

# Nuvo-7164GC/Nuvo-7166GC Series

Ruggedized AI Inference Platform Supporting NVIDIA® Tesla T4 and Intel® 9th/ 8th-Gen Core™ Processor



CE FC

## Key Features

- Supports NVIDIA® Tesla T4 GPU
- One additional PCIe x16 slot for add-on card (Nuvo-7166GC only)
- Dedicated heat dissipation for -25°C to 60°C Wide temperature operation
- Intel® 9th/ 8th-Gen Core™ hexa-core 35W/ 65W LGA1151 CPU
- 6x GigE ports, 802.3at PoE+ option available (ports 3~6)
- M.2 2280 M key NVMe (Gen3 x4) socket for fast storage access
- 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
- MezzIO™ interface for easy function expansion

## Introduction

Nuvo-7164GC/Nuvo-7166GC series are ruggedized AI inference platforms designed for advanced inference acceleration applications such as voice, video, image and recommendation services. It supports NVIDIA® Tesla T4 GPU, featuring 8.1 TFLOPS in FP32 and 130 TOPs in INT8 for real-time inference based on trained neural network model. In addition, it supports Intel® 9th/ 8th-Gen Core™ 6-core/ 8-core CPU and 64 GB DDR4-2666, offering great balance between CPU, GPU and memory performance.

Thanks to Neosys' patented Cassette and air tunnel design, which guides the intake air to flow through the passive heat sink of NVIDIA® Tesla T4 making it capable of effectively dissipating the heat generated by the GPU. This promising design guarantees system operation of up to 60°C ambient temperature with sustained 100% GPU loading. What distinguishes Nuvo-7166GC from Nuvo-7164GC is that it has one additional PCIe x16 slot in the Cassette module for a second add-on card installation, making it that much more flexible for specific applications.

Both systems incorporate cutting-edge I/O technologies to boost overall system flexibility, functionality and performance. The systems feature an M.2 NVMe interface that supports disk read/ write speeds over 2000 MB/s and USB 3.1/ GbE ports for fast data transfer, such as acquiring HD video data. With the combination of a fast CPU and inference accelerator GPU, Nuvo-7164GC/ Nuvo-7166GC are ideal inference platforms for artificial intelligence applications.

## Specifications

	Nuvo-7164GC	Nuvo-7166GC		Nuvo-7164GC	Nuvo-7166GC
System Core			Internal Expansion Bus		
Processor	Supporting Intel® 9th/ 8th-Gen CPU (LGA1151 socket, 65W/ 35W TDP) - Intel® Core™ i7-8700/ i7-8700T/ i7-9700E/ i7-9700TE - Intel® Core™ i5-8500/ i5-8500T/ i5-9500E/ i5-9500TE - Intel® Core™ i3-8100/ i3-8100T/ i3-9100E/ i3-9100TE		PCI/PCI Express	1x PCIe x16 slot@Gen3, 16-lanes PCIe signal in Cassette for installing NVIDIA® Tesla T4 GPU	2x PCIe x16 slot@Gen3, 8-lanes PCIe signal in Cassette for installing NVIDIA® Tesla T4 GPU and one additional PCIe card
Chipset	Intel® Q370 platform controller hub		Mini PCI Express	1x full-size mini PCI Express socket with internal SIM socket (mux with mSATA)	
Graphics	Integrated Intel® UHD graphics 630		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	
Memory	Up to 64 GB DDR4 2666/ 2400 SDRAM (two SODIMM slots)		Expandable I/O	1x MeziO™ expansion port for Neosys MeziO™ modules	
AMT	Supports AMT 12.0		Power Supply		
TPM	Supports TPM 2.0		DC Input	1x 3-pin pluggable terminal block for 8~35VDC DC input	
I/O Interface			Remote Ctrl. & LED Output	1x 3-pin pluggable terminal block for remote control and PWR LED output	
Ethernet	6x Gigabit Ethernet ports by I219 and 5x I210		Mechanical		
PoE+	Optional IEEE 802.3at PoE+ PSE for port 3 ~ port 6 100 W total power budget		Dimension	240 mm (W) x 225 mm (D) x 111 mm (H)	
USB 3.1	4x USB 3.1 Gen2 (10 Gbps) ports 4x USB 3.1 Gen1 (5 Gbps) ports		Weight	4.5 Kg	
Video Port (Integrated Graphics)	1x VGA, supporting 1920 x 1200 resolution 1x DVI-D, supporting 1920 x 1200 resolution 1x DisplayPort, supporting 4096 x 2304 resolution		Mounting	Wall-mount (standard) or DIN-rail mount (optional)	
Serial Port	2x software-programmable RS-232/422/485 ports (COM1/ COM2) 2x RS-232 ports (COM3/ COM4)		Environmental		
Audio	1x 3.5 mm jack for mic-in and speaker-out		Operating Temperature	with 35W CPU -25°C ~ 60°C *** with 65W CPU -25°C ~ 60°C **/ *** (configured as 35W TDP mode) -25°C ~ 50°C **/ *** (configured as 65W TDP mode) In compliance with NVIDIA® Tesla T4 warranty policy, an operating temperature of 0°C~50°C is required for systems with Tesla T4 installed	
Storage Interface			Storage Temperature	-40°C ~ 85°C	
SATA HDD	2x internal SATA ports for 2.5" HDD/ SSD installation, supporting RAID 0/ 1		Humidity	10%~90%, non-condensing	
M.2 NVMe	1x M.2 2280 M key NVMe socket (PCIe Gen3 x4) for NVMe SSD installation		Vibration	Operating, MIL-STD-810G, Method 514.6, Category 4	
mSATA	1x full-size mSATA port (mux with mini-PCIe)		Shock	Operating, MIL-STD-810G, Method 516.6, Procedure I, Table 516.6-II	
			EMC	CE/FCC Class A, according to EN 55032 & EN 55024	

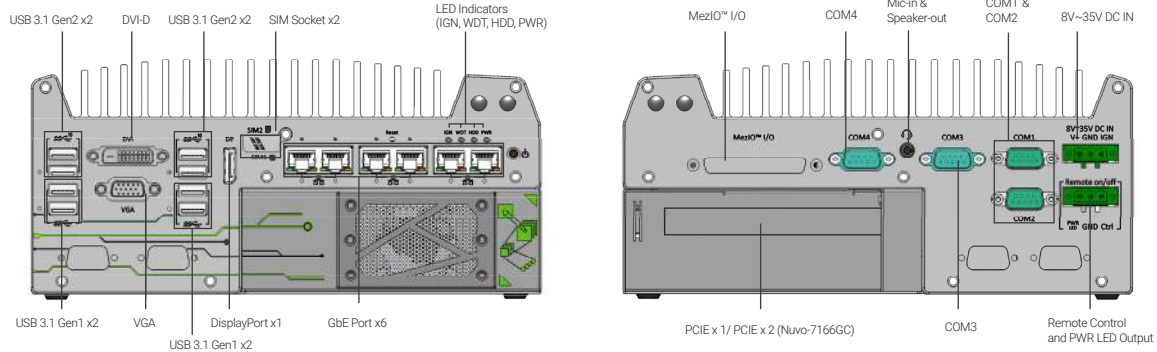
\* For i7-9700E and i7-8700 running at 65W mode, the highest operating temperature shall be limited to 50°C and thermal throttling may occur when sustained full-loading applied. Users can configure CPU power in BIOS to obtain higher operating temperature.

\*\* For sub-zero operating temperature, a wide temperature HDD or Solid State Disk (SSD) is required.

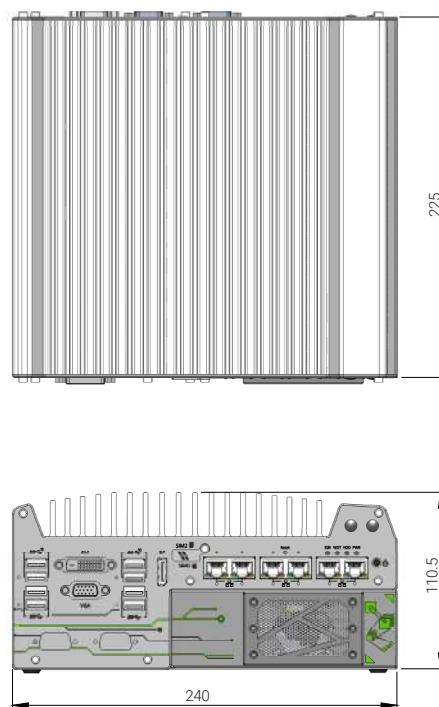
\* For i7-9700E and i7-8700 running at 65W mode, the highest operating temperature shall be limited to 50°C and thermal throttling may occur when sustained full-loading applied. Users can configure CPU power in BIOS to obtain higher operating temperature.

\*\* For sub-zero operating temperature, a wide temperature HDD or Solid State Disk (SSD) is required.

## Appearance



## Dimensions



Unit : mm

## Ordering Information

Model No.	Product Description
<b>Nuvo-7164GC</b>	Intel® 9th/ 8th-Gen Core™ AI inference platform with 6x GbE and MezIO™, supporting NVIDIA® Tesla T4 GPU
<b>Nuvo-7166GC</b>	Intel® 9th/ 8th-Gen Core™ AI inference platform with 6x GbE and MezIO™, supporting NVIDIA® Tesla T4 GPU and one additional PCIe x16 slot
<b>Optional IEEE 802.3at PoE+ for GbE ports 3 ~ 6</b>	

## Optional Accessories

<b>PA-280W-ET2</b>	280W AC/DC power adapter 24V/11.67A; 16AWG/100cm; cord end terminals for terminal block, operating temperature : -30°C to 60°C.
<b>Damping bracket</b>	Neosys' patented damping brackets assembly for Nuvo-7160GC/ Nuvo-7164GC/ Nuvo-7166GC

### MezIO™ Modules

<b>MezIO™ -C180</b>	MezIO™ module with 4x RS-232/ 422/ 485 ports and 4x RS-232 ports	<b>MezIO™ -V20-EP</b>	MezIO™ module with ignition power control function for in-vehicle application
<b>MezIO™ -C181</b>	MezIO™ module with 4x RS-232/ 422/ 485 ports and 4x RS-422/ 485 ports	<b>MezIO™ -U4</b>	MezIO™ module with 4x USB 3.1 ports
<b>MezIO™ -D220</b>	MezIO™ module with 8-CH isolated digital input and 8-CH isolated digital output	<b>MezIO™ -G4</b>	MezIO™ module with 4x GigE ports
<b>MezIO™ -D230</b>	MezIO™ module with 16-CH isolated digital input and 16-CH isolated digital output	<b>MezIO™ -G4P</b>	MezIO™ module with 4x IEEE 802.3at PoE ports

Only Nuvo-7164GC-PoE and Nuvo-7166GC-PoE support MezIO-G4P