Nuvo-9160GC

Rugged AI@Edge computer with 13th/12th Gen. Intel® Core™ CPU and NVIDIA®RTX GPU support

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Features

- Intel® Core™ 13th / 12th Gen. CPU
- 2x DDR5 4,800 SDRAM, up to 64GB
- Intel® Q670E chipset
- NVIDIA® RTX series up to 130W (RTX 4060 and RTX 4000 SFF Ada)
- 5x 2.5GbE and 1xGbE/ optional PoE+

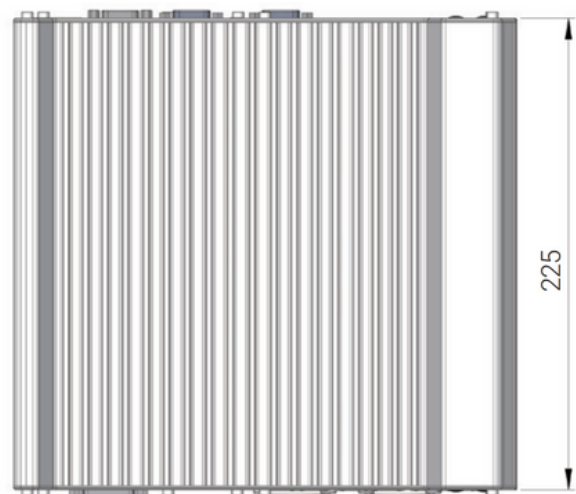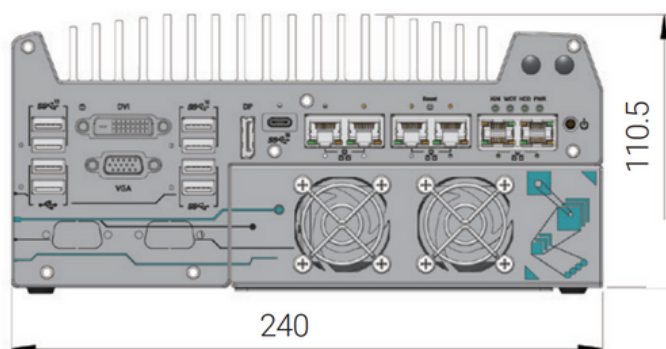## Nuvo-9160GC – Rugged AI@Edge Computer with 13th / 12th Gen Intel® Core™ CPU

The Nuvo-9160GC is a rugged edge AI computer that delivers superior CPU and GPU performance thanks to the 12th generation Intel platform and 130W RTX GPU card from NVIDIA®. 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.

Thanks to state-of-the-art Intel® 7 photolithography, Intel's 13th/12th generation processors offer up to 16 cores and 24 threads with a 1.8x performance increase over previous 11th and 10th generation Intel® platforms. The latest NVIDIA® 130W RTX GPU contributes nearly 9 TFLOPS of FP32 performance to support real-time AI inference applications involving multiple cameras, such as production line inspection, intelligent video analytics for surveillance or ITS, or autonomous mobile robots (AMR).

The Nuvo-9160GC features a proven thermal design that ensures reliable system operation from -25°C to 60°C. It features a passive cooling design for the motherboard and a separate, patented ventilation design* for the 130W GPU card in Neousys' patented expansion cartridge*. Support for six GigE cameras (or IP cameras) and six USB3 cameras makes the Nuvo-9160GC ideal for deploying various AI applications. It also offers flexible data storage options, including an M.2 2280 Gen4x4 NVMe with extreme read/write speeds of up to 7000 MB/s and two 2.5" SATA HDD/SSDs to expand storage capacity.

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

Drawing (mm)

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Specifications	Nuvo-9160GC
SYSTEM	
CPU	Supports Intel® Core™ CPU 13th Gen. (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 Supports Intel® Core™ CPU 12th Gen. (LGA1700 socket, 35W/ 65W 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)
RAM	Up to 64 GB DDR5 4,800 SDRAM (two SODIMM slots)
Storage	2x internal SATA connector for 2.5" HDD/ SSD installation, supports RAID 0/ 1 1x M.2 2280 M-Socket (PCIe Gen4 x4) for NVMe SSD
AMT	Supports Intel vPro/ AMT 16.0
TPM	Supports TPM 2.0
Expansion	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) 1x Mini PCI Express socket in full size 1x M.2 3042/3052 B key socket with SIM slot for M.2 4G/ 5G module 1x MezIO expansion port for Neousys MezIO modules
INTERFACE	
Ethernet	5x 2.5G Ethernet through I225-IT and 1x Gigabit Ethernet through I219-LM with screw lock Optional IEEE 802.3at PoE+ PSE for port 3 ~ port 6. 100W total power budget
USB	1x USB 3.2 Gen2x2 (20 Gbit/s) port in Type-C connector with screwlock 4x USB 3.2 Gen2x1 (10 Gbit/s) ports in Type-A connectors 2x USB 3.2 Gen1x1 (5 Gbit/s) ports in Type-A connectors 2x USB 2.0 ports
COM	COM 1/2: 2x software-programmable RS-232/ 422/ 485 ports COM 3/4: 2x RS-232 ports
Video	1x VGA port, supports 1,920 x 1,200 resolution 1x DVI-D port, supports 1,920 x 1,200 resolution 1x DisplayPort port, supports a resolution of 4,096 x 2,304
Audio	1x 3.5 mm jack for microphone input and speaker output
Power	1x 3-pin pluggable terminal block for 8 ~ 48V DC input
ENVIRONMENTAL	
Remote Control & LED	1x 3-pin pluggable terminal block for remote control and PWR LED output
Operating Temperature	**With 35W CPU and 130W GPU:** 25° ~ 60°C** **With 65W CPU and 130W GPU:** -25° ~ 60°C**/*** (configured as 35W TDP) -25° ~ 50°C **/*** (configured as 65W TDP)
Storage Temperature	-40° ~ 85°C
Vibration / Shock Resistance	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)
Humidity	10 ~ 90% , non-condensing
Dimensions	240 (W) x 225 (D) x 110.5 (H) mm
Weight	3.89 kg
Mounting	Wallmount (standard) or damping bracket (optional)
Certifications	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.
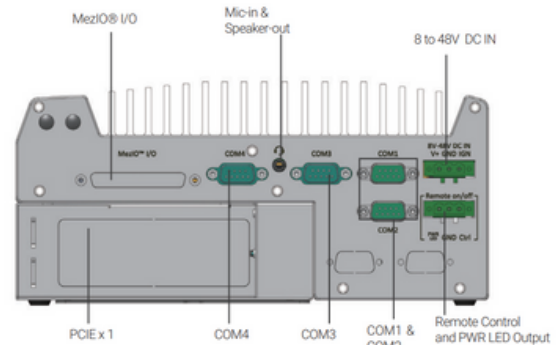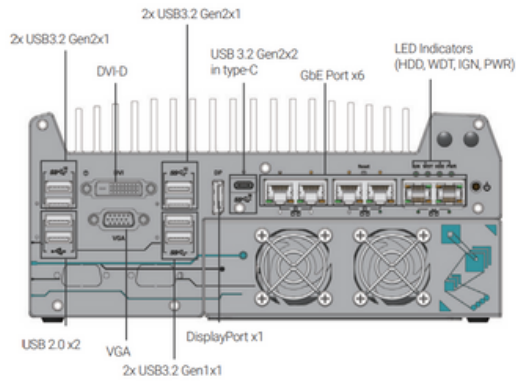** For sub-zero operating temperature, a wide temperature HDD or Solid State Disk (SSD) is required.
*** For CPU operating at 65W mode, the highest operating temperature shall be limited to 50°C and thermal throttling may occur when sustained full-loading applied. Users can configure CPU power in BIOS to allow higher operating temperature.

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Ordering Information	Nuvo-9160GC
MODEL NO.	
Nuvo-9160GC	Ruggedized AI Inference Platform supporting 130W NVIDIA® RTX GPU and Intel® 13th/ 12th-Gen Core™ Processor
PoE+ Option	Optional 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