Nuvo-9160GC Series

Ruggedized AI Inference Platform supporting 150W NVIDIA® RTX GPU and Intel® Core™ processor (Series 2) /14th/13th/12th-Gen

Key Features

- **Supports Intel® Core™ processor (Series 2) with P-cores / 14/ 13/ 12th-Gen 24C/ 32T 35W/ 45W/ 65W CPU**
- **Supports NVIDIA® RTX™ series GPU card up to 150W TDP**
- **-25°C to 60°C wide temperature rugged operation**
- **5x 2.5GbE and 1xGbE with optional PoE+ (ports 3 to 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® Core™ processor (Series 2) with P-cores/14th/13th/12th-Gen platform and an NVIDIA® RTX™ GPU card up to 150W. The system's standard and optional GPU brackets can accommodate selected GPU cards including NVIDIA® RTX™ Pro 2000 , RTX 2000E Ada and RTX™ Pro 4000 SFF. 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 14th/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. In addition, the latest Intel® Core™ processor (Series 2) with P-cores introduces a P-core only architecture with up to 12 P-cores and no E-cores, allowing applications to leverage more high-performance cores for enhanced computing capability. The latest NVIDIA® 150W RTX™ GPUs 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 the expansion cassette design for the 150W GPU card. The support of six GigE cameras (or IP cameras) and eight 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® Core™ processor (Series 2) with P-cores (LGA1700 socket, 65W/ 45W TDP) - Intel® Core™ 9 273PE/ 273PTE - Intel® Core™ 7 253PE/ 253PTE - Intel® Core™ 5 223PE/ 223PTE	Supporting Intel® Core™ processor (Series 2) (LGA1700 socket, 65W/ 45W TDP) - Intel® Core™ 7 251E/ 251TE - Intel® Core™ 5 221E/ 221TE - Intel® Core™ 3 201E/ 201TE
	Supporting Intel® 14th-Gen Core™ CPU (LGA1700 socket, 65W/ 35W TDP) - Intel® Core™ i9-14900/ i9-14900T - Intel® Core™ i7-14700/ i7-14700T - Intel® Core™ i5-14500/ i5-14400/ i5-14500T - Intel® Core™ i3-14100/ i3-14100T	Supporting Intel® 13th-Gen Core™ CPU[1] (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
Graphics	Integrated Intel® UHD Graphics 770 (32EU) / 730 (24EU)	
Memory	Up to 128GB 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 I226-IT/ I225-IT and 1x Gigabit Ethernet by I219-LM with screw-lock	
PoE+	Optional IEEE 802.3at PoE+ PSE for Port 3 to 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		
Mini PCI Express	1x full-size mini PCI Express socket	

Expansion Bus	
PCI Express	1x PCIe x16 slot@Gen3, 16-lanes PCIe signals in Cassette for installing an NVIDIA® graphics card up to 150W TDP (Max. graphics card dimension is 188 mm(L) x 131 mm(W), dual slot allocation)
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/45W CPU and 150W GPU** -25°C to 60°C[3][4] **With 65W CPU and 150W GPU** -25°C to 60°C[3][4] (configured as 35W TDP) -25°C to 50°C[3][4] (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

[1] A BIOS update may be required for the system to recognize 14th/13th-Gen processors. Please contact Neousys Technology for more information.
[2] The system is designed to tolerant 8V to 48V voltage fluctuation. The minimal nominal voltage is required with different system configuration. For system with 35W CPU and 150W GPU, 12V or above nominal DC voltage is recommended. For a system with a 65W CPU and 150W GPU, with or without additional PoE+ PD and/or high-watt PCIe cards, a nominal DC voltage of 24V or above is recommended. Alternatively, users may select an appropriate DC input voltage by considering both the 16A current limitation of the DC input connector and the total system power load.
[3] For sub-zero operating temperature, a wide temperature HDD or Solid State Disk (SSD) is required.
[4] 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.

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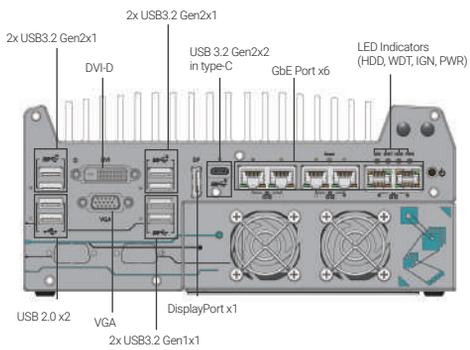
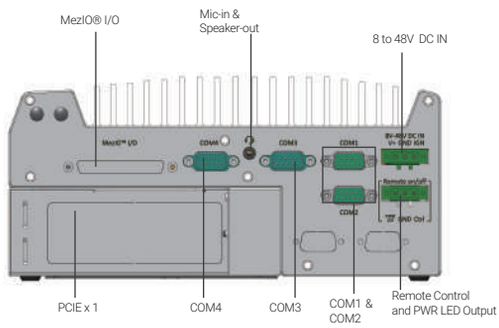
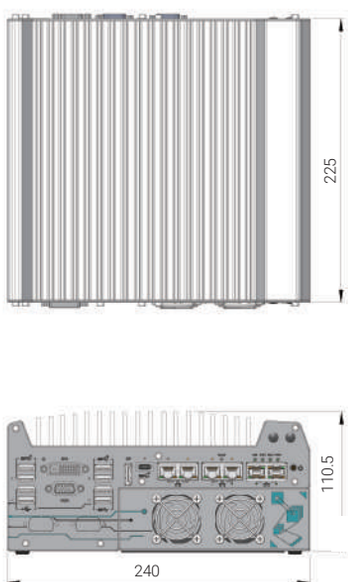
Appearance





Dimensions

Unit : mm



Ordering Information

Model No.	Product Description
Nuvo-9160GC	Ruggedized AI Inference Platform supporting 150W NVIDIA® RTX™ GPU and Intel® Core™ processor (Series 2) /14th/13th/12th-Gen Processor
PoE+ Option	Option of 802.3at PoE + PSE for 2.5GbE port 3 to port 6

Optional Accessories

Dmpbr-Nuvo9160	Neousys' patented damping brackets assembly for Nuvo-9160GC
AccsyBx-Cardholder-9160GC-xx	Nuvo-9160GC GPU bracket kits for NVIDIA® RTX™ Pro 2000 , RTX 2000E Ada and RTX™ Pro 4000 SFF and other selected GPU. Please contact Neousys for more information.
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*