GPU Computing

NEOUSYS TECHNOLOGY

Nuvo-10108GC Series

Industrial Edge AI Computer Supporting Single 350W NVIDIA® RTX™ GPU, Intel® 13th/ 12th-Gen Core™ Processor with Three Additional PCIe Slots

Preliminary

Key Features

- **Supports single NVIDIA® 350W GPU with Gen4 x16 single and dedicated GPU-locking bracket**
- **Intel® 13th/ 12th-Gen Core™ 35W/ 65W LGA1700 CPU**
- **Up to 64GB ECC/ non-ECC DDR5 4800 with Intel R680E chipset (2x SODIMM)**
- **Three x8 PCIe slots with Gen3 x4 signal for add-on cards**
- **6x USB 3.2, 2x 2.5GbE, 1x GbE, and 1x optional 10GbE**
- **Two front-accessible storage options: 1x 2.5" SATA tray and 1x optional NVMe tray**
- **8V to 48V wide-range DC input with ignition power control**
- **Rugged, -25°C to 60°C operation**

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Introduction

Nuvo-10108GC is Neousys' response to the ruggedized Edge AI computer with extreme CPU and GPU performance for autonomous driving and AI-powered factory automation. It leverages an Intel® 13th/ 12th-Gen CPU and an NVIDIA® RTX™ 40 series or the latest RTX™ 6000 Ada GPU, offering single-precision GPU performances up to 48 TFLOPS or 91 TFLOPS, respectively.

Powered by an Intel® 13th/ 12th-Gen CPU with up to 24 cores and 32 threads, Nuvo-10108GC offers up to twice the performance compared to previous Intel® 10th or 11th-Gen platforms. In addition, Nuvo-10108GC supports ECC memory to deliver mission-critical computation, e.g., automated driving in urban traffic. It inherits a proven thermal dissipation design for the CPU and GPU to guarantee rugged, -25°C to 60°C wide-temperature operation. To withstand continuous shaking and juddering conditions in on-highway and off-highway applications, Nuvo-10108GC features an innovative GPU locking bracket to fasten the GPU with the chassis, and Neousys' patented damping bracket to absorb high-frequency vibration.

Nuvo-10108GC also features an abundance of I/Os, such as 6x USB3.2 Gen2, 3x 2.5GbE/GbE, and 1x optional 10GbE. Expansion-wise, Nuvo-10108GC offers 3x additional PCIe slots for GMSL2/ industrial camera frame grabbers and various add-on cards. Also, it provides 2x full-size mini PCI Express sockets for CAN bus/ COM/ WiFi expansion and 1x M.2 B key sockets for mobile connectivity with 4G LTE, 5G NR modules. In terms of data storage, Nuvo-10108GC offers an M.2 2280 M socket for Gen4x4 NVMe, and dual front-accessible storage options, including a 2.5" SATA HDD/SSD and an optional M.2 2280 Gen4x4 NVMe tray.

By utilizing Intel's 13th/ 12th-Gen platform, state-of-the-art NVIDIA® RTX™ GPU, and Neousys' industrial-grade power, thermal and mechanical designs with rich I/O and expansion, Nuvo-10108GC is a rugged edge AI platform that offers unprecedented GPU and CPU computing power for modern AI applications.
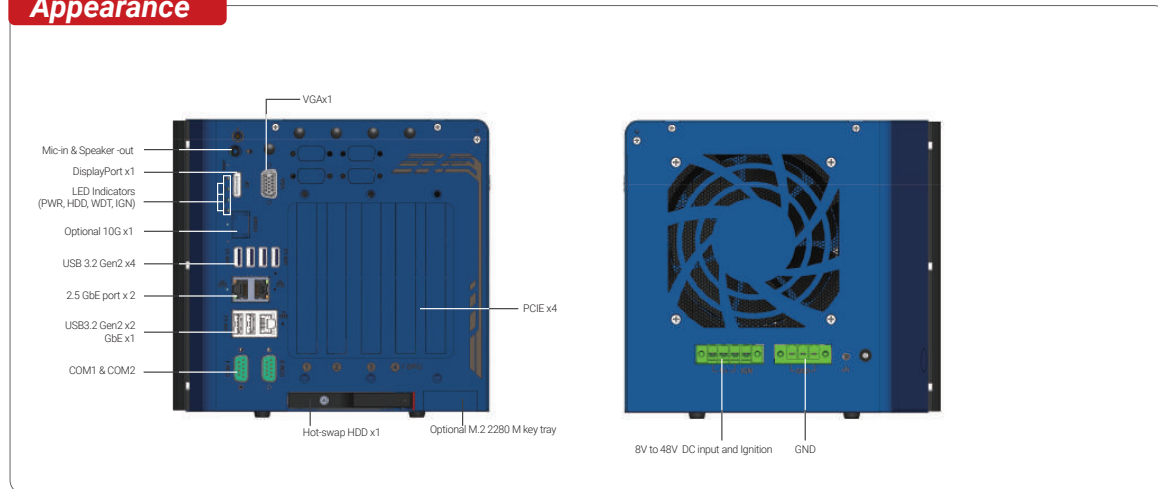
Specifications

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 Support Intel® 12th-Gen Core™ CPU (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® R680E Platform Controller Hub
Graphics	Integrated Intel® UHD Graphics 770 (32EU)/ 730 (24EU)
Memory	Up to 128GB ECC/ non-ECC DDR5 4800 SDRAM (up to 2x 64GB SODIMM modules)[1]
AMT	Supports Intel vPro/ AMT 16.0
TPM	Supports dTPM 2.0

I/O Interface

Ethernet	2x 2.5G Ethernet by I226-IT and 1x Gigabit Ethernet by I219-LM
10G Ethernet (optional)	1x 10GBASE-T port by Marvell AQC113CS, supporting NBASE-T (5G/ 2.5G) and 1000BASE-T (Optional)
USB 3.2	6x USB 3.2 Gen2x1 (10 Gbps) ports
USB 2.0	1x USB 2.0 ports (internal for dongle use)
Video Port (Integrated Graphics)	1x VGA 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)
Audio	1x 3.5 mm jack for mic-in and speaker-out

Storage Interface

SATA HDD	1x front-accessible, hot-swappable HDD trays for 2.5" HDD/ SSD installation
M.2	1x M.2 2280 M key socket (PCIe Gen4 x4) for NVMe SSD 1x front-accessible M.2 2280 M key tray (PCIe Gen4 x4) for NVMe SSD (Optional)

Expansion Bus

PCI Express	1x PCIe x16 slot @Gen4, 16-lanes with 65 mm slot width. The standard GPU locking bracket is designed for NVIDIA® RTX™ A4000, A5000, A6000, 6000 Ada, and selected RTX 40 Series GPU cards. 3x PCIe x8 slots @Gen3, 4-lanes
Mini PCI Express	2x full-size mini PCI Express sockets with internal SIM sockets
M.2	1x M.2 2242/3052 B key socket with internal SIM sockets

Power Supply

DC Input	3-pin + 4-pin pluggable terminal block for 8V to 48V DC input with ignition control

Mechanical

Dimension	214 mm (W) x 400 mm (D) x 196 mm (H) (without damping bracket)
Weight	6.2 kg (excluding damping bracket)
Mounting	Wall-mount with damping brackets

Environmental

Operating Temperature	**With 35W CPU and NVIDIA® 350W GPU** -25°C to 60°C [2] **With 65W CPU and NVIDIA® 350W GPU** -25°C to 60°C[2][3] (with optional fan kit) -25°C to 50°C[2][3] (without optional fan kit)
Storage Temperature	-40°C to 85°C
Humidity	10% to 90% , non-condensing
Vibration	MIL-STD-810H, Method 514.8, Category 4 (with damping bracket)
Shock	MIL-STD-810H, Method 516.8, Procedure I (with damping bracket)
EMC	CE/FCC Class A, according to EN 55032 & EN 55035

[1] As of Aug, 2023, the maximum single DDR5 SODIMM capacity is 48GB.
[2] For sub-zero operating temperature, a wide temperature HDD or Solid State Disk (SSD) is required.
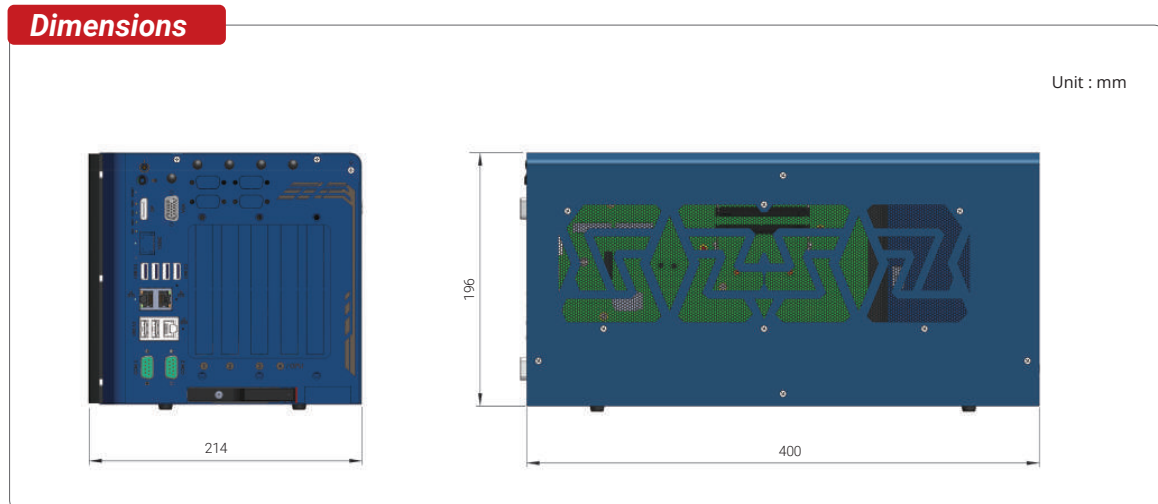[3] For 65W CPUs, the optional fan kit is recommended for operating at ambient temperatures higher than 50°C.

Last updated: 5 - Sep 2023

Nuvo-10108GC

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Appearance

VGAx1

Mic-in & Speaker -out
DisplayPort x1
LED Indicators
(PWR, HDD, WDT, IGN)
Optional 10G x1
USB 3.2 Gen2 x4
2.5 GbE port x 2
USB3.2 Gen2 x2
GbE x1
COM1 & COM2

PCIE x4

Hot-swap HDD x1   Optional M.2 2280 M key tray

8V to 48V DC input and Ignition   GND

Dimensions

Unit : mm

196

214

400

Ordering Information

Model No.	Product Description
Nuvo-10108GC	Industrial-grade Edge AI Platform supporting single NVIDIA® RTX series 350W GPU Cards, Intel® 13th/12th-Gen Core™ processor with 3x additional PCIe slots
Optional 10GbE and M.2 2280 M key tray (PCIe Gen4 x4)	

Optional Accessories

AccsyBx-FAN-Nuvo10208GC	Fan assembly for Nuvo-10108GC and Nuvo-10208GC series, 92x92x25 mm
TY-NVMe-Nuvo10108GC	M.2 NVMe 2230/42/60/80 SSD Tray for Nuvo-10108GC
PA-600W-ENC	600W AC/DC power adapter 24V/25A; cord end terminals for terminal block, operating temperature : -20°C to 70°C.
PA-1000W-MW-2	AC/DC power supply providing 1000W output power for 90V - 264V AC input voltage and offers rated voltage 24V.

Assured Systems

Assured Systems is a leading technology company with over 1,500 regular clients in 80 countries, deploying over 85,000 systems to a diverse customer base in 12 years of business. We offer high-quality and innovative rugged computing, display, networking and data collection solutions to the embedded, industrial, and digital-out-of-home market sectors.

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