

Nuvo-9160GC Series

Ruggedized AI Inference Platform supporting 150W NVIDIA® RTX™ GPU and Intel® 14th/ 13th/ 12th-Gen Core™ Processor



Key Features

- Supports Intel® 14th/13th/12th-Gen Core™ 24C/ 32T 35W/ 65W LGA1700 CPU
- Support 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
- MezzIO® 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 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™ 2000 Ada, RTX 2000E Ada 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 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. The latest NVIDIA® 150W RTX™ GPU contributes up to 19.2 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).

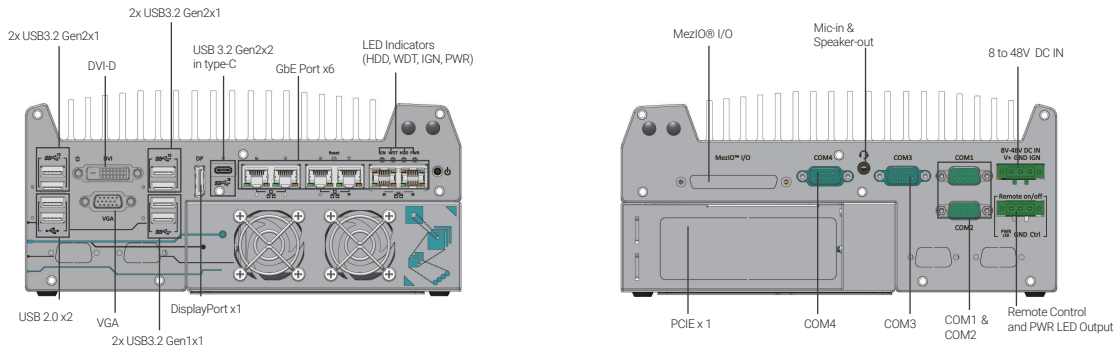
Nuvo-9160GC has a proven thermal design to guarantee reliable system operation from -25°C to 60°C. It features a passive-cooling design for the motherboard and segregated patented ventilation design* for the 150W GPU card within Neosys' patented expansion Cassette*. The support of six GigE cameras (or 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.

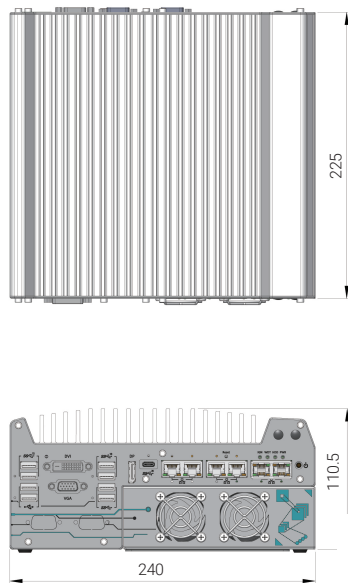
Specifications

System Core			Expansion Bus	
Processor	Supporting Intel® 14th-Gen Core™ CPU (LGA1700 socket, 65W/ 35W TDP) ^[12] - 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		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)
	Supporting Intel® 13th-Gen Core™ CPU ^[12] (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	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
Graphics	Integrated Intel® UHD Graphics 770 (32EU) / 730 (24EU)		Power Supply	
Memory	Up to 64 GB DDR5 4800 SDRAM (two SODIMM slots)		DC Input	1x 3-pin pluggable terminal block for 8 to 48V DC input
AMT	Supports Intel vPro® AMT 16.0		Remote Ctrl. & LED Output	1x 3-pin pluggable terminal block for remote control and PWR LED output
TPM	Supports dTPM 2.0		Mechanical	
I/O Interface			Dimension	240 mm (W) x 225 mm (D) x 110.5 mm (H)
Ethernet	5x 2.5G Ethernet by I226-IT/ I225-IT and 1x Gigabit Ethernet by I219-LM with screw-lock		Weight	3.89 kg
PoE+	Optional IEEE 802.3at PoE+ PSE for Port 3 to Port 6. 100W total power budget		Mounting	Wall-mount (standard) or damping bracket (optional)
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		Environmental	
USB 2.0	2x USB 2.0 ports		Operating Temperature	With 35W CPU and 150W GPU -25°C to 60°C ^[13] With 65W CPU and 150W GPU -25°C to 60°C ^[13] (configured as 35W TDP) -25°C to 50°C ^[13] (configured as 65W TDP)
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		Storage Temperature	-40°C to 85°C
Serial Port	2x software-programmable RS-232/ 422/ 485 ports (COM1/COM2) 2x RS-232 ports (COM3/COM4)		Humidity	10% to 90% , non-condensing
Audio	1x 3.5 mm jack for mic-in and speaker-out		Vibration	Operating, MIL-STD-810G, Method 514.6, Category 4 (with optional damping bracket)
Storage Interface			Shock	Operating, MIL-STD-810G, Method 516.6, Procedure I, Table 516.6-II (with optional damping bracket)
SATA HDD	2x internal SATA port for 2.5" HDD/ SSD installation, supporting RAID 0/ 1		EMC	CE/FCC Class A, according to EN 55032 & EN 55035
M.2	1x M.2 2280 M key socket (PCIe Gen4 x4) for NVMe SSD		^[1] A BIOS update may be required for the system to recognize 14th/13th-Gen processors. Please contact Neosys Technology for more information. ^[2] The system is designed to tolerate 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.	
Expansion Bus				
Mini PCI Express	1x full-size mini PCI Express socket			

Appearance



Dimensions



Unit : mm

Ordering Information

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

Optional Accessories

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