

# RCO-6122PE series

Superior Fanless Embedded System w/ LGA 1151 for Intel 8<sup>th</sup>/9<sup>th</sup> Gen CPU & Q370 PCH



## SPECIFICATIONS

### System

#### Processor

Support 8<sup>th</sup>/9<sup>th</sup> Gen Intel® CFL-R S Processor (LGA 1151, 65W/35W TDP)

- Intel® Core™ i7-9700E, 8 Cores, 12MB cache, up to 4.4 GHz
- Intel® Core™ i5-9500E, 6 Cores, 9MB Cache, up to 4.2 GHz
- Intel® Core™ i3-9100E, 4 Core, 6MB Cache, 3.7 GHz
- Intel® Core™ i7-9700TE, 8 Cores, 12MB cache, up to 3.8 GHz
- Intel® Core™ i5-9500TE, 6 Cores, 9MB Cache, up to 3.6 GHz
- Intel® Core™ i3-9100TE, 4 Core, 6MB Cache, 3.2 GHz
- Intel® Core™ i7-8700T, 6 Cores, 12MB cache, up to 4.0 GHz
- Intel® Core™ i5-8500T, 6 Cores, 9MB Cache, up to 3.5 GHz
- Intel® Core™ i3-8100T, 4 Cores, 6MB Cache, 3.1 GHz
- Intel® Pentium® G5400T, 2 Cores, 4MB Cache, up to 3.1 GHz
- 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) GbE2: Intel I210-AT (Support Wake-on-LAN and PXE) GbE3-GbE6: Intel I350-AM4 (Optional) 10 GbE1-GbE2: Intel X710-AT2 (Optional)
Audio Codec	Realtek ALC888S
System Memory	2x 260-Pin DDR4 2400/2666MHz SODIMM. Max. up to 64GB (Un-buffered and Non-ECC)
BIOS	AMI 256Mbit SPI BIOS
Watchdog	Software Programmable Supports 1~255 sec. System Reset
TPM	TPM 2.0
<b>Display</b>	
Graphics	Intel® UHD Graphics 610/630
VGA	Yes (by optional split cable)
DVI	1x DVI-I, support resolution 1920 x 1200
DisplayPort	2x DisplayPort, support resolution 4096 x 2304
Multiple Display	Triple Display
<b>Storage</b>	
SSD/HDD	2x Internal 2.5" SATA HDD Bay (support H=9mm) 2x Removable 2.5" SATA HDD Bay (support H=7mm, hot-swappable), Support RAID 0, 1, 5, 10
mSATA	1x mSATA (Shared by 2x Mini PCI Express)
M.2	1x M.2 (M Key, PCIe x4, 2280, Support NVMe), 1x M.2 (E Key, PCIe x2, 2230, USB 2.0, Support CNVi)
SIM Socket	2x External SIM socket
<b>Expansion</b>	
Mini PCI Express	2x Full-size Mini PCIe (1x shared by 1x mSATA)
PCI Express	1x PCIe x16
PCI	1x PCI
RCO-6122EE (Optional)	2x PCIe x16 (8-Lane)
RCO-6122PP (Optional)	2x PCI
4-Port GbE (Optional)	4-port GbE module with Intel® I350-AM4 Chipset, RJ-45 or M12 connector (PoE optional) Occupied one Universal I/O Slot
2-Port GbE (Optional)	2-Port RJ45 10GbE with Intel X710-AT2 Chipset Occupied one Universal I/O Slot

## FEATURES

- LGA 1151 socket for 8<sup>th</sup>/9<sup>th</sup> Gen. Intel® CFL-R S Processor (65W/35W TDP)
- Intel® Q370 chipset
- 2x DDR4 2400/2666Hz SODIMM. Max. up to 64GB
- Triple Independent Display by 1x DVI-I and 2x DisplayPort
- 2x Intel® GbE supporting Wake-on-LAN and PXE
- 2x Full-size mini PCIe for communication or expansion modules, 2x SIM socket
- 4x 2.5" SATA HDD Bay and 1x mSATA with RAID 0, 1, 5, 10 support
- 1x M.2 (M Key, PCIe x4, 2280, Support NVMe),  
1x M.2 (E Key, PCIe x2, 2230, USB 2.0, Support CNVi)
- 6x RS-232/422/485 (w/ 2x internal), 4x USB 3.2 Gen 2, 5x USB 3.2 Gen 1
- 1x PCIe x16 & 1x PCI
- 8x DI + 8x DO with isolation
- 9 to 48VDC Wide Range Power Input Supporting AT/ATX Mode
- Wide Operating Temperature -25°C to 70°C (35W CPU); -25°C to 60°C (65W CPU)
- TPM 2.0 Supported
- Expansion (Optional)  
RCO-6122EE : 2x PCIe x16 (8-Lane)  
RCO-6122PP : 2x PCI

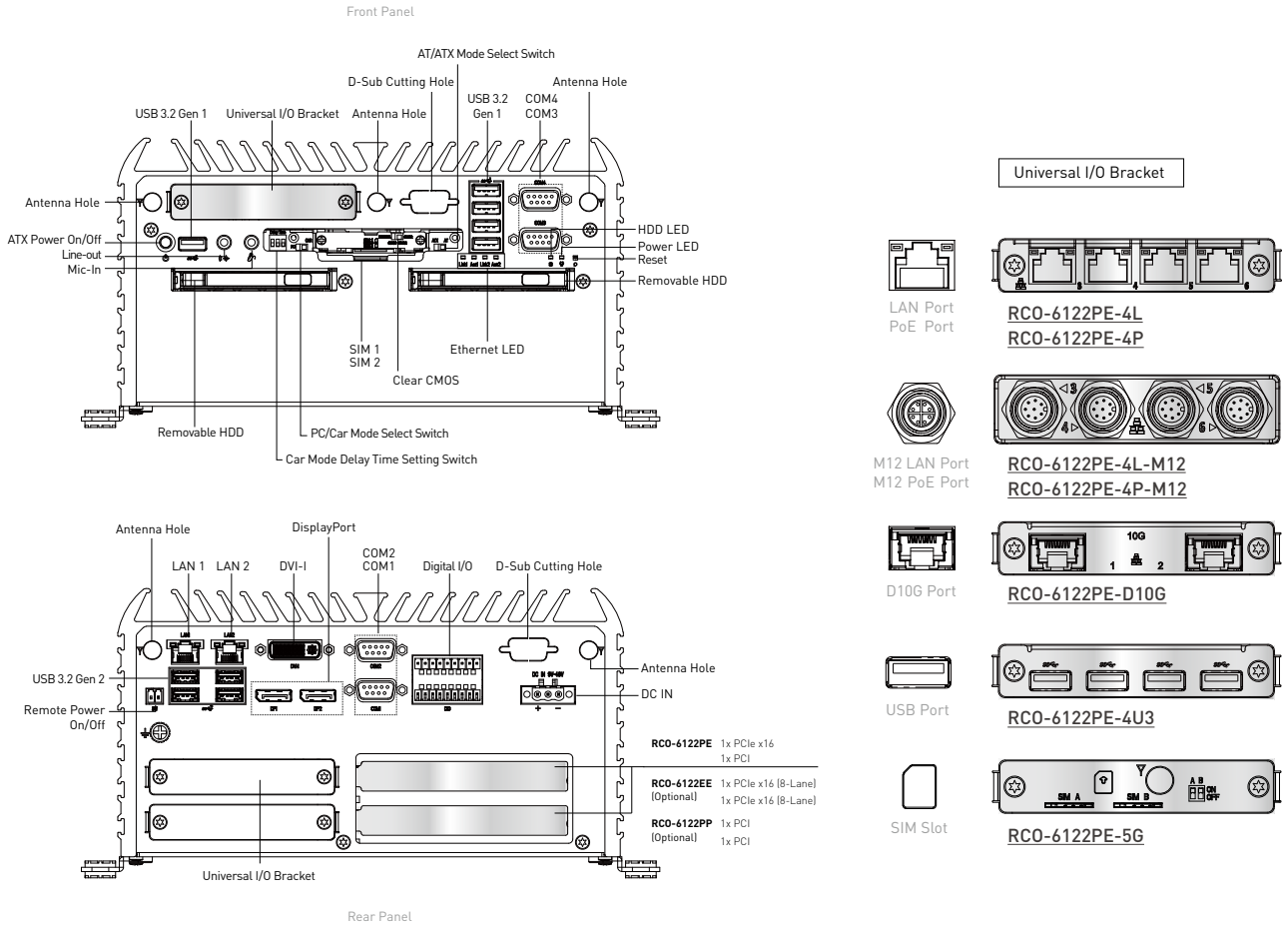
4-Port USB (Optional)	4-Port USB with Renesas uPD720201K8 host controller Occupied one Universal I/O Slot
5G (Optional)	1x M.2 for 5G (B Key, PCIe x4, USB 3.0, 3042/3052) Including 2x SIM socket, 1x SIM switch Occupied one Universal I/O Slot
Card Dimension	235 (L) x 112 (H) mm
<b>Operating System</b>	
Windows	Windows 10
Linux	Linux kernel 5.X
<b>I/O</b>	
COM	4x RS-232/422/485 ; 2x RS-232/422/485 (internal)
USB	4x USB 3.2 Gen 2 (10 Gbps) 5x USB 3.2 Gen 1 (5 Gbps) 1x USB 3.2 Gen 1 header (5 Gbps, internal)
LAN	2x RJ45
Audio	1x Mic-in, 1x Line-out
DIO	8 in / 8 out (Isolated)
Universal I/O Bracket	3x Universal I/O Bracket (By mini PCIe interface)
Others	5x WiFi Antenna Holes 1x Power Switch, 1x AT/ATX Switch, 1x Remote Power On/Off 1x PC/Car Mode Switch, 1x Delay Time Switch 1x Removable CMOS Battery
<b>Power</b>	
Power Mode	AT, ATX
Power Supply Voltage	9~48VDC
Power Ignition Sensing	Power Ignition Management
Power Connector	3-pin Terminal Block
Power Adaptor	Optional AC/DC 24V/9.2A, 220W Optional AC/DC 24V/11.67A, 280W
Power Protection	OVP (Over Voltage Protection); OCP (Over Current Protection) Reverse Protection
<b>Environment</b>	
Operating Temp.	-25°C to 70°C (35W CPU) ; -25°C to 60°C (65W CPU)
Storage Temp.	-30°C to 85°C
Relative Humidity	10% to 95% (non-condensing)
Vibration	With SSD: 5 Grms, 5 - 500 Hz, 0.5 hr/axis With HDD: 1 Grms, 5 - 500 Hz, 0.5 hr/axis
Shock	With SSD: 50G, half sine, 11ms
Standards / Certification	CE, FCC Class A, E-Mark, EMC Conformity with EN 50155, EN 50121-3-2
<b>Physical</b>	
Construction	Extruded Aluminum with Heavy Duty Metal
Dimension	240 (W) x 261 (D) x 127.3 (H) mm
Weight	8.25 - 9.3 kg
Mounting	Wall Mounting

\* For 8<sup>th</sup>/9<sup>th</sup> CPUs configured to run at 65W, operating temperatures will be limited to 60°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.

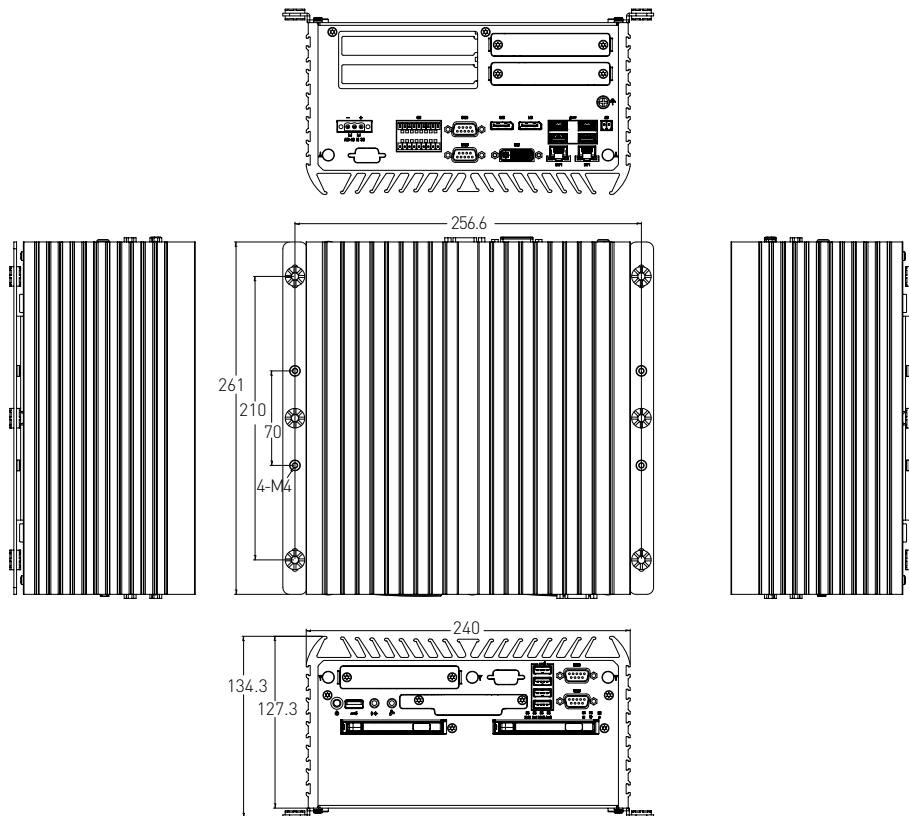
\* All specifications and photos are subject to change without notice.

## EXTERNAL I/O MECHANICAL LAYOUT



## DIMENSION

Unit: mm



## ORDERING INFORMATION

MODEL NO.	DESCRIPTION
1-E09A22102	Adapter AC/DC 24V/9.2A 220W with 3pin Terminal Block Plug 5.0mm Pitch
1-E09A22801	Adapter AC/DC 24V/11.67A 280W with 3pin Terminal Block Plug 5.0mm Pitch
SFICBL022	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-6100 Series Embedded System
- 1x Utility DVD Driver
- 1x Wall Mount Kit
- 1x Accessory Kit
- 1x DVI to VGA Adapter

## AVAILABLE MODELS

MODEL NO.	DESCRIPTION
<b>RCO-6122EE</b>	
RCO-6122EE	Superior Fanless Embedded System w/ LGA 1151 for Intel® 8 <sup>th</sup> /9 <sup>th</sup> Gen CPU & Q370 PCH, 2x LAN, 2x PCIe x8 Expansion
RCO-6122EE-4L	Superior Fanless Embedded System w/ LGA 1151 for Intel® 8 <sup>th</sup> /9 <sup>th</sup> Gen CPU & Q370 PCH, 6x LAN, 2x PCIe x8 Expansion
RCO-6122EE-4L-M12	Superior Fanless Embedded System w/ LGA 1151 for Intel® 8 <sup>th</sup> /9 <sup>th</sup> Gen CPU & Q370 PCH, 2x LAN, 4x M12 LAN, 2x PCIe x8 Expansion
RCO-6122EE-4P	Superior Fanless Embedded System w/ LGA 1151 for Intel® 8 <sup>th</sup> /9 <sup>th</sup> Gen CPU & Q370 PCH, 2x LAN, 4x PoE, 2x PCIe x8 Expansion
RCO-6122EE-4P-M12	Superior Fanless Embedded System w/ LGA 1151 for Intel® 8 <sup>th</sup> /9 <sup>th</sup> Gen CPU & Q370 PCH, 2x LAN, 4x M12 PoE, 2x PCIe x8 Expansion
RCO-6122EE-D10G	Superior Fanless Embedded System w/ LGA 1151 for Intel® 8 <sup>th</sup> /9 <sup>th</sup> Gen CPU & Q370 PCH, 2x LAN, 2x 10G LAN, 2x PCIe x8 Expansion
RCO-6122EE-4U3	Superior Fanless Embedded System w/ LGA 1151 for Intel® 8 <sup>th</sup> /9 <sup>th</sup> Gen CPU & Q370 PCH, 2x LAN, , 13x USB, 2x PCIe x8 Expansion
RCO-6122EE-5G	Superior Fanless Embedded System w/ LGA 1151 for Intel® 8 <sup>th</sup> /9 <sup>th</sup> Gen CPU & Q370 PCH, 2x LAN, 2x PCIe x8 Expansion, 5G Module
<b>RCO-6122PP</b>	
RCO-6122PP	Superior Fanless Embedded System w/ LGA 1151 for Intel® 8 <sup>th</sup> /9 <sup>th</sup> Gen CPU & Q370 PCH, 2x LAN, 2x PCI Expansion
RCO-6122PP-4L	Superior Fanless Embedded System w/ LGA 1151 for Intel® 8 <sup>th</sup> /9 <sup>th</sup> Gen CPU & Q370 PCH, 6x LAN, 2x PCI Expansion
RCO-6122PP-4L-M12	Superior Fanless Embedded System w/ LGA 1151 for Intel® 8 <sup>th</sup> /9 <sup>th</sup> Gen CPU & Q370 PCH, 2x LAN, 4x M12 LAN, 2x PCI Expansion
RCO-6122PP-4P	Superior Fanless Embedded System w/ LGA 1151 for Intel® 8 <sup>th</sup> /9 <sup>th</sup> Gen CPU & Q370 PCH, 2x LAN, 4x PoE, 2x PCI Expansion
RCO-6122PP-4P-M12	Superior Fanless Embedded System w/ LGA 1151 for Intel® 8 <sup>th</sup> /9 <sup>th</sup> Gen CPU & Q370 PCH, 2x LAN, 4x M12 PoE, 2x PCI Expansion
RCO-6122PP-D10G	Superior Fanless Embedded System w/ LGA 1151 for Intel® 8 <sup>th</sup> /9 <sup>th</sup> Gen CPU & Q370 PCH, 2x LAN, 2x 10G LAN, 2x PCI Expansion
RCO-6122PP-4U3	Superior Fanless Embedded System w/ LGA 1151 for Intel® 8 <sup>th</sup> /9 <sup>th</sup> Gen CPU & Q370 PCH, 2x LAN, , 13x USB, 2x PCI Expansion
RCO-6122PP-5G	Superior Fanless Embedded System w/ LGA 1151 for Intel® 8 <sup>th</sup> /9 <sup>th</sup> Gen CPU & Q370 PCH, 2x LAN, 2x PCI Expansion, 5G Module
<b>RCO-6122PE</b>	
RCO-6122PE	Superior Fanless Embedded System w/ LGA 1151 for Intel® 8 <sup>th</sup> /9 <sup>th</sup> Gen CPU & Q370 PCH, 2x LAN, 1x PCIe x16, 1x PCI Expansion
RCO-6122PE-4L	Superior Fanless Embedded System w/ LGA 1151 for Intel® 8 <sup>th</sup> /9 <sup>th</sup> Gen CPU & Q370 PCH, 6x LAN, 1x PCIe x16, 1x PCI Expansion
RCO-6122PE-4L-M12	Superior Fanless Embedded System w/ LGA 1151 for Intel® 8 <sup>th</sup> /9 <sup>th</sup> Gen CPU & Q370 PCH, 2x LAN, 4x M12 LAN, 1x PCIe x16, 1x PCI Expansion
RCO-6122PE-4P	Superior Fanless Embedded System w/ LGA 1151 for Intel® 8 <sup>th</sup> /9 <sup>th</sup> Gen CPU & Q370 PCH, 2x LAN, 4x PoE, 1x PCIe x16, 1x PCI Expansion
RCO-6122PE-4P-M12	Superior Fanless Embedded System w/ LGA 1151 for Intel® 8 <sup>th</sup> /9 <sup>th</sup> Gen CPU & Q370 PCH, 2x LAN, 4x M12 PoE, 1x PCIe x16, 1x PCI Expansion
RCO-6122PE-D10G	Superior Fanless Embedded System w/ LGA 1151 for Intel® 8 <sup>th</sup> /9 <sup>th</sup> Gen CPU & Q370 PCH, 2x LAN, 2x 10G LAN, 1x PCIe x16, 1x PCI Expansion
RCO-6122PE-4U3	Superior Fanless Embedded System w/ LGA 1151 for Intel® 8 <sup>th</sup> /9 <sup>th</sup> Gen CPU & Q370 PCH, 2x LAN, , 13x USB, 1x PCIe x16, 1x PCI Expansion
RCO-6122PE-5G	Superior Fanless Embedded System w/ LGA 1151 for Intel® 8 <sup>th</sup> /9 <sup>th</sup> Gen CPU & Q370 PCH, 2x LAN, 1x PCIe x16, 1x PCI Expansion, 5G Module