



SUPERIOR AI EDGE COMPUTING SYSTEM

# RCO-6000-CFL-2N-2060S

Superior AI Edge Computing System W/ LGA 1151 for Intel 8th/9th Gen CPU & Q370 PCH, 2 Bay U.2 15mm, RTX 2060S integrated



## 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)
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

### Display

Graphics	Intel® UHD Graphics 610/630 or NVIDIA GeForce® RTX 2060 Super
DVI	1x DVI-I, 1x DVI-D
HDMI	1x HDMI
DisplayPort	3x DisplayPort
Multiple Display	6 Display interfaces

### Storage

SSD/HDD	2x Internal 2.5" SATA HDD Bay (support H=9.5mm) 2x Removable 2.5" SATA HDD Bay (support H=7mm, hot-swappable) Support RAID 0, 1, 5, 10
NVMe	1x Removable 2 Bay NVMe SSD Module with RAID 0, 1 (Support H=15mm)
mSATA	1x mSATA (Shared by 1x 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

### Expansion

Mini PCI Express	2x Full-size Mini PCIe (1x shared by 1x mSATA)
PCIe	1x PCIe x4 (x1 Lane)
4-Port GbE (Optional)	4-port GbE module with Intel® I350-AT4 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
4-Port USB (Optional)	4-Port USB with Renesas uPD720201K8 host controller 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 Pentium® / Celeron® Desktop Processor
- Intel® Q370 chipset
- NVIDIA GeForce® RTX 2060 Super Graphics engine based on NVIDIA Turing™ GPU architecture
- 2x 260-pin DDR4 SODIMM. Max. up to 64GB
- 6 Display interface supported by 1x DVI-I, 1x DVI-D, 3x DisplayPort, 1x HDMI
- 2x Intel® GbE supporting Wake-on-LAN and PXE
- 1x Removable 2 Bay NVMe SSD Module with RAID 0, 1 (Support H=15mm)
- 4x 2.5" SATA HDD Bay and 2x 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), 2x SIM socket
- 9 to 48VDC Wide Range Power Input Supporting AT/ATX Mode
- Wide Operating Temperature (-25°C to 60°C)
- Power ignition management

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
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## I/O

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, internal) ; 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	1x 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
Windows	Windows 10
Linux	Linux kernel 5.X

## Power

Power Mode	AT, ATX
Power Supply Voltage	9-48VDC
Power Ignition Sensing	Power Ignition Management
Power Connector	3-pin Terminal Block, 4-pin Terminal Block for GPU and Storage (12V requires 4-pin terminal block)
Power Adaptor	Optional AC/DC 24V/9.2A, 220W Optional AC/DC 24V/11.27A, 280W
Power Protection	OVP (Over Voltage Protection); OCP (Over Current Protection) Reverse Protection

## Environment

Operating Temp.	-25°C to 60°C (35W /65W CPU)
Storage Temp.	-30°C to 85°C
Relative Humidity	10% to 95% (non-condensing)
Vibration	With SSD: 3 Grms, 5 - 500 Hz, 0.5 hr/axis With HDD: 1 Grms, 5 - 500 Hz, 0.5 hr/axis
Shock	With SSD: 20G, half sine, 11ms
Standards / Certification	CE, FCC Class A, E-Mark, EMC Conformity with EN 50155, EN 50121-3-2

## Physical

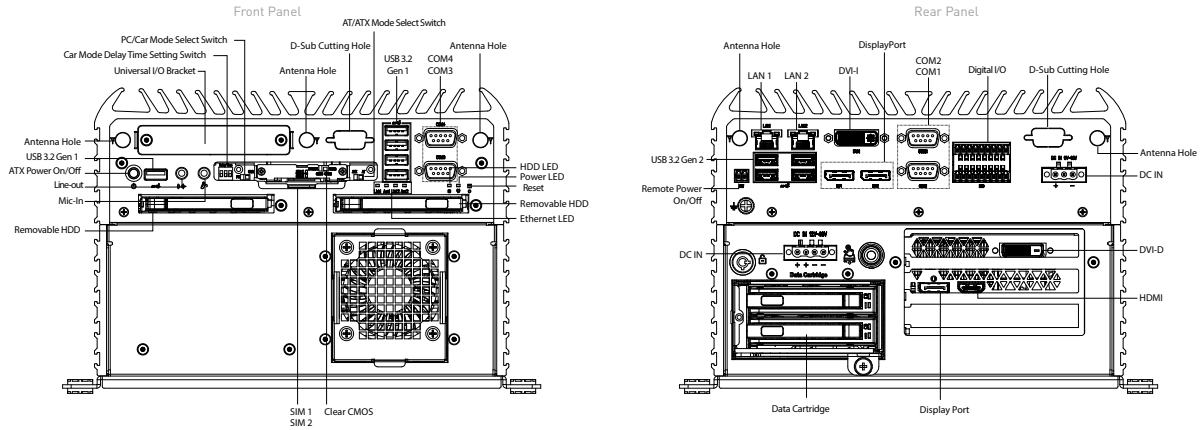
Construction	Extruded Aluminum with Heavy Duty Metal
Dimension	261 (D) x 240 (W) x 168 (H)
Weight	11.1 kg
Mounting	Wall Mounting

\* 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.

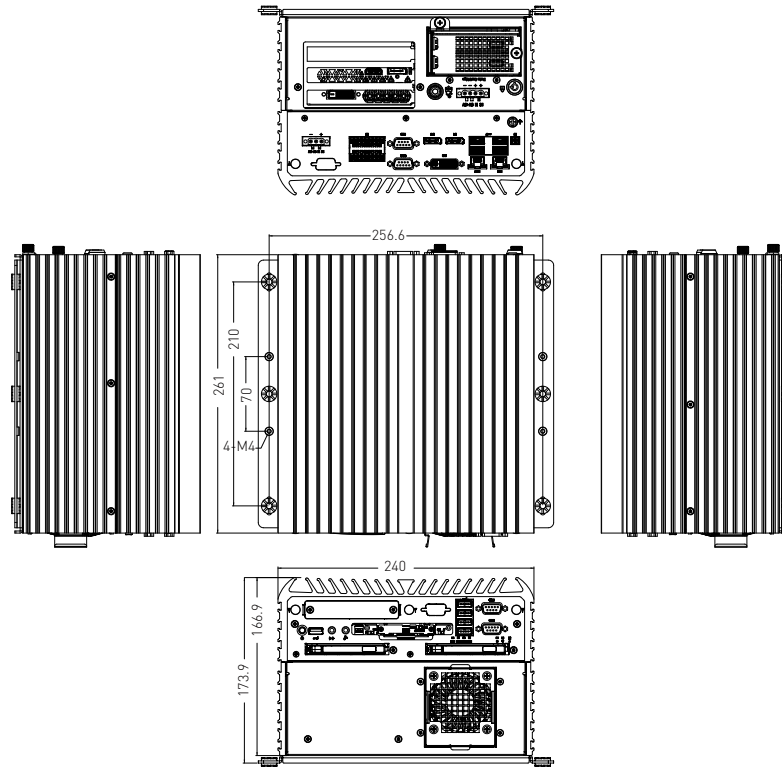
\*\*\* All specifications and photos are subject to change without notice.

## 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-6000-CFL-2N-2060S Series Embedded System
- 1x Utility DVD Driver
- 1x Wall Mount Kit
- 1x Accessory Kit
- 1x DVI to VGA Adapter

## AVAILABLE MODELS

MODEL NO.	DESCRIPTION
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