![C&T Solution Inc. logo]

FANLESS EMBEDDED SYSTEMS

RCO-6000-CML-2C

Superior Fanless Embedded System w/ LGA 1200 for Intel 10th Gen CPU & W480E PCH, 1x PCIe x16, 1x PCI

Features

- LGA 1200 socket for 10th Gen. Intel® CML S Processor (65W/35W TDP)
- Intel® W480E chipset
- 2x DDR4 2666/2933MHz 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
- 3x 2.5" SATA HDD Bay (1x Internal) and with RAID 0, 1, 5 support
- 1x M.2 (E Key, PCIe x1, USB 2.0, 2230, Support CNVi)
- 8x RS-232/422/485 (6x internal), 6x USB 3.2 Gen 2, 3x USB 3.2 Gen 1 (1x internal)
- 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/65W CPU)
- TPM 2.0 Supported
- 1x PCIe x16 and 1x PCI Expansion

Specifications

System

Processor

Support 10th Gen Intel® CML S Processor (LGA 1200, 65W/35W TDP)
- Intel® Xeon® W-1290TE, 10 Cores, 20MB Cache, up to 4.5 GHz
- Intel® Xeon® W-1270TE, 8 Cores, 16MB Cache, up to 4.4 GHz
- Intel® Xeon® W-1250TE, 6 Cores, 12MB Cache, up to 3.8 GHz
- Intel® Core™ i9-10900E, 10 Cores, 20MB Cache, up to 4.7 GHz
- Intel® Core™ i9-10900TE, 10 Cores, 20MB Cache, up to 4.5 GHz
- Intel® Core™ i7-10700E, 8 Core, 16MB Cache, up to 4.5 GHz
- Intel® Core™ i7-10700TE, 8 Cores, 116MB cache, up to 4.4 GHz
- Intel® Core™ i5-10500T, 6 Cores, 12MB Cache, up to 4.2 GHz
- Intel® Core™ i5-10500TE, 6 Core, 12MB Cache, 3.7 GHz
- Intel® Core™ i3-10100T, 4 Cores, 6MB cache, up to 3.8 GHz
- Intel® Core™ i3-10100TE, 4 Cores, 9MB Cache, up to 3.6 GHz

System Chipset	Intel® W480E Chipset
LAN Chipset	GbE1: Intel I219 (Support Wake-on-LAN and PXE) GbE2: Intel I210 (Support Wake-on-LAN and PXE)
Audio Codec	Realtek ALC888S
System Memory	2x 260-Pin DDR4 2666 /2933MHz SODIMM. Max. up to 64GB (ECC and Non-ECC)
Graphics	Intel® UHD Graphics 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, DP++
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)
SIM Socket	2x External SIM socket (Mini PCIE attached)
SSD/HDD	1x Internal 2.5" SATA/SSD HDD Bay (support H=9mm) 2x Removable 2.5" SATA HDD Bay (support H=7mm, Hot-swappable) Support RAID 0, 1, 5

Expansion

Mini PCIe	2x Full-size Mini PCIe
PCI	1x PCI (Model 2C) 2x PCI (Model 2I, optional)
PCIe	1x PCIe x16 (Model 2C) 2x PCIe x16 (8-lane) (Model 2E, optional)

Expansion Modules

Occupied One Universal I/O Slot:
- 4-port GbE module with Intel® I350 Chipset, RJ-45 or M12 connector (PoE optional)
- 2-Port RJ45 10GbE with Intel X710 Chipset
- 4-Port USB with Renesas uPD720201K8 host controller (share PCIe Gen2 x1 bandwidth)
- 1x M.2 for 5G (B Key, PCIe x1, USB 3.0, 3042/3052), Including 2x SIM socket, 1x SIM switch (1x Universal Slot Only)

Card Dimension	235 (L) x 112 (H) mm

I/O

Audio	1x Mic-in, 1x Line-out
CAN	2x CAN 2.0 A/B 2-pin Internal header
COM	2x RS-232/422/485 ; 6x RS-232/422/485 (internal)
DIO	8 in / 8 out (Isolated)

LAN	2x RJ45
Universal I/O Bracket	2x Universal I/O Bracket (By mini PCIe interface)
USB	6x USB 3.2 Gen 2 (10 Gbps) 3x USB 3.2 Gen 1 (5 Gbps, 1x Internal) 2x USB 2.0 header (internal)
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 4x 4-Pin Power Connector, 1x 4-PIN FAN Connector

Operating System

Windows	Windows 10
Linux	Linux kernel

Power

Power Adapter	Optional AC/DC 24V/5A, 120W Optional AC/DC 24V/9.2A, 220W
Power Mode	AT, ATX
Power Ignition Sensing	Power Ignition Management
Power Supply Voltage	9~48VDC
Power Connector	5-pin Terminal Block
Power Protection	OVP (Over Voltage Protection); OCP (Over Current Protection) Reverse Protection

Environment

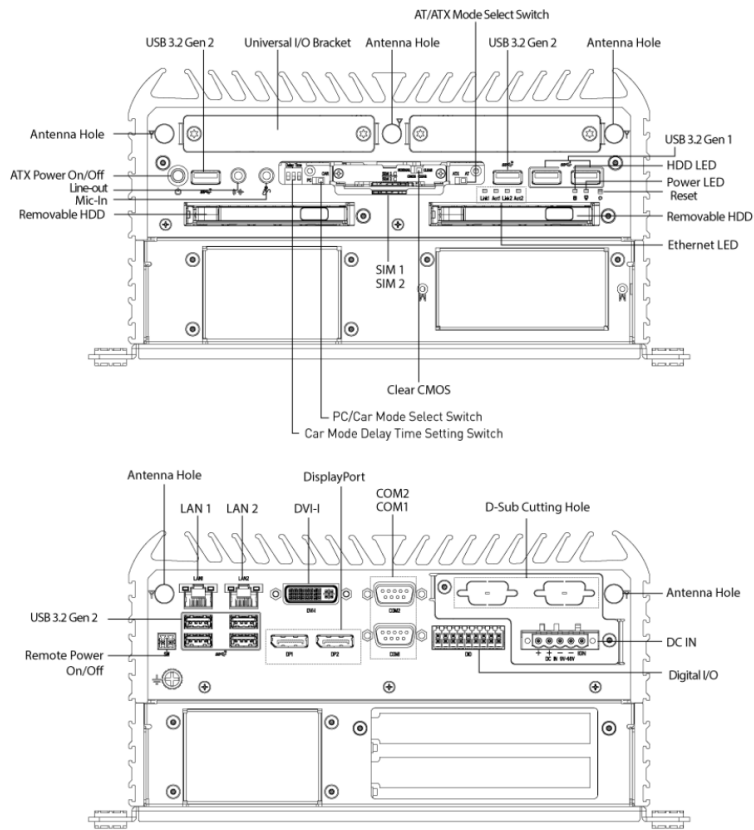|	
Operating Temperature	-25°C to 70°C (35W/65W CPU)
Storage Temperature	-30°C to 85°C
Relative Humidity	10% to 95% (non-condensing)
Certification	CE, FCC Class A
Vibration	With SSD: 5 Grms, 5 - 500 Hz, 0.5 hr/axis With HDD: 1 Grms, 5 - 500 Hz, 0.5 hr/axis
Shock	With SSD: 50G, half sine, 11ms

Physical

Dimensions	240 (W) x 261 (D) x 126.8 (H) mm
Weights	5.6 kg
Construction	Extruded Aluminum with Heavy Duty Metal
Mounting Options	Wall Mounting

* For 10th Gen Intel CPUs configured to run at 65W, operating temperatures will be limited to 70°C.
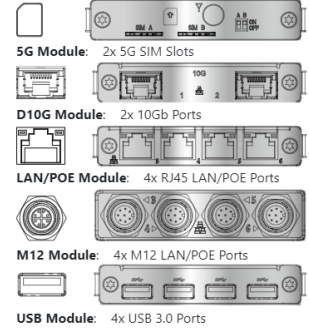** 65W CPUS may experience thermal throttling depending on extreme application workloads; this is also due to an increase in the physical CPU cores from the Intel silicon (up to 10 cores). Please note, this does not indicate system malfunction or problems in the fanless design. Please consult our embedded engineers for the best configuration to match your application requirements.
*** All specifications and photos are subject to change without notice.
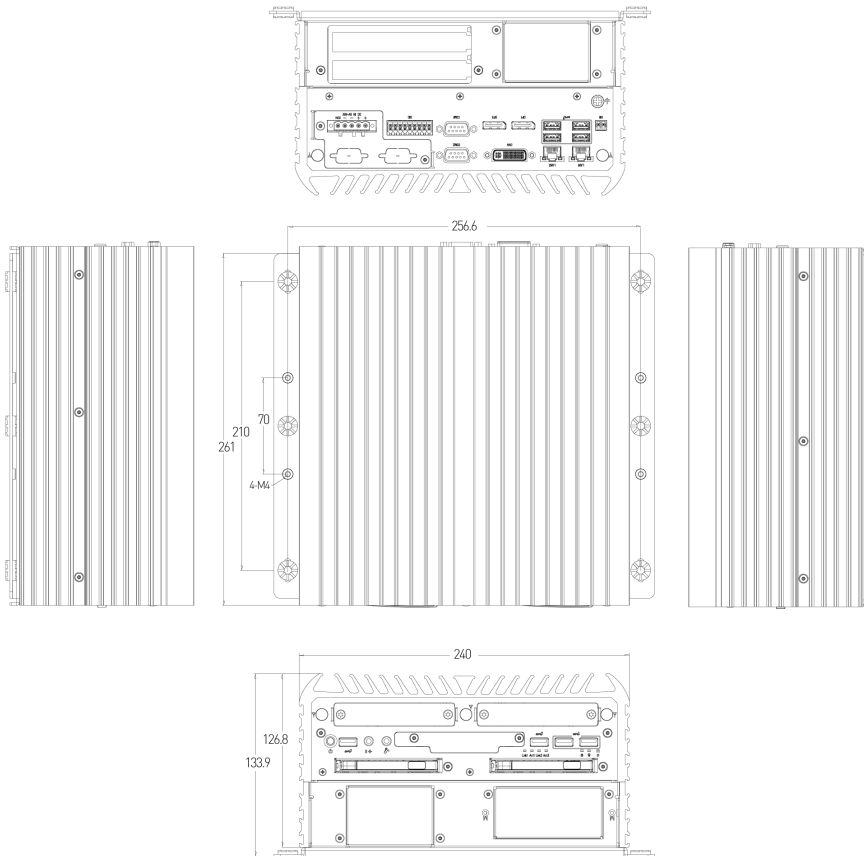
External I/O Mechanical Layout

Top panel labels: USB 3.2 Gen 2, Universal I/O Bracket, Antenna Hole, AT/ATX Mode Select Switch, USB 3.2 Gen 2, Antenna Hole, Antenna Hole, USB 3.2 Gen 1, HDD LED, Power LED, Reset, ATX Power On/Off, Line-out, Mic-In, Removable HDD, Removable HDD, Ethernet LED, SIM 1, SIM 2, Clear CMOS, PC/Car Mode Select Switch, Car Mode Delay Time Setting Switch

Bottom panel labels: Antenna Hole, LAN 1, LAN 2, DVI-I, DisplayPort, COM2, COM1, D-Sub Cutting Hole, Antenna Hole, USB 3.2 Gen 2, Remote Power On/Off, DC IN, Digital I/O

Available Modules

5G Module: 2x 5G SIM Slots

D10G Module: 2x 10Gb Ports

LAN/POE Module: 4x RJ45 LAN/POE Ports

M12 Module: 4x M12 LAN/POE Ports

USB Module: 4x USB 3.0 Ports

Dimension

Unit: mm

256.6

210
261
70
4-M4

240

126.8
133.9

Available Models

Model No.	Description
RCO-6000-CML-2C	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 1x PCIe x16, 1x PCI
RCO-6000-CML-2C-4L	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 6x LAN, 1x PCIe x16, 1x PCI
RCO-6000-CML-2C-4LM12	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 1x PCIe x16, 1x PCI, 4x M12 LAN
RCO-6000-CML-2C-4P	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 1x PCIe x16, 1x PCI, 4x PoE
RCO-6000-CML-2C-4PM12	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 1x PCIe x16, 1x PCI, 4x M12 PoE
RCO-6000-CML-2C-8L	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 10x LAN, 1x PCIe x16, 1x PCI
RCO-6000-CML-2C-8LM12	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 1x PCIe x16, 1x PCI, 8x M12 LAN
RCO-6000-CML-2C-8P	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 1x PCIe x16, 1x PCI, 8x PoE
RCO-6000-CML-2C-8PM12	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 1x PCIe x16, 1x PCI, 8x M12 PoE
RCO-6000-CML-2C-D10G	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 1x PCIe x16, 1x PCI, 2x 10G LAN
RCO-6000-CML-2C-4U3	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 1x PCIe x16, 1x PCI, 12x USB
RCO-6000-CML-2C-8U3	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 1x PCIe x16, 1x PCI, 16x USB
RCO-6000-CML-2C-5G	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 1x PCIe x16, 1x PCI, 5G Module
RCO-6000-CML-2E	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 2x PCIe x16 (8-lane)
RCO-6000-CML-2E-4L	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 6x LAN, 2x PCIe x16 (8-lane)
RCO-6000-CML-2E-4LM12	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 2x PCIe x16 (8-lane), 4x M12 LAN
RCO-6000-CML-2E-4P	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 2x PCIe x16 (8-lane), 4x PoE
RCO-6000-CML-2E-4PM12	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 2x PCIe x16 (8-lane), 4x M12 PoE
RCO-6000-CML-2E-8L	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 10x LAN, 2x PCIe x16 (8-lane)
RCO-6000-CML-2E-8LM12	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 2x PCIe x16 (8-lane), 8x M12 LAN
RCO-6000-CML-2E-8P	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 2x PCIe x16 (8-lane), 8x PoE
RCO-6000-CML-2E-8PM12	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 2x PCIe x16 (8-lane), 8x M12 PoE
RCO-6000-CML-2E-D10G	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 2x PCIe x16 (8-lane), 2x 10G LAN
RCO-6000-CML-2E-4U3	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 2x PCIe x16 (8-lane), 12x USB
RCO-6000-CML-2E-8U3	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 2x PCIe x16 (8-lane), 16x USB
RCO-6000-CML-2E-5G	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 2x PCIe x16 (8-lane), 5G Module
RCO-6000-CML-2I	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 2x PCI
RCO-6000-CML-2I-4L	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 6x LAN, 2x PCI
RCO-6000-CML-2I-4LM12	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 2x PCI, 4x M12 LAN
RCO-6000-CML-2I-4P	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 2x PCI, 4x PoE
RCO-6000-CML-2I-4PM12	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 2x PCI, 4x M12 PoE
RCO-6000-CML-2I-8L	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 10x LAN, 2x PCI
RCO-6000-CML-2I-8LM12	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 2x PCI, 8x M12 LAN
RCO-6000-CML-2I-8P	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 2x PCI, 8x PoE
RCO-6000-CML-2I-8PM12	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 2x PCI, 8x M12 PoE
RCO-6000-CML-2I-D10G	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 2x PCI, 2x 10G LAN
RCO-6000-CML-2I-4U3	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 2x PCI, 12x USB
RCO-6000-CML-2I-8U3	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 2x PCI, 16x USB
RCO-6000-CML-2I-5G	Superior Fanless Embedded System w/ LGA 1200 for Intel® 10th Gen CPU & W480E PCH, 2x LAN, 2x PCI, 5G Module

Optional Accessories

Model No.	Description
1-E09A12002	Adapter AC/DC 24V 5A 120W 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
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-6000-CML Series Embedded System
1x Wall Mount Kit
1x Accessory Kit
1x DVI to VGA Adapter