

RCO-1000-EHL-20

Compact fanless embedded system with Intel Atom®/Celeron® CPU, 2x DP, 2x COM, 1x 2.5" SATA HDD Bay

Features

- Support Intel Atom®/Celeron® Processor
- 1x 260-pin DDR4 SODIMM. Max. up to 32GB
- Dual Independent Display by 2x Display Port
- 1x 2.5GbE, 1x GbE supporting (Wake-on-LAN and PXE)
- 1x 2.5" SATA HDD Bay, 1x mSATA,
- 1x M.2 (B Key, 2242/3042/3052, Support 4G/5G)
- 1x Full-size mini PCIe for communication or expansion modules
- 2x RS-232/422/485, 3x USB 3.2 Gen2, 1x USB 2.0
- 9 to 36VDC Wide Range Power Input Supporting AT/ATX Mode
- Wide Operating Temperature -40°C up to 70°C
- TPM 2.0 Supported
- With 3x Universal Expansion Slots
- UL Listed



Specifications

System

Processor
Supports 11th Gen Intel® Celeron® / Atom® Processors X Series (Elkhart Lake)

Intel PC Client Series:
-Intel® Celeron® Processor J6413, Quad Core, 1.5 MB Cache, 1.8 GHz, 10W TDP

Intel® Embedded Series:
- Intel® Atom® Processor x6425E, Quad Core, 1.5 MB Cache, 1.8 GHz, 12W TDP

System Chipset	SoC integrated
LAN Chipset	1 GbE1: Intel I210 (Support Wake-on-LAN and PXE) 2.5 GbE2: Intel I225 (Support Wake-on-LAN and PXE)
Audio Codec	Realtek ALC888S
System Memory	1x 260-Pin DDR4 2400/2667/3200MT/s SODIMM. Max. up to 32 GB
Graphics	Intel® UHD Graphics
BIOS	AMI 256Mbit SPI BIOS
Watchdog	Software Programmable Supports 1~255 sec. System Reset
TPM	TPM 2.0

Display	
Display Port	2x DisplayPort 1.4, DP++ (4096 x 2160@60Hz)
Multiple Display	Dual Display

Storage	
M.2	1x M.2 (B Key, 2242/3042/3052, PCIe 1 + USB 3.2 Gen2, Support 4G/5G Module)
mSATA	1x mSATA (shared by 1x Mini PCI Express)
SIM Socket	2x External SIM socket
SSD/HDD	1x Internal 2.5" SATA HDD Bay (support H=9.5 mm)

Expansion	
Mini PCIe	1x Full-size Mini PCIe

Expansion Modules
Optional:

- 2-port COM module with Super I/O Chipset, Support 2x Universal Slot Only
- 4-Port USB module with USB hub, Support 1x Universal Slot Only
- 1-Port DP 1.4 and DIO (4 in / 4 out, Isolated), Support 1x Universal Slot Only
- 1-Port HDMI 2.0, Support 1x Universal Slot Only

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
LAN	2x RJ45 (2.5 & 1 GbE)
Universal I/O Bracket	3x Universal I/O Bracket (By mini PCIe interface, C&T Proprietary Module)
USB	3x USB 3.2 Gen 2 (10 Gbps) 1x USB 2.0

Others	5x WiFi Antenna Holes 1x Power Switch, 1x AT/ATX Switch, 1x Remote Power On/Off 1x Internal CMOS Battery Cable 1x 4-PIN FAN Connector
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Operating System

Windows	Windows 10
Linux	Linux Kernel

Power

Power Adapter	Optional AC/DC 12V/5A, 60W
Power Mode	AT, ATX
Power Ignition Sensing	Adjustable power ignition management can be achieved through BIOS and optional daughter board.
Power Supply Voltage	9~36VDC
Power Connector	3-pin Terminal Block
Power Protection	OVP (Over Voltage Protection); OCP (Over Current Protection) Reverse Protection

Environment

Operating Temperature	0°C to 60°C (Supported by Intel® PC Client Series: J6413) -40°C to 70°C (Supported by Intel® Embedded Series: x6425E)
Storage Temperature	-40°C to 85°C
Relative Humidity	10% to 95% (non-condensing)
Certification	UL 62368 Ed. 3, 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

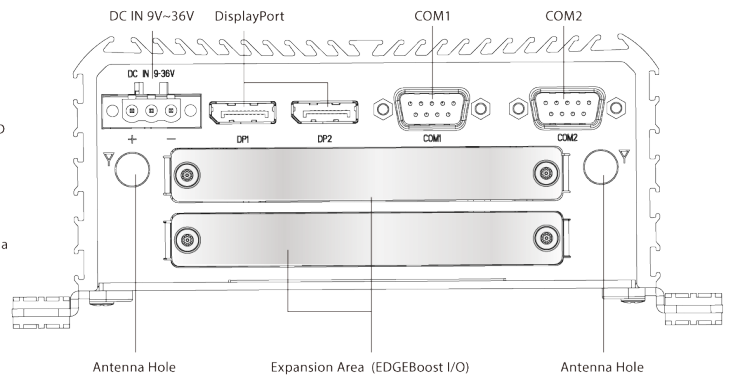
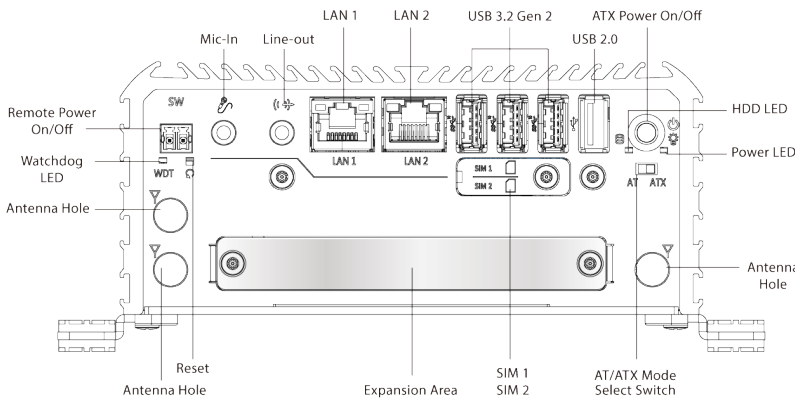
Dimensions	150 (W) x 105 (D) x 65 (H) mm
Weights	1 kg
Construction	Extruded Aluminum with Heavy Duty Metal
Mounting Options	Wall Mounting SIDE / VESA / DIN-Rail Mounting (Optional)

* For configured to run at 12W, operating temperatures will be limited to 70°C.
** 12W 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 4 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.

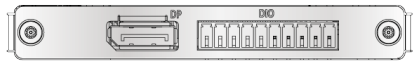
External I/O Mechanical Layout

Front Panel

Rear Panel



Available Expansion Module Options for Rear Panel



- 1x DP Port and 1x DIO (4 in / 4 out, Isolated) (Support 1x Universal Slot Only)



- 1x HDMI Port (Support 1x Universal Slot Only)



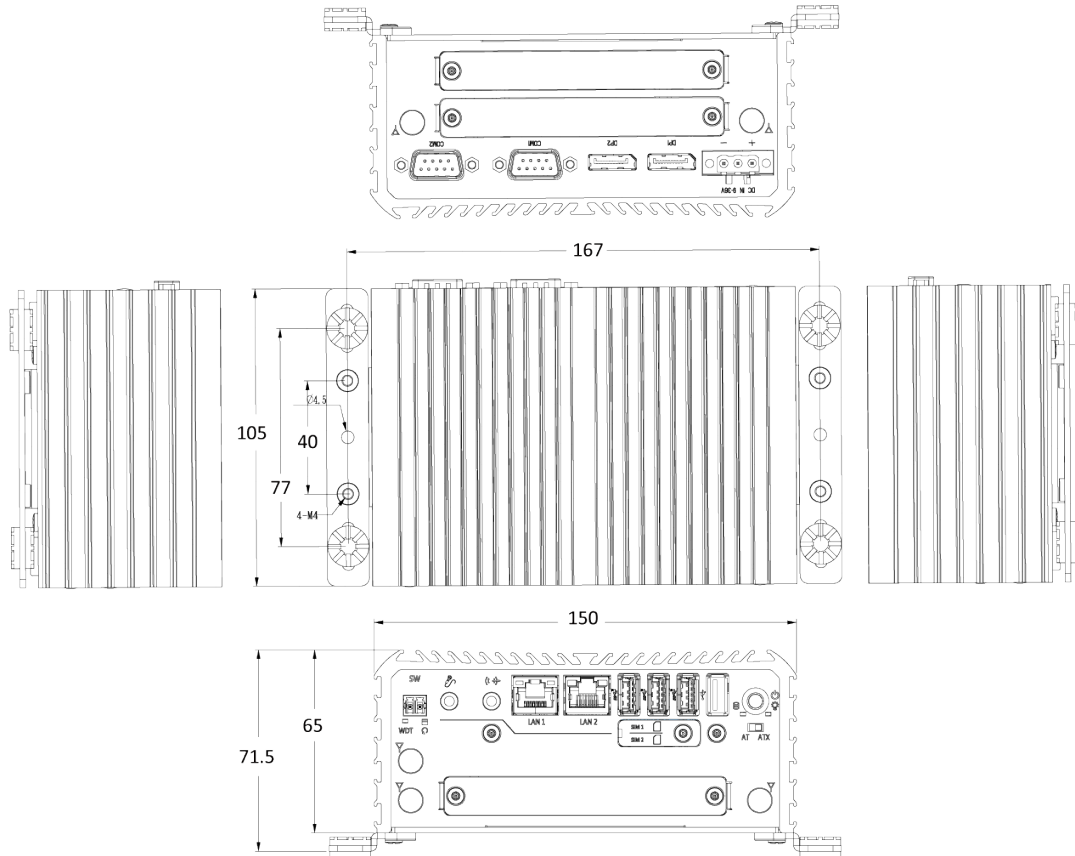
- 4x USB Ports (Support 1x Universal Slot Only)



- 2x COM Ports (Support 2x Universal Slot Only)

Dimension

Unit: mm



Available Models

Model No.	Description
RCO-1000-EHL-X6425E-20C	Compact fanless embedded system with Intel x6425E CPU, 3x DP, 4x COM, DIO, 1x 2.5" SATA HDD Bay
RCO-1000-EHL-X6425E-20D	Compact fanless embedded system with Intel x6425E CPU, 2x DP, 6x COM, 1x 2.5" SATA HDD Bay
RCO-1000-EHL-J6413-20C	Compact fanless embedded system with Intel J6413 CPU, 3x DP, 4x COM, DIO, 1x 2.5" SATA HDD Bay
RCO-1000-EHL-J6413-20D	Compact fanless embedded system with Intel J6413 CPU, 2x DP, 6x COM, 1x 2.5" SATA HDD Bay

Optional Accessories

Model No.	Description
1-E09A06008	Adapter AC/DC 12V 5A 60W with 3pin Terminal Block Plug 5.0mm Pitch
1-TPCD00002	Power Cord, European Type, 180cm
1-TPCD00001	Power Cord, 3-pin UK Type, 180cm
SFICBL022	Power Cord, 3-pin US Type, 180cm
3-SIDE-0003	RCO-1000-EHL-20 Series Side Mount Kit
3-VESA-0003	RCO-1000 Series VESA Mount Kit
3-DINR-0004	Din Rail-2 Mounting Kit

Packing List

1x RCO-1000-EHL-20 Series Embedded System
1x Wall Mount Kit
1x Accessory Kit