# Nuvo-7160GC Series

Ruggedized GPU-Computing Platform Supporting 120W NVIDIA® GPU and Intel® 8th-Gen Core™ Processor



## ⚡ Key Features

- Supports NVIDIA® GPU graphics card up to 120W TDP
- Patented thermal design to allow -25°C to 60°C wide-temperature operation
- Intel® 8th-Gen Core™ hexa-core 35W/ 65W LGA1151 CPU
- 6x GigE ports, supporting 9.5 KB jumbo frame
- M.2 2280 M key socket (Gen3 x4) supporting NVMe SSD or Intel® Optane™ memory
- 4x USB 3.1 Gen2 ports and 4x USB 3.1 Gen1 ports
- Accommodates two 2.5" SATA HDD/ SSD with RAID 0/ 1 support
- Compatible with MezIO™ interface for function expansion
- Patented ventilation design* for graphics card

*R.O.C Patent No. M534371/ M456527*

## Introduction

Nuvo-7160GC is a ruggedized GPU-aided edge computer designed for modern machine learning applications such as autonomous driving, facial recognition and machine vision. It supports up to a 120W GPU, delivering 4~6 TFLOPS computing power for inference, as well as Intel® 8th-Gen Core™ 6-core/ 12-thread CPU, offering up to 50% CPU performance enhancement over previous generations.

Thanks to Neousys' patented Cassette design and ingenious ventilation mechanism, Nuvo-7160GC can effectively dissipate the heat generated by the GPU. By introducing the guided airflow from intake to exhaust with powerful fans featuring smart fan control, it allows a 120W GPU to operate at 60°C ambient temperature under 100% GPU loading.

Nuvo-7160GC incorporates rich I/O functions such as USB 3.1 Gen2/ Gen1, GbE, COM and MezIO™ interface in its restricted footprint. It also leverages cutting-edge M.2 NVMe SSD technology for over 2000MB/s disk read/ write speed or Intel® Optane™ memory for the ultimate system acceleration. Neousys Nuvo-7160GC is the ideal solution for emerging edge computing by combining exceptional CPU and GPU performances.
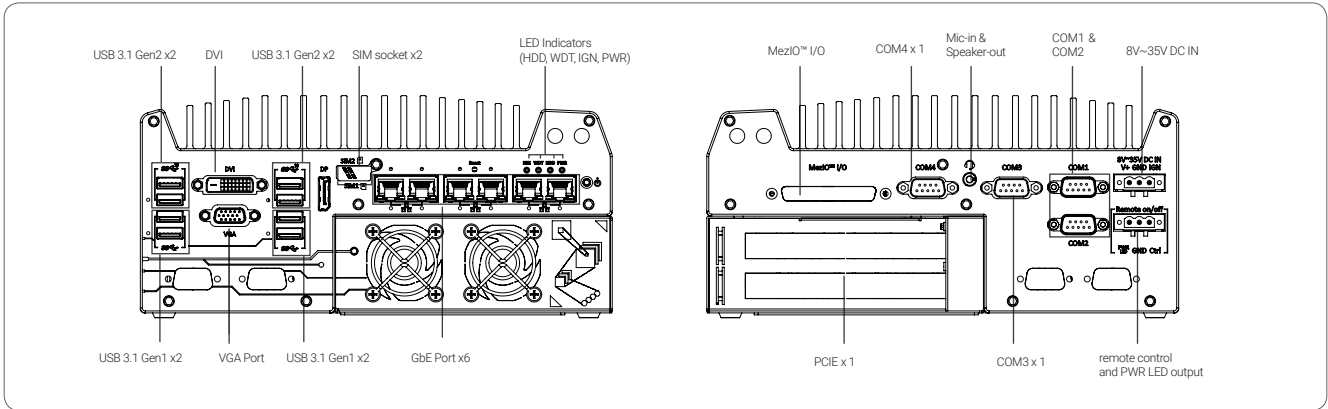
## Specifications

### System Core

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|---|---|
| Processor | Supporting Intel® 8th-Gen Coffee Lake CPU (LGA1151 socket, 35W/ 65W TDP)<br>- Intel® Core™ i7-8700/ i7-8700T<br>- Intel® Core™ i5-8500/ i5-8500T<br>- Intel® Core™ i3-8100/ i3-8100T<br>- Intel® Pentium® G5400/ G5400T<br>- Intel® Celeron® G4900/ G4900T |
| Chipset | Intel® Q370 Platform Controller Hub |
| Graphics | Integrated Intel® UHD Graphics 630 |
| Memory | Up to 32 GB DDR4 2666/ 2400 SDRAM (two SODIMM slots) |
| AMT | Supports AMT 12.0 |
| TPM | Supports TPM 2.0 |

### I/O Interface

| | |
|---|---|
| Ethernet | 6x Gigabit Ethernet ports by I219 and 5x I210 |
| PoE+ | Optional IEEE 802.3at PoE+ PSE for Port 3 ~ Port 6<br>100 W total power budget |
| USB | 4x USB 3.1 Gen2 (10 Gbps) ports<br>4x USB 3.1 Gen1 (5 Gbps) ports |
| Video Port<br>(Integrated Graphics) | 1x VGA connector, supporting 1920 x 1200 resolution<br>1x DVI-D connector, supporting 1920 x 1200 resolution<br>1x DisplayPort connector, supporting 4096 x 2304 resolution |
| Serial Port | 2x software-programmable RS-232/422/485 ports (COM1/ COM2)<br>2x RS-232 ports (COM3/ COM4) |
| Audio | 1x 3.5 mm jack for mic-in and speaker-out |

### Storage Interface

| | |
|---|---|
| SATA HDD | 2x internal SATA port for 2.5" HDD/ SSD installation,<br>supporting RAID 0/ 1 |
| M.2 | 1x M.2 2280 M key socket (PCIe Gen3 x4) for NVMe SSD<br>or Intel® Optane™ memory installation |
| mSATA | 1x full-size mSATA port (mux with mini-PCIe) |

### Internal Expansion Bus

| | |
|---|---|
| PCI/PCI Express | 1x PCIe x16 slot@Gen3, 16-lanes PCIe signals in Cassette for installing an NVIDIA® graphics card up to 120W TDP<br>(Max. graphics card dimension is 188 mm(L) x 121 mm(W), dual slot allocation) |
| Mini PCI Express | 1x full-size mini PCI Express socket with internal SIM socket (mux with mSATA) |
| M.2 | 1x M.2 2242 B key socket with dual front-accessible SIM sockets, supporting dual SIM mode with selected M.2 LTE module |
| Expandable I/O | 1x MezIO™ expansion port for Neousys MezIO™ modules |

### Power Supply

| | |
|---|---|
| DC Input | 1x 3-pin pluggable terminal block for 8~35VDC DC input |
| Remote Ctrl. & LED Output | 1x 3-pin pluggable terminal block for remote control and PWR LED output |

### Mechanical

| | |
|---|---|
| Dimension | 240 mm (W) x 225 mm (D) x 111 mm (H) |
| Weight | 4.5 Kg (including CPU, GPU, memory and HDD) |
| Mounting | Wall-mounting (standard) or DIN-Rail mounting (optional) |

### Environmental

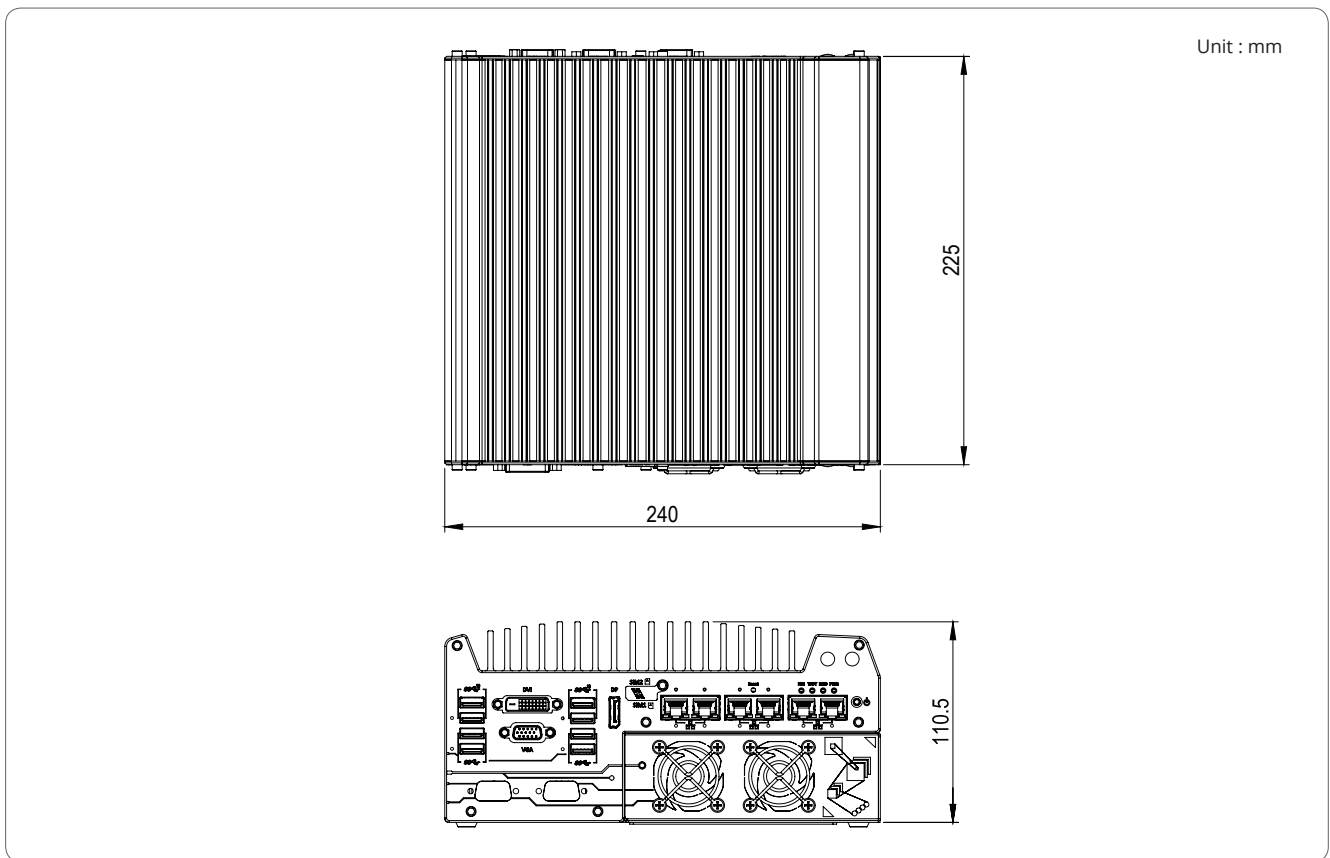| | |
|---|---|
| Operating Temperature | **With 35W CPU and 120W GPU**<br>-25°C ~ 60°C **<br>**With 65W CPU and 120W GPU**<br>-25°C ~ 60°C */** (configured as 35W TDP)<br>-25°C ~ 50°C */** (configured as 65W TDP) |
| Storage Temperature | -40°C ~ 85°C |
| Humidity | 10%~90% , non-condensing |
| Vibration | Operating, MIL-STD-810G, Method 514.6, Category 4 |
| Shock | Operating, MIL-STD-810G, Method 516.6, Procedure I, functional shock=50g |
| EMC | CE/FCC Class A, according to EN 55032 & EN 55024 |

** For i7-8700 running at 65W mode, the highest operating temperature shall be limited to 50°C and thermal throttling may occur when sustained full-loading applied. Users can configure CPU power in BIOS to obtain higher operating temperature.
*** For sub-zero operating temperature, a wide temperature HDD or Solid State Disk (SSD) is required.

## Appearance

USB 3.1 Gen2 x2 | DVI | USB 3.1 Gen2 x2 | SIM socket x2 | LED Indicators (HDD, WDT, IGN, PWR) | MezIO™ I/O | COM4 x 1 | Mic-in & Speaker-out | COM1 & COM2 | 8V~35V DC IN

USB 3.1 Gen1 x2 | VGA Port | USB 3.1 Gen1 x2 | GbE Port x6 | PCIE x 1 | COM3 x 1 | remote control and PWR LED output

## Dimensions

Unit : mm

225

240

110.5

## Ordering Information

| Model No. | Product Description |
|---|---|
| Nuvo-7160GC | Intel® 8th-Gen Core™ GPU-computing platform with 6x GbE and MezIO™, supporting selected NVIDIA® 120W GPU |
| Option of 802.3at PoE+ for GbE ports 3 ~ 6 | |

## Optional Accessories

| PA-280W-OW | 280W AC/DC power adapter 24V/11.67A; 16AWG/100cm; Cord end terminals for terminal block, operating temperature : -30°C to 60°C. |
|---|---|