



## FEATURES

- Support 8<sup>th</sup>/9<sup>th</sup> Gen Intel® CFL-R S Processor (LGA 1151, 65W/35W TDP)
- Intel® Q370 Chipset
- Triple Independent Display by 1x DVI-I and 2x DisplayPort
- 2x Intel® GbE supporting Wake-on-LAN and PXE
- 2x Full-size mini PCIe (shared by 1x mSATA), and 2x SIM socket
- 4x 2.5" SATA HDD Bay with RAID 0, 1, 5, 10 support, 1x mSATA (Shared by 1x Mini PCIe)
- 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 (4x internal)
- 4x USB 3.2 Gen 2 (10 Gbps), 4x USB 3.2 Gen 1 (5 Gbps, internal)
- 8x DI + 8x DO with isolation
- 9 to 48V DC Wide Range Power Input Supporting AT/ATX Mode
- Wide Operating Temperature (-25°C to 70°C)
- TPM 2.0 Supported

## 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

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

### Storage

SSD/HDD 2x Internal 2.5" SATA HDD Bay (support H=9mm)  
2x Removable 2.5" SATA HDD Bay (support H=9mm, hot-swappable), Support RAID 0, 1, 5, 10

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 Internal SIM socket

### Expansion

Mini PCI Express 2x Full-size Mini PCIe (1x shared by 1x mSATA)

Model: VCO-6133E 2x PCIe x4 (1-lane), 1x PCIe x16

Model: VCO-6133P 3x PCI

Model: VCO-6133C 1x PCIe x16, 2x PCI

Card Dimension 312 (L) x 112 (H) mm

### Operating System

Windows Windows 10

Linux Linux kernel 5.X

### I/O

COM 2x RS-232/422/485  
4x RS-232/422/485 (internal)

USB 4x USB 3.2 Gen 2 (10 Gbps)  
4x USB 3.2 Gen 1 (5 Gbps, internal)  
1x USB 3.0 header (internal)

LAN 2x RJ45

DIO 8 in / 8 out (Isolated)

Universal I/O Bracket 2x Universal I/O Bracket (By mini PCIe interface)

Others 4x WiFi Antenna Holes  
1x Power Switch,  
1x Remote Power On/Off

### Power

Power Mode AT, ATX

Power Supply Voltage 9~48V DC

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

### Environment

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: 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

### Physical

Construction Extruded Aluminum with Heavy Duty Metal

Dimension 157 (W) x 340 (D) x 240 (H) mm

Weight 9.1 kg

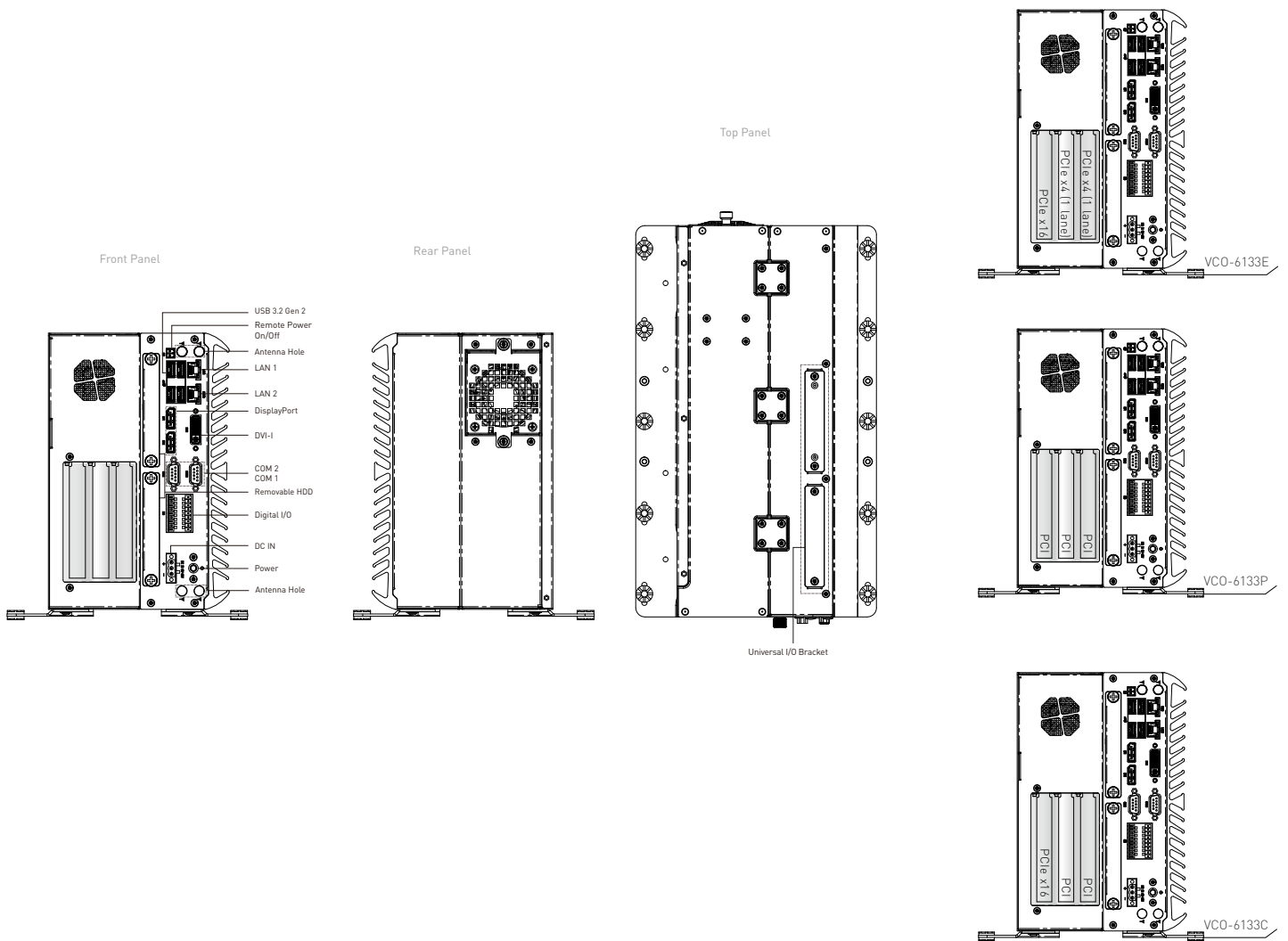
Mounting Wall Mounting / Book mounting (Optional)

\* 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.

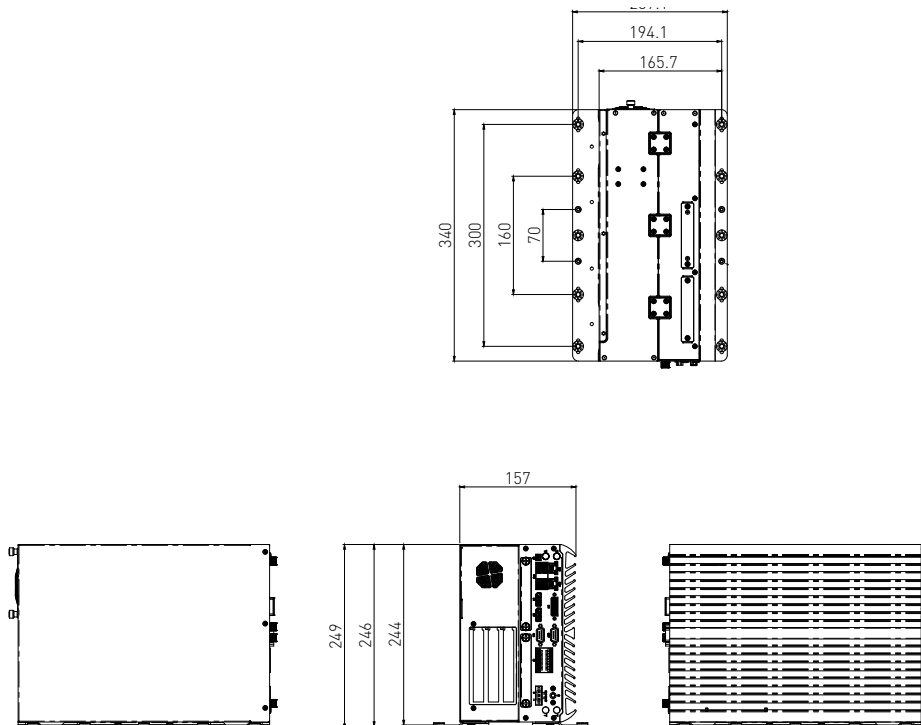
\*\*\* All specifications and photos are subject to change without notice.

## EXTERNAL I/O MECHANICAL LAYOUT



## DIMENSION

Unit: mm



## ORDERING INFORMATION

MODEL NO.	DESCRIPTION
1-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
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 VCO-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
VCO-6133E	Superior Machine Vision System with LGA 1151 for Intel 8 <sup>th</sup> /9 <sup>th</sup> Gen CPU & Q370 PCH, 2x PCIe x1, 1x PCIe x16
VCO-6133P	Superior Machine Vision System with LGA 1151 for Intel 8 <sup>th</sup> /9 <sup>th</sup> Gen CPU & Q370 PCH, 3x PCI
VCO-6133C	Superior Machine Vision System with LGA 1151 for Intel 8 <sup>th</sup> /9 <sup>th</sup> Gen CPU & Q370 PCH, 1x PCIe x16, 2x PCI