

# Neousys Ruggedized Wide-temp Edge AI Platform

Flexible and powerful GPU-aided computing for advanced applications





# Industrial-grade Edge AI Platforms for Critical Industrial AI Applications

With the emergence of the Artificial Intelligence (AI) technology, GPU-aided edge computing platforms are critical in many advanced applications. As GPUs are naturally great at parallel workloads, they can accelerate the AI learning process dramatically.

Neosys' GPU computing edge AI platform - GC series are designed to deliver tremendous GPU power in harsh conditions. The rugged, scalable and easy-to-deploy computing platform supports various GPU graphics cards and can benefit the development/ implementation of related advanced applications.

Combining industrial-grade power, thermal and mechanical design with exceptional CPU and GPU performances, Neosys' GC series push versatile AI applications from laboratories to field applications, where reliability matters.

## Neosys Rugged DNA



### Thermal design for wide-temp

The system is designed to accommodate graphics cards and operate in wide temperatures ranging from -25°C and up to 60° (\* R.O.C Patent No. M534371). The patent reinforces the Neosys GC series mechanical design is of quality and unparalleled reliability that can withstand rugged and harsh industrial environment conditions.



### Vibration and shockproof

Neosys GC series comes with patented damping brackets (\*R.O.C Patent No. M491752) and it can withstand up to 3 Grms to protect the system against vibration when deployed in an in-vehicle environment. Most GC series systems are also compliant with the MIL-STD-810G standard.

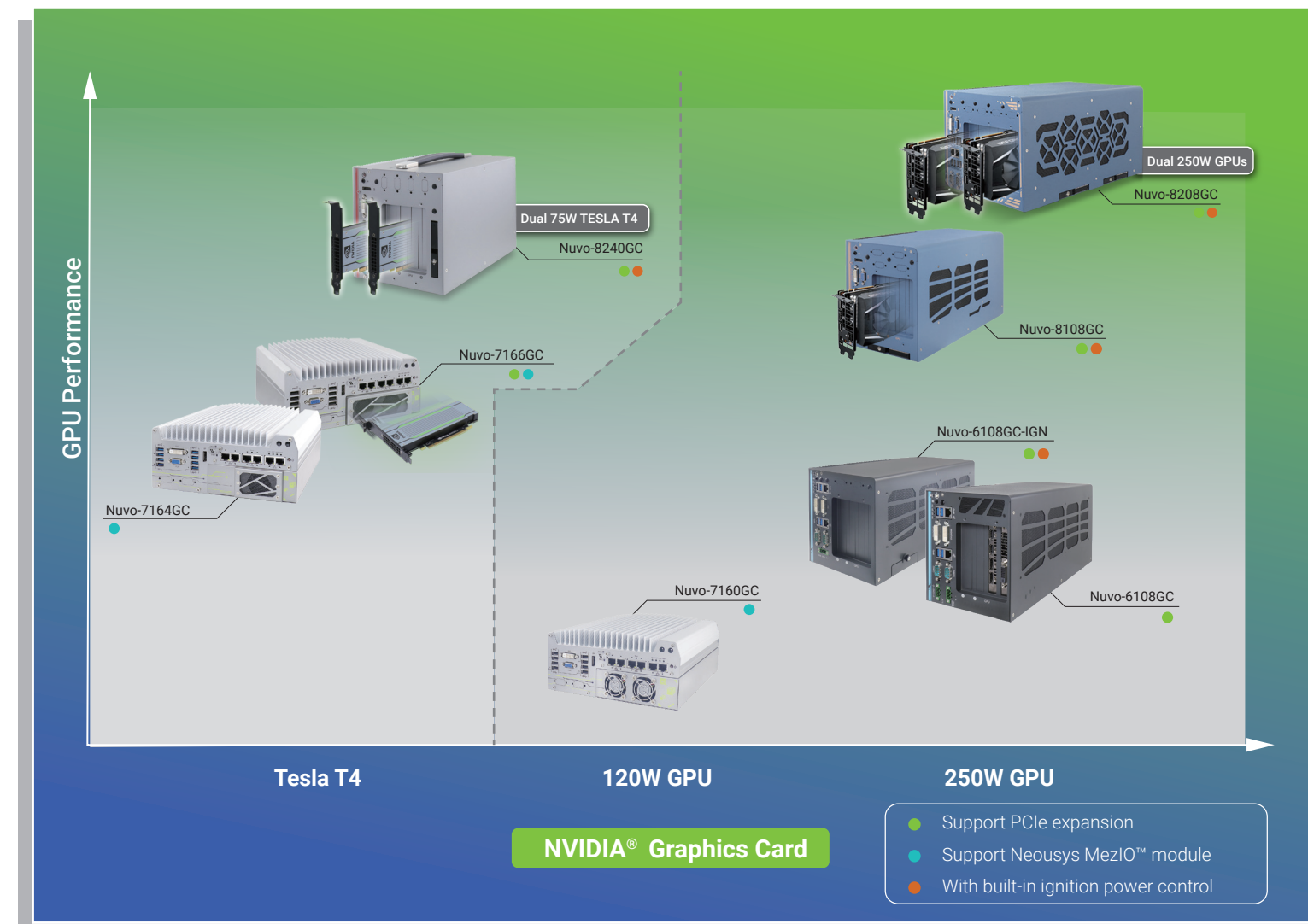


### Reliable power design

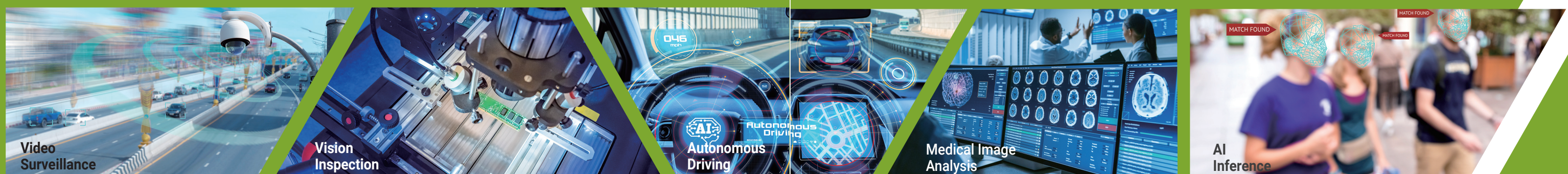
The power delivery design of Neosys GC series supports from 8V up to 48V wide-range DC input and is capable of handling up to dual 250W graphics cards power consumption for edge AI applications.

# Neosys' GC Series for GPU-accelerated Edge Computing

To fulfill versatile AI applications, Neosys offers rugged edge AI platforms that are designed specifically to support 120W, 250W NVIDIA® graphics cards and NVIDIA® Tesla T4 in single/ dual configurations. Along with Neosys Cassette design and MezIO™ interface for function expansion, ignition power control for in-vehicle usage, the Neosys' GC series is an ideal platform for data-intensive tasks.



## GC series with a wide range of industrial AI applications







## Nuvo-7164GC/ Nuvo-7166GC

Ruggedized AI Inference Platform Supporting **NVIDIA® Tesla T4** and Intel® 9th/ 8th-Gen Core™ Processor

- Supports NVIDIA® Tesla T4 GPU
- One additional PCIe x16 slot for add-on card (Nuvo-7166GC only)
- Dedicated heat dissipation for -25°C to 60°C wide-temperature operation
- Intel® 9th/ 8th-Gen Core™ hexa-core 35W/ 65W LGA1151 CPU
- 6x GigE ports, 802.3at PoE+ option available (ports 3~6)
- M.2 2280 M key NVMe (Gen3 x4) socket for fast storage access
- 4x USB 3.1 Gen2 ports and 4x USB 3.1 Gen1 ports
- Accommodates two 2.5" SATA HDD/SSD with RAID 0/1 support
- MezIO™ interface for easy function expansion



Nuvo-7166GC/ 7164GC is Neusys' ruggedized AI inference platform specifically designed for NVIDIA® Tesla T4 and supports Intel® 9th/8th-Gen Core™ processor. Utilizing Neusys' patented Cassette module, Nuvo-7166GC/ 7164GC provides optimized cooling solution for Tesla T4 to ensure reliable and stable system operation in harsh environments.



### Supports NVIDIA® Tesla T4

Dedicated for Tesla T4, Nuvo-7166GC/ 7164GC provide 8.1 TFLOPS in FP32 and 130 TOPs in INT8 for real-time inference based on trained neural network model.



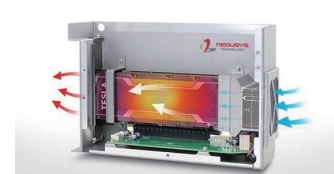
### Fast storage access and plenty I/O

Nuvo-7166GC/ 7164GC/ 7160GC features USB 3.1 Gen2/ GbE/ PoE ports for data/ image acquisition and an M.2 NVMe interface for ultra-fast disk access.



### Powerful expansion capability

Supports one additional PCIe x16 slot for add-on card (Nuvo-7166GC only) and Neusys' proprietary MezIO™ interface for easy function expansion (Nuvo-7166GC/ 7164GC/ 7160GC).



### Air tunnel design for Tesla T4 & add-on card

Neusys' patented Cassette & air tunnel design guides intake air through the passive heat sink of NVIDIA® Tesla T4.



## Nuvo-7160GC Series

Ruggedized GPU-Computing Platform Supporting **120W NVIDIA® GPU** and Intel® 9th/ 8th-Gen Core™ Processor

- Supports NVIDIA® GPU with up to 120W TDP
- Patented thermal design to allow -25°C to 60°C wide-temperature operation
- Intel® 9th/ 8th-Gen Core™ hexa-core 35W/ 65W LGA1151 CPU
- 6x GigE ports, supporting 9.5 KB jumbo frame
- M.2 2280 M key NVMe (Gen3 x4) socket for fast storage access
- 4x USB 3.1 Gen2 ports and 4x USB 3.1 Gen1 ports
- Accommodates 2x 2.5" SATA HDD/ SSD with RAID 0/ 1 support
- Compatible with MezIO™ interface for function expansion
- Patented ventilation design for graphics card

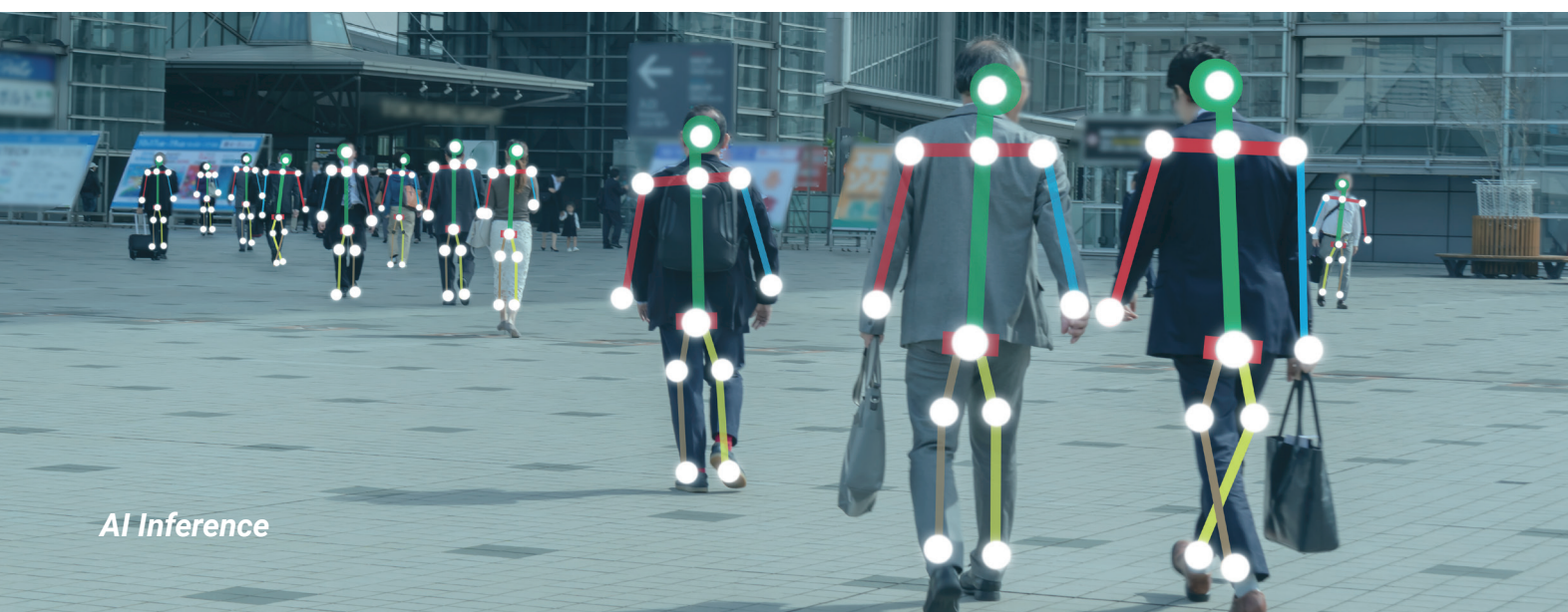


Nuvo-7160GC is a ruggedized GPU-aided edge computing platform designed for modern machine learning applications such as autonomous driving, facial recognition and machine vision. It supports up to a 120W GPU, delivering 4~6 TFLOPS computing power for inference, as well as Intel® 9th/ 8th-Gen Coffee Lake Core™ 8/ 6-core CPU, offering up to 50% CPU performance enhancement over previous generations.



### Autonomous public transport

- Patented thermal ventilation design and damping bracket for reliable operation
- Optional ignition control and wide-range DC input (8~35V) for in-vehicle deployment



AI Inference



### Machine vision and object inspection

- Supports PoE/ USB3.1 camera interfaces
- Supports optional frame grabbers for deep learning-based vision applications
- AI inference computing for imagery recognition and analysis





## Nuvo-8108GC Series

Industrial-grade Edge AI Platform Supporting 250W NVIDIA® Graphics Card, Intel® Xeon® E or 9th/ 8th-Gen Core™ Processor

- Supports 250W NVIDIA® graphics card up to 14 TFLOPS in FP32
- Supports Intel® Xeon® E or 9th/ 8th-Gen Core™ i7/ i5 LGA1151 CPU
- Up to 128GB ECC/ non-ECC DDR4 2133 (4x SODIMM)
- One x16 (8-lanes), two x8 (4-lanes), Gen3 PCIe slots for add-on cards
- 1x M.2 M key, 1x M.2 B key and 2x full-size mini-PCIe sockets
- 8~48V wide-range DC input with built-in ignition power control
- Patented thermal design for -25°C to 60°C rugged operation
- Patented damping brackets\* to withstand 3 Grms vibration



Nuvo-8108GC is a rugged edge AI platform with industrial-grade design and in-vehicle features. Designed specifically to support a high-end 250W NVIDIA® graphics card, it offers tremendous GPU power up to 14 TFLOPS in FP32 for emerging GPU-accelerated edge computing, such as autonomous driving, vision inspection and surveillance/ security.



### Supports 8~48V DC input

The system supports 8~48V wide-range DC input with built-in ignition power control. It's feasible to deploy it on a vehicle and directly power it via the car's electrical power system.

### Patented thermal design

The system can truly operate under 100% loading without CPU and GPU throttling up to 60°C.



### Withstand 3Grms vibration

With the patented damping bracket design to absorb vibration, the system delivers extreme reliability with high performance when it is installed in a vehicle.

## Deep Learning/ Machine Learning



## Nuvo-8208GC Series

Ruggedized GPU Computing Edge AI Platform Supporting Dual 250W NVIDIA® Graphics Cards, Intel® Xeon® E or 9th/ 8th-Gen Core™ Processor

- Supports dual 250W NVIDIA® graphics cards up to 28 TFLOPS in FP32
- Supports Intel® Xeon® E or 9th/ 8th-Gen Core™ i7/ i5 LGA1151 CPU
- Up to 128GB ECC/ non-ECC DDR4 2133 (4x SODIMM)
- Two x8, one x4, Gen3 PCIe slots for add-on cards
- Two hot-swappable 2.5" SATA HDD/ SSD with RAID 0/ 1 support
- 8~35V wide-range DC input with built-in ignition power control
- Patented thermal design for -25°C to 60°C rugged operation
- Patented damping brackets\* to withstand 3 Grms vibration



Nuvo-8208GC is the first of its kind to offer such stellar CPU/ dual GPU tandem and computational power in an industrial-grade rugged compact design. Its rich I/O ports can be easily accessed and accepts a wide-range DC input (8~35V) making it easy to deploy and extremely flexible for all your critical industrial AI applications.

### Intelligent video analytics

- Supports dual graphics cards to achieve advanced deep learning and run multiple training models simultaneously
- Provides additional PCIe slots for PoE cards
- AI and inference at the edge



### Autonomous vehicle

- Brand new power delivery design to accept wide-range DC input and to handle heavy power requirements from dual 250W GPUs.
- Incorporates built-in ignition control, patented damping brackets and is compliant with MIL-STD-810G standard for in-vehicle deployment
- Provides GbE & USB3 ports with screw lock mechanism for securing cable connections







## Nuvo-8240GC Series

Industrial-grade Edge AI Platform Supporting Dual NVIDIA® Tesla T4 and Intel® Xeon® E and 9th/ 8th-Gen Core™ Processor

- Supports dual NVIDIA® Tesla T4 GPU
- Supports Intel® Xeon® E or 9th/ 8th-Gen Core™ i7/ i5 LGA1151 CPU
- Up to 128GB ECC/ non-ECC DDR4 2133 (4x SODIMM)
- Two x8 (4-lanes), Gen3 PCIe slots for add-on cards
- 1x M.2 M key, 1x M.2 B key and 2x full-size mini-PCIe sockets
- 8~48V wide-range DC input with built-in ignition power control
- Proven thermal design for -25°C to 60°C rugged operation
- Patented damping brackets\* to withstand 3 Grms vibration



Nuvo-8240GC is a rugged edge AI platform designed specifically to support dual NVIDIA® Tesla T4 for advanced inference acceleration applications. It features NVIDIA® multi-precision Turing Tensor Cores offering tremendous GPU power up to 130 TFLOPS in FP16 and 520 TOPS in INT4 for emerging GPU-accelerated edge computing and advanced AI inference. In addition, Nuvo-8240GC is powered by Intel® Xeon® E or 9th/ 8th-Gen Core™ CPU up to 8-core/ 16-thread coupled with workstation-grade Intel® C246 chipset to support up to 128GB ECC or non-ECC DDR4 memory.



**Industrial-grade  
Edge AI Platform**  
Nuvo-8240GC

- Supports dual NVIDIA® Tesla T4 GPU
- Intel® Xeon® E or 9th/ 8th-Gen Core™ CPU
- Two x8 (4-lanes), Gen3 PCIe slots for add-on cards

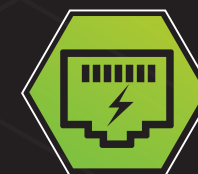
# Ruggedized Edge AI GPU Computing Platforms



Wide  
Temperature



Ignition  
Control



PoE+



Wide Range  
DC Input



Rugged



GPU-Computing Platform Specification Table



Model Name		Nuvo-8208GC	Nuvo-8108GC	Nuvo-8240GC	Nuvo-7166GC
Chassis	Dimensions (W x D x H)	225 x 360 x 186 mm	170 x 360 x 186 mm	190 x 270 x 186 mm	240 x 225 x 111 mm
	Weight	8.6 kg	5 kg	3.5 kg	4.5 kg
	Chassis Construction	Aluminum alloy with heavy duty metal	Aluminum alloy with heavy duty metal	Aluminum alloy with heavy duty metal	Aluminum alloy with heavy duty metal
System	Processor	Intel® Xeon® E-2176G/ E-2124G/ E-2278GE/ E-2278GEL Intel® Core™ i7-9700E/ i7-9700TE/ i7-8700/ i7-8700T Intel® Core™ i5-9500E/ i5-9500TE/ i5-8500/ i5-8500T Intel® Core™ i3-9100E/ i3-9100TE/ i3-8100/ i3-8100T	Intel® Xeon® E-2176G/ E-2124G/ E-2278GE/ E-2278GEL Intel® Core™ i7-9700E/ i7-9700TE/ i7-8700/ i7-8700T Intel® Core™ i5-9500E/ i5-9500TE/ i5-8500/ i5-8500T Intel® Core™ i3-9100E/ i3-9100TE/ i3-8100/ i3-8100T	Intel® Xeon® E-2176G/ E-2124G/ E-2278GE/ E-2278GEL Intel® Core™ i7-9700E/ i7-9700TE/ i7-8700/ i7-8700T Intel® Core™ i5-9500E/ i5-9500TE/ i5-8500/ i5-8500T Intel® Core™ i3-9100E/ i3-9100TE/ i3-8100/ i3-8100T	Intel® Core™ i7-9700E/ i7-9700TE/ i7-8700/ i7-8700T Intel® Core™ i5-9500E/ i5-9500TE/ i5-8500/ i5-8500T Intel® Core™ i3-9100E/ i3-9100TE/ i3-8100/ i3-8100T
	Chipset	Intel® C246	Intel® C246	Intel® C246	Intel® Q370
	Graphics	x16 PEG port, or Intel® HD Graphics 630	x16 PEG port, or Intel® UHD Graphics 630	Intel® UHD Graphics 630	Intel® UHD Graphics 630
	Memory	Up to 128 GB DDR4-2133	Up to 128 GB DDR4-2133	Up to 128 GB DDR4-2133	Up to 64 GB DDR4-2666/ 2400
	PoE	-	-	-	Optional (Port 3~6, IEEE 802.3at, 25.5W)
I/O Interface	Ethernet	1x GbE by Intel® I219 1x GbE by Intel® I210	1x GbE by Intel® I219 1x GbE by Intel® I210	1x GbE by Intel® I219 1x GbE by Intel® I210	6x GbE by Intel® I219 and I210
	Video Port	1x VGA 1x DVI-D 1x DisplayPort	1x VGA 1x DVI-D 1x DisplayPort	1x VGA 1x DVI-D 1x DisplayPort	1x VGA 1x DVI-D 1x DisplayPort
	Serial Port	2x RS-232/422/485	2x RS-232/422/485	2x RS-232/422/485	2x RS-232/422/485 2x RS-232
	USB 2.0	1 (internal use)	1 (internal use)	1 (internal use)	1 (internal use)
	USB 3.1	8	8	8	8
	Audio	1x Mic-in and speaker-out	1x Mic-in and speaker-out	1x Mic-in and speaker-out	1x Mic-in and speaker-out
	Digital I/O	-	-	-	Optional via MeziO™ module
	SATA HDD	2x Hot-swap tray for 2.5" HDD/ SSD	1x 2.5" HDD/ SSD 1x Hot-swap tray for 2.5" HDD/ SSD	1x 2.5" HDD/ SSD 1x Hot-swap tray for 2.5" HDD/ SSD	2x 2.5" HDD/ SSD
Storage Interface	mSATA	2 (mux. with mini-PCIe)	2 (mux. with mini-PCIe)	2 (mux. with mini-PCIe)	1 (mux. with mini-PCIe)
	M.2 (M-key)	1	1	1	1
Expansion Bus	Mini PCI-E	2	2	2	1
	M.2 (B-key)	1	1	1	1
	SIM	4	4	4	3
	MeziO™	-	-	-	Yes
	PCI/PCI Express	2x PCIe x16 slot@Gen3, 8-lanes 2x PCIe x8 slots@Gen3, 4-lanes 1x PCIe x4 slot@Gen3, 1-lane	2x PCIe x16 slot@Gen3, 8-lanes 2x PCIe x8 slots@Gen3, 4-lanes	2x PCIe x16 slot@Gen3, 8-lanes 2x PCIe x8 slots@Gen3, 4-lanes	1x PCIe x16 slot, supporting NVIDIA Tesla T4 GPU and one additional PCIe card
	DC Input	8~35V DC	8~48V DC	8~48V DC	8~35V DC
Power Supply	Ignition Control	Built-in	Built-in	Built-in	Optional via MeziO™ module
	Operating Temperature	-25°C ~ 60°C	-25°C ~ 60°C	-25°C ~ 60°C	with 35W CPU -25°C ~ 60°C  with 65W CPU -25°C ~ 50°C
Environmental	Certification	EN 62368-1, CE/ FCC	CE/ FCC	CE/ FCC	CE/ FCC



Model Name		Nuvo-7164GC	Nuvo-7160GC	Nuvo-6108GC	Nuvo-6108GC-IGN
Chassis	Dimensions (W x D x H)	240 x 225 x 111 mm	240 x 225 x 111 mm	178 x 360 x 174 mm	178 x 360 x 174 mm
	Weight	4.5 kg	4.5 kg	4.7 kg	4.7 kg
	Chassis Construction	Aluminum alloy with heavy duty metal	Aluminum alloy with heavy duty metal	Aluminum alloy with heavy duty metal	Aluminum alloy with heavy duty metal
System	Processor	Intel® Core™ i7-9700E/ i7-9700TE/ i7-8700/ i7-8700T Intel® Core™ i5-9500E/ i5-9500TE/ i5-8500/ i5-8500T Intel® Core™ i3-9100E/ i3-9100TE/ i3-8100/ i3-8100T	Intel® Core™ i7-9700E/ i7-9700TE/ i7-8700/ i7-8700T Intel® Core™ i5-9500E/ i5-9500TE/ i5-8500/ i5-8500T Intel® Core™ i3-9100E/ i3-9100TE/ i3-8100/ i3-8100T	Intel® Xeon™ E3-1275 v5 Intel® Xeon™ E3-1268L v5 Intel® Core™ i7- 6700/ 6700TE Intel® Core™ i5- 6500/ 6500TE	Intel® Xeon™ E3-1275 v5 Intel® Xeon™ E3-1268L v5 Intel® Core™ i7- 6700/ 6700TE Intel® Core™ i5- 6500/ 6500TE
	Chipset	Intel® Q370	Intel® Q370	Intel® C236	Intel® C236
	Graphics	Intel® UHD Graphics 630	x16 PEG port, or Intel® UHD Graphics 630	x16 PEG port, or Intel® HD Graphics 530	x16 PEG port, or Intel® HD Graphics 530
	Memory	Up to 64 GB DDR4-2666/ 2400	Up to 64 GB DDR4-2666/ 2400	Up to 32 GB DDR4-2133	Up to 32 GB DDR4-2133
	PoE	Optional (Port 3~6, IEEE 802.3at, 25.5W)	Optional (Port 3~6, IEEE 802.3at, 25.5W)	-	-
I/O Interface	Ethernet	6x GbE by Intel® I219 and I210	6x GbE by Intel® I219 and I210	1x GbE by Intel® I219 1x GbE by Intel® I210	1x GbE by Intel® I219 1x GbE by Intel® I210
	Video Port	1x VGA 1x DVI-D 1x DisplayPort	1x VGA 1x DVI-D 1x DisplayPort	2x DVI-D	2x DVI-D
	Serial Port	2x RS-232/422/485 2x RS-232	2x RS-232/422/485 2x RS-232	2x RS-232/422/485	2x RS-232/422/485
	USB 2.0	1 (internal use)	1 (internal use)	1 (internal use)	1 (internal use)
	USB 3.1	8	8	4	4
	Audio	1x Mic-in and speaker-out	1x Mic-in and speaker-out	1x Mic-in and speaker-out	1x Mic-in and speaker-out
	Digital I/O	Optional via MeziO™ module	Optional via MeziO™ module	-	-
	SATA HDD	2x 2.5" HDD/ SSD	2x 2.5" HDD/ SSD	4x 2.5" HDD/ SSD	2x Easy-swap tray for 2.5" HDD/ SSD 1x 2.5" HDD/ SSD
Storage Interface	mSATA	1 (mux. with mini-PCIe)	1 (mux. with mini-PCIe)	-	-
	M.2 (M-key)	1	1	-	-
Expansion Bus	Mini PCI-E	1	1	1	1
	M.2 (B-key)	1	1	1	1
	SIM	3	3	1	1
	MeziO™	Yes	Yes	-	-
	PCI/PCI Express	1x PCIe x16 slot, supporting NVIDIA® Tesla T4 GPU	1x PCIe x16 slot, supporting Independent NVIDIA® GPU (120W)	1x PCI Express x16 slot for GPU 2x PCI Express x8 slot	1x PCI Express x16 slot for GPU 2x PCI Express x8 slot
	DC Input	8~35V DC	8~35V DC	24V DC	24V DC
Power Supply	Ignition Control	Optional via MeziO™ module	Optional via MeziO™ module	-	Built-in
	Operating Temperature	with 35W CPU -25°C ~ 60°C  with 65W CPU -25°C ~ 50°C	with 35W CPU and 120W GPU -25°C ~ 60°C  with 65W CPU and 120W GPU -25°C ~ 50°C	-25°C ~ 60°C	-25°C ~ 60°C
Environmental	Certification	CE/ FCC	EN 62368-1, CE/ FCC	CE/ FCC	CE/ FCC





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