Nuvo-9160GC Series

Ruggedized AI Inference Platform supporting 130W NVIDIA® RTX GPU and Intel® 13th/ 12th-Gen Core™ Processor

Key Features

- **Supports Intel® 13th/ 12th-Gen Core™ up to 24C/ 32T 35W/ 65W CPU**
- **Support NVIDIA® RTX series GPU card up to 130W TDP**
- **-25°C to 60°C wide temperature rugged operation**
- **5x 2.5GbE and 1xGbE with optional PoE+ (ports 3~6)**
- **1x USB 3.2 Gen2x2 type-C and 6x USB 3.2 type-A ports**
- **M.2 2280 M key socket (Gen4x4) supporting NVMe SSD**
- **Accommodates two 2.5" SATA HDD/ SSD with RAID 0/ 1 support**
- **MezIO® interface for add-on expansion**

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

Introduction

Nuvo-9160GC is a rugged edge AI computer that delivers superior CPU and GPU performance by leveraging Intel's 13th/12th Gen platform and an NVIDIA® RTX GPU card up to 130W. The system's standard and optional GPU brackets can accommodate selected GPU cards including RTX 3050, RTX 4060, NVIDIA® RTX A2000, and RTX 4000 SFF Ada. The GPU bracket is designed to secure the GPU card to provide excellent shock and vibration resistance in volatile conditions.

Benefiting from the cutting-edge Intel® 7 photolithography, Intel®'s 13th/12th Gen processors offer up to 24 cores/ 32 threads to provide up to double the performance when compared to previous Intel® 11th/ 10th Gen CPUs. The latest NVIDIA® 130W RTX GPU contributes up to 15 TFLOPS of FP32 performance to fuel real-time AI inference applications involving multiple cameras such as production line vision inspection, intelligent video analytics for surveillance or ITS, or autonomous mobile robot (AMR).

Nuvo-9160GC has a proven thermal design to guarantee reliable system operation from -25°C to 60°C. It features a passive-cooling design for the motherboard and segregated patented ventilation design* for the 130W GPU card within Neousys' patented expansion Cassette*. The support of six GigE cameras (or IP cameras) and six USB3 cameras makes Nuvo-9160GC ideal for various vision-based AI application deployments. It also provides flexible data storage options, including one M.2 2280 Gen4x4 NVMe providing up to 7000 MB/s extreme read/write speeds and two 2.5" SATA HDD/SSD to expand storage capacity.

With performance enhancements and comprehensive I/Os, Nuvo-9160GC is the perfect edge AI inference platform for industrial environments from factory automation, smart agriculture, and autonomous machines.

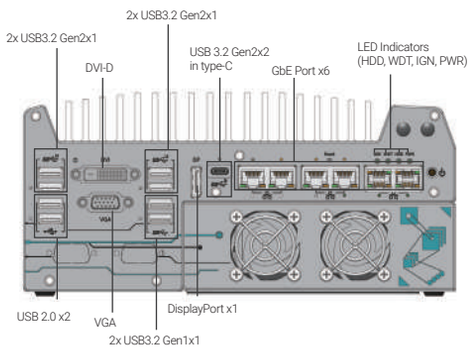
Specifications

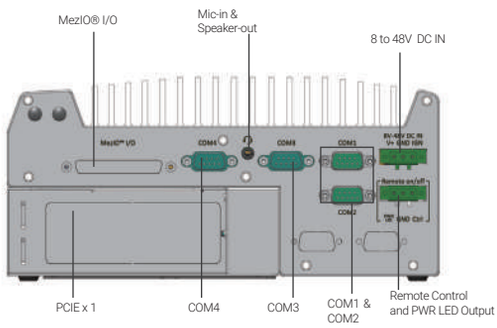
System Core		
Processor	Supporting Intel® 13th-Gen Core™ CPU (LGA1700 socket, 65W/ 35W TDP) - Intel® Core™ i9-13900E/ i9-13900TE - Intel® Core™ i7-13700E/ i7-13700TE - Intel® Core™ i5-13500E/ i5-13400E/ i5-13500TE - Intel® Core™ i3-13100E/ i3-13100TE	Supporting Intel® 12th-Gen Core™ CPU (LGA1700 socket, 65W/ 35W TDP) - Intel® Core™ i9-12900E/ i9-12900TE - Intel® Core™ i7-12700E/ i7-12700TE - Intel® Core™ i5-12500E/ i5-12500TE - Intel® Core™ i3-12100E/ i3-12100TE - Intel® Pentium® G7400E/ G7400TE - Intel® Celeron® G6900E/ G6900TE
Chipset	Intel® Q670E Platform Controller Hub	
Graphics	Integrated Intel® UHD Graphics 770 (32EU) / 730 (24EU)	
Memory	Up to 64 GB DDR5 4800 SDRAM (two SODIMM slots)	
AMT	Supports Intel vPro/ AMT 16.0	
TPM	Supports dTPM 2.0	
I/O Interface		
Ethernet	5x 2.5G Ethernet by I225-IT and 1x Gigabit Ethernet by I219-LM with screw-lock	
PoE+	Optional IEEE 802.3at PoE+ PSE for Port 3 ~ Port 6. 100W total power budget	
USB 3.2	1x USB 3.2 Gen2x2 (20 Gbps) port in type-C connector with screw-lock 4x USB 3.2 Gen2x1 (10 Gbps) ports in type-A connectors 2x USB 3.2 Gen1x1 (5 Gbps) ports in type-A connectors	
USB 2.0	2x USB 2.0 ports	
Video Port (Integrated Graphics)	1x VGA connector, supporting 1920 x 1200 resolution 1x DVI-D connector, supporting 1920 x 1200 resolution 1x DisplayPort connector, supporting 4096 x 2304 resolution	
Serial Port	2x software-programmable RS-232/ 422/ 485 ports (COM1/COM2) 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, supporting RAID 0/ 1	
M.2	1x M.2 2280 M key socket (PCIe Gen4 x4) for NVMe SSD	

Expansion Bus	
PCI Express	1x PCIe x16 slot@Gen3, 16-lanes PCIe signals in Cassette for installing an NVIDIA® graphics card up to 130W TDP (Max. graphics card dimension is 188 mm(L) x 131 mm(W), dual slot allocation)
Mini PCI Express	1x full-size mini PCI Express socket
M.2	1x M.2 3042/3052 B key socket with SIM slot for M.2 4G/ 5G module
Expandable I/O	1x MezIO® expansion port for Neousys MezIO® modules
Power Supply	
DC Input	1x 3-pin pluggable terminal block for 8 to 48V 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 110.5 mm (H)
Weight	3.89 kg
Mounting	Wall-mount (standard) or damping bracket (optional)
Environmental	
Operating Temperature	**With 35W CPU and 130W GPU** -25°C to 60°C** **With 65W CPU and 130W GPU** -25°C to 60°C**/*** (configured as 35W TDP) -25°C to 50°C**/*** (configured as 65W TDP)
Storage Temperature	-40°C to 85°C
Humidity	10% to 90% , non-condensing
Vibration	Operating, MIL-STD-810G, Method 514.6, Category 4 (with optional damping bracket)
Shock	Operating, MIL-STD-810G, Method 516.6, Procedure I, Table 516.6-II (with optional damping bracket)
EMC	CE/FCC Class A, according to EN 55032 & EN 55035

** Due to I225-IT specification limitation, for systems running 2.5G Ethernet link speeds, please limit the operating temperature to 60°C.*
*** For sub-zero operating temperature, a wide temperature HDD or Solid State Disk (SSD) is required.*
**** For CPU operating 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 allow higher operating temperature.*

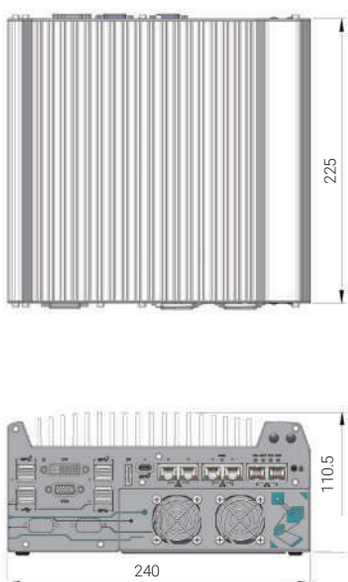
Appearance





Dimensions

Unit : mm



Ordering Information

Model No.	Product Description
Nuvo-9160GC	Ruggedized AI Inference Platform supporting 130W NVIDIA® RTX GPU and Intel® 13th/ 12th-Gen Core™ Processor
PoE+ Option	Option of 802.3at PoE + PSE for 2.5GbE port 3 ~ port 6

Optional Accessories

Dmpbr-Nuvo9160	Neousys' patented damping brackets assembly for Nuvo-9160GC
Gpubr-Nuvo9160-01	Nuvo-9160GC GPU bracket kit for RTX 4000 SFF Ada and RTX A2000
Gpubr-Nuvo9160-02	Nuvo-9160GC GPU bracket kit for selected single fan RTX 4060
PA-280W-ET2	280W AC/DC power adapter 24V/11.67A; 16AWG/100cm; cord end terminals for terminal block, operating temperature : -30°C to 60°C.
PA-600W-ENC	600W AC/DC power adapter 24V/25A; cord end terminals for terminal block, operating temperature : -20°C to 70°C.
MezIO® Modules	
MezIO®-C180-50	MezIO® module with 4x RS-232/ 422/ 485 ports and 4x RS-232 ports
MezIO®-C181-50	MezIO® module with 4x RS-232/ 422/ 485 ports and 4x RS-422/ 485 ports
MezIO®-D220-50	MezIO® module with 8-CH isolated digital input and 8-CH isolated digital output
MezIO®-D230-50	MezIO® module with 16-CH isolated digital input and 16-CH isolated digital output
MezIO®-V20-EP	MezIO® module with ignition power control function for in-vehicle application
MezIO®-U4-50	MezIO® module with 4x USB 3.1 ports
MezIO®-G4	MezIO® module with 4x GigE ports
MezIO®-G4P	MezIO® module with 4x IEEE 802.3at PoE+ ports *Only Nuvo-9160GC-PoE support MezIO-G4P*