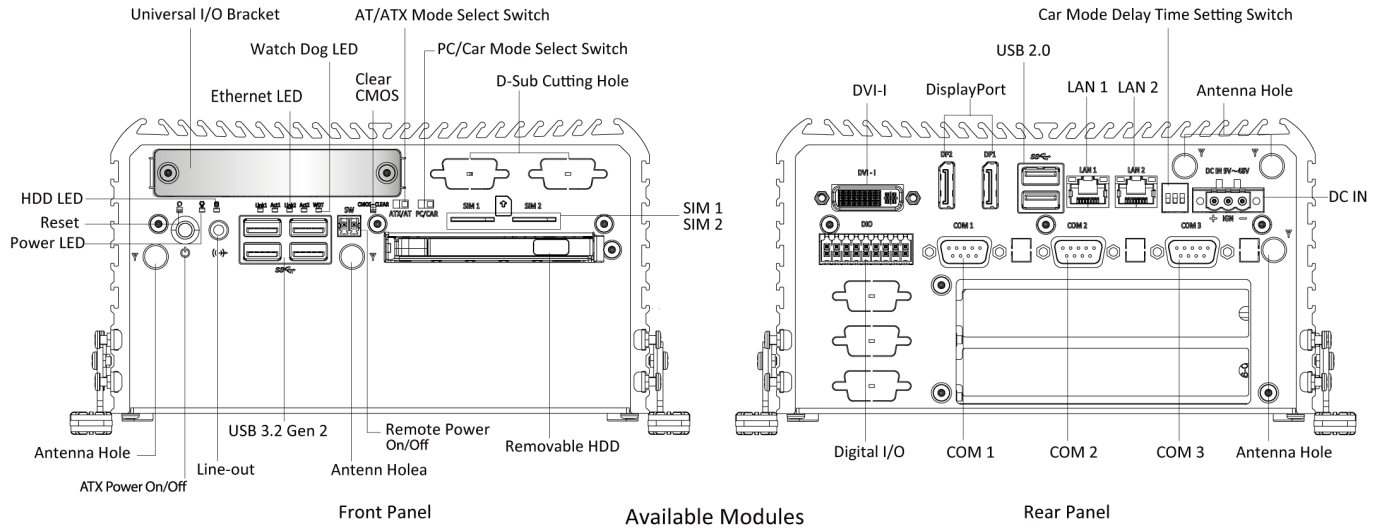
| Physical         |   |
|------------------|---|
| Dimensions       | 192 (W) x 197 (D) x 107.8 (H) mm        |
| Weights          | 3.6kg - 4.3 kg                          |
| Construction     | Extruded aluminum with heavy duty metal |
| Mounting Options | Wall Mounting / DIN Rail (Optional)     |

\* For 8th/9th CPUs configured to run at 65W, operating temperatures will be limited to 50°C.  
\*\* 65W CPUs may experience thermal throttling depending on extreme application workloads; this is also due to an increase in the physical CPU cores from the Intel silicon (up to 8 cores). Please note, this does not indicate system malfunction or problems in the fanless design. Please consult our embedded engineers for the best configuration to match your application requirements.  
\*\*\* All specifications and photos are subject to change without notice.



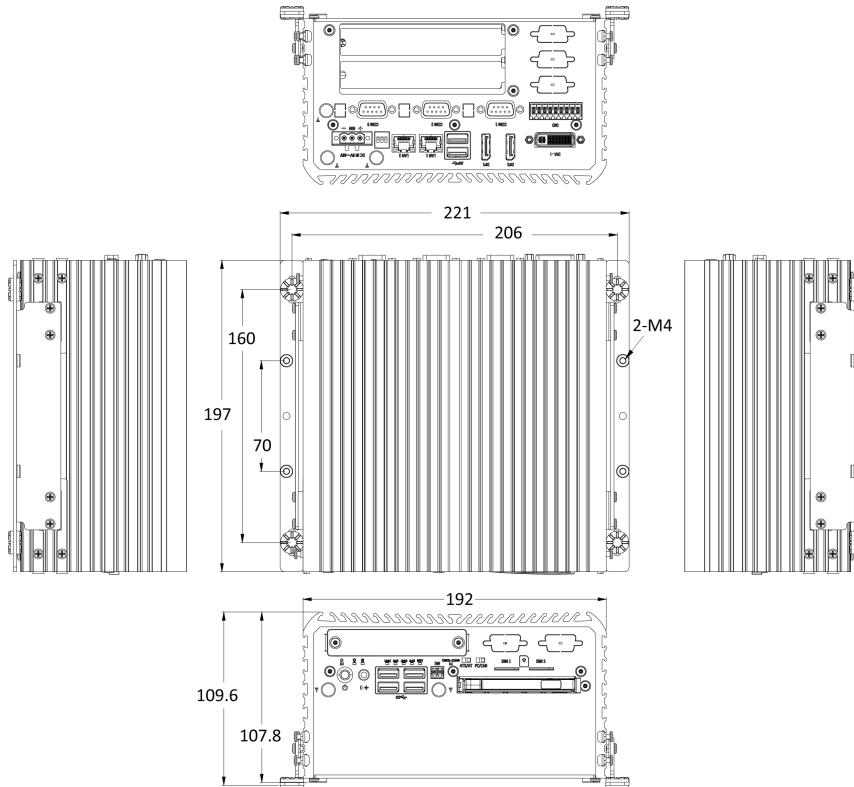
# RCO-3000-CFL-2E

## External I/O Mechanical Layout



## Dimension

Unit: mm





## RCO-3000-CFL-2E

### Available Models

| Model No.             | Description  |
|-----------------------|--|
| RCO-3000-CFL-2E       | Advanced Fanless Embedded System w/ LGA 1151 for Intel® 8th/9th Gen CPU & Q370 PCH, 2x LAN, 2x PCIe x8 Expansion             |
| RCO-3000-CFL-2E-4L    | Advanced Fanless Embedded System w/ LGA 1151 for Intel® 8th/9th Gen CPU & Q370 PCH, 6x LAN, 2x PCIe x8 Expansion             |
| RCO-3000-CFL-2E-4LM12 | Advanced Fanless Embedded System w/ LGA 1151 for Intel® 8th/9th Gen CPU & Q370 PCH, 2x LAN, 4x M12 LAN, 2x PCIe x8 Expansion |
| RCO-3000-CFL-2E-D10G  | Advanced Fanless Embedded System w/ LGA 1151 for Intel® 8th/9th Gen CPU & Q370 PCH, 2x LAN, 2x 10G LAN, 2x PCIe x8 Expansion |
| RCO-3000-CFL-2E-4U3   | Advanced Fanless Embedded System w/ LGA 1151 for Intel® 8th/9th Gen CPU & Q370 PCH, 2x LAN, 10x USB, 2x PCIe x8 Expansion    |

### Optional Accessories

| Model No.   | Description   |
|-------------|---|
| 1-E09A22801 | Adapter AC/DC 24V/11.67A 280W with 3pin Terminal Block Plug 5.0mm Pitch |
| 1-E09A22102 | Adapter AC/DC 24V 9.2A 220W with 3pin Terminal Block Plug 5.0mm Pitch   |
| 1-TPCD00005 | Power Cord, 3-pin US Type, 180cm  |
| 1-TPCD00002 | Power Cord, European Type, 180cm  |
| 1-TPCD00001 | Power Cord, 3-pin UK Type, 180cm  |

### Packing List

- 1x RCO-3000-CFL-2
- 1x Wall Mount Kit
- 1x Accessory Kit
- 1x DVI to VGA Adapter



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## Assured Systems

Assured Systems is a leading technology company with over 1,500 regular clients in 80 countries, deploying over 85,000 systems to a diverse customer base in 12 years of business. We offer high-quality and innovative rugged computing, display, networking and data collection solutions to the embedded, industrial, and digital-out-of-home market sectors.

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