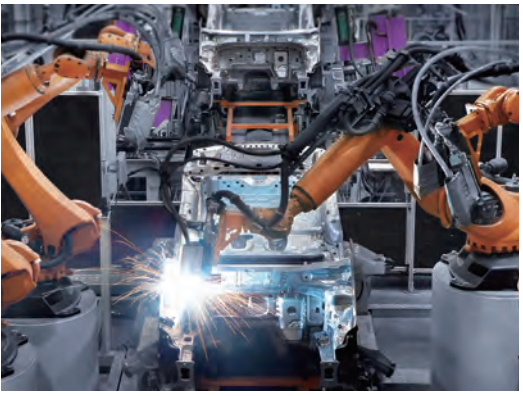
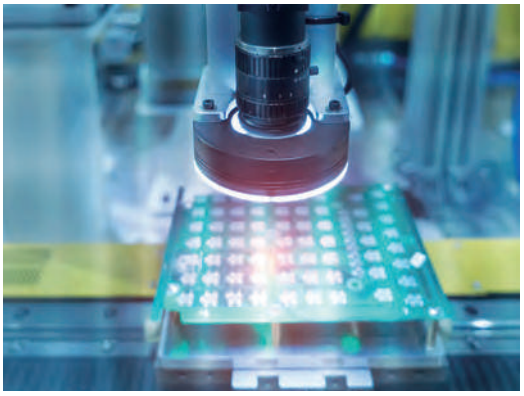
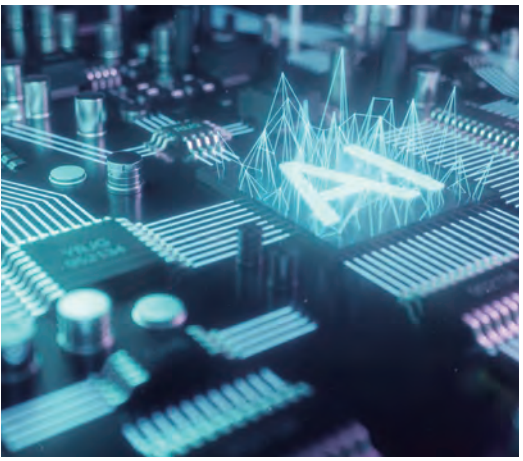
NEOUSYS TECHNOLOGY



Wide-temperature Fanless Embedded Systems

www.neousys-tech.com

Vol. 2020 A1

About Neousys

Established in 2010, Neousys Technology designs and manufactures industrial grade rugged embedded modules and systems with core expertise ranging from embedded computing to data acquisition and processing.

Our dedication to innovate and integrate practical application-oriented functions set us apart from the rest and our products are ideal solutions for automation, machine vision, transportation, GPU computing, surveillance and video analytics.

Neousys Technology application-oriented systems thrive in the following field:

- Wide temperature range fanless computer
- Rugged embedded fanless computing
- Machine vision controller
- In-vehicle fanless computer
- Ultra compact fanless embedded controller
- Surveillance/ video analytics computing
- GPU computing platform

Rugged Embedded

Nuvo-7000E/ P/ DE ..... P. 24
Intel® 9th/ 8th-Gen Core™ i7/ i5/ i3 Fanless Controller with 6x GbE Ports, Patented Cassette and MezIO™ Interface

Nuvo-7000LP ..... P. 27
Intel® 9th/ 8th-Gen Core™ i7/ i5/ i3 Fanless Controller with 6x GbE Ports, MezIO™ Interface and Low-profile Chassis

Nuvo-7501/ 7505D ..... P. 29
Intel® 9th/ 8th-Gen Core™ i7/ i5/ i3 Compact Fanless Computer with 2x GbE and up to 6x COM

Nuvo-7531 ..... P. 31
Intel® 9th/ 8th-Gen Core™ i7/ i5/ i3 Compact Fanless Computer with 4x GbE , 4x USB3.1 and 1X hot-swappable HDD tray

Nuvo-5000E/ P ..... P. 33
Intel® 6th-Gen Core™ i7/ i5/ i3 Fanless Controller with 6x GbE, Expansion Cassette and MezIO™ Interface

Nuvo-5000LP ..... P. 35
Intel® 6th-Gen Core™ i7/i5/i3 Fanless Controller with 6x GbE, MezIO™ Interface and Low-profile Chassis

Nuvo-5026E ..... P. 37
Intel® 6th-Gen Core™ i7/ i5/ i3 Fanless Controller with Dual PCIe Slot Expansion Cassette, 6x GbE and MezIO™ Interface

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Intel® 6th-Gen Core™ i7/ i5/ i3 Compact Fanless Embedded Controller with 3x GbE

Nuvo-2500E/ P ..... P. 41
Intel® Celeron® Bay Trail Fanless Computer with Expansion Cassette

Nuvo-8034 ..... P. 43
Intel® 9th/ 8th-Gen Core™ i7/ i5/ i3 Rugged Embedded Computer with 7 PCIe/ PCI Expansion Slots

Nuvo-6000 ..... P. 45
Intel® 6th-Gen Core™ i7/ i5/ i3 Fanless Box-PC with Up to 5 PCIe/ PCI Expansion Slots

Nuvo-2400 ..... P. 47
Intel® Celeron® Bay Trail Fanless Shoebox IPC with Dual Display Output, Dual GbE and Triple PCI/ PCIe Slots

PB-9250J/ PB-4600J ..... P. 51
Industrial-grade Standalone Intelligent Supercapacitor-based Uninterruptible Power Backup Module

PB-2500J ..... P. 52
Industrial-Grade Intelligent Supercapacitor-based Power Backup Module

POC-500 ..... P. 53
AMD Ryzen™ V1000 Ultra-compact Embedded Controller with 4x PoE+, 4x USB 3.1 and MezIO™ Interface

POC-300 ..... P. 55
Intel® Apollo Lake Pentium® N4200 and Atom™ E3950 Ultra-compact DIN-rail Controller with GbE, PoE and USB 3.1

POC-200 ..... P. 57
Ultra-Compact Atom™ Bay Trail-I Fanless Embedded Controller with PoE and USB 3.1

POC-120 ..... P. 59
Ultra-compact Atom™ Bay Trail-I Fanless General-purpose Embedded Controller

ETHY-100 ..... P. 61
Decentralized I/O Expansion with Dual Ethernet Ports

IGT-33V/ IGT-34C ..... P. 63
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IGT-30D/ IGT-31D ..... P. 65
TI Sitara™ AM3352 ARM-based Industrial IoT Gateway with Dual LAN and Pre-installed Debian

IGT-20/ IGT-21/ IGT-22 ..... P. 67
Industrial Grade ARM-based Smart Wireless IoT Gateway with ARM Cortex A8, Dual T-Flash (microSDHC), and Pre-installed Debian

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Nuvis-7306RT ..... P. 71
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AMD Ryzen™ V1807B Ultra-compact Vision Controller with Vision-specific I/O and Real-time control

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2-port 10GbE Network Adapter with IEEE 802.3at PoE+

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Low-profile 4-port Server-grade Gigabit PoE+ Card with 1 kV Surge Protection

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Intel® 9th/ 8th-Gen Core™ i7/i5/i3 In-vehicle Controller with 4x or 8x PoE+ Ports, DIO, CAN bus and RAID

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Nuvo-3100VTC ..... P. 93
Intel® 3rd-Gen Core™ i7/ i5 Fanless In-vehicle Controller with 4x 802.3at PoE+ Ports and Dual 2.5" Hard Drives with RAID Support

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Intel® Atom™ Bay Trail In-vehicle Fanless Computer with 2x IEEE 802.3at PoE+ Ports

POC-551VTC ..... P. 97
AMD Ryzen™ V1605B Ultra-compact In-vehicle Controller with PoE+, DIO and Isolated CAN bus

POC-351VTC ..... P. 99
Intel® Apollo Lake Atom™ E3950 Ultra-compact In-vehicle Controller with GbE, PoE+ and Isolated CAN bus

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4-port Server-grade Gigabit 802.3at PoE+ Card with M12 x-coded Connectors

Surveillance/ Video Analytics

Nuvo-5608VR ..... P. 103
Intel® 6th-Gen Core™ i7/i5 Fanless Surveillance System with 8x PoE+, DIO, CAN bus and 2x 3.5" HDD Accommodation Supporting RAID 0/1

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GPU Computing

Nuvo-8208GC ..... P. 109
Industrial-grade GPU Computing Platform Supporting Dual 250W NVIDIA® Graphics Card, Intel® Xeon® E or 9th/ 8th-Gen Core™ Processor

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

Nuvo-7160GC ..... P. 113
Ruggedized GPU-computing Platform Supporting 120W NVIDIA® GPU and Intel® 9th/ 8th-Gen Core™ Processor

Nuvo-8108GC ..... P. 115
Industrial-grade Edge AI Platform Supporting 250W NVIDIA® Graphics Card, Intel® Xeon® E or 9th/ 8th-Gen Core™ Processor

Nuvo-8240GC ..... P. 117
Industrial-grade Edge AI Platform Supporting Dual NVIDIA® Tesla T4 and Intel® Xeon® E and 9th/ 8th-Gen Core™ Processor

Nuvo-6108GC/Nuvo-6108GC-IGN ..... P. 119
Industrial-grade in-vehicle GPU-computing Platform with 250W NVIDIA® GPU and Intel® Xeon® E3 v5 and 6th-Gen Core™ Processor

Nuvo-5095GC ..... P. 121
Compact and Wide temperature GPU-Computing Platform Supporting 75W NVIDIA® GPU and Intel® 6th-Gen Core™ Processor

Add on

Neousys MezIO™ Modules ..... P. 125

Accessories ..... P. 129

PCIe/PCI Expansion Cassette

(R.O.C Patent No. M456527)

Neousys' patented Cassette technology innovates a brilliant way for accommodating add-on cards. The modularized design is easy to install or replace and it offers passive cooling to the add-on card for reliable operation. Customers can install any PCI or PCIe card in the Cassette, or choose Neousys' selection of standard cassette modules with preinstalled heat-spreader for PoE+, USB 3.1 or independent graphics card.

Concept of Cassette

As the dedicated heat-spreader makes contact with components and the heat is conducted to the surface of the Cassette enclosure, it is able to sustain a stable internal thermal condition.

- Two enclosures, one dedicated for the system and the other dedicated for add-on cards, separate compartments to minimize electrical and thermal interference
- Reliable mechanical/ electrical connection between system and Cassette

**Available on selected systems*

IEEE 802.3at PoE+ Ports

Supplying up to 25.5W of power per port, Neousys provides multiple IEEE 802.3at PoE+ ports for connecting PoE powered device (PD) such as IP cameras, wireless access points or related applications like machine vision, in-vehicle and surveillance. Neousys provide turnkey platforms that offer cost reductions when deploying embedded vision systems.

**Available on selected systems*

Wide temperature Fanless Embedded System

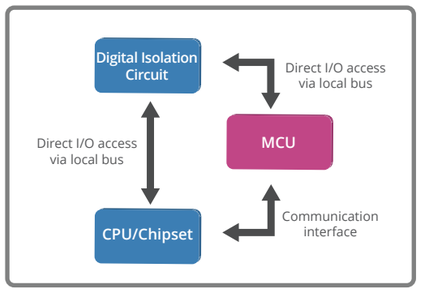
Neousys' exclusive mechanical design and thermal pad efficiently dissipate heat from CPU and other components. It allows Neousys products to operate under 100% CPU loading in a wide temperature* environment ranging from -40°C to 70°C.

**Available on selected systems*

DTIO and NuMCU

(R.O.C Patent No. I526834)

Neousys Deterministic Trigger I/O (DTIO) and NuMCU are a MCU-based architecture technology that provides a deterministic timing correlation between input and output signals. It utilizes a standalone microprocessor with highly optimized algorithm to collaborate with platform and DIO circuit. DTIO and NuMCU redefine machine vision systems that require accurate interaction between light, camera, actuator and senor devices.



Hardware architecture of DTIO

Innovative approach to implement your own algorithm and create your own unique solution

**Available on selected systems*

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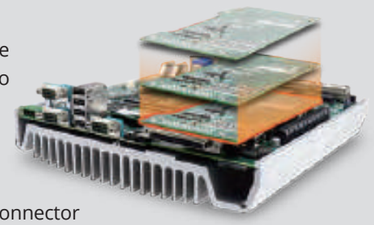
MezIO™ Module

MezIO™ is the interface designed for incorporating application-oriented I/O functions into an embedded system. It offers computer signals, power rails and control signals via a high-speed connector. MezIO™ module benefits from its 3-point mounted mezzanine structure for mechanical stability.
Neousys MezIO™ modules offer a variety of I/Os such as RS-232/422/485, isolated DIO, CAN bus, ignition power control and DTIO. Users can also leverage signals/ power on MezIO™ interface to create a module with specific domain know-how. The Neousys MezIO™ module presents a cost-effective way to build a tailor-made embedded system for your application.

MezIO™

Concept of MezIO™ Interface

Neousys MezIO™ (interchangeable mezzanine I/O board) is the interface module designed for incorporating application-oriented I/O functions into an embedded system.



High Speed Board to Board Connector

MezIO™ module offers various signals and power rails via a high-speed connector for high-density and high-power applications.

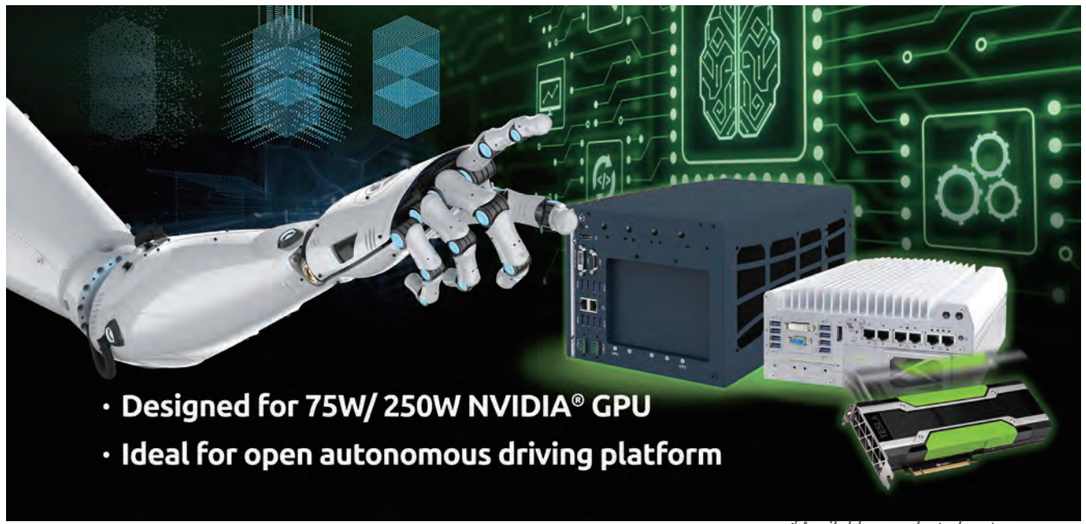
Leading Edge Fanless Design

Neousys makes one the most thermal efficient industrial embedded systems. Neousys thermal solution simplifies the heat conduction path to dissipate heat by placing extremely efficient thermal interface materials (thermal pads) on the CPU and electronic components, allowing them to directly make contact with the external heatsink. Neousys fanless embedded systems differ from others in a number of ways:

- **Heat-generating components are segregated.** The Neousys design team placed all heat-generating components on the top side.
- **Segregated and evenly distributed to avoid heat-soak.** The heat-generating components are evenly distributed along the top side of the PCB.
- **Neousys systems use a unique and extremely efficient premium-grade thermal pad.** Neousys fanless embedded systems place just a single layer of thermal pad directly between the heat-generating components and the external heatsink, heat conduction ability is direct and effective.
- **Unique mechanical and thermal design from the ground up.** By not using ready-made solutions, Neousys fanless embedded system is designed and tweaked for maximum thermal efficiency.

Industrial-grade GPU Computing Platform

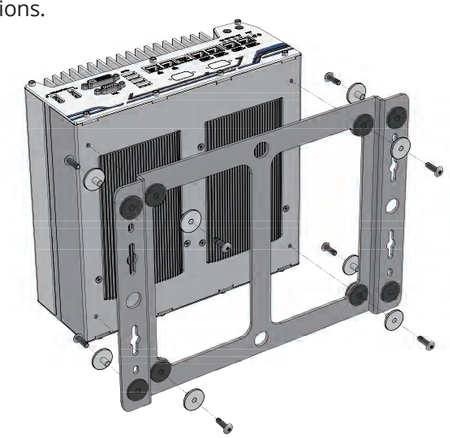
Featuring patented Cassette technology and an innovative thermal ventilation design, Neousys GPU computing platforms support 75W~250W NVIDIA® GPU. They are applicable to CUDA computing, autopilot, deep learning, virtual reality and also allow sustained full load operation under -25°C to 60°C wide temperature conditions.

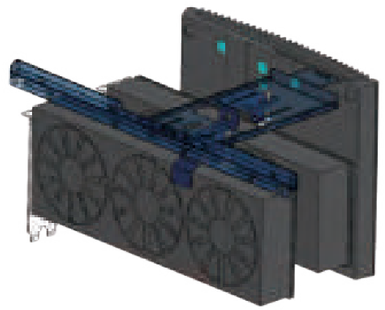


**Available on selected systems*

Patented and Effective Damping Solution *(R.O.C Patent No. M491752)*

Neousys makes one of the most reliable rugged in-vehicle computers and the secret is in the specially designed bracket that has been tested to withstand military-grade shock and vibration tests. The ability to counteract or absorb vibration and shock is essential to ensure in-vehicle computer operations. With each damping bracket designed specifically for a particular system, the specificity of the system's effective mass and dimensions have been carefully calculated and planned for.
In addition to the system damping bracket, the GPU-aided systems also receive Neousys designed adjustable graphics brackets to hold graphics cards in place. This further ensures the inference accelerated system is always operating at optimum performance while retaining stability and ruggedness for various in-vehicle applications.





**Available on selected systems*

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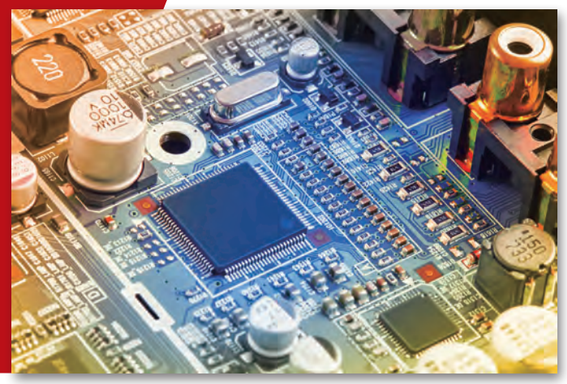
Product Selection Guide



Selection Guide

Rugged Embedded | Machine Vision | In-vehicle Computing | Surveillance/Video Analytics | GPU Computing

Coming soon!

Model Name		Nuvo-7000E/ P/ DE	Nuvo-7000LP	Nuvo-7501/ 7505D	Nuvo-7531
Chassis	Dimensions (W x D x H)	240 x 225 x 90 mm(Nuvo-7000E/ P) 240 x 225 x 110.5 mm(Nuvo-7000DE)	240 x 225 x 79 mm	255 x 173 x 76 mm	212 x 165 x 63 mm
	Weight	3.6 kg(Nuvo-7000E/P) 3.7 kg(Nuvo-7000DE)	3.1 kg	2.7 kg	TBD
	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® Pentium® G5400/ G5400T Intel® Celeron® G4900/G4900T	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® Pentium® G5400/ G5400T Intel® Celeron® G4900/G4900T	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® Q370	Intel® Q370	Intel® H310	Intel® H310
	Graphics	Intel® UHD Graphics 630	Intel® UHD Graphics 630	Intel® UHD Graphics 630	Intel® UHD Graphics 630
	Memory	Up to 64 GB DDR4-2666/ 2400	Up to 64 GB DDR4-2666/ 2400	Up to 32 GB DDR4-2666/ 2400	Up to 32 GB DDR4-2666/ 2400
I/O Interface	PoE	Optional (Port 3~6, IEEE 802.3at, 25.5W)	Optional (Port 3~6, IEEE 802.3at, 25.5W)	-	-
	Ethernet	2x GbE by Intel® I219 and I210 (Nuvo-7002E/ P/ DE) 6x GbE by Intel® I219 and I210 (Nuvo-7006E/ P/ DE)	2x GbE by Intel® I219 and I210 (Nuvo-7002LP) 6x GbE by Intel® I219 and I210 (Nuvo-7006LP)	2x GbE by Intel® I219 and I210	4x 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 DVI-I 1x DisplayPort
	Serial Port	2x RS-232/422/485 2x RS-232	2x RS-232/422/485 2x RS-232	2x RS-232/422/485 (Nuvo-7501) 2x RS-232 (Nuvo-7501) 2x isolate RS-232/422/485 (Nuvo-7505D) 2x isolate RS-232 (Nuvo-7505D) 2x RS-232 (Nuvo-7505D)	2x RS-232/ 422/ 485 (COM1/ COM2)
	USB 2.0	1 (internal use)	1 (internal use)	1 (internal use)	2
	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	8 DI + 8 DO (Nuvo-7505D)	4 DI + 4 DO
Storage Interface	SATA HDD	2x 2.5" HDD/ SSD	1x 2.5" HDD/ SSD 1x Hot-swap tray for 2.5" HDD/ SSD	1x 2.5" HDD/ SSD or 1x 3.5" HDD	1x Hot-swap tray for 2.5" HDD/ SSD
	mSATA	1 (mux. with mini-PCIe)	1 (mux. with mini-PCIe)	-	-
	M.2 (M-key)	1	1	1	1
Expansion Bus	Mini PCI-E	1	1	1	3
	M.2 (B-key)	1	1	1	-
	SIM	3	3	1	3
	MezIO™	Yes	Yes	-	-
	PCI/PCI Express	1x PCIe x16 slot @ Gen3, 8-lanes PCIe signals in Cassette (Nuvo-7000E) 1x PCI slot in Cassette (Nuvo-7000P) 2x PCIe x16 slots @ Gen3, 8-lanes PCIe signals in Cassette (Nuvo-7000DE)	-	-	-
Power Supply	DC Input	8-35V DC	8-35V DC	8-35V DC	8-35V DC
	Ignition Control	Optional via MezIO™ module	Optional via MezIO™ module	-	Optional
Environmental	Operating Temperature	**with 35W CPU** -25°C ~ 70°C **with 65W CPU** -25°C ~ 50°C	**with 35W CPU** -25°C ~ 70°C **with 65W CPU** -25°C ~ 50°C	-25°C ~ 60°C	-25°C ~ 60°C
	Certification	CE/ FCC	CE/ FCC	CE/ FCC	CE/ FCC
Released Date		**2018/6/15**	2018/6/15	**2019/12/1**	**2020 Q1**
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Rugged Embedded | Machine Vision | In-vehicle Computing | Surveillance/Video Analytics | GPU Computing

Model Name		Nuvo-5000E/P	Nuvo-5000LP	Nuvo-5026E	Nuvo-5501
Chassis	Dimensions (W x D x H)	240 x 225 x 90 mm	240 x 225 x 77 mm	240 x 225 x 111 mm	221 x 173 x 76.2 mm
	Weight	3.6 kg	3.1 kg	3.7 kg	2.8 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™ i7-6700/ 6700TE Intel® Core™ i5-6500/ 6500TE Intel® Core™ i3-6100/ 6100TE Intel® Pentium® G4400/ G4400TE Intel® Celeron® G3900/ G3900TE	Intel® Core™ i7-6700/ 6700TE Intel® Core™ i5-6500/ 6500TE Intel® Core™ i3-6100/ 6100TE Intel® Pentium® G4400/ G4400TE Intel® Celeron® G3900/ G3900TE	Intel® Core™ i7-6700/ 6700TE Intel® Core™ i5-6500/ 6500TE Intel® Core™ i3-6100/ 6100TE Intel® Pentium® G4400/ G4400TE Intel® Celeron® G3900/ G3900TE	Intel® Core™ i7-6700TE Intel® Core™ i5-6500TE Intel® Core™ i3-6100TE Intel® Pentium® G4400TE Intel® Celeron® G3900TE
	Chipset	Intel®® Q170	Intel® Q170	Intel® Q170	Intel® H110
	Graphics	Intel® HD Graphics 530/ 510	Intel® HD Graphics 530/ 510	Intel® HD Graphics 530/ 510	Intel® HD Graphics 530/ 510
	Memory	Up to 32 GB DDR4-2133	Up to 32 GB DDR4-2133	Up to 32 GB DDR4-2133	Up to 16 GB DDR4-2133
I/O Interface	PoE	Optional (Port 3~6, IEEE 802.3at, 25.5W)	Optional (Port 3~6, IEEE 802.3at, 25.5W)	Optional (Port 3~6, IEEE 802.3at, 25.5W)	-
	Ethernet	2x GbE by Intel® I219 and I210 (Nuvo-5002E/P) 6x GbE by Intel® I219 and I210 (Nuvo-5006E/P)	2x GbE by Intel® I219 and I210 (Nuvo-5002LP) 6x GbE by Intel® I219 and I210 (Nuvo-5006LP)	6x GbE by Intel® I219 and I210	3x GbE by Intel® I219 and I210
	Video Port	1x VGA 1x DVI-D 2x DisplayPort	1x VGA 1x DVI-D 2x DisplayPort	1x VGA 1x DVI-D 2x DisplayPort	1x VGA 1x DVI-D
	Serial Port	2x RS-232/422/485 1x RS-232	2x RS-232/422/485 1x RS-232	2x RS-232/422/485 1x RS-232	2x RS-232/422/485 2x RS-232
	USB 2.0	4	4	4	2
	USB 3.1	4	4	4	4
	Audio	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	Optional via MezIO™ module	Optional 8 DI + 8 DO
Storage Interface	SATA HDD	2x 2.5" HDD/ SSD	1x 2.5" HDD/ SSD 1x Hot-swap tray for 2.5" HDD/ SSD	2x 2.5" HDD/ SSD	1x 2.5" HDD/ SSD or 1x 3.5" HDD
	mSATA	1 (mux. with mini-PCIe)	1 (mux. with mini-PCIe)	1 (mux. with mini-PCIe)	1
	M.2 (M-key)	-	-	-	-
Expansion Bus	Mini PCI-E	2	2	2	1
	M.2 (B-key)	-	-	-	1
	SIM	2	2	2	1
	MezIO™	Yes	Yes	Yes	-
	PCI/PCI Express	1x PCI slot in Cassette (Nuvo-5002P/5006P) 1x PCIe x16 slot @ Gen3, 8-lanes PCIE signals in Cassette (Nuvo-5002E/5006E)	-	2x PCIe x8 slot @ Gen3, 4-lanes PCIe signals in Cassette	-
Power Supply	DC Input	8~35V DC	8~35V DC	8~35V DC	8~35V DC
	Ignition Control	Optional via MezIO™ module	Optional via MezIO™ module	Optional via MezIO™ module	-
Environmental	Operating Temperature	**with 35W CPU** -25°C ~ 70°C **with 65W/ 51W CPU** -25°C ~ 50°C	**with 35W CPU** -25°C ~ 70°C **with 65W/ 51W CPU** -25°C ~ 50°C	**with 35W CPU** -25°C ~ 70°C **with 65W/ 51W CPU** -25°C ~ 50°C	-25°C ~ 70°C
	Certification	EN 60950, CE/ FCC	EN 60950, CE/ FCC	EN 60950, CE/ FCC	CE/ FCC
Released Date		**2015/12/1**	**2015/12/1**	**2017/12/1**	2017/11/1
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Model Name		Nuvo-2500E/P	Nuvo-8034	Nuvo-6000	Nuvo-2400
Chassis	Dimensions (W x D x H)	205 x 145 x 73 mm	259 x 280 x 198 mm	184 x 225x 174 mm (Nuvo-6032) 124 x 225 x 174 mm (Nuvo-6002)	139 x 225 x 160 mm
	Weight	2.3 kg	7 kg	3.5 kg (Nuvo-6032) 2.8 kg (Nuvo-6002)	2.2 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® Celeron® J1900 quad-core	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™ i7-6700TE Intel® Core™ i5-6500TE Intel® Core™ i3-6100TE Intel® Pentium® G4400TE Intel® Celeron® G3900TE	Intel® Celeron® J1900 quad-core
	Chipset	-	Intel® C246	Intel® H110	-
	Graphics	Intel® HD Graphics	x16 PEG port, or Intel® HD Graphics 630	Intel® HD Graphics 530/ 510	Intel® HD Graphics
	Memory	Up to 8 GB DDR3L-1333	Up to 128 GB DDR4-2133	Up to 16 GB DDR4-2133	Up to 8GB DDR3L-1333
I/O Interface	PoE	-	-	-	-
	Ethernet	2x GbE by Intel® I210	1x GbE by Intel® I219 1x GbE by Intel® I210	1x GbE by Intel® I219 1x GbE by Intel® I210	2x GbE by Intel® I210
	Video Port	1x VGA 1x DVI-D	1x VGA 1x DVI-D 1x DisplayPort	2x DVI-D	1x DVI-I
	Serial Port	2x RS-232/422/485 2x RS-232	2x RS-232/422/485 2x RS-232	2x RS-232/422/485 3x 3-wire RS-232	2x RS-232/422/485 2x RS-232
	USB 2.0	3	1 (internal use)	3 (internal use)	3
	USB 3.1	1	8	4	1
	Audio	1x Mic-in and 1x speaker-out	1x Mic-in and speaker-out	1x Mic-in and speaker-out	1x Mic-in and speaker-out
	Digital I/O	Optional Auxiliary I/O (4 DI, 8 DO, 6 PWM, 1 encoder, 2 ADC)	8 DI + 8 DO	-	Optional 8 DI + 8 DO Polling
Storage Interface	SATA HDD	1x 2.5" HDD/ SSD	2x Hot-swap tray for 2.5" HDD/ SSD	3x 2.5" HDD/ SSD (Nuvo-6032) 1x 2.5" HDD/ SSD (Nuvo-6002)	2x 2.5" HDD/ SSD
	mSATA	1	2 (mux. with mini-PCIe)	1	-
	M.2 (M-key)	-	1	-	-
Expansion Bus	Mini PCI-E	2	2	-	-
	M.2 (B-key)	-	1	-	-
	SIM	1	4	-	-
	MezIO™	-	-	-	-
	PCI/PCI Express	1x 33MHz/32-bit PCI slot (Nuvo-2500P) 1x PCI Express x4 slot (Nuvo-2500E)	2x PCIe x16 slot@Gen3, 8-lanes 2x PCIe x8 slots@Gen3, 4-lanes 3x 33MHz/ 32-bit 5V PCI slots	1x PCI Express x16 slot 1x PCI Express x8 slot 3x 33MHz/32-bit PCI slots (Nuvo-6032)	1x PCI Express x4 slot 2x 33MHz/32-bit PCI slots (Nuvo-2421) or 3x 33MHz/32-bit PCI slots (Nuvo-2430)
Power Supply	DC Input	8~35V DC	8-35V DC	8~35V DC	8~25V DC
	Ignition Control	-	-	-	-
Environmental	Operating Temperature	-25°C ~ 70°C	-25°C ~ 60°C	-25°C ~ 60°C	-25°C ~ 70°C
	Certification	CE/ FCC	CE/ FCC	CE/ FCC	CE/ FCC
Released Date		2015/2/1	2020 Q1	2016/6/1	2015/9/15
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Model Name		POC-500	POC-300	POC-200	POC-120
Chassis	Dimensions (W x D x H)	64x 116x 176 mm (POC-515) 82x 118x176 mm (POC-545)	56 x108 x 153 mm	149 x 105 x 58 mm	105 x 149 x 34 mm (POC-120) 105 x 149 x 46 (POC-120MZ)
	Weight	1.2 kg (POC-515) 1.4 kg (POC-545)	0.96 kg	1.1 kg	0.9 kg (POC-120) 1.0 kg (POC-120MZ)
	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	AMD Ryzen™ V1605B (POC-515) AMD Ryzen™ V1807B (POC-545)	Intel® Atom™ E3950 quad-core Intel® Pentium® N4200 quad-core	Intel® Atom™ E3845 quad-core Intel® Atom™ E3825 dual-core	Intel® Atom™ E3826 dual-core
	Chipset	-	-	-	-
	Graphics	Vega GPU with 8 compute units (POC-515) Vega GPU with 11 compute units (POC-545)	Intel® HD Graphics 505	Intel® HD Graphics	Intel® HD Graphics
	Memory	Up to 16 GB DDR4-2400 (POC-515) Up to 16 GB DDR4-3200 (POC-545)	Up to 8GB DDR3L-1866	Up to 8GB DDR3L-1333	Up to 8 GB DDR3L-1067
I/O Interface	PoE	IEEE 802.3at (25.5W) for 4 GbE ports	Optional (Port 2~3, IEEE 802.3at, 25.5W)	Optional (Port 1~2, IEEE 802.3at, 25.5W)	-
	Ethernet	4x GbE by Intel® I350	3x GbE by Intel® I210	2x GbE by Intel® I210	2x GbE by Intel® I210
	Video Port	1x VGA 1x DisplayPort	1x DVI-I	1x DVI-I	1x VGA
	Serial Port	1x RS-232/422/485 3x 3-wire RS-232	1x RS-232/422/485 3x 3-wire RS-232	2x RS-232/422/485 2x RS-232	1x RS-232/422/485 1x RS-232
	USB 2.0	-	2	1	2
	USB 3.1	4	2	3	1
	Audio	1x Mic-in and speaker-out	1x Mic-in and speaker-out	1x Speaker-out	1x Speaker-out
	Digital I/O	Optional via MezIO™ module	Optional via MezIO™ module	Optional 4 DI + 4 DO Polling	-
Storage Interface	SATA HDD	Optional via MezIO™ module	Optional via MezIO™ module	1x 2.5" HDD/ SSD	-
	mSATA	-	1	-	1
	M.2 (M-key)	1	-	-	-
Expansion Bus	Mini PCI-E	1	1	1	-
	M.2 (B-key)	-	-	-	-
	SIM	1	1	1	-
	MezIO™	Yes	Yes	-	Yes (POC-120MZ)
	PCI/PCI Express	-	-	-	-
Power Supply	DC Input	8~35V DC	8~35V DC	8~35V DC	8~35V DC
	Ignition Control	Optional via MezIO™ module	Optional via MezIO™ module	-	-
Environmental	Operating Temperature	-25°C ~ 70°C	-25°C ~ 70°C	-25°C ~ 70°C	-25°C ~ 70°C
	Certification	CE/ FCC	CE/ FCC	CE/ FCC	CE/ FCC
Released Date		2019/9/11	2017/5/1	2014/5/1	2015/3/1
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Model Name		Nuvis-7306RT	Nuvis-5306RT	Nuvis-534RT	Nuvo-8208GC
Chassis	Dimensions (W x D x H)	240 x 225 x 111 mm	240 x 225 x 111 mm	82 x 118 x 176 mm	225 x 360 x 186 mm
	Weight	4.5 kg	4.5 kg	1.5 kg	8.6 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™ i7-6700/ 6700TE Intel® Core™ i5-6500/ 6500TE	AMD Ryzen™ V1807B	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
	Chipset	Intel® Q370	Intel® Q170	-	Intel® C246
	Graphics	Intel® UHD Graphics 630	Intel® HD Graphics 530	Vega GPU with 11 compute units	x16 PEG port, or Intel® HD Graphics 630
	Memory	Up to 64 GB DDR4-2666/ 2400	Up to 32 GB DDR4-2133	Up to 16 GB DDR4-3200	Up to 128 GB DDR4-2133
I/O Interface	PoE	IEEE 802.3at (25.5W) for 4 GbE ports	IEEE 802.3at (25.5W) for 4 GbE ports	IEEE 802.3at (25.5W) for 4 GbE ports	-
	Ethernet	6x GbE by Intel® I219 and I210	6x GbE by Intel® I219 and I210	4x GbE by Intel® I350	1x GbE by Intel® I219 1x GbE by Intel® I210
	Video Port	1x VGA 1x DVI-D 1x DisplayPort	1x VGA 1x DVI-D 2x DisplayPort	1x VGA 1x DisplayPort	1x VGA 1x DVI-D 1x DisplayPort
	Serial Port	2x RS-232/422/485 2x RS-232	2x RS-232/422/485 1x RS-232	1x RS-232/422/485 3x 3-wire RS-232	2x RS-232/422/485
	USB 2.0	1 (internal use)	4	-	1 (internal use)
	USB 3.1	8	4	4	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	Patented DTIO/ NuMCU for real-time trigger control	Patented DTIO/ NuMCU for real-time trigger control	Patented DTIO/ NuMCU for real-time trigger control	-
Storage Interface	SATA HDD	2x 2.5" HDD/ SSD	2x 2.5" HDD/ SSD	-	2x Hot-swap tray for 2.5" HDD/ SSD
	mSATA	1 (mux. with mini-PCIe)	1 (mux. with mini-PCIe)	-	2 (mux. with mini-PCIe)
	M.2 (M-key)	1	-	1	1
Expansion Bus	Mini PCI-E	1	2	-	2
	M.2 (B-key)	1	-	-	1
	SIM	3	2	-	4
	MezIO™	-	-	-	-
	PCI/PCI Express	2x PCIe x16 slot, supports - Independent NVIDIA® GPU (120W) - COTS CameraLink and CoaXPress camera interface card	1x PCIe x16 slot, supports - Independent NVIDIA® GPU (75W) - COTS CameraLink and CoaXPress camera interface card	-	2x PCIe x16 slot@Gen3, 8-lanes 2x PCIe x8 slots@Gen3, 4-lanes 1x PCIe x4 slot@Gen3, 1-lane
Power Supply	DC Input	8-35V DC	8~35V DC	8~35V DC	8~35V DC
	Ignition Control	-	-	-	Built-in
Environmental	Operating Temperature	with 35W CPU -25°C ~ 60°C with 65W CPU -25°C ~ 50°C	with 35W CPU -25°C ~ 60°C with 65W/ 51W CPU -25°C ~ 50°C	-25°C ~ 70°C	-25°C ~ 60°C
	Certification	CE/ FCC	CE/ FCC	CE/ FCC	EN 62368-1, CE/ FCC
Released Date		2020 Q1	2017/3/1	2020 Q1	2019/5/1
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Model Name		Nuvo-8108GC	Nuvo-8240GC	Nuvo-6108GC	Nuvo-6108GC-IGN
Chassis	Dimensions (W x D x H)	170 x 360 x 186 mm	190 x 270 x 186 mm	178 x 360 x 174 mm	178 x 360 x 174 mm
	Weight	5 kg	3.5 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® 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™ 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® C246	Intel® C246	Intel® C236	Intel® C236
	Graphics	x16 PEG port, or Intel® UHD Graphics 630	Intel® UHD Graphics 630	x16 PEG port, or Intel® HD Graphics 530	x16 PEG port, or Intel® HD Graphics 530
	Memory	Up to 128 GB DDR4-2133	Up to 128 GB DDR4-2133	Up to 32 GB DDR4-2133	Up to 32 GB DDR4-2133
I/O Interface	PoE	-	-	-	-
	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	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-232/422/485	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	-	-	-	-
Storage Interface	SATA HDD	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	4x 2.5" HDD/ SSD	2x Easy-swap tray for 2.5" HDD/ SSD 1x 2.5" HDD/ SSD
	mSATA	2 (mux. with mini-PCIe)	2 (mux. with mini-PCIe)	-	-
	M.2 (M-key)	1	1	-	-
Expansion Bus	Mini PCI-E	2	2	1	1
	M.2 (B-key)	1	1	1	1
	SIM	4	4	1	1
	MezIO™	-	-	-	-
	PCI/PCI Express	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 PCI Express x16 slot for GPU 2x PCI Express x8 slot	1x PCI Express x16 slot for GPU 2x PCI Express x8 slot
Power Supply	DC Input	8~48V DC	8~48V DC	24V DC	24V DC
	Ignition Control	Built-in	Built-in	-	Built-in
Environmental	Operating Temperature	-25°C ~ 60°C	-25°C ~ 60°C	-25°C ~ 60°C	-25°C ~ 60°C
	Certification	CE/ FCC	CE/ FCC	CE/ FCC	CE/ FCC
Released Date		2019/11/1	2020 Q1	2017/8/1	2018/6/1
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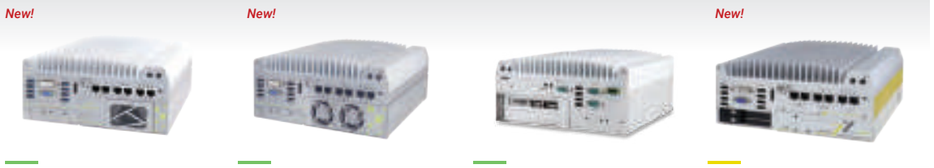

	Model Name	Nuvo-7164GC/7166GC	Nuvo-7160GC	Nuvo-5095GC	Nuvo-7200VTC
Chassis	Dimensions (W x D x H)	240 x 225 x 111 mm	240 x 225 x 111 mm	240 x 225 x 111 mm	240 x 225 x 103 mm
	Weight	4.5 kg	4.5 kg	4.5 kg	3.7 kg
	Chassis Construction	Aluminum alloy with heavy duty metal	Aluminum alloy with heavy duty metal	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® Core™ i7-6700/ 6700TE Intel® Core™ i5-6500/ 6500TE	Intel® Core™ i7-9700TE/ i7-8700T Intel® Core™ i5-9500TE/ i5-8500T Intel® Core™ i3-9100TE/ i3-8100T
	Chipset	Intel® Q370	Intel® Q370	Intel® Q170	Intel® Q370
	Graphics	Intel® UHD Graphics 630	x16 PEG port, or Intel® UHD Graphics 630	x16 PEG port, or Intel® HD Graphics 530/ 510	Intel® UHD Graphics 630
	Memory	Up to 64 GB DDR4-2666/ 2400	Up to 64 GB DDR4-2666/ 2400	Up to 32 GB DDR4-2133	Up to 64 GB DDR4-2666
I/O Interface	PoE	Optional (Port 3~6, IEEE 802.3at, 25.5W)	Optional (Port 3~6, IEEE 802.3at, 25.5W)	Optional (Port 3~6, IEEE 802.3at, 25.5W)	IEEE 802.3at (25.5W) for 4x/ 8x GbE ports
	Ethernet	6x GbE by Intel® I219 and I210	6x GbE by Intel® I219 and I210	6x GbE by Intel® I219 and I210	2x GbE by Intel® I219 and I210 (RJ-45) 4x/ 8x GbE by Intel® I210 (M12 x-coded or RJ-45)
	Video Port	1x VGA 1x DVI-D 1x DisplayPort	1x VGA 1x DVI-D 1x DisplayPort	1x VGA 1x DVI-D 2x DisplayPort	1x VGA 1x DVI-D 1x DisplayPort
	Serial Port	2x RS-232/422/485 2x RS-232	2x RS-232/422/485 2x RS-232	2x RS-232/422/485 1x RS-232	2x RS-232/422/485 2x RS-232
	USB 2.0	1 (internal use)	1 (internal use)	4	1 (internal use)
	USB 3.1	8	8	4	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	Optional via MezIO™ module	Optional by MezIO™ module	4 DI + 4 DO Polling, COS
Storage Interface	SATA HDD	2x 2.5" HDD/ SSD	2x 2.5" HDD/ SSD	2x 2.5" HDD/ SSD	2x Hot-swap tray for 2.5" HDD/ SSD
	mSATA	1 (mux. with mini-PCIe)	1 (mux. with mini-PCIe)	1 (mux. with mini-PCIe)	1 (mux. with mini-PCIe)
	M.2 (M-key)	1	1	-	1
Expansion Bus	Mini PCI-E	1	1	2	3
	M.2 (B-key)	1	1	-	2
	SIM	3	3	2	6
	MezIO™	Yes	Yes	Yes	-
	PCI/PCI Express	1x PCIe x16 slot, supporting NVIDIA® Tesla T4 GPU (Nuvo-7164GC) 1x PCIe x16 slot, supporting NVIDIA® Tesla T4 GPU and one additional PCIe card (Nuvo-7166GC)	1x PCIe x16 slot, supporting Independent NVIDIA® GPU (120W)	1x PCIe x16 slot, supporting Independent NVIDIA® GPU (75W)	1x PCIe x16 slot@Gen3, 16-lanes
Power Supply	DC Input	8-35V DC	8-35V DC	8~35V DC	8~35V DC
	Ignition Control	Optional via MezIO™ module	Optional via MezIO™ module	Optional via MezIO™ module	Built-in
Environmental	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	**with 35W CPU** -25°C ~ 60°C **with 65W/ 51W CPU** -25°C ~ 50°C	-40°C ~ 70°C
	Certification	CE/ FCC	EN 62368-1, CE/ FCC	CE/FCC	E-Mark, EN 45545, EN 50155, CE/ FCC
Released Date		2019/3/1	2018/10/1	2016/12/1	2020 Q1
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	Model Name	Nuvo-7250VTC	Nuvo-7100VTC	Nuvo-5100VTC	Nuvo-3100VTC
Chassis	Dimensions (W x D x H)	240 x 225 x 103 mm	240 x 225 x 84 mm	240 x 225 x 79 mm	212 x 165 x 62 mm
	Weight	4.1 kg	3.5 kg	3.3 kg	2.8 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™ i7-9700TE/ i7-8700T Intel® Core™ i5-9500TE/ i5-8500T Intel® Core™ i3-9100TE/ i3-8100T	Intel® Core™ i7-9700TE/ i7-8700T Intel® Core™ i5-9500TE/ i5-8500T Intel® Core™ i3-9100TE/ i3-8100T	Intel® Core™ i7- 6700TE Intel® Core™ i5- 6500TE Intel® Core™ i3- 6100TE	Intel® i7-3610QE (2.3/3.3 GHz) Intel® i5-3610ME (2.7/3.3 GHz) Intel® Celeron® 1020E (2.2 GHz)
	Chipset	Intel® Q370	Intel® Q370	Intel® Q170	Intel® QM77
	Graphics	Intel® HD Graphics 630	Intel® HD Graphics 630	Intel® HD Graphics 530	Intel® HD Graphics 4000 (i7/i5) Intel® HD Graphics (Celeron)
	Memory	Up to 64 GB DDR4-2666	Up to 64 GB DDR4-2666	Up to 32 GB DDR4-2133	Up to 8GB DDR3-1600
I/O Interface	PoE	IEEE 802.3at (25.5W) for 4x/ 8x GbE ports	IEEE 802.3at (25.5W) for 4x/ 8x GbE ports	IEEE 802.3at (25.5W) for 4x/ 8x GbE ports	IEEE 802.3at (25.5W) for 4 GbE ports
	Ethernet	2x GbE by Intel® I219 and I210 (RJ-45) 4x/ 8x GbE by Intel® I210 (M12 x-coded or RJ-45)	2x GbE by Intel® I219 and I210 (RJ-45) 4x/ 8x GbE by Intel® I210 (M12 x-coded or RJ-45)	2x GbE by Intel® I219 and I210 (RJ-45) 4x/ 8x GbE by Intel® I210 (M12 x-coded or RJ-45)	1x GbE by Intel® 82579LM 3x GbE by Intel® I210
	Video Port	1x VGA 1x DVI-D 1x DisplayPort	1x VGA 1x DVI-D 1x DisplayPort	1x VGA 1x DVI-D 2x DisplayPort	1x DVI-I 2x DisplayPort
	Serial Port	2x RS-232/422/485 2x RS-232	2x RS-232/422/485 2x RS-232	2x RS-232/422/485 1x RS-232	2x RS-232/422/485
	USB 2.0	1 (internal use)	1 (internal use)	4	2
	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	4 DI + 4 DO Polling, COS	4 DI + 4 DO Polling, COS	4 DI + 4 DO Polling, COS	4 DI + 4 DO Polling, COS
Storage Interface	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	1x 2.5" HDD/ SSD 1x easy-swap tray for 2.5" HDD/ SSD
	mSATA	1 (mux. with mini-PCIe)	1 (mux. with mini-PCIe)	1 (mux. with mini-PCIe)	1
	M.2 (M-key)	1	1	-	-
Expansion Bus	Mini PCI-E	3	3	4	2
	M.2 (B-key)	2	2	-	-
	SIM	6	6	4	2
	MezIO™	-	-	-	-
	PCI/PCI Express	1x PCIe with PB-2500J pre-installed	-	-	-
Power Supply	DC Input	8~35V DC with SuperCAP UPS	8~35V DC	8~35V DC	8~35V DC
	Ignition Control	Built-in	Built-in	Built-in	Built-in
Environmental	Operating Temperature	-40°C ~ 70°C	-40°C ~ 70°C	-40°C ~ 70°C	**i7-3610QE, 100% CPU loading** Maximal Perf. -25°C ~ 50°C Reduced Perf. -25°C ~ 60°C Extended Temp. -25°C ~ 70°C **i5-3610ME, 100% CPU loading** Maximal Perf. -25°C ~ 60°C Reduced Perf. -25°C ~ 70°C Extended Temp. -25°C ~ 70°C
	Certification	E-Mark, EN 45545, EN 50155, CE/ FCC	E-Mark, EN 45545, EN 50155, CE/ FCC	E-Mark, EN 45545, EN 50155, CE/ FCC	E-Mark, EN 45545, EN 50155, CE/ FCC
Released Date		2020 Q1	2020 Q1	2016/6/1	2014/5/1
Page Number		P. 87-88	P. 89-90	P. 91-92	P. 93-94

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Selection Guide

Rugged Embedded | Machine Vision | In-vehicle Computing | Surveillance/Video Analytics | GPU Computing

Coming Soon!

Model Name		Nuvo-2510VTC	POC-551VTC	POC-351VTC	Nuvo-5608VR
Chassis	Dimensions (W x D x H)	205 x 145 x 44 mm	176 x 116 x 63 mm	153 x 108 x 56 mm (POC-351VTC) 153 x 108x 68 mm (POC-351VTC-70)	240 x 225 x 98 mm
	Weight	1.9 kg	1.3 kg	1.0 kg (POC-351VTC) 1.1 kg (POC-351VTC-70)	3.5 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® Atom™ E3845 quad-core	AMD Ryzen™ V1605B	Intel® Atom™ E3950 quad-core	Intel® Core™ i7-6700/6700TE Intel® Core™ i5-6500/6500TE Intel® Core™ i3-6100/6100TE
	Chipset	-	-	-	Intel® Q170
	Graphics	Intel® HD Graphics	Vega GPU with 6 compute units	Intel® HD Graphics 505	Intel® HD Graphics 530
	Memory	Up to 8GB DDR3L-1333	Up to 16 GB DDR4-2400	Up to 8GB DDR3L-1866	Up to 32 GB DDR4-2133
I/O Interface	PoE	IEEE 802.3at (25.5W) for 2 GbE ports	IEEE 802.3at (25.5W) for 4 GbE ports	IEEE 802.3at (25.5W) for 2 GbE ports	IEEE 802.3at(25.5W) for 8 GbE ports
	Ethernet	2x GbE by Intel® I210	4x GbE by Intel® I350	3x GbE by Intel® I210	2x GbE by Intel® I219 and I210
	Video Port	1x VGA 1x DVI-D	1x VGA 1x DisplayPort	1x DVI-I	1x VGA + DVI-D 2x DisplayPort
	Serial Port	2x RS-232/422/485 2x RS-232	1x RS-232/422/485 3x 3-wire RS-232	1x RS-232/422/485 3x 3-wire RS-232	2x RS-232/422/485 1x RS-232
	USB 2.0	3	-	2	4
	USB 3.1	1	4	2	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	-	4 DI + 4 DO Polling, COS	4 DI + 4 DO Polling, COS	4 DI + 4 DO Polling, COS
Storage Interface	SATA HDD	1x 2.5" HDD/ SSD	-	-	2x 3.5" HDD/ SSD
	mSATA	1x mSATA	1x mSATA	2x mSATA	1x mSATA (mux. with mini-PCIe)
	M.2 (M-key)	-	1	-	-
Expansion Bus	Mini PCI-E	2	3	3	4
	M.2 (B-key)	-	1	1	-
	SIM	2	4	4	4
	MezIO™	-	-	-	-
	PCI/PCI Express	-	-	-	-
Power Supply	DC Input	8~35V DC	8~35V DC	8~35V DC	8~35V DC
	Ignition Control	Built-in	Built-in	Built-in	Built-in
Environmental	Operating Temperature	-25°C ~ 70°C	-40°C ~ 70°C	-25°C ~ 70°C	**35W CPU** -25°C ~ 70°C (with mSATA/ SSD) -10°C ~ 60°C (with 3.5" HDD) **65W CPU** -25°C ~ 50°C (with mSATA/ SSD) -10°C ~ 60°C (with 3.5" HDD)
	Certification	E-Mark, CE/ FCC	E-Mark, EN 45545, EN 50155, CE/ FCC	E-Mark, CE/FCC	CE/FCC
Released Date		2015/2/1	2020 Q1	2018/1/1	2018/2/1
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Rugged Embedded | Machine Vision | In-vehicle Computing | Surveillance/Video Analytics | GPU Computing

Model Name		IGT-33V	IGT-34C	IGT-30D/31D	IGT-20/ 21/ 22
Chassis	Dimensions (W x D x H)	43 x 77 x 104 mm	43 x 77 x 104 mm	43 x 77 x 104 mm	41 x 77 x 104 mm
	Weight	0.5kg	0.5kg	0.5kg	0.4 kg
	Chassis Construction	Heavy duty metal	Heavy duty metal	Heavy duty metal	Heavy duty metal
System	Processor	TI Sitara AM3352 1 GHz	TI Sitara AM3352 1 GHz	TI Sitara AM3352 1 GHz	TI Sitara AM3352 1 GHz
	Chipset	-	-	-	-
	Graphics	-	-	-	-
	Memory	1GB DDR3L	1GB DDR3L	1GB DDR3L	1GB DDR3L
I/O Interface	PoE	1 x PD port	1 x PD port	1 x PD port	-
	Ethernet	2 x 10/100M Ethernet	2 x 10/100M Ethernet	2 x 10/100M Ethernet	1x 10/100M Ethernet
	Video Port	-	-	-	-
	Serial Port	1x RS-232/422/485 1x RS-485	1x RS-232/422/485 1x RS-485	1x RS-232/422/485	2x RS-232/422/485 (IGT-20/ IGT-21) 1x RS-232 + 1x RS-485 (IGT-22)
	USB 2.0	1	1	1	1
	USB 3.1	-	-	-	-
	Audio	-	-	-	-
	CAN bus	-	-	1 (IGT-31D Only)	1 (IGT-21 Only)
	Analog I/O	8 x 16bit 0-10V / ±5V/ ±10V Voltage Input	4 x 16bit 4-20mA/ 0-20mA Current Input	-	-
	Digital I/O	2 DI + 6 DO	2 DI + 6 DO	8 DI + 2 DO	4 DI + 4 DO (IGT-20/ IGT-21) 8DI + 8DO (IGT-22)
Storage Interface	SATA HDD	-	-	-	-
	mSATA	-	-	-	-
	CFast / MicroSD	2x MicroSD	2x MicroSD	2x MicroSD	2x MicroSD
	SIM	1	1	1	1
Expansion Bus	Mini PCI-E	1	1	1	1
	M.2	-	-	-	-
	MezIO™	-	-	-	-
	PCI/PCI Express	-	-	-	-
Power Supply	DC Input	12~25V DC	12~25V DC	12~25V DC	8~25V DC
	Ignition Control	-	-	-	-
Environmental	Operating Temperature	-25°C ~ 70°C	-25°C ~ 70°C	-25°C ~ 70°C	-25°C ~ 70°C
	Certification	CE/FCC	CE/FCC	CE/FCC	CE/FCC
Released Date		2020/2/1	2020/2/1	2020/2/1	2017/3/1
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Neousys
Intelligent Embedded Systems

- Rugged Embedded
- Machine Vision
- In-vehicle Computing
- Surveillance / Video Analytics
- Edge AI Computing

Nuvo-7000E/ 7000DE/ 7000P Series

Intel® 9th/ 8th-Gen Core™ i7/ i5/ i3 Fanless Controller with 6x GbE Ports, Patented Cassette and MezIO™ Interface

Key Features

- **Intel® 9th/ 8th-Gen Core™ i hexa-core 35W/ 65W LGA1151 CPU**
- **Patented Cassette for PCI/PCIe add-on card accommodation***
- **MezIO™ interface for easy function expansion**
- **Rugged, -25°C to 70°C fanless operation**
- **Up to 6x GigE ports, supporting 9.5 KB jumbo frame**
- **M.2 2280 M key socket (Gen3 x4) supporting NVMe SSD or Intel® Optane™ memory**
- **4x USB 3.1 Gen2 ports and 4x USB 3.1 Gen1 ports**
- **VGA/ DVI/ DP triple independent display, supporting 4K2K resolution**

CE FC

**R.O.C Patent No. M456527*

Introduction

The Neousys Nuvo-7000 series is powered by Intel® 9th/ 8th-Gen Core™ i processors with up to 8-core/ 6-core architecture that offer significant performance improvement over previous 6th and 7th-Gen platforms.

Nuvo-7000 series includes Neousys' track-proven technologies for superior ruggedness and versatility, such as effective fanless design, patented expansion Cassette and proprietary MezIO™ interface. It also incorporates cutting-edge computer I/O like USB 3.1 Gen2 with up to 10 Gbps throughput and M.2 2280 M key socket for NVMe SSD or Intel® Optane™ memory for ultimate system performance. The plethora of on-board I/O ports (GbE, USB and COM) feature sophisticated protection circuits to endure stress from ESD and power surge. This makes Nuvo-7000 series one of the most solid embedded controller on the market.

Flexible and versatile for a variety of applications, Nuvo-7000 variants are available with different Cassette expansion options. With Neousys Nuvo-7000 series, you get a true rugged platform that can accommodate a single PCIe card (Nuvo-7000E), dual PCIe cards (Nuvo-7000DE) or a single PCI card (Nuvo-7000P) according your application needs.

Specifications

System Core	
Processor	Supporting Intel® 9th/ 8th-Gen CPU (LGA1151 socket, 65W/ 35W TDP) - 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® Pentium® G5400/ G5400T - Intel® Celeron® G4900/ G4900T
Chipset	Intel® Q370 platform controller hub
Graphics	Integrated Intel® UHD graphics 630
Memory	Up to 64 GB DDR4 2666/ 2400 SDRAM (two SODIMM slots)
AMT	Supports AMT 12.0
TPM	Supports TPM 2.0
I/O Interface	
Ethernet	2x Gigabit Ethernet ports by I219 and I210 (Nuvo-7002E/ P/ DE) 6x Gigabit Ethernet ports by I219 and 5x I210 (Nuvo-7006E/ P/ DE)
PoE+	Optional IEEE 802.3at PoE+ PSE for Port 3 ~ Port 6 100 W total power budget
USB 3.1	4x USB 3.1 Gen2 (10 Gbps) ports 4x USB 3.1 Gen1 (5 Gbps) ports
USB 2.0	1x USB 2.0 port (internal use)
Video Port (Integrated Graphics)	1x VGA, supporting 1920 x 1200 resolution 1x DVI-D, supporting 1920 x 1200 resolution 1x DisplayPort, 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 Gen3 x4) for NVMe SSD or Intel® Optane™ memory installation
mSATA	1x full-size mSATA port (mux with mini-PCIe)

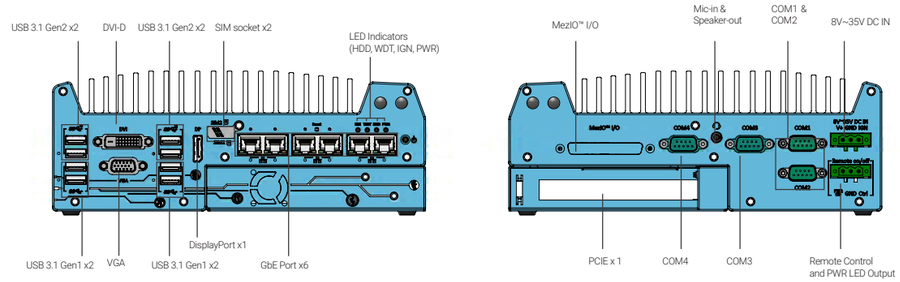
Expansion Bus	
PCI/PCI Express	1x PCIe x16 slot@Gen3, 8-lanes PCIe signals in Cassette (Nuvo-7002E/ 7006E) 2x PCIe x8 slots@Gen3, 4-lanes PCIe signals in Cassette (Nuvo-7002DE/ 7006DE) 1x PCI slot in Cassette (Nuvo-7002P/ 7006P)
Mini PCI Express	1x full-size mini PCI Express socket with internal SIM socket (mux with mSATA)
M.2	1x M.2 2242 B key socket with dual front-accessible SIM sockets, supporting dual SIM mode with selected M.2 LTE module
Expandable I/O	1x MezIO™ expansion port for Neousys MezIO™ modules
Power Supply	
DC Input	1x 3-pin pluggable terminal block for 8~35VDC 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 90 mm (H) (Nuvo-7000E/ P series) 240 mm (W) x 225 mm (D) x 110.5 mm (H) (Nuvo-7000DE series)
Weight	3.58 kg (Nuvo-7000E/ P series) 3.7 kg (Nuvo-7000DE series)
Mounting	Wall-mount (standard) or DIN-rail mount (optional)
Environmental	
Operating Temperature	**with 35W CPU** -25°C ~ 70°C ** **with 65W CPU** -25°C ~ 70°C */** (configured as 35W TDP) -25°C ~ 50°C */** (configured as 65W TDP)
Storage Temperature	-40°C ~ 85°C
Humidity	10%~90% , non-condensing
Vibration	Operating, MIL-STD-810G, Method 514.6, Category 4
Shock	Operating, MIL-STD-810G, Method 516.6, Procedure I, Table 516.6-II
EMC	CE/FCC Class A, according to EN 55032 & EN 55024

** For i7-9700E and i7-8700 running 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 obtain higher operating temperature.*

*** For sub-zero operating temperature, a wide temperature HDD or Solid State Disk (SSD) is required.*

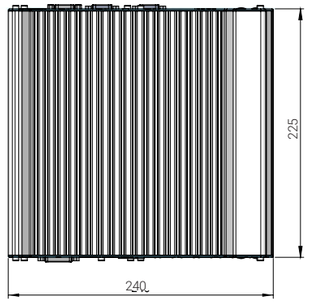
Appearance

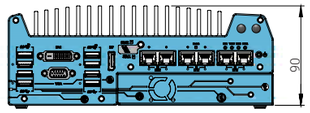
Nuvo-7000E/P



Dimensions

Unit : mm





Nuvo-7000E/P

Ordering Information

Model No.	Product Description
Nuvo-7002E	Intel® 9th/ 8th-Gen Core™ fanless controller with 2x GbE, single-slot PCI Express Cassette and MezIO™ interface
Nuvo-7002P	Intel® 9th/ 8th-Gen Core™ fanless controller with 2x GbE, single-slot PCI Cassette and MezIO™ interface
Nuvo-7006E	Intel® 9th/ 8th-Gen Core™ fanless controller with 6x GbE, single-slot PCI Express Cassette and MezIO™ interface
Nuvo-7006P	Intel® 9th/ 8th-Gen Core™ fanless controller with 6x GbE, single-slot PCI Cassette and MezIO™ interface
Optional IEEE 802.3at PoE+ for GbE ports 3 ~ 6	

Optional Accessories

DINRAIL-O	DIN-rail mount assembly for Nuvo-7000 series
Dmpbr-Nuvo5000_7000	Neousys' patented damping brackets assembly for Nuvo-7000E/DE/P
Fankit-25	Fan assembly for 1-slot Cassette, 25x25x10 mm
PA-160W-OW	160W AC/DC power adapter 20V/8A;18AWGx4C/120cm, cord end terminals for terminal block, operating temperature : -30°C to 70°C.
ETHY-100-2008S	Ethernet I/O expansion module with 8 isolated digital inputs and outputs
ETHY-100-2604S	Ethernet I/O expansion module with 8 isolated digital inputs and 4 relays outputs (coming soon)
Cassette Modules	
CSM-PoE354	Cassette module with PCIe-PoE354at and pre-installed passive heat-spreader
CSM-USB380	Cassette module with PCIe-USB380 and pre-installed passive heat-spreader
CSM-NV750	Cassette module with NVIDIA® GTX 750 Ti graphics card, pre-installed heat-spreader and fan
CSM-R800	Cassette module accommodating four 2.5" HDD/ SSD (support RAID 0/ 1/ 10)

MezIO™ Modules	
MezIO™-C180	MezIO™ module with 4x RS-232/ 422/ 485 ports and 4x RS-232 ports
MezIO™-C181	MezIO™ module with 4x RS-232/ 422/ 485 ports and 4x RS-422/ 485 ports
MezIO™-D220	MezIO™ module with 8-CH isolated digital input and 8-CH isolated digital output
MezIO™-D230	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	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-7006E-PoE and Nuvo-7006P-PoE support MezIO-G4P

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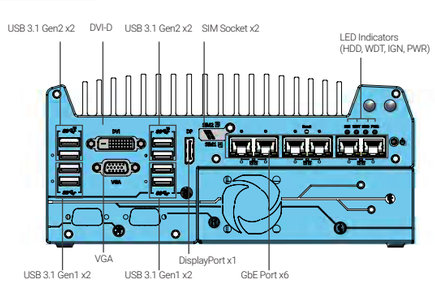
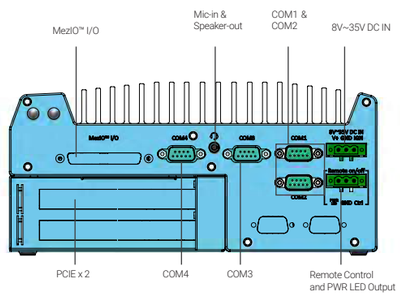
Appearance

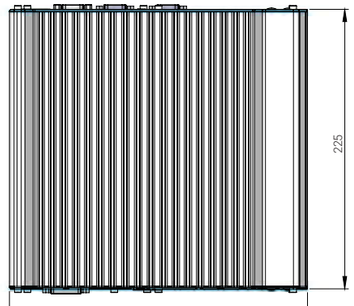
Nuvo-7000DE

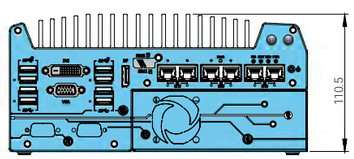




Dimensions

Unit : mm





Nuvo-7000DE

Ordering Information

Model No.	Product Description
Nuvo-7002DE	Intel® 9th/ 8th-Gen Core™ fanless controller with 2x GbE, dual-slot PCI Express Cassette and MezIO™ interface
Nuvo-7006DE	Intel® 9th/ 8th-Gen Core™ fanless controller with 6x GbE, dual-slot PCI Express Cassette and MezIO™ interface
Optional IEEE 802.3at PoE+ for GbE ports 3 ~ 6	

Optional Accessories

PA-160W-OW	160W AC/DC power adapter 20V/8A;18AWGx4C/120cm, cord end terminals for terminal block, operating temperature : -30 to 70°C.
Dmpbr-Nuvo5000_7000	Neousys' patented damping brackets assembly for Nuvo-7000E/DE/P
DINRAIL-O	DIN-rail mount assembly for Nuvo-7000 series
ETHY-100-2008S	Ethernet I/O expansion module with 8 isolated digital inputs and outputs
ETHY-100-2604S	Ethernet I/O expansion module with 8 isolated digital inputs and 4 relays outputs (coming soon)
MezIO™ Modules	
MezIO™-C180	MezIO™ module with 4x RS-232/ 422/ 485 ports and 4x RS-232 ports
MezIO™-C181	MezIO™ module with 4x RS-232/ 422/ 485 ports and 4x RS-422/ 485 ports
MezIO™-D220	MezIO™ module with 8-CH isolated digital input and 8-CH isolated digital output
MezIO™-D230	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	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-7006DE-PoE supports MezIO-G4P

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Nuvo-7000LP Series

Intel® 9th/ 8th-Gen Core™ i7/ i5/ i3 Fanless Controller with 6x GbE Ports, MezIO™ Interface and Low-profile Chassis

Key Features

- **Intel® 9th/ 8th-Gen Core™ i hexa-core 35W/ 65W LGA1151 CPU**
- **Low-profile chassis with hot-swappable 2.5" HDD/ SSD tray**
- **MezIO™ interface for easy function expansion**
- **Rugged, -25°C to 70°C fanless operation**
- **Up to 6x GigE ports, supporting 9.5 KB jumbo frame**
- **M.2 2280 M key socket (Gen3 x4) supporting NVMe SSD or Intel® Optane™ memory**
- **4x USB 3.1 Gen2 ports and 4x USB 3.1 Gen1 ports**
- **VGA/ DVI/ DP triple independent display, supporting 4K2K resolution**

Introduction

The Neousys Nuvo-7000LP series is powered by Intel® 9th/ 8th-Gen Core™ i processors with up to 8-core/ 6-core architecture that offer a significant performance improvement over previous 6th or 7th-Gen platforms.
Nuvo-7000LP series is a derivative of Nuvo-7000 series that features the same level of ruggedness and versatility in a 79 mm low-profile chassis. In addition to effective fanless design, proprietary MezIO™ interface and plethora of on-board I/O interfaces, Nuvo-7000LP series features one front-accessible, hot-swappable HDD/ SSD tray which can be configured as RAID 0/1 when combined with the internal SATA port. It also leverages cutting-edge M.2 NVMe SSD technology for over 2000MB/s disk read/ write speed, or install an Intel® Optane™ memory for the ultimate system acceleration.
Neousys Nuvo-7000LP series consolidates the latest Intel® hexa/octa-core CPU, high-speed I/O interfaces, super-fast disk access and flexible storage configuration to form a high-performance ruggedized embedded controller. In addition, you can also take advantage of the built-in MezIO™ interface to add on modules for application-specific I/Os.

Specifications

System Core	
Processor	Supporting Intel® 9th/ 8th-Gen CPU (LGA1151 socket, 65W/ 35W TDP) - 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® Pentium® G5400/ G5400T - Intel® Celeron® G4900/ G4900T
Chipset	Intel® Q370 platform controller hub
Graphics	Integrated Intel® UHD graphics 630
Memory	Up to 64 GB DDR4 2666/ 2400 SDRAM (two SODIMM slots)
AMT	Supports AMT 12.0
TPM	Supports TPM 2.0
I/O Interface	
Ethernet	2x Gigabit Ethernet ports by I219 and I210 (Nuvo-7002LP) 6x Gigabit Ethernet ports by I219 and 5x I210 (Nuvo-7006LP)
PoE+	Optional IEEE 802.3at PoE+ PSE for Port 3 ~ Port 6 100 W total power budget
USB 3.1	4x USB 3.1 Gen2 (10 Gbps) ports 4x USB 3.1 Gen1 (5 Gbps) ports
USB 2.0	1x USB 2.0 port (internal use)
Video Port (Integrated Graphics)	1x VGA, supporting 1920 x 1200 resolution 1x DVI-D, supporting 1920 x 1200 resolution 1x DisplayPort, 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	1x front-accessible, hot-swappable 2.5" HDD/ SSD tray 1x internal SATA port for 2.5" HDD/ SSD installation, supporting RAID 0/ 1
M.2	1x M.2 2280 M key socket (PCIe Gen3 x4) for NVMe SSD or Intel® Optane™ memory installation
mSATA	1x full-size mSATA port (mux with mini-PCIe)

Expansion Bus	
Mini PCI Express	1x full-size mini PCI Express socket with internal SIM socket (mux with mSATA)
M.2	1x M.2 2242 B key socket with dual front-accessible SIM sockets
Expandable I/O	1x MezIO™ expansion port for Neousys MezIO™ modules
Power Supply	
DC Input	1x 3-pin pluggable terminal block for 8~35VDC 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 79 mm (H)
Weight	3.1 kg
Mounting	Wall-mount (standard) or DIN-rail mount (optional)
Environmental	
Operating Temperature	**with 35W CPU** -25°C ~ 70°C ** **with 65W CPU** -25°C ~ 70°C */** (configured as 35W TDP) -25°C ~ 50°C */** (configured as 65W TDP)
Storage Temperature	-40°C ~ 85°C
Humidity	10%~90% , non-condensing
Vibration	Operating, MIL-STD-810G, Method 514.6, Category 4
Shock	Operating, MIL-STD-810G, Method 516.6, Procedure I, Table 516.6-II
EMC	CE/FCC Class A, according to EN 55032 & EN 55024

** For i7-9700E and i7-8700 running 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 obtain higher operating temperature.*
*** For sub-zero operating temperature, a wide temperature HDD or Solid State Disk (SSD) is required.*

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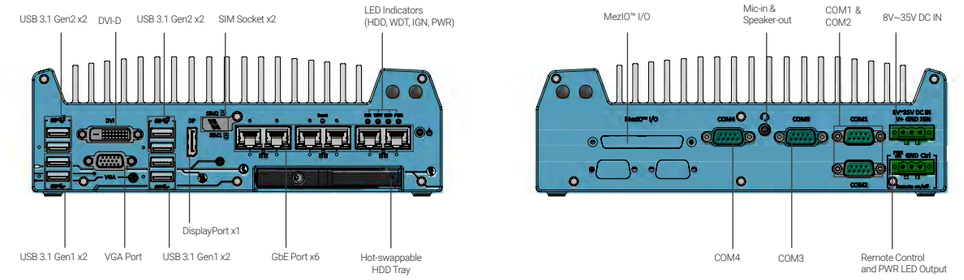
Appearance



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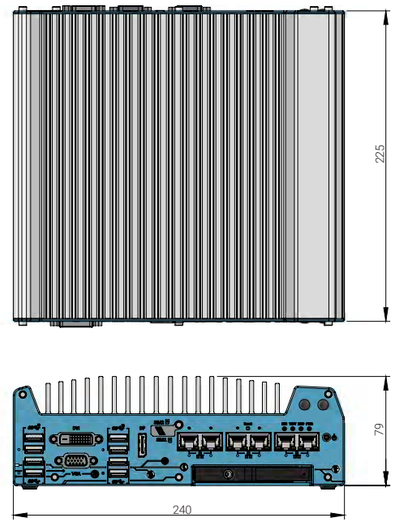
Unit : mm



Ordering Information

Model No.	Product Description
Nuvo-7002LP	Intel® 9th/ 8th-Gen Core™ fanless controller with 2x GbE ports, MezIO™ interface and low-profile chassis
Nuvo-7006LP	Intel® 9th/ 8th-Gen Core™ fanless controller with 6x GbE ports, MezIO™ interface and low-profile chassis
Optional IEEE 802.3at PoE+ for GbE ports 3 ~ 6	

Optional Accessories

PA-160W-OW	160W AC/DC power adapter 20V/8A;18AWGx4C/120cm, cord end terminals for terminal block, operating temperature : -30 to 70°C.
DINRAIL-O	DIN-rail mount assembly for Nuvo-7000 series
Dmpbr-Nuvo5000_7000	Neousys' patented damping brackets assembly for Nuvo-7000E/DE/P
ETHY-100-2008S	Ethernet I/O expansion module with 8 isolated digital inputs and outputs
ETHY-100-2604S	Ethernet I/O expansion module with 8 isolated digital inputs and 4 relays outputs (coming soon)
MezIO™ Modules	
MezIO™-C180	MezIO™ module with 4x RS-232/ 422/ 485 ports and 4x RS-232 ports
MezIO™-C181	MezIO™ module with 4x RS-232/ 422/ 485 ports and 4x RS-422/ 485 ports
MezIO™-D220	MezIO™ module with 8-CH isolated digital input and 8-CH isolated digital output
MezIO™-D230	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	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-7006LP-PoE supports MezIO-G4P*

All specifications and photos are subject to change without prior notice

Nuvo-7501/ 7505D Series

Intel® 9th/ 8th -Gen Core™ i7/ i5/ i3 Compact Fanless Computer with 2x GbE and up to 6x COM

Key Features

- **Compact 255 x 173 x 76 mm footprint**
- **Intel® 9th/ 8th-Gen Core™ 35W LGA1151 CPU**
- **Rugged, -25°C to 60°C fanless operation**
- **2x GbE and 4x USB 3.1**
- **Up to 6x COM ports, optional isolation on ports 1 ~ 4**
- **VGA + DVI dual display outputs**
- **Accommodates one 3.5" or 2.5" HDD/ SSD**
- **8-CH isolated DI and 8-CH isolated DO (Nuvo-7505D only)**

Introduction

Nuvo-7501 series is a cost-effective, compact and yet powerful fanless embedded computer with a 255 x 173 x 76 mm footprint. Powered by an Intel® 9th/ 8th-Gen Core™ hexa/ octa core CPU, it offers more than 50% computation performance improvement over the previous generation.

Nuvo-7501 series is designed to be simple and compact while retaining essential elements of a rugged embedded fanless solution. It features I/Os such as 2x GbE, 4x USB 3.1 and 6x COM ports for common industrial applications. In addition to the M.2 2280 SATA SSD, it can also support a 2.5" SSD/ HDD or a 3.5" HDD. For Nuvo-7505D, it offers isolated DIO and isolated COM, which can protect the controller against ground loops in harsh environments.

The Nuvo-7501 series is a cost-effective solution that has retained quality materials all Neousys systems utilize; and the design flow/ stringent test procedures it must endure. It is a fanless embedded platform that has hit the sweet spot in terms of cost, size and performance. Nuvo-7501 series is an ideal fanless embedded solution for various industrial applications.

Specifications

	Nuvo-7501	Nuvo-7505D
System Core		
Processor	Supporting Intel® 9th/ 8th-Gen Core™ CPU (LGA1151 socket) - 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® H310 platform controller hub	
Graphics	Integrated Intel® UHD graphics 630	
Memory	Up to 32 GB DDR4 2666/ 2400 SDRAM (one SODIMM slots)	
I/O Interface		
Ethernet port	2x Gigabit Ethernet ports by I219 and I210	
USB 3.1	4x USB 3.1 Gen1 (5 Gbps) ports	
USB 2.0	1x USB 2.0 port (internal use)	
Video Port	1x VGA, supporting 1920 x 1200 resolution 1x DVI-D, supporting 1920 x 1200 resolution	
Serial Port	2x software-programmable RS-232/ 422/ 485 ports (COM1/ COM2) 2x RS-232 ports (COM3/ COM4)	2x isolated software-programmable RS-232/ 422/ 485 ports (COM1/ COM2) 2x isolated RS-232 ports (COM3/ COM4) 2x RS-232 ports (COM5/ COM6)
Audio	1x 3.5 mm jack for mic-in and speaker-out	
Isolated DIO	N/A	8-CH isolated DI and 8-CH isolated DO
Storage Interface		
SATA HDD	1x internal SATA port for 3.5" HDD or 2.5" HDD/ SSD	
M.2	1x M.2 2280 SATA interface	

	Nuvo-7501	Nuvo-7505D
Internal Expansion Bus		
Mini PCI-E	1x full-size mini PCI Express socket	
M.2	1x M.2 2242 B key socket with internal SIM socket	
Power Supply		
DC Input	1x 3-pin pluggable terminal block for 8~35VDC DC input	
Remote Ctrl & Status Output	1x 10-pin (2x5) pin header for remote on/off control and status LED output	
Mechanical		
Dimension	255mm (W) x 173 mm (D) x 76 mm (H)	
Weight	2.68 kg	
Mounting	Wall-mount (standard) or DIN-rail mount (optional)	
Environmental		
Operating Temperature	-25°C ~ 60°C **/***	
Storage Temperature	-40°C ~85°C	
Humidity	10%~90% , non-condensing	
Vibration	Operating, MIL-STD-810G, Method 514.6, Category 4	
Shock	Operating, MIL-STD-810G, Method 516.6, Procedure I, Table 516.6-II	
EMC	CE/FCC Class A, according to EN 55032 & EN 55024	

** Due to thermal limitations, 65W CPUs will be configured to operate in 35W mode by default.*
*** For sub-zero operating temperature, a wide temperature HDD or Solid State Disk (SSD) is required.*
**** For i7 CPUs, thermal throttling may occur when sustained full-loading applied at 60°C ambient temperature.*

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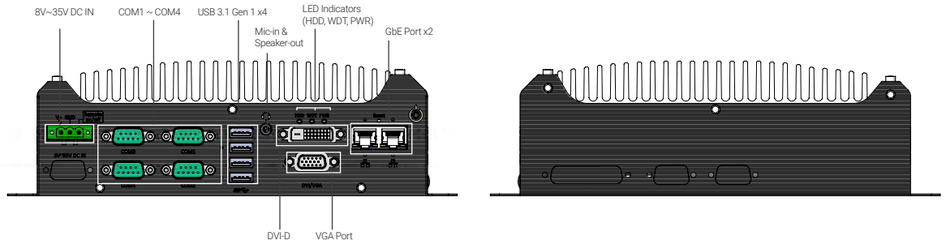
Appearance



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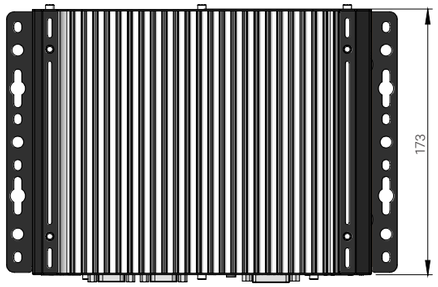

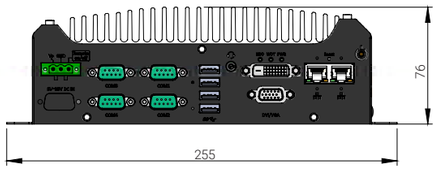

Ordering Information

Model No.	Product Description
Nuvo-7501	Intel® 9th/ 8th-Gen Core™ i7/ i5/ i3 compact fanless embedded computer with 2x GbE and 4x COM
Nuvo-7505D	Intel® 9th/ 8th-Gen Core™ i7/ i5/ i3 compact fanless embedded computer with isolated DIO, isolated COM and 2x GbE

Optional Accessories

PA-120W-OW	120W AC/ DC power adapter 20V/ 6A; 18AWG/ 120cm; cord end terminals for terminal block, operating temperature : -30 to 70 °C
DINRAIL-31	DIN-rail mount assembly for Nuvo-7501 series

All specifications and photos are subject to change without prior notice

Nuvo-7531 Series

Intel® 9th/ 8th -Gen Core™ i7/ i5/ i3 Compact Fanless Computer with 4x GbE , 4x USB3.1 and 1X hot-swappable HDD tray

Key Features

- **212 x 165 x 63 mm low-profile design**
- **Intel® 9th/ 8th-Gen Core™ 35W/ 65W LGA1151 CPU**
- **Rugged, -25°C to 60°C fanless operation**
- **4x GbE and 4x USB3.1 Gen1 with screw-lock**
- **1x hot-swappable HDD tray and 1x M.2 2280 socket for storage**
- **4-CH isolated DI and 4-CH isolated DO**
- **DVI-I + DP dual display outputs**
- **Optional ignition power control**

CE FC

Preliminary

Introduction

Nuvo-7531 is one of the most compact fanless embedded controller supporting Intel® 9th/ 8th-Gen Core™ CPUs. Measuring just 212 x 165 x 63 mm, it comfortably fits into confined spaces. Despite its compact size, Nuvo-7531 does not compromise on performance. Based on Intel® 9th/ 8th-Gen Core™ 65W/ 35W CPUs, it can deliver more than 50% extra performance compared to the previous generation. Nuvo-7531 is a compact and powerful fanless embedded controller for a variety of industrial applications.

The Nuvo-7531 has abundant I/O functions. It features four GbE ports and four USB3.1 ports for multiple GbE and USB cameras.There is a hot-swappable HDD tray for you to hot-swap the storage drive without turning off the system or dismantle the chassis. There are three mPCIe slots to install WIFI or 3G/ 4G for wireless communication needs. In addition, Nuvo-7531 is also equipped with 8x DIO, 2x COM ports and dual display outputs for your application needs.

For a compact embedded controller, Nuvo-7531 delivers amazing computing power and provides rich I/O functions. It is suitable for a variety of industrial applications, especially when space is limited. Nuvo-7531 is a little giant in the world of rugged embedded controllers.

Specifications

System Core	
Processor	Supporting Intel® 9th/ 8th-Gen Core™ CPU (LGA1151 socket) - 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® H310 platform controller hub
Graphics	Integrated Intel® UHD graphics 630
Memory	Up to 32 GB DDR4 2666/ 2400 SDRAM (one SODIMM slot)
I/O Interface	
Ethernet	4x Gigabit Ethernet ports by I219 and 3x I210
USB 3.1	4x USB 3.1 Gen1 (5 Gbps) ports
USB 2.0	2x USB 2.0 ports
Video Port (Integrated Graphics)	1x DVI-I for DVI/VGA output, supporting 1920 x 1200 resolution 1x DisplayPort, 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
Isolated DIO	4-CH isolated DI and 4-CH isolated DO
Storage Interface	
SATA HDD	1x hot-swappable 2.5" HDD/ SSD tray
M.2	1x M.2 2280 SATA interface
Internal Expansion Bus	
Mini PCI Express	3x full-size mini PCI Express sockets with internal SIM sockets

Power Supply	
DC Input	1x 3-pin pluggable terminal block for 8~35V DC input with optional ignition power control
Remote Ctrl. & LED Output	1x 10-pin (2x5) pin header for remote on/off control and status LED output
Mechanical	
Dimension	212 mm (W) x 165 mm (D) x 63 mm (H)
Weight	TBD
Mounting	Wall-mount (standard) or DIN-rail mount (optional)
Environmental	
Operating Temperature	**with 35W CPU** **-25°C ~ 60°C */**** **with 65W CPU, optional fan kit is required** **-25°C ~ 60°C */****
Storage Temperature	-40°C ~ 85°C
Humidity	10%~90% , non-condensing
Vibration	Operating, MIL-STD-810G, Method 514.6, Category 4
Shock	Operating, MIL-STD-810G, Method 516.6, Procedure I, Table 516.6-II
EMC	CE/FCC Class A, according to EN 55032 & EN 55024

** For sub-zero operating temperature, a wide temperature HDD or Solid State Disk (SSD) is required.*
*** For i7 CPUs, thermal throttling may occur when sustained full-loading applied at 60°C ambient temperature.*

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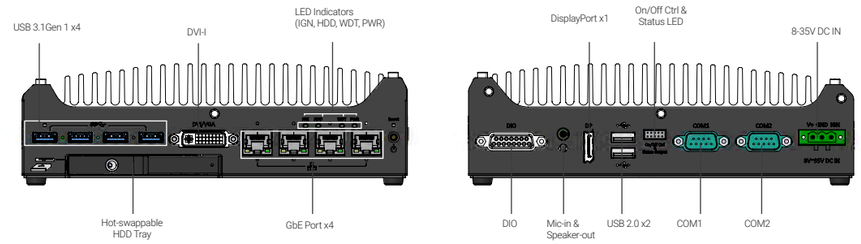
Appearance



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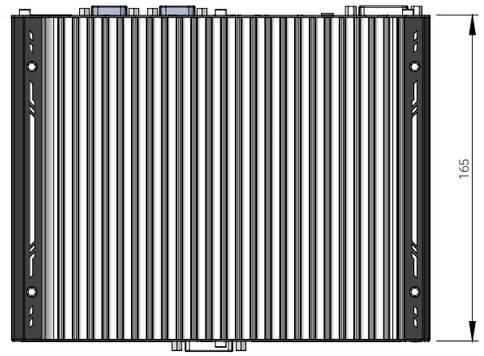

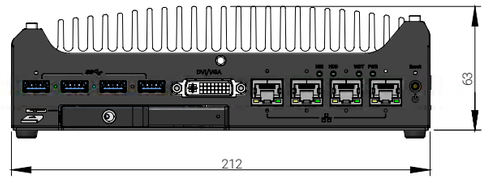

Ordering Information

Model No.	Product Description
Nuvo-7531	Intel® 9th/ 8th -Gen Core™ i7/ i5/ i3 compact fanless computer with 4x GbE , 4x USB 3.1 and a hot-swappable HDD tray
Optional ignition power control	

Optional Accessories

PA-120W-OW	120W AC/ DC power adapter 20V/ 6A; 18AWG/ 120cm; cord end terminals for terminal block, operating temperature : -30°C to 70 °C
DINRAIL-31	DIN-rail mount assembly for Nuvo-7531 series
Fan kit	Fan kit with 80mm x 80mm fan for Nuvo-7531 series

All specifications and photos are subject to change without prior notice

Nuvo-5000E/P Series

Intel® 6th-Gen Core™ i7/ i5/ i3 Fanless Controller with 6x GbE, Expansion Cassette and MezIO™ Interface

Key Features

- **Intel® 6th-Gen Core™ i7/ i5/ i3 35W/65W LGA1151 CPU**
- **Patented Cassette* for PCI/ PCIe add-on card**
- **MezIO™ interface for easy function expansion**
- **Rugged, -25°C to 70°C fanless operation**
- **Up to 6x GigE ports, supporting 9.5 KB jumbo frame**
- **Up to 32 GB, DDR4-2133 SODIMM**
- **Accommodates two 2.5" SATA HDD/ SSD with RAID 0/ 1 support**
- **VGA/ DVI/ DP triple independent display, supporting 4K2K resolution**

**R.O.C Patent No. M456527*

Introduction

Nuvo-5000 is Neousys' rugged fanless embedded controller with performance and versatility. It supports socket-type 6th-Gen Core™ processors so one can choose a CPU according to application performance needs while Neousys' efficient heat-dissipating design offers true -25°C to 70°C Wide temperature operation.

With plenty of embedded I/O connections for applications including Gigabit Ethernet, USB 3.1/ USB 2.0, COM ports, VGA/ DVI/ DP triple display outputs and if that's not enough, Neousys' patented Cassette offers I/O expansion by installing an off-the-shelf PCIe/PCI card.

On top of all that, Nuvo-5000 also incorporates Neousys MezIO™ interface. The patented design enhances Neousys' embedded system with a cost-effective and reliable way for I/O expansion. The MezIO™ module can deliver application-oriented functions for diversified vertical markets.

Neousys Nuvo-5000 features 6th-Gen Intel® CPU, patented Cassette and MezIO™ to create a powerful and yet diverse controller for all your industrial application needs!

Specifications

System Core	
Processor	Intel® Core™ i7-6700 (8M Cache,3.4/ 4.0 GHz, 65W TDP)* Intel® Core™ i5-6500 (6M Cache, 3.2/ 3.6 GHz, 65W TDP)* Intel® Core™ i3-6100 (3M Cache, 3.7 GHz, 51W TDP)* Intel® Pentium® G4400 (3M Cache, 3.3 GHz, 54W TDP)* Intel® Celeron® G3900 (2M Cache, 2.8 GHz, 51W TDP)* Intel® Core™ i7-6700TE (8M Cache, 2.4/ 3.4 GHz, 35W TDP) Intel® Core™ i5-6500TE (6M Cache, 2.3/ 3.3 GHz, 35W TDP) Intel® Core™ i3-6100TE (4M Cache, 2.7 GHz, 35W TDP) Intel® Pentium® G4400TE (3M Cache, 2.4 GHz, 35W TDP) Intel® Celeron® G3900TE (2M Cache, 2.3 GHz, 35W TDP)
Chipset	Intel® Q170 platform controller hub
Graphics	Integrated Intel® HD graphics 530/ 510
Memory	Up to 32GB DDR4-2133 SDRAM (two SODIMM slots)
AMT	Supports AMT 11.0
TPM	Supports TPM 2.0
I/O Interface	
Ethernet	2x Gigabit Ethernet ports by Intel® 1x I219 and I210 (Nuvo-5002E/P) 6x Gigabit Ethernet ports by Intel® 1x I219 and 5x I210 (Nuvo-5006E/ P)
PoE+	Optional IEEE 802.3at PoE+ PSE for GbE Ports 3 ~ 6, 80W total power budget
USB 3.1	4x USB 3.1 Gen1 (5 Gbps) ports via native xHCI controller
USB 2.0	4x USB 2.0 ports
Video Port	1x stacked VGA + DVI-D 2x DisplayPort, supporting 4K2K resolution (triple-independent display support)
Serial Port	2x software-programmable RS-232/ 422/ 485 port (COM1 & COM3) 1x RS-232 port (COM2)
Audio	1x Mic-in and 1x speaker-out
Storage Interface	
SATA HDD	2x internal SATA port for 2.5" HDD/ SSD installation, supporting RAID 0/1
mSATA	1x full-size mSATA port (mux with mini-PCIe)

Expansion Bus	
PCI/PCI Express	1x PCI slot in Cassette (Nuvo-5002P/5006P) 1x PCIe x16 slot @ Gen3, 8-lanes PCIE signals in Cassette (Nuvo-5002E/ 5006E)
Mini PCI-E	1x internal Mini PCIe socket with front-accessible SIM socket 1x internal Mini PCIe socket with internal SIM socket (mux with mSATA)
Expandable I/O	1x MezIO™ expansion port for Neousys' MezIO™ modules
Power Supply	
DC Input	1x 3-pin pluggable terminal block for 8~35VDC DC input
Remote Ctrl. & Status Output	1x 10-pin (2x5) wafer connector for remote on/off control and status LED output
Mechanical	
Dimension	240mm (W) x 225mm (D) x 90mm (H)
Weight	3.6kg
Mounting	Wall-mount (standard) or DIN-rail mount (optional)
Environmental	
Operating Temperature	-25°C ~ 70°C ** : i7-6700TE (35W TDP), i5-6500TE (35W TDP), i3-6100TE (35W TDP), Pentium G4400TE (35W TDP) -25°C ~ 70°C */** (configured as 35W CPU mode) -25°C ~ 50°C */** (configured as 65W/ 51W CPU mode) : i7-6700 (65W/51W TDP), i5-6500 (65W/51W TDP), i3-6100 (65W/51W TDP)
Storage Temperature	-40°C ~ 85°C
Humidity	10%~90% , non-condensing
Vibration	Operating, 5Grms, 5-500 Hz, 3 Axes (w/ SSD, according to IEC60068-2-64)
Shock	Operating, 50Grms, Half-sine 11ms Duration (w/ SSD, according to IEC60068-2-27)
EMC	CE/FCC Class A, according to EN 55022, EN 55024, EN 55032 & EN 60950

** For i7-6700 running 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 obtain higher operating temperature.*

*** For sub-zero operating temperature, a wide temperature HDD drive or Solid State Disk (SSD) is required.*

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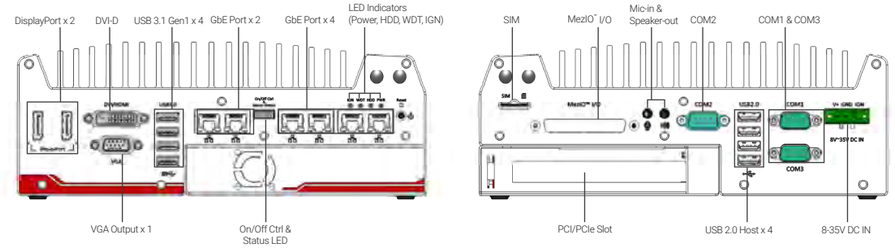
Appearance



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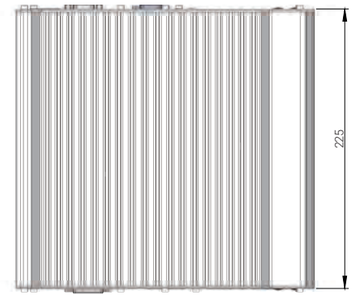

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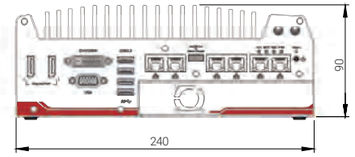

Ordering Information

Model No.	Product Description
Nuvo-5002E	Intel® 6th-Gen Core™ fanless controller with 2x GbE, PCI Express Cassette and MezIO™ interface
Nuvo-5002P	Intel® 6th-Gen Core™ fanless controller with 2x GbE, PCI Cassette and MezIO™ interface
Nuvo-5006E	Intel® 6th-Gen Core™ fanless controller with 6x GbE, PCI Express Cassette and MezIO™ interface
Nuvo-5006P	Intel® 6th-Gen Core™ fanless controller with 6x GbE, PCI Cassette and MezIO™ interface
Optional IEEE 802.3at PoE+ for GbE ports 3 ~ 6	

Optional Accessories

DINRAIL-O	DIN-rail mount assembly for Nuvo-5000 series
Fankit-25	Fan assembly for 1-slot Cassette, 25x25x10mm
PA-120W-OW	120W AC/DC power adapter 20V/6A; 18AWG/120cm; cord end terminals for terminal block,operating temperature : -30 to 70 °C.
Dmpbr-Nuvo5000_7000	Neousys' patented damping bracket assembly for Nuvo-7000E/DE/P
ETHY-100-2008S	Ethernet I/O expansion module with 8 isolated digital inputs and outputs
ETHY-100-2604S	Ethernet I/O expansion module with 8 isolated digital inputs and 4 relays outputs (coming soon)
Cassette Modules	
CSM-PoE354	Cassette module with PCIe-PoE354at and pre-installed passive heat-spreader
CSM-USB380	Cassette module with PCIe-USB380 and pre-installed passive heat-spreader
CSM-NV750	Cassette module with NVIDIA® GTX 750 Ti graphics card, pre-installed heat-spreader and fan
CSM-R800	Cassette module accommodating four 2.5" HDD/ SSD (support RAID 0/ 1/ 10)

MezIO™ Modules	
MezIO™-C180	MezIO™ module with 4x RS-232/ 422/ 485 ports and 4x RS-232 ports
MezIO™-C181	MezIO™ module with 4x RS-232/ 422/ 485 ports and 4x RS-422/ 485 ports
MezIO™-D220	MezIO™ module with 8-CH isolated digital input and 8-CH isolated digital output
MezIO™-D230	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	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-5006E-PoE and Nuvo-5006P-PoE support MezIO-G4P

All specifications and photos are subject to change without prior notice

Nuvo-5000LP Series

Intel® 6th-Gen Core™ i7/i5/i3 Fanless Controller with 6x GbE, MezIO™ Interface and Low-profile Chassis

Key Features

- **Intel® 6th-Gen Core™ i7/ i5/ i3 35W/ 65W LGA1151 CPU**
- **MezIO™ interface for easy function expansion**
- **Rugged, -25°C to 70°C fanless operation**
- **Up to 6x GigE ports, supporting 9.5 KB jumbo frame**
- **Up to 32GB, DDR4-2133 SODIMM**
- **One hot-swappable 2.5" HDD/ SSD and one fixed 2.5" HDD/ SSD, supporting RAID 0/ 1**
- **VGA/ DVI/ DP triple independent display, supporting 4K2K resolution**
- **77mm low-profile design**

Introduction

Nuvo-5002LP/ 5006LP are low-profile systems in the Nuvo-5000 family. They feature a 77mm low-profile chassis and yet retain extraordinary -25°C to 70°C wide operating temperature capability. Neousys Nuvo-5002LP/ 5006LP supports LGA1151 socket-type CPUs so one can choose an Intel® 6th-Gen Core™ i7/i5/i3, from 35W to 65W TDP CPU according to application performance and operation needs.

Nuvo-5002LP/ 5006LP has plentiful I/Os such as GbE, USB 3.1/ USB 2.0, COM and VGA/ DVI/ DP. It also incorporates Neousys' MezIO™ interface for additional or application-oriented I/O expansion. By installing an optional MezIO™ module, Nuvo-5002LP/ 5006LP transforms from a typical embedded controller to a ruggedized application platform that may include up to 11x COM ports, 32 DIO channels, ignition power control or customized application-specific I/Os.

Specifications

System Core	
Processor	Intel® Core™ i7-6700 (8M Cache,3.4/ 4.0 GHz, 65W TDP)* Intel® Core™ i5-6500 (6M Cache, 3.2/ 3.6 GHz, 65W TDP)* Intel® Core™ i3-6100 (3M Cache, 3.7 GHz, 51W TDP)* Intel® Pentium® G4400 (3M Cache, 3.3 GHz, 54W TDP)* Intel® Celeron® G3900 (2M Cache, 2.8 GHz, 51W TDP)* Intel® Core™ i7-6700TE (8M Cache, 2.4/ 3.4 GHz, 35W TDP) Intel® Core™ i5-6500TE (6M Cache, 2.3/ 3.3 GHz, 35W TDP) Intel® Core™ i3-6100TE (4M Cache, 2.7 GHz, 35W TDP) Intel® Pentium® G4400TE (3M Cache, 2.4 GHz, 35W TDP) Intel® Celeron® G3900TE (2M Cache, 2.3 GHz, 35W TDP)
Chipset	Intel® Q170 platform controller hub
Graphics	Integrated Intel® HD Graphics 530/ 510
Memory	Up to 32GB DDR4-2133 SDRAM (two SODIMM slots)
AMT	Supports AMT 11.0
TPM	Supports TPM 2.0
I/O Interface	
Ethernet	2x Gigabit Ethernet ports by Intel® I219 and I210 (Nuvo-5002LP) 6x Gigabit Ethernet ports by Intel® I219 and 5x I210 (Nuvo-5006LP)
PoE+	Optional IEEE 802.3at PoE+ PSE for GbE Ports 3 ~ 6, 80W total power budget
USB 3.1	4x USB 3.1 Gen1 (5 Gbps) ports via native xHCI controller
USB 2.0	4x USB 2.0 ports
Video Port	1x stacked VGA + DVI-D 2x DisplayPort, supporting 4K2K resolution (triple-independent display support)
Serial Port	2x software-programmable RS-232/ 422/ 485 port (COM1 & COM3) 1x RS-232 port (COM2)
Audio	1x Mic-in and 1x speaker-out
Storage Interface	
SATA HDD	1x hot-swappable HDD tray for 2.5" HDD/ SSD installation 1x internal SATA port for 2.5" HDD/ SSD installation, supporting RAID 0/ 1
mSATA	1x full-size mSATA port (mux with mini-PCIe)

Expansion Bus		
Mini PCI-E	1x internal mini PCI Express socket with front-accessible SIM socket 1x internal mini PCI Express socket with internal SIM socket (mux. with mSATA)	
Expandable I/O	1x MezIO™ expansion interface for Neousys MezIO™ modules	
Power Supply		
DC Input	1x 3-pin pluggable terminal block for 8~35VDC DC input	
Remote Ctrl. & Status Output	1x 10-pin (2x5) wafer connector for remote on/ off control and status LED output	
Mechanical		
Dimension	240mm (W) x 225mm (D) x 77mm (H)	
Weight	3.1kg	
Mounting	Wall-mount (standard) or DIN-rail mount (optional)	
Environmental		
Operating Temperature	-25°C ~ 70°C **	i7-6700TE (35W TDP) i5-6500TE (35W TDP) i3-6100TE (35W TDP) Pentium G4400TE (35W TDP)
	-25°C ~ 70°C */** (configured as 35W CPU mode) -25°C ~ 50°C */** (configured as 65W/ 51W CPU mode)	i7-6700 (65W/51W TDP) i5-6500 (65W/51W TDP) i3-6100 (65W/51W TDP)
Storage Temperature	-40°C ~ 85°C	
Humidity	10%~90% , non-condensing	
Vibration	Operating, 5 Grms, 5-500 Hz, 3 Axes (w/ SSD, according to IEC60068-2-64)	
Shock	Operating, 50 Grms, Half-sine 11 ms Duration (w/ SSD, according to IEC60068-2-27)	
EMC	CE/FCC Class A, according to EN 55022, EN 55024, EN 55032 & EN 60950	

** For i7-6700 running 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 obtain higher operating temperature.*

*** For sub-zero operating temperature, a wide temperature HDD drive or Solid State Disk (SSD) is required.*

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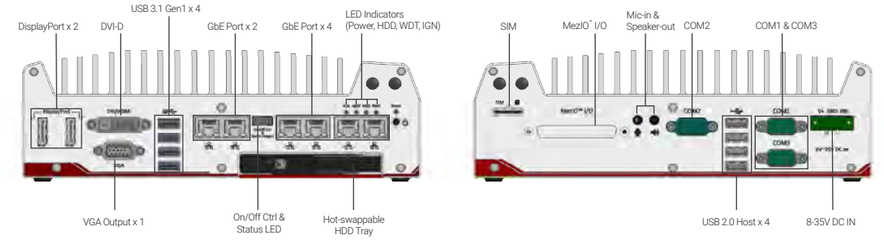
Appearance



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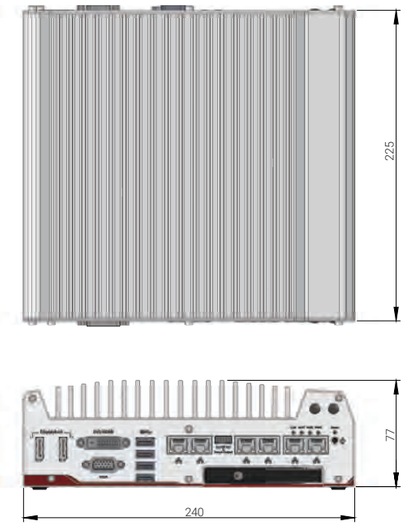

Unit : mm

Ordering Information

Model No.	Product Description
Nuvo-5002LP	Intel® 6th-Gen Core™ low-profile fanless controller with 2x GbE and MezIO™ interface
Nuvo-5006LP	Intel® 6th-Gen Core™ low-profile fanless controller with 6x GbE and MezIO™ interface
Optional IEEE 802.3at PoE+ for GbE ports 3 ~ 6	

Optional Accessories

DINRAIL-O	DIN-rail mount assembly for Nuvo-5000LP series
PA-120W-OW	120W AC/DC power adapter 20V/6A; 18AWG/120cm; cord end terminals for terminal block, operating temperature : -30 to 70 °C.
Dmpbr-Nuvo5000_7000	Neousys' patented damping bracket assembly for Nuvo-7000E/DE/P
ETHY-100-2008S	Ethernet I/O expansion module with 8 isolated digital inputs and outputs
ETHY-100-2604S	Ethernet I/O expansion module with 8 isolated digital inputs and 4 relays outputs (coming soon)

MezIO™ Modules			
MezIO™-C180	MezIO™ module with 4x RS-232/ 422/ 485 ports and 4x RS-232 ports	***MezIO™-V20-EP***	MezIO™ module with ignition power control function for in-vehicle application
MezIO™-C181	MezIO™ module with 4x RS-232/ 422/ 485 ports and 4x RS-422/ 485 ports	***MezIO™-U4***	MezIO™ module with 4x USB 3.1 ports
MezIO™-D220	MezIO™ module with 8-CH isolated digital input and 8-CH isolated digital output	***MezIO™-G4***	MezIO™ module with 4x GigE ports
MezIO™-D230	MezIO™ module with 16-CH isolated digital input and 16-CH isolated digital output	***MezIO™-G4P***	MezIO™ module with 4x IEEE 802.3at PoE ports

Only Nuvo-5006LP-PoE supports MezIO-G4P

All specifications and photos are subject to change without prior notice

Nuvo-5026E Series

Intel® 6th-Gen Core™ i7/ i5/ i3 Fanless Controller with Dual PCIe Slot Expansion Cassette, 6x GbE and MezIO™ Interface

Key Features

- **Intel® 6th-Gen Core™ i7/ i5/ i3 LGA1151 35W/ 65W**
- **Dual PCIe x8 slots in patented expansion Cassette***
- **MezIO™ interface for easy function expansion**
- **Rugged, -25°C to 70°C fanless operation**
- **6x GbE ports, supporting 9.5 KB jumbo frame**
- **Up to 32 GB, DDR4-2133 SODIMM**
- **Accommodates two 2.5" SATA HDD/ SSD with RAID 0/1 support**
- **VGA/ DVI/ DP triple independent display, supporting 4K2K resolution**

**R.O.C Patent No. M456527*

Introduction

Nuvo-5026E is a member of the Nuvo-5000 family with dual PCIe slots. The dual PCIe slots enhance expansion abilities while preserving all practical features such as ruggedness, performance and versatility. The expandability makes Nuvo-5026E more adaptable to various application needs while the two PCIe slots in the patented expansion Cassette are easy to access for PCIe card installation without the need to disassemble the system.
Nuvo-5026E supports LGA1151 6th-Gen Core™ processors. It offers processor selection flexibility from Core™ i7 to Celeron according to performance needs and operating environment. It also offers plenty of I/O functions such as 6x GbE, 4x USB 3.1, 3x COM ports and triple independent display support. In addition, Neousys' MezIO™ interface can also further expand system I/Os offering up to either 11x COM ports, 10x GbE, 8x USB 3.1, 32x DIO or ignition power control by installing an optional MezIO™ module.
Nuvo-5026E is an expandable and flexible platform with numerous I/O functions for various industrial applications.

Specifications

System Core	
Processor	Intel® Core™ i7-6700 (8M Cache,3.4/ 4.0 GHz, 65W TDP)* Intel® Core™ i5-6500 (6M Cache, 3.2/ 3.6 GHz, 65W TDP)* Intel® Core™ i3-6100 (3M Cache, 3.7 GHz, 51W TDP)* Intel® Pentium® G4400 (3M Cache, 3.3 GHz, 54W TDP)* Intel® Celeron® G3900 (2M Cache, 2.8 GHz, 51W TDP)* Intel® Core™ i7-6700TE (8M Cache, 2.4/ 3.4 GHz, 35W TDP) Intel® Core™ i5-6500TE (6M Cache, 2.3/ 3.3 GHz, 35W TDP) Intel® Core™ i3-6100TE (4M Cache, 2.7 GHz, 35W TDP) Intel® Pentium® G4400TE (3M Cache, 2.4 GHz, 35W TDP) Intel® Celeron® G3900TE (2M Cache, 2.3 GHz, 35W TDP)
Chipset	Intel® Q170 platform controller hub
Graphics	Integrated Intel® HD graphics 530 or 510 (CPU dependent)
Memory	Up to 32 GB DDR4-2133 SDRAM (two SODIMM slots)
AMT	Supports AMT 11.0
TPM	Supports TPM 2.0
I/O Interface	
Ethernet	6x Gigabit Ethernet ports by Intel® I219 and 5x I210
PoE+	Optional IEEE 802.3at PoE+ PSE for GbE Port 3 ~ Port 6, 80 W total power budget
USB 3.1	4x USB 3.1 Gen1 (5 Gbps) ports via native xHCI controller
USB 2.0	4x USB 2.0 ports
Video Port	1x stacked VGA + DVI-D 2x DisplayPort, supporting 4K2K resolution
Serial Port	2x software-programmable RS-232/ 422/ 485 port (COM1 & COM3) 1x RS-232 port (COM2)
Audio	1x Mic-in and 1x Speaker-out
Storage Interface	
SATA HDD	2x internal SATA port for 2.5" HDD/ SSD installation, supporting RAID 0/ 1
mSATA	1x full-size mSATA port (mux with mini-PCIe)

Expansion Bus		
PCI/PCI Express	2x PCIe x8 slot @ Gen3, 4-lanes PCIe signals in expansion Cassette	
Mini PCI-E	1x internal mini PCI Express socket with front-accessible SIM socket 1x internal mini PCI Express socket with internal SIM socket (mux with mSATA)	
Expandable I/O	1x MezIO™ expansion port for Neousys' MezIO™ modules	
Power Supply		
DC Input	1x 3-pin pluggable terminal block for 8~35VDC DC input	
Remote Ctrl. & Status Output	1x 10-pin (2x5) wafer connector for remote on/off control and status LED output	
Mechanical		
Dimension	240 mm (W) x 225 mm (D) x 111 mm (H)	
Weight	3.7 kg	
Mounting	Wall-mount (standard) or DIN-rail mount (optional)	
Environmental		
Operating Temperature	-25°C ~ 70°C **	i7-6700TE (35W TDP) i5-6500TE (35W TDP) i3-6100TE (35W TDP) Pentium G4400TE (35W TDP)
	-25°C ~ 70°C */** (configured as 35W CPU mode) -25°C ~ 50°C */** (configured as 65W/ 51W CPU mode)	i7-6700 (65W/51W TDP) i5-6500 (65W/51W TDP) i3-6100 (65W/51W TDP)
Storage Temperature	-40°C ~ 85°C	
Humidity	10%~90% , non-condensing	
Vibration	Operating, 5 Grms, 5-500 Hz, 3 Axes (w/ SSD, according to IEC60068-2-64)	
Shock	Operating, 50 Grms, Half-sine 11 ms Duration (w/ SSD, according to IEC60068-2-27)	
EMC	CE/ FCC Class A, according to EN 60950, EN55024 & EN55032	

** For i7-6700 running 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 obtain higher operating temperature.*
*** For sub-zero operating temperature, a wide temperature HDD drive or Solid State Disk (SSD) is required.*

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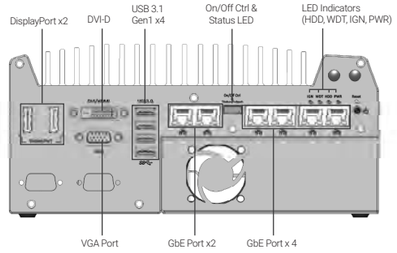
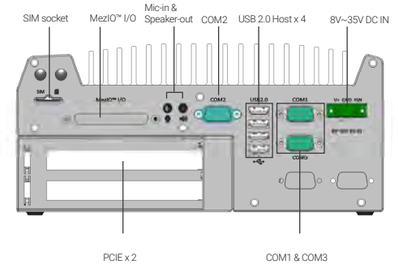
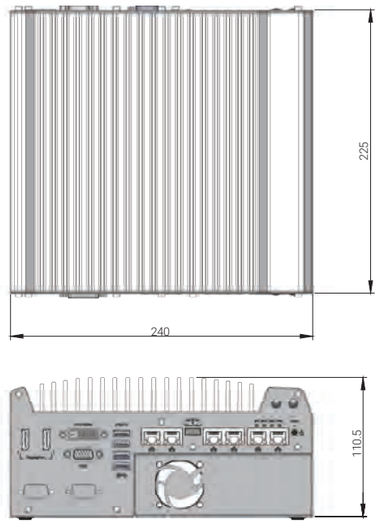
Appearance





Dimensions

Unit : mm



▲ Nuvo-5026E

Dual PCIe Cassette ▲

Ordering Information

Model No.	Product Description
Nuvo-5026E	Intel® 6th-Gen Core™ fanless controller with dual PCIe Cassette, 6x GbE and MezIO™ interface
Optional IEEE 802.3at PoE+ for GbE ports 3 ~ 6	

Optional Accessories

PA-160W-OW	160W AC/DC power adapter 20V/8A;18AWGx4C/120cm, cord end terminals for terminal block. operating temperature : -30 to 70 °C.
DINRAIL-O	DIN-rail mount assembly for Nuvo-5026E series
Dmpbr-Nuvo5000_7000	Neousys' patented damping bracket assembly for Nuvo-7000E/DE/P
ETHY-100-2008S	Ethernet I/O expansion module with 8 isolated digital inputs and outputs
ETHY-100-2604S	Ethernet I/O expansion module with 8 isolated digital inputs and 4 relays outputs (coming soon)
MezIO™ Modules	
MezIO™-C180	MezIO™ module with 4x RS-232/422/485 ports and 4x RS-232 ports
MezIO™-C181	MezIO™ module with 4x RS-232/422/485 ports and 4x RS-422/485 ports
MezIO™-D220	MezIO™ module with 8-CH isolated digital input and 8-CH isolated digital output
MezIO™-D230	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 usage
MezIO™-G4P	MezIO™ module with 4x Gigabit 802.3at PoE+ ports
MezIO™-G4	*Only Nuvo-5026E-PoE supports MezIO-G4P*
MezIO™-U4	MezIO™ module with 4x USB 3.1

All specifications and photos are subject to change without prior notice

Nuvo-5501 Series

Intel® 6th-Gen Core™ i7/ i5/ i3 Compact Fanless Embedded Controller with 3x GbE

Key Features

- **Compact 221 x 173 x 76.2 mm footprint**
- **Supports Intel® 6th-Gen Core™ i7/ i5/ i3 LGA 1151 socket CPU**
- **Rugged, -25°C to 70°C wide temperature fanless operation**
- **3x GbE and 4x USB 3.1 ports**
- **2x RS-232/ 422/ 485 ports and 2x RS-232 ports**
- **VGA + DVI dual display outputs**
- **Accommodates one 3.5" HDD or 2.5" HDD/ SSD**
- **Optional 8-CH isolated DI and 8-CH isolated DO**

Introduction

Nuvo-5501 series features compact fanless embedded controllers for the cost and space conscious. Based on Intel® Skylake platform, it is designed to provide cutting-edge performance and reliable operation in extreme environment. Its LGA 1151 socket offers users the flexibility to select a 35W CPU from Intel® 6th-Gen Core™ i to Celeron® lineup to suit application needs.

Nuvo-5501 is the most compact fanless embedded controller supporting Skylake LGA 1151 socket CPUs, measuring just 221 x 173 x 76.2 mm, it is easy to deploy in restricted spaces. In its compact enclosure, Nuvo-5501 features rich, front-accessible I/Os including 3x GbE, 4x USB 3.1 and 4x COM ports. There is even enough room for a 3.5" HDD, compatible with the latest storage capacities.

The compact Nuvo-5501 is a cost-effective solution that does not compromise on performance and reliability, making it the ideal embedded controller for various industrial applications.

Specifications

System Core	
Processor	- Intel® Core™ i7-6700TE (8M Cache, 2.4/ 3.4 GHz, 35W TDP) - Intel® Core™ i5-6500TE (6M Cache, 2.3/ 3.3 GHz, 35W TDP) - Intel® Core™ i3-6100TE (4M Cache, 2.7 GHz, 35W TDP) - Intel® Pentium® G4400TE (3M Cache, 2.4 GHz, 35W TDP) - Intel® Celeron® G3900TE (2M Cache, 2.3 GHz, 35W TDP)
Chipset	Intel® H110 platform controller hub
Graphics	Integrated Intel® HD 530/ 510 controller
Memory	Up to 16GB DDR4-2133 (single SODIMM slot)
I/O Interface	
Ethernet port	1x Gigabit Ethernet port (via Intel® I219-LM) 2x Gigabit Ethernet port (via Intel® I210-IT)
USB 3.1	4x USB 3.1 Gen1 (5 Gbps) ports
USB 2.0	2x USB 2.0 ports
Video port	1x VGA 1x DVI-D
Serial Port	2x software-programmable RS-232/ 422/ 485 ports 2x RS-232 ports
Isolated DIO	8-CH isolated DI and 8-CH isolated DO (optional)
Storage Interface	
SATA HDD	1x internal SATA port for 3.5" HDD or 2.5" HDD/ SSD
mSATA	1x full-size mSATA socket

Expansion Bus/ Internal I/O Interface	
mini-PCIe	1x full-size mini PCI Express socket
M.2	1x M.2 B key socket for 3G/ 4G options with SIM socket
USB	1x internal USB 2.0 port
Remote Ctrl. & Status Output	1x 2x6-pin 2.0mm pin-header connector for remote on/off control and status LED output
Power Supply	
DC Input	1x 3-pin pluggable terminal block for 8~35 VDC power input
Mechanical	
Dimension	221 mm (W) x 173 mm (D) x 76 mm (H)
Weight	2.8 Kg
Mounting	Wall-mount (standard) or DIN-rail mount (optional)
Environmental	
Operating Temperature	-25°C ~ 70°C */**
Storage Temperature	-40°C ~ 85°C
Humidity	10%~90% , non-condensing
Vibration	Operating, 5 Grms, 5-500 Hz, 3 Axes (w/ SSD, according to IEC60068-2-64)
Shock	Operating, 50 Grms, half-sine 11 ms duration (w/ SSD, according to IEC60068-2-27)
EMC	CE/ FCC Class A, according to EN 55022, EN 55024 & EN 55032

** The 100% CPU loading is applied using Passmark® BurnInTest 8.1. For detail testing criteria, please contact Neousys Technology*

*** For sub-zero operating temperature, a wide temperature HDD drive or Solid State Disk (SSD) is required.*

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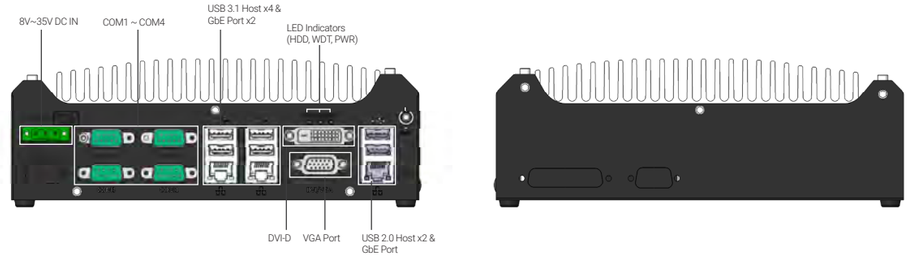
Appearance



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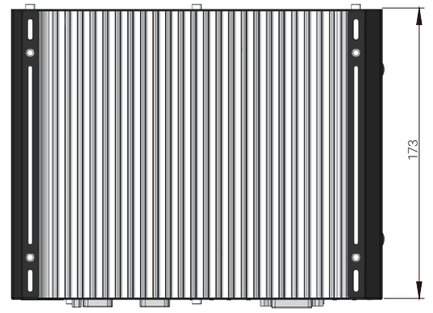

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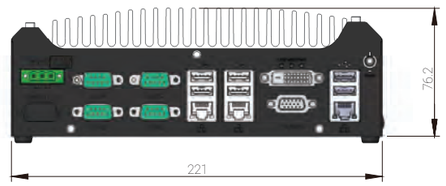

Ordering Information

Model No.	Product Description
Nuvo-5501	Intel® 6th-Gen Core™ compact fanless embedded controller with 3x GbE
Nuvo-5501-DIO	Intel® 6th-Gen Core™ compact fanless embedded controller with isolated DIO & 3x GbE

Optional Accessories

DINRAIL-31	DIN-rail mount assembly for Nuvo-5501 series
PA-120W-OW	120W AC/DC power adapter 20V/6A; 18AWG/120cm; cord end terminals for terminal block, operating temperature : -30 to 70 °C.

All specifications and photos are subject to change without prior notice

Nuvo-2500E/P Series

Intel® Celeron® Bay Trail Fanless Computer with Expansion Cassette

Key Features

- **Intel® Celeron® Bay Trail J1900 quad-core processor**
- **Compact 1x PCI/ PCIe expansion**
- **Rugged, -25°C to 70°C fanless operation**
- **Dual storage with 1x mSATA and 1x SATA**
- **Dual independent display via VGA and DVI connectors**
- **2x RS-232/ 422/ 485 + 2x RS-232**
- **Optional MAIO for DI/O, PWM and encoder signals**
- **8 to 35V DC wide-range DC input**

**R.O.C Patent No. M456527*

Introduction

Nuvo-2500 series are general purpose fanless computers with Intel® Bay Trail processor. Powered by the quad-core Bay Trail processor, Nuvo-2500 shows outstanding computing power and is more power efficient compared to its predecessors. Nuvo-2500 supports dual independent display, dual storage for isolating system and data, 2x Gigabit Ethernet ports, 4x COM ports and 4x USB ports.

With one PCI or PCIe expansion slot, Nuvo-2500 still retains its compact dimensions measuring just 205mm (W) x 146mm (D) x 76mm (H). The PCI or PCIe expansion slot is situated in Neousys Patented expansion Cassette. The patented design significantly reduces thermal impact from the installed add-on card thus making Nuvo-2500 extremely reliable and stable under harsh environments.

Wireless communication such as 3G, LTE, Wi-Fi and BT are supported by internal Mini PCIe socket with USIM socket. As an option, Nuvo-2500 can be equipped with an Auxiliary I/O that includes 4x isolated digital inputs, 8x isolated digital outputs, 6x PWM outputs, 1x quadrature encoder input and 2x ADC. The Auxiliary I/O facilitates simple sequence and speed control for various types of motors making Nuvo-2500 the perfect controller for your versatile applications.

Specifications

System Core	
Processor	Intel® Celeron® Bay Trail J1900 quad-core processor (2.42 GHz, 2M cache)
Graphics	Integrated Intel® HD graphics
Memory	Up to 8GB DDR3L 1333MHz SDRAM (single SODIMM slot)
Front Panel I/O Interface	
Ethernet	2x Gigabit Ethernet by Intel® Ethernet controller I210
Video Port	1x VGA output, supporting resolution up to 2560 x 1600
Serial Port	2x BIOS-configurable RS-232/ 422/ 485 (COM1 & COM2)
USB 3.1	1x USB 3.1 Gen1 (5 Gbps) port
USB 2.0	3x USB 2.0 ports
Power Input	1x 3-pin pluggable terminal block for DC input
Back Panel I/O Interface	
Video Port	1x DVI-D output via DVI-I, supporting resolution up to 2560 x 1600
Series Port	2x RS-232 (COM3 & COM4)
Audio	1x Mic-in and 1x speaker-out
Aux I/O Port	1x DB37 connector 1x DB-37 female connector 4x DI and 8x DO, 6x PWM, 1x encoder and 2x voltage inputs are available as an option of MAIO
Back Panel I/O Interface	
SATA 2.0	1x Internal SATA port for 2.5" HDD/ SSD installation
mSATA	1x internal half-sized mSATA (SATA + USB)

Expansion Bus	
Mini PCI-E	1x full-size mini PCI Express socket with USIM holder (PCIe x1 Gen2 and USB2 signal) 1x full-size mini PCI Express socket (USB signal)
PCIe (Nuvo-2500E)	1x PCI Express x4 slot with 1-lane Gen2 PCI Express Signal, supporting max. card size up to 173mm (W) x 121mm (H)
PCI (Nuvo-2500P)	1x PCI Slot with 33MHz/33-bit PCI, supporting max. card size up to 173mm (W) x 121mm (H)
Power Supply	
DC Input	8~35V DC
Mechanical	
Dimension	205 mm (W) x 145 mm (D) x 73 mm (H)
Weight	2.3 kg
Mounting	Wall-mount (standard) or DIN-rail mount (optional)
Environmental	
Operating Temperature	-25°C ~ 70°C with SSD, 100% CPU loading */**
Storage Temperature	-40°C ~85°C**
Humidity	10%~90% , non-condensing
Vibration	Operating, 5 Grms, 5-500 Hz, 3 Axes (w/ SSD, according to IEC60068-2-64)
Shock	Operating, 50 Grms, Half-sine 11 ms Duration (w/ SSD, according to IEC60068-2-27)
EMC	CE/FCC Class A, according to EN 55022 & EN 55024

** The 100% CPU loading is applied using Passmark® BurnInTest™ v7.0. For detail testing criteria, please contact Neousys Technology*

*** For sub-zero operating temperature, a wide temperature HDD drive or Solid State Disk (SSD) is required.*

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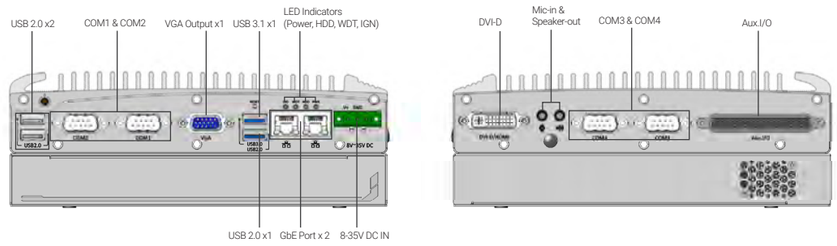
Appearance



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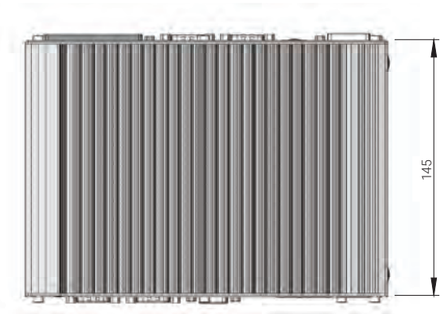

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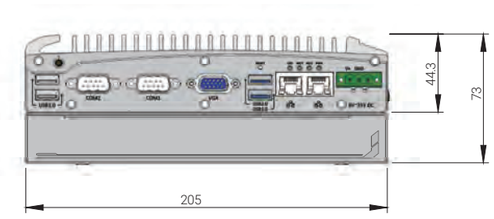

Ordering Information

Model No.	Product Description
Nuvo-2500P	Intel® Bay Trail Celeron® J1900 fanless embedded controller with 1x PCI slot in Neousys patented Cassette
Nuvo-2500E	Intel® Bay Trail Celeron® J1900 fanless embedded controller with 1x PCIe x4 slot (@ x1 signals) in Neousys patented Cassette
Optional IEEE 802.3af PoE for 2 GbE	
Optional MAIO (4x DI, 8x DO, 6xPWM, 1x encoder and 2x voltage input)	

Optional Accessories

Fankit-25	Fan assembly for 1-slot Cassette, 25x25x10 mm
DINRAIL-25	DIN-rail mount assembly for Nuvo-2500 series
PA-60W-OW	60W AC/DC power adapter with 12V, 5A DC output, cord end terminals for terminal block. operating temperature : -30 to 60 °C.
ETHY-100-2008S	Ethernet I/O expansion module with 8 isolated digital inputs and outputs
ETHY-100-2604S	Ethernet I/O expansion module with 8 isolated digital inputs and 4 relays outputs (coming soon)

Cassette Modules	
CSM-PoE354	Cassette module with PCIe-PoE354at and pre-installed passive heat-spreader
CSM-PoE352	Cassette module with PCIe-PoE352at and pre-installed passive heat-spreader
CSM-USB380	Cassette module with PCIe-USB380 and pre-installed passive heat-spreader
CSM-USB340	Cassette module with PCIe-USB340 and pre-installed passive heat-spreader

All specifications and photos are subject to change without prior notice

Nuvo-8034

Intel® 9th/ 8th-Gen Core™ i7/ i5/ i3 Rugged Embedded Computer with 7 PCIe/ PCI Expansion Slots

CE FC

Key Features

- **Supports Intel® 9th/ 8th-Gen Core™ i7/ i5 /i3 LGA1151 CPU**
- **Two x16 PCIe, two x8 PCIe, and three PCI slots**
- **Supports single NVIDIA® GPU card with up to 180W TDP**
- **8-ch isolated DI and 8-ch isolated DO**
- **2x GbE ports with screw-lock**
- **4x USB 3.1 Gen2 and 4x USB 3.1 Gen1 ports with screw-lock**
- **Two front-accessible, hot-swappable 2.5" SATA HDD/ SSD with RAID 0/ 1 support**
- **M.2 2280 M key NVMe (Gen3 x4) for fast storage access**

Preliminary

Introduction

Nuvo-8034 is a new-breed of box-PC offering 7 expansion slots in a comparatively compact size. Of its four PCIe slots, two are x16 slots (@Gen3, 8-lanes) connected directly to the CPU PEG port to deliver up to 8 GB/s bandwidth for GPU and high speed I/O cards, and two are x8 slots (@Gen3, 4-lanes) from PCH for general-purpose usage. The system is capable of accmmodating one 180W NVIDIA® GPU for modern AI applications. Additionally, there are 3 PCI slots to support legacy PCI cards for general industrial usage.

Nuvo-8034 supports Intel® 9th/ 8th-Gen Core™ i processor with workstation-grade Intel® C246 chipset to offer superior computing power. Utilizing Neousys' distinctive power design, Nuvo-8034 can handle heavy power consumption of multiple PCIe and PCI expansion cards with 8~35V wide-range DC input. The system features two hot-swappable trays that support 2.5" SATA SSD/ HDD on the front panel with RAID 0/ 1 support, making it easier to access when placed inside a cabinet. External I/O wise, Nuvo-8034 offers 8-channel isolated DI and 8-channel isolated DO for industrial automation, eight USB 3.1 Gen1/ Gen2 ports with screw-lock for USB3 cameras.

With an assortment of I/O ports and flexible 7-slot PCIe/ PCI expandability, Nuvo-8034 is an all-around rugged solution that can satisfy various industrial applications such as machine vision, industrial automation and data analytics.

Specifications

System Core	
Processor	Supporting Intel® Xeon® E and 9th/ 8th- Gen CPU (LGA1151 socket) - Intel® Xeon® Processor 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
Chipset	Intel® C246 platform controller hub
Graphics	Independent GPU via x16 (@ x8 signals) PEG port, or integrated Intel® UHD graphics 630
Memory	Up to 128 GB ECC/ non-ECC DDR4 2133 SDRAM (four SODIMM slots)
AMT	Supports AMT 12.0
TPM	Supports TPM 2.0
I/O Interface	
Ethernet	1x Gigabit Ethernet port by Intel® I219-LM with screw-lock 1x Gigabit Ethernet port by Intel® I210-IT with screw-lock
Video Port	1x VGA, supporting 1920 x 1200 resolution 1x DVI-D, supporting 1920 x 1200 resolution 1x DisplayPort, supporting 4096 x 2304 resolution
Serial Port	2x software-programmable RS-232/422/485 ports (COM1/ COM2) 2x RS-232 ports (COM3/ COM4)
USB 3.1	4x USB 3.1 Gen2 (10 Gbps) ports with screw-lock 4x USB 3.1 Gen1 (5 Gbps) ports with screw-lock
USB 2.0	1x USB 2.0 port (internal use)
Isolated DIO	8x isolated DI and 8x isolated DO
Audio	1x 3.5 mm jack for mic-in and speaker-out
Storage Interface	
SATA HDD/ SSD	2x hot-swappable trays for 2.5" HDD/ SSD installation, supporting RAID 0/ 1
M.2	1x M.2 2280 M key socket (PCIe Gen3 x4) for NVMe SSD or Intel® Optane™ memory

Storage Interface	
mSATA	2x full-size mSATA port (mux with mini-PCIe)
Internal Expansion Bus	
PCI Express	2x PCIe x16 slot@Gen3, 8-lanes 2x PCIe x8 slots@Gen3, 4-lanes
PCI	3x 33MHz/ 32-bit 5V PCI slots
M.2	1x M.2 2242 B key socket supporting dual SIM mode with selected M.2 LTE module
mini-PCIe	1x full-size mini PCI Express socket with internal SIM socket (mux. with mSATA)
Power Supply	
DC Input	1x 3-pin pluggable terminal block for 8~35VDC DC input
Remote Ctrl.	1x 3-pin pluggable terminal block for remote control
Mechanical	
Dimension	259mm(W) x 280mm(D) x 198mm(H)
Weight	7kg
Mounting	Wall-mount
Environmental	
Operating Temperature	-25°C ~ 60°C */**
Storage Temperature	-40°C ~ 85°C
Humidity	10%~90% , non-condensing
Vibration	Operating, MIL-STD-810G, Method 514.6, Category 4
Shock	Operating, MIL-STD-810G, Method 516.6, Procedure I, Table 516.6-II
EMC	CE/FCC Class A, according to EN 55032 & EN 55024

** For i7-9700E and i7-8700 running 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 obtain higher operating temperature.*

*** For sub-zero operating temperature, a wide temperature HDD or Solid State Disk (SSD) is required.*

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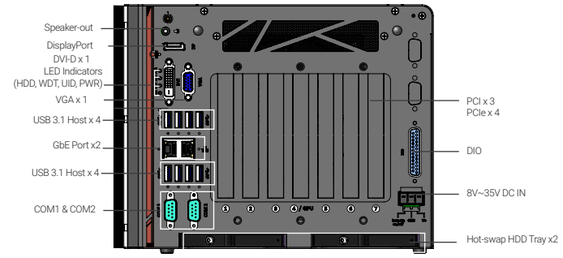
Appearance



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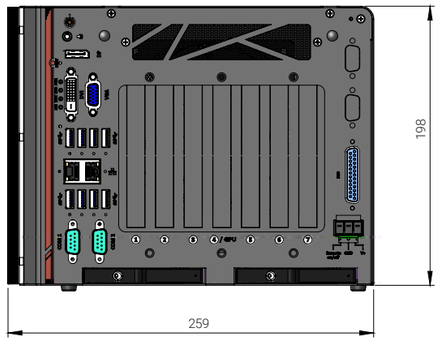
Unit : mm



Ordering Information

Model No.	Product Description
Nuvo-8034	Intel® 9th/ 8th-Gen Core™ i7/ i5/ i3 embedded computer with 2x PCIe x16(@ x8 signals), 2x PCIe x8(@ x4 signals) and 3x PCI slots

Optional Accessories

PA-160W-OW	160W AC-DC power Adapter, 20V 8A , 90~264VAC 127~370VDC, Open-Wire Terminal, -30°C~70°C
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-480W-DIN	480W AC-DC power Adapter(SDR-480-24) DIN-rail mount, 24V 20A, 90~264VAC/127~370VDC, Terminal Block, -20°C~70°C
Cbl-IDC210F-DB9M-20CM	10Pin Female to DB9 Male Cable, 20CM

All specifications and photos are subject to change without prior notice

Nuvo-6000 Series

Intel® 6th-Gen Core™ i7/ i5/ i3 Fanless Box-PC with Up to 5 PCIe/ PCI Expansion Slots

CE FC

Key Features

- **Supports Intel® 6th-Gen Core™ i7/ i5/ i3, Pentium® and Celeron® LGA1151 CPU**
- **Up to five expansion slots**
  - **x16 PCIe, x8 PCIe and three PCI slots (Nuvo-6032)**
  - **x16 PCIe and x8 PCIe slots (Nuvo-6002)**
- **Rugged, -25 °C to 60 °C fanless operation**
- **2x GbE, 4x USB 3.1 and 5x COM ports**
- **Dual DVI display outputs**
- **Up to 3x 2.5" SATA HDD/SDD and 1x mSATA socket**
- **Wall-mounting, (optional DIN-rail and rack-mount)**
- **Optional fan with automatic temperature sensing and fan control**

Introduction

Nuvo-6000 series is the perfect replacement for your bulky rack-mount or wall-mount IPC systems. Leveraging Intel® 6th-Gen Skylake platform, it delivers the same computing power as traditional IPCs, but in a compact fanless form-factor.

Nuvo-6000 series supports LGA1151 socket-type CPU, you can choose from Core™ i7 to Celeron® depending on your budget/ application needs. Its' 5-slot capacity offer the same level of expandability as most IPCs. The front-accessible I/O design includes 2x GbE, 4x USB 3.1 and 5x COM ports, making it easier to access your Nuvo-6000 when it's placed inside a cabinet or a rack.

Neousys' proven fanless design on Nuvo-6000 translates to extraordinary reliability in rugged industrial conditions while its versatile mounting options make it fit for desktop, cabinet or a 19" rack. With similar performance, cost, compact form-factor and reliability, Nuvo-6000 series speaks for itself.

Specifications

	Nuvo-6032	Nuvo-6002
System Core		
Processor	Supports Intel® 6th-Gen Core™, Pentium® and Celeron® LGA1151 CPU Intel® Core™ i7-6700TE (8M Cache, 2.4/ 3.4 GHz, 35W TDP) Intel® Core™ i5-6500TE (6M Cache, 2.3/ 3.3 GHz, 35W TDP) Intel® Core™ i3-6100TE (4M Cache, 2.7 GHz, 35W TDP) Intel® Pentium® G4400TE (3M Cache, 2.4 GHz, 35W TDP) Intel® Celeron® G3900TE (2M Cache, 2.3 GHz, 35W TDP)	
Chipset	Intel® H110 platform controller hub	
Graphics	Integrated Intel® HD 530/ 510 controller	
Memory	Up to 16 GB DDR4-2133 (single SODIMM slot)	
I/O Interface		
Ethernet	1x Gigabit Ethernet port by Intel® I219-LM 1x Gigabit Ethernet port by Intel® I210-IT	
Video Port	2x DVI-Ds for DVI outputs	
Serial Port	2x software-programmable RS-232/ 422/ 485 ports 3x 3-wire RS-232 ports	
USB 3.1	4x USB 3.1 Gen1 (5 Gbps) ports	
Audio	1x Speaker-out	
Storage Interface		
SATA HDD	3x SATA ports for 2.5" HDD/ SSD installation	1x SATA port for 2.5" HDD/ SSD installation
mSATA	1x full-size mSATA socket	

	Nuvo-6032	Nuvo-6002
Expansion Bus		
PCI Express	1x PCIe x16 slot @ Gen3, 16-lanes PCIE signals 1x PCIe x8 slot @ Gen2, 4-lanes PCIE signals	
PCI	3x 33MHz/ 32-bit PCI slots	-
Remote Ctrl. & Status Output	1x 2x6-pin 2.0mm pin-header connector for remote on/off control and status LED output	
Power Supply		
DC Input	1x 3-pin pluggable terminal block for 8~35V DC DC input	
Mechanical		
Dimension	184mm(W)x225mm(D)x174mm(H)	124mm (W)x225mm(D)x174mm(H)
Weight	3.5 kg	2.8 kg
Mounting	Wall-mount (standard), DIN-rail mount (optional) or Rack-mount (optional)	
Environmental		
Operating Temperature	-25°C ~ 60°C */**	
Storage Temperature	-40°C ~ 85°C	
Humidity	10%~90% , non-condensing	
Vibration	Operating, 5 Grms, 5-500 Hz, 3 Axes (w/ SSD, according to IEC60068-2-64)	
Shock	Operating, 50 Grms, Half-sine 11 ms Duration (w/ SSD, according to IEC60068-2-27)	
EMC	CE/FCC Class A, according to EN 55022, EN 55024 & EN 55032	

** The 100% CPU loading is applied using Passmark® BurnInTest 8.1. For detail testing criteria, please contact Neousys Technology*

*** For sub-zero operating temperature, a wide temperature HDD drive or Solid State Disk (SSD) is required.*

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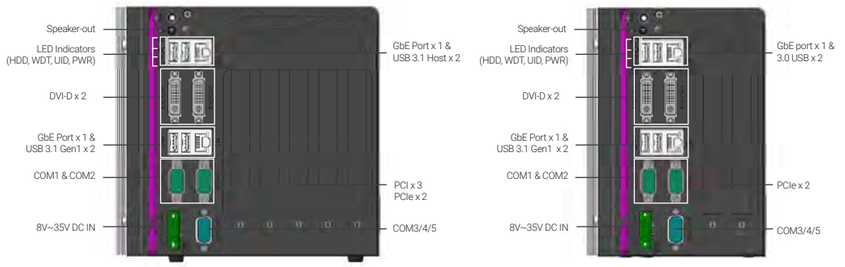
Appearance



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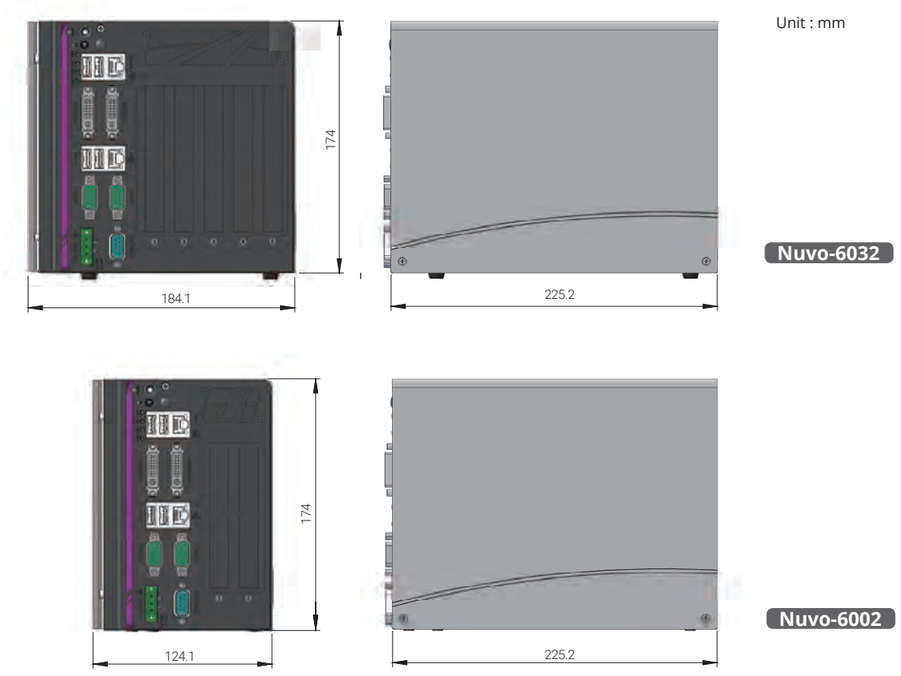
Unit : mm



Ordering Information

Model No.	Product Description
Nuvo-6032	Intel® 6th-Gen Core™ fanless Box-PC with 1x PCIe x16 slot, 1x PCIe x8 (@ x4 signals) slot and 3x PCI slots
Nuvo-6002	Intel® 6th-Gen Core™ fanless Box-PC with 1x PCIe x16 slot and 1x PCIe x8 (@ x4 signals) slot

Optional Accessories

Rmkit-Nuvo6000	Rack mounting assembly for Nuvo-6000 series
DINRAIL-E	DIN-rail mount assembly for Nuvo-6000 series
Fankit-80	Fan assembly for Nuvo-6000 series, 80x80x15 mm
PA-120W-OW	120W AC/DC power adapter 20V/6A; 18AWG/120cm; cord end terminals for terminal block, operating temperature : -30 to 70 °C.
PA-160W-OW	160W AC/DC power adapter 20V/8A;18AWGx4C/120cm, cord end terminals for terminal block. operating temperature : -30 to 70 °C.
Cbl-DB9F-3DB9M-15CM	1x DB9 (female) to 3x DB9 (male), for Nuvo-6000 series, length: 15CM

All specifications and photos are subject to change without prior notice

Nuvo-2400 Series

Intel® Celeron® Bay Trail fanless Shoebox IPC with Dual Display Output, Dual GbE and Triple PCI/PCIe slots

Key Features

- **Intel® Celeron® Bay Trail J1900 quad-core processor**
- **3x PCI slots or 1x PCIe x4 + 2x PCI slots**
- **Rugged, -25°C to 70°C fanless operation**
- **Dual independent display via DVI-I**
- **2x SATA ports for 2.5" HDD/ SSD**
- **2x RS-232/ 422/ 485 and 2x RS-232**
- **Optional isolated 8-ch DI and 8-ch DO**
- **8 to 25V DC wide-range input**

Introduction

Nuvo-2400 series are fanless shoebox IPCs with 3 PCI or 2 PCI + 1 PCIe expansion slots. The expansion slots are provided for add-on cards, such as COM port cards and frame grabbers. Nuvo-2430 provides 3 PCI slots, while Nuvo-2421 provides one PCIe x4 slot with and two PCI slots (1-lane PCI Express 2.0 signal).

Nuvo-2400 series facilitate the integration of both remote on/ off switch and the system status indicators with corresponding signals reserved for buttons and LEDs outside of Nuvo-2400 so users can power on/ off Nuvo-2400 externally. Furthermore, there are optional 24V DC rated and isolated 8-channel digital inputs/ 8-channel digital outputs. This makes Nuvo-2400's DI/O compatible with many industrial sensors, indicators, coils and actuators.

Powered by Intel® Celeron® Bay Trail J1900 series quad-core processor, Nuvo-2400 series show outstanding computing power and is even more power efficient compared to its predecessors. Nuvo-2400 supports dual independent displays, dual 2.5" SATA bays and dual gigabit LAN ports with teaming and PXE. These features, together with 3 expansion slots, maximize the flexibility of Nuvo-2400 for various applications.

Specifications

System Core	
Processor	Intel® Celeron® Bay Trail J1900 quad-core processor (2.42GHz, 2M cache)
Graphics	Integrated Intel® HD graphics
Memory	Up to 8GB DDR3L-1333MHz SDRAM (single SODIMM slot)
Front Panel I/O Interface	
Ethernet	2x Gigabit Ethernet by Intel® Ethernet controller I210
Video Port	1x DVI-I for VGA and DVI dual independent display support
Serial Port	2x BIOS-configurable RS-232/ 422/ 485 (COM1 & COM2)
USB 3.1	1x USB 3.1 Gen1 (5 Gbps) ports
USB 2.0	3x USB 2.0 ports
Audio	1x Mic-in and 1x speaker-out
Internal I/O Interface	
Serial Port	2x RS-232 (COM3 & COM4)
Parallel Port	1x parallel port
Isolated DIO	Optional 8-CH DI and 8-CH DO (polling mode only)
Remote Control & Status Output	1x 3-pin 2.0mm wafer connector for remote on/ off control 1x 2x6-pin 2.0mm pin-header connector for status output
Storage Interface	
SATA HDD	2x internal SATA ports for 2.5" HDD/ SSD installation

Expansion Bus	
PCI	3x PCI Slot with 33MHz, 32-bit PCI signal (Nuvo-2430) 2x PCI Slot with 33MHz, 32-bit PCI signal (Nuvo-2421)
PCI Express (Nuvo-2421 only)	1x PCI Express x4 slot with 1-lane Gen2 PCI Express signal
Power Supply	
DC Input	8~25V DC
Mechanical	
Dimension	139 mm (W) x 225 mm (D) x 160 mm (H)
Weight	2.2 kg
Mounting	Wall-mount (standard) or DIN-rail mount (optional)
Environmental	
Operating Temperature	-25°C ~ 70°C, 100% CPU loading */**
Storage Temperature	-40°C ~ 85°C
Humidity	10%~90% , non-condensing
Vibration	Operating, 5 Grms, 5-500 Hz, 3 Axes (w/ SSD, according to IEC60068-2-64)
Shock	Operating, 50 Grms, Half-sine 11 ms Duration (w/ SSD, according to IEC60068-2-27)
EMC	CE/FCC Class A, according to EN 55022, EN 55024

** The 100% CPU loading is applied using Passmark® BurnInTest™ v7.0. For detail testing criteria, please contact Neousys Technology*

*** For sub-zero operating temperature, a wide temperature HDD drive or Solid State Disk (SSD) is required.*

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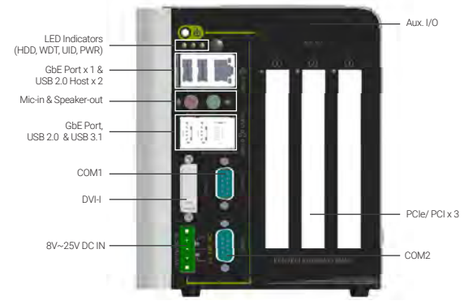
Appearance



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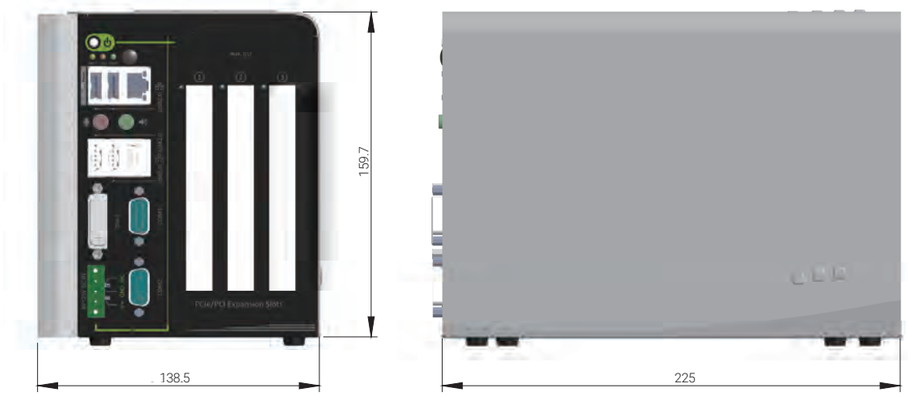
Unit : mm



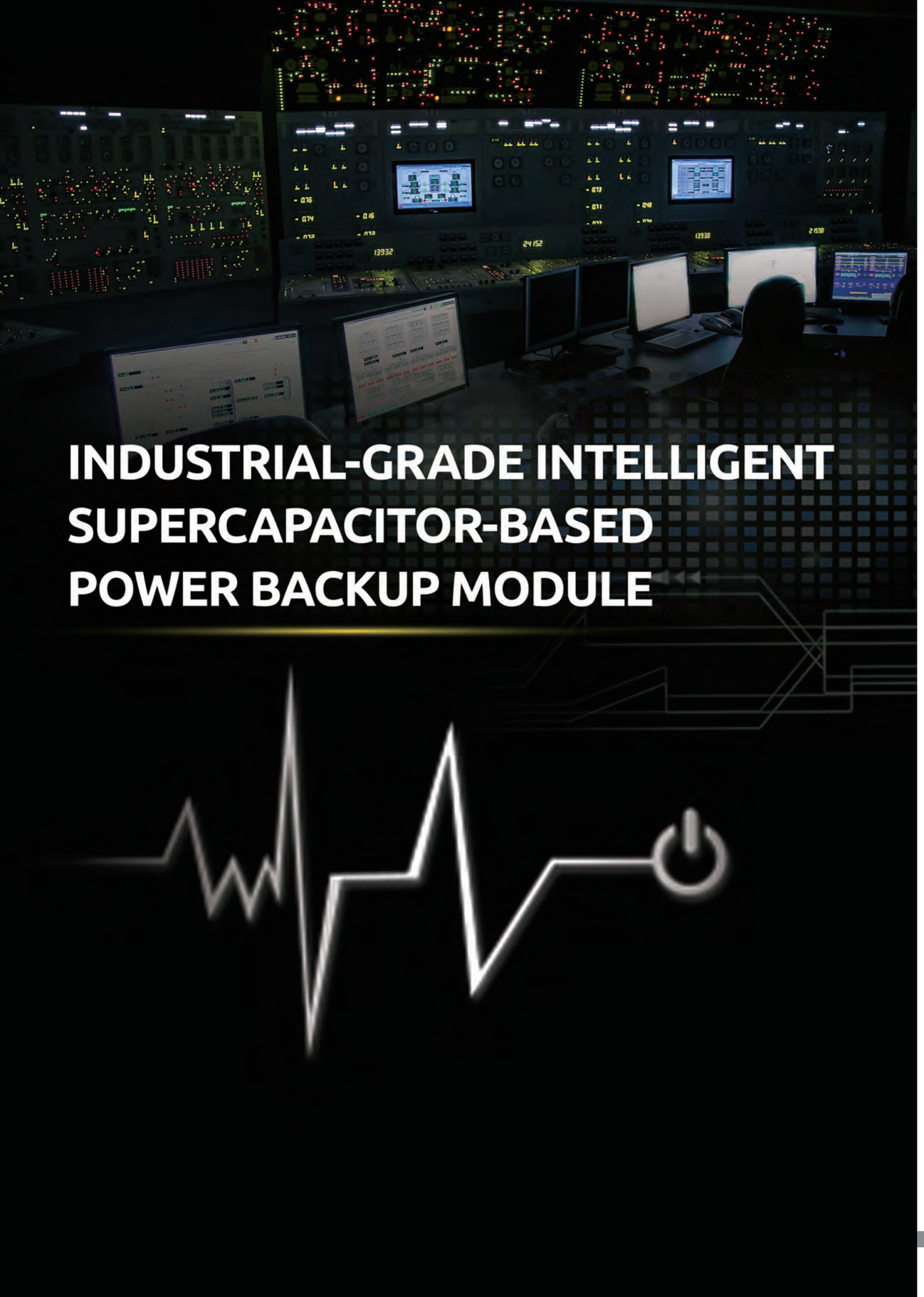
Ordering Information

Model No.	Product Description
Nuvo-2430	Intel® Bay Trail Celeron® J1900 fanless shoe-box IPC with dual display, dual GbE and 3x PCI slots
Nuvo-2421	Intel® Bay Trail Celeron® J1900 fanless shoe-box IPC with dual display, dual GbE , 2x PCI slots and one PCIe x4 slot
Optional isolated DIO (8 DI + 8 DO)	

Optional Accessories

Panel/ cable kit for 2x COM ports	
Panel/ cable kit for 1x COM + 1x LPT ports	
Fankit-80	Fan assembly for Nuvo-2400 series, 80x80x15 mm
DINRAIL-E	DIN-rail mount assembly for Nuvo-2400 series
PA-60W-OW	60W AC/DC power adapter with 12V, 5A DC output, cord end terminals forterminal block. operating temperature : -30 to 60 °C

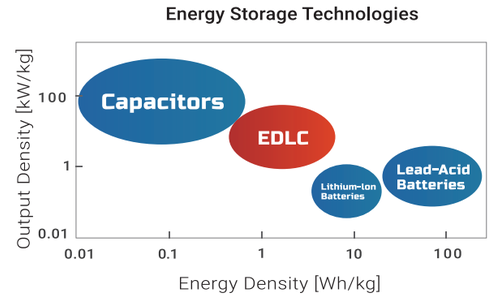
All specifications and photos are subject to change without prior notice



Supercapacitor-based Power Backup Solution

Battery vs. Supercapacitor

For decades, battery has been the preferred form of energy storage as it has high energy density (10~100 Wh/kg). However, limited by operating temperature (typically 0°C~40°C) and cycle life (2 years or 500 charge-discharge cycles), battery is neither rugged nor durable enough for industrial applications. Supercapacitor, also called electric double-layer capacitor (EDLC), is an emerging category of capacitor offering 10~100 times more energy density than electrolytic capacitor (1~10 Wh/kg). In addition to its impressive energy density, supercapacitor also has a wide operating temperature range (-40°C~85°C) and long operating life (10 years or 500,000 charge-discharge cycles). These two traits help make it a reliable industrial power backup solution.

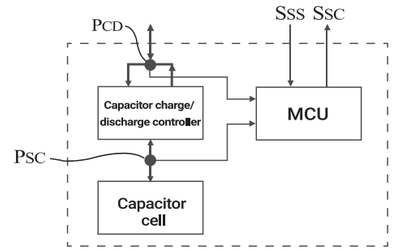


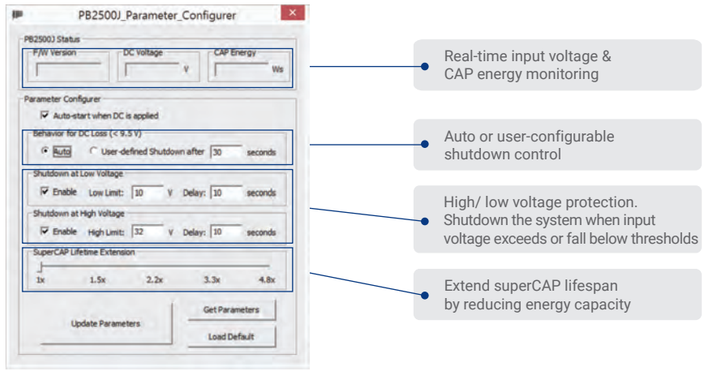
Neousys' Patented CAP Energy Management Technology

To design and create a reliable supercapacitor-based power backup system requires fundamental techniques such as charge/ discharge control, active load balance and DC/ DC regulation. But the real challenge is how to get the most out of the capacitor energy while ensuring the system shuts down safely during the blackout.

At Neousys Technology, we have patented an architecture (R.O.C. Patent No. I598820) that incorporates a microprocessor along with supercapacitor and charge/ discharge controller. The proprietary firmware embedded in the MCU not only monitors energy level continuously, it also automatically initiates soft-shutdown to prevent data loss/ corruption.

The patented architecture provides sophisticated features such as real-time energy monitoring, high/low voltage protection and auto/ manual shutdown control. Users can also extend the lifespan of ultracapacitors up to 4.8x via the parameter configuration utility.





Supercapacitor-based Power Backup Solution vs. UPS

Combining supercapacitors and our patented architecture, Neousys introduces a revolutionary supercapacitor-based power backup solution for industrial applications. Compared to battery-based UPS, it has wider operating temperature, extended operating life, adequate backup time to secure your embedded controller against unforeseen power outages.

	PB-2500J	PB-9250J	Off-line UPS	Interactive UPS	On-line UPS
Energy storage technology	Supercapacitor	Supercapacitor	Battery	Battery	Battery
Backup time	1 ~ 3 mins	1 ~ 10 mins	> 30 mins	> 30 mins	> 30 mins
Operating temperature	**-25°C ~ 65°C**	**-25°C ~ 65°C**	0°C ~ 40°C	0°C ~ 40°C	0°C ~ 40°C
Lifespan	**> 10 yrs**	**> 10 yrs**	2 yrs @ 25°C	2 yrs @ 25°C	2 yrs @ 25°C
Regulated power output	Yes	Yes	No	No	Yes
Shutdown control	Automatic, plug and play	Automatic, plug and play	Via RS-232 and software	Via RS-232 and software	Via RS-232 and software

All specifications and photos are subject to change without prior notice

PB-9250J-SA/ PB-4600J-SA

Industrial-grade Standalone Intelligent Supercapacitor-based Uninterruptible Power Backup Module

Key Features

- **Universal standalone power backup module compatible with all box-PCs**
- **Supercapacitor-based, -25 to 65°C wide temperature operation**
- **9250 watt-second energy capacity**
- **Maximum 180W output power for the connected back-end system**
- **Over 10 years lifespan, and 500,000 charging/ discharging cycles**
- **Patented CAP energy management technology***
  - **Extending back-up time in the event of an unforeseen power outage**
  - **Monitoring energy and power consumption to extend operation time for safe system shutdown**
- **Versatile operating mode**
  - **Normal backup mode**
  - **Ignition control mode for standard box-PC and in-vehicle controller**
- **EN 50155 certificate**

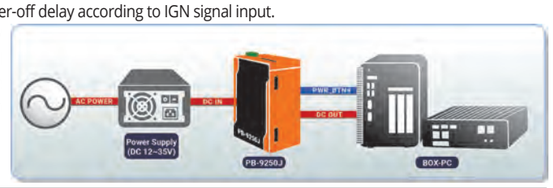
**R.O.C Patent No. I598820*

Introduction

PB-9250J-SA is a standalone power backup module that can protect your box-PC against power outages. Utilizing state-of-the-art supercapacitor technology, it can operate in harsh environments from -25 to 65°C, and have extremely high durability lasting over 10 years.

PB-9250J-SA is composed of eight 370F/ 3.0V supercapacitors, which offers much longer lifespan than its 2.7V counterpart, and stores 9250 watt-second energy to offer extra extended operation time to backup your system. Thanks to Neousys' patented CAP energy management technology, It can reliably supply 180W power to the back-end system and automatically manage boot and shutdown without installing additional drivers/ software. In addition to UPS-like power backup mode, it also offers two advanced ignition control modes for in-vehicle usage. PB-9250J-SA can work with either standard box-PC or in-vehicle controller to provide stable power supply and execute user-configurable power-on/ power-off delay according to IGN signal input.

Featuring various modes, automatic shutdown control and up to 180W output power, PB-9250J-SA can work with most off-the-shelf box-PCs. And with properties such as maintenance-free energy storage and uninterruptible power supply, PB-9250J-SA can prevent the connected back-end system from data loss during power outage in harsh industrial environments!



Specifications

	PB-9250J-SA	PB-4600J-SA
Supercapacitor Configuration		
Composition	8x 370F, 3.0V supercapacitors	4x 370F, 3.0V supercapacitors
Capacity	9250 watt-second	4600 watt-second
Expected lifespan	>10 years *	
Lifecycle	500,000 charging/ discharging cycles*	
Power Specification		
Input Voltage	12~35 VDC	
Input Connector	1x 3-pin pluggable terminal block (V+, GND, IGN_IN)	
Output Voltage	Charge mode: DC_IN bypass (DC_OUT = DC_IN) Discharge mode: 12 or 24V	
Output Power	Maximum 180W output**	Maximum 100W output**
Output Connector	1x 3-pin pluggable terminal block (V+, GND, IGN_OUT)	
I/O Interface		
COM Port	1x DB9 for 3-wire RS-232	
Isolated DIO	1x 10-pin pluggable terminal block for - PWR_BTN# output - SYS_STAT input	

	PB-9250J-SA	PB-4600J-SA
Mechanical		
Dimension	82.5mm(W) x 175.2mm(H) x 128.2mm(D)	
Weight	1.7 kg	1.68kg
Mounting	DIN-rail mount (standard) or Wall-mount (optional)	
Environmental		
Operating Temperature	-25°C ~ 65°C -40°C ~ 85°C with reduced energy capacity	
Storage Temperature	-40°C ~ 85°C	
Vibration	Compliant with IEC61373:2010, Category 1, Class B Body mounted (part of EN 50155)	
Shock	Compliant with IEC61373:2010, Category 1, Class B Body mounted (part of EN 50155)	
EMC	Compliant with EN 50155:2007, CE/FCC Class A, according to EN 55032 & EN 55035	

** To achieve > 10 years lifespan under 24/7 at 65°C operation, please charge PB-9250J-SA to 6525J energy level using the 4.8x SuperCAP Lifetime Extension setting (please refer to the user manual for details). Once the rated lifetime or cycle life has been reached, the capacity of supercapacitor may decrease up to 30% and ESR may increase up to 100% from initial values.*

*** Backup time for uninterruptible operation may be reduced when sustaining a back-end system with high power consumption.*

Ordering Information

Model No.	Product Description
PB-9250J-SA	Standalone intelligent supercapacitor-base power backup module with 9250 W·s energy capacity
PB-4600J-SA	Standalone intelligent supercapacitor-base power backup module with 4600 W·s energy capacity

Optional Accessories

Wmkit-V-PB9250J	Wall-mount assembly for PB-9250J-SA Series, vertical type

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PB-2500J Series

Industrial-grade Intelligent Supercapacitor-based Uninterruptible Power Backup Module

Key Features

- **Supercapacitor-based, -25 to 65°C wide temperature operation**
- **2500 watt-second energy capacity**
- **Up to 10 years lifespan and 500,000 charging/ discharging cycles**
- **Patented CAP energy management technology***
  - **Maximizes back-up time in an event of unforeseen power outage**
  - **Monitors energy consumed and estimates the time required for system shutdown**
- **User-configurable operating parameters**
  - **Auto/ manual shutdown control**
  - **High/ low voltage protection**
  - **UltraCAP energy/ lifespan configuration**

**R.O.C Patent No. I598820*

Introduction

Neousys' PB-2500J series is an innovative power backup solution for demanding industrial applications. Utilizing supercapacitor technology, it features -25°C to 65°C operating temperature range and extremely high durability. Compared to traditional battery-based UPS systems, PB-2500J series can sustain superb reliability in extreme temperature environments and eliminates the drawback of battery performance degradation over time.

PB-2500J series is composed of eight 100F supercapacitors to provide 2500 watt-second stored energy to sustain your computer during power outage and depending on your system's power consumption, it could be from seconds to minutes. But what makes PB-2500J novel is its patented CAP energy management technology, an on-board processor that constantly monitors power consumption and evolves with the system. During a power outage, it maximizes the system operation time by estimating the perfect time to initiate system shutdown to prevent data loss.

PB-2500J series is available in two form-factors; PB-2500J-PCIe is a plug-and-play PCIe card specifically designed for Neousys Nuvo-6000 (except Nuvo-6108GC/ IGN) while PB-2500J-CSM is designed for Nuvo-5000E/ P and Nuvo-7000E/ P series.

When it comes to industrial embedded controllers, stability and data loss prevention during power outages are just as important. Neousys' PB-2500J series aims to redefine reliability and take it to another level. With PB-2500J series, unexpected power loss and unstable power lines are a thing in the past!

Specifications

	PB-2500J-PCIe	PB-2500J-CSM
Supercapacitor configuration	8x 100F, 3.0V ultracapacitors	
Capacity	2500 watt-second	
Expected lifespan	>10 years @ 25°C with 2500 w·s capacity* 76,000 hours @ 35°C with 2500 w·s capacity* 34,000 hours @ 45°C with 2500 w·s capacity* 15,000 hours @ 55°C with 2500 w·s capacity* 7,200 hours @ 65°C with 2500 w·s capacity* Expected lifespan is 2.2x when configured as 2100 watt-second energy capacity, or 4.8x when configured as 1750 watt-second energy capacity.	
Lifecycle	500,000 charging/ discharging cycles*	
Communication interface	3-wire RS-232	
Dimension	Half-length PCIe card 167 mm (W) x 111 mm (H)	-
Operating Temperature	-25°C ~ 65°C	
Storage Temperature	-40 °C~ 70°C	
EMC	CE/FCC Class A, according to EN 55022 & EN 55024	

**Once the rated lifespan or cycle life has been reached, the capacity of ultracapacitor may decrease up to 30% and ESR may increase up to 100% from initial values.*

Ordering Information

Model No.	Product Description
PB-2500J-PCIe	Intelligent supercapacitor-based power backup PCIe card with 2500 w·s energy capacity
PB-2500J-CSM5	Intelligent supercapacitor-based power backup Cassette module with 2500 w·s energy capacity, for Nuvo-5000 series
PB-2500J-CSM7	Intelligent supercapacitor-based power backup Cassette module with 2500 w·s energy capacity, for Nuvo-7000 series

****Note: NOT compatible with Nuvo-6108GC, Nuvo-6108GC-IGN and Nuvo-8208GC***

All specifications and photos are subject to change without prior notice

POC-500 Series

AMD Ryzen™ V1000 Ultra-compact Embedded Controller with 4x PoE+, 4x USB 3.1 and MezIO™ Interface

POC-515

POC-545

Key Features

- **AMD Ryzen™ embedded V1000 series quad-core 15W/ 45W CPU**
- **-25 °C to 70 °C rugged Wide temperature operation**
- **Four Gigabit PoE+ ports with screw-lock**
- **Four USB 3.1 ports with screw-lock**
- **M.2 2280 M key NVMe (Gen3 x2) socket for fast storage access**
- **DP + VGA dual display outputs**
- **Front I/O access and DIN-rail mount design**
- **MezIO™ compatible**

Introduction

POC-500 series is the next generation ultra-compact embedded controller offering performances never-seen-before in this form factor. Featuring AMD Ryzen™ Embedded V1000 4-core/ 8-thread processor, it delivers up to 3x times the CPU performance over previous POC series. GPU performance wise, it delivers an unheard of 3.6 TFLOPS in FP16 for an ultra-compact form factor embedded controller. Another amazing feat is that it manages to incorporate an M.2 2280 NVMe SSD (PCIe Gen3 x2) to support 2x times the disk read/ write speed over typical 2.5" SATA SSDs.

POC-500 series continues the POC series ingenious DIN-rail mount mechanical design and offers plenty of front-accessible I/Os. Measuring just 64 x 176 x 116 mm (2.5" x 6.9" x 4.6"), it has 4x PoE+ ports, 4x USB 3.1 ports and 4x COM ports. And best of all, all data ports come with screw-lock mechanism so you can be rest assured that cables are always secured. POC-500 series is available in two CPU variants, the V1807B (45W) variant is for high computing power demand and the V1605B (15W) variant is designed for rugged fanless operation.

The arrival of POC-500 series signifies a new breed of ultra-compact embedded controller; one with better I/O design, extraordinary ruggedness and significantly more CPU/ GPU oomph for versatile applications.

Specifications

	POC-515	POC-545
System Core		
Processor	AMD Ryzen™ V1605B CPU (4C/ 8T, 2M Cache, 2.0/ 3.6 GHz, 12W - 25W TDP)	AMD Ryzen™ V1807B CPU (4C/ 8T, 2M Cache, 3.35/ 3.8 GHz, 35W - 54W TDP)
Graphics	Vega GPU with 8 compute units	Vega GPU with 11 compute units
Memory	Up to 16 GB DDR4-2400 SDRAM by one SODIMM socket	Up to 16 GB DDR4-3200 SDRAM by one SODIMM socket
TPM	Supports TPM 2.0	
Panel I/O Interface		
PoE+	4x IEEE 802.3at Gigabit PoE+ ports by Intel® I350-AM4	
USB 3.1	4x USB 3.1 Gen1 (5 Gbps) ports with screw-lock	
Video Port	1x VGA , supporting 1920 x 1200 resolution 1x DisplayPort, supporting 4096 x 2160 resolution	
Serial Port	1x software-programmable RS-232/ 422/ 485 ports (COM1) 3x 3-wire RS-232 ports (COM2/ 3/ 4) or 1x RS-422/ 485 port (COM2)	
Audio	1x 3.5mm jack for mic-in and speaker-out	
Internal I/O Interface		
Mini-PCIe	1x full-size mini PCI Express socket with internal SIM socket	
Expandable I/O	1x MezIO™ expansion interface for Neousys MezIO™ modules	
Storage Interface		
M.2 NVMe	1x M.2 2280 M key NVMe socket (PCIe Gen3 x2) for NVMe SSD installation	

	POC-515	POC-545
Power Supply		
DC Input	1x 3-pin pluggable terminal block for 8~35VDC DC input	
Remote Ctrl.&LED Output	1x3-pin pluggable terminal block for remote control and PWR LED output	
Mechanical		
Dimension	64 (W) x 116 (D) x 176 (H) mm	82 (W) x 118 (D) x 176 (H) mm
Weight	1.2 kg	1.4 kg
Mounting	DIN-rail mount (standard) or Wall-mount (optional)	
Fan	-	External-accessible 80mm x 80mm fan for system heat dissipation
Environmental		
Operating Temperature	-25°C ~ 70°C*/**	
Storage Temperature	-40°C ~85°C	
Humidity	10%~90% , non-condensing	
Vibration	Operating, MIL-STD-810G, Method 514.6, Category 4	
Shock	Operating, MIL-STD-810G, Method 516.6, Procedure I, Table 516.6-II	
EMC	CE/ FCC Class A, according to EN 55032 & EN 55024	

** For sub-zero and over 60°C operating temperature, a wide temperature HDD or Solid State Disk (SSD) is required.*

*** For POC-545, operating temperature is up to 70°C only if external-accessible fan is installed.*

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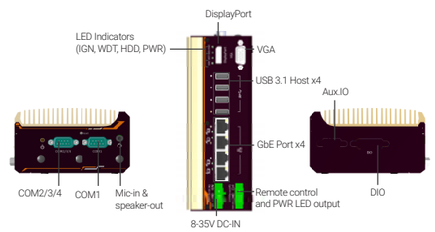
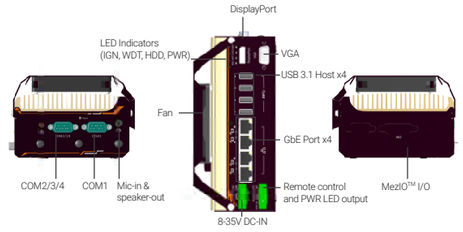
Appearance



POC-515

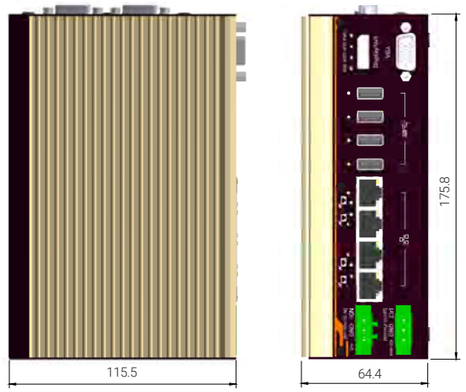


POC-545

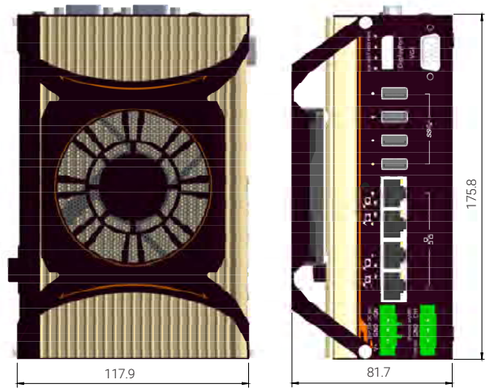
Dimensions

POC-515

Unit : mm



POC-545



Ordering Information

Model No.	Product Description
POC-515	AMD Ryzen™ V1605B ultra-compact embedded controller with 4x PoE+ ports, 4x USB 3.1 ports and MezIO™ interface
POC-516	AMD Ryzen™ V1605B ultra-compact embedded controller with 4x PoE+ ports, 4x USB 3.1 ports and MezIO-R12
POC-545	AMD Ryzen™ V1807B ultra-compact embedded controller with 4x PoE+ ports, 4x USB 3.1 ports and MezIO™ interface
POC-546	AMD Ryzen™ V1807B ultra-compact embedded controller with 4x PoE+ ports, 4x USB 3.1 ports and MezIO-R12

Optional Accessories

PA-120W-OW	120W AC/DC power adapter 20V/6A; 18AWG/120cm; cord end terminals for terminal block, operating temperature : -30 to 70 °C.
PA-60W-OW	60W AC/DC power adapter with 12V, 5A DC output, cord end terminals for terminal block. operating temperature : -30 to 60 °C.
Cbl-DB9F-3DB9M-15CM	1x DB9 (Female) to 3x DB9 (Male), length: 15CM
ETHY-100-2008S	Ethernet I/O expansion module with 8 isolated digital inputs and outputs
ETHY-100-2604S	Ethernet I/O expansion module with 8 isolated digital inputs and 4 relays outputs (coming soon)
MezIO™ Modules	
MezIO™-C180	MezIO™ module with 4x RS-232/ 422/ 485 ports and 4x RS-232 ports
MezIO™-C181	MezIO™ module with 4x RS-232/ 422/ 485 ports and 4x RS-422/ 485 ports
MezIO™-D220	MezIO™ module with 8-CH isolated digital input and 8-CH isolated digital output
MezIO™-D230	MezIO™ module with 16-CH isolated digital input and 16-CH isolated digital output
MezIO™-V20	MezIO™ module with ignition power control function and 1x mini-PCIe socket for in-vehicle usage
MezIO™-U4	MezIO™ module with 4x USB 3.1 ports
MezIO™-G4	MezIO™ module with 4x Gigabit Ethernet ports
MezIO™-R11	MezIO™ module with SATA port for 2.5" HDD/ SSD
MezIO™-R12	MezIO™ module with SATA port for 2.5" HDD/ SSD, 4-CH isolated DI and 4-CH isolated DO

All specifications and photos are subject to change without prior notice

POC-300 Series

Intel® Apollo Lake Pentium® N4200 and Atom™ E3950 Ultra-Compact DIN-rail Controller with GbE, PoE and USB 3.1

Key Features

- **Intel® Apollo Lake Pentium® N4200 and Atom™ E3950 quad-core processor**
- **Fanless, rugged and wide temperature operation (-25 °C to 70 °C)**
- **One GbE port and two Gigabit PoE+ ports**
- **Two USB 3.1 and two USB 2.0 ports**
- **DVI + VGA dual display outputs**
- **Front-accessible I/O**
- **DIN-rail mount design**
- **MezIO™ interface compatible**

Introduction

POC-300 series features Pentium® N4200 and Atom™ x7-E3950 quad-core processors, which offers up to 1.5 times of CPU performance and 3 times the GPU performance improvement compared to previous generation Atom™ E3845 CPU.
POC-300 series have an ingenious mechanical design that combines DIN-rail mount chassis with front-accessible I/O in an ultra-compact enclosure. They have rich computer-like I/Os such as GbE, USB 3.1/ 2,0, COM ports and mSATA storage, in a compact footprint that measures just 5.6 x 15 x 11 cm. IEEE 802.3at PoE+ function is also available on 2 of the 3 GbE ports to power cameras for machine vision or surveillance applications. POC-300 series features Neousys' MezIO™ interface for easy function expansion via versatile MezIO™ modules.
With Neousys' proven fanless design heritage, the POC-300 series thrive in harsh environments. Featuring rich I/Os, advanced CPU and compact size, POC-300 series are compelling fanless controllers beneficial for various industrial applications.

Specifications

	POC-300	POC-310	POC-320	POC-330
System Core				
Processor	Intel® Atom™ E3950 1.6/ 2.0 GHz quad-core processor		Intel® Pentium® N4200 1.1/ 2.5 GHz quad-core processor	
Graphics	Integrated Intel® HD Graphics 505			
Memory	Up to 8GB DDR3L-1866 (single SODIMM slot)			
Panel I/O Interface				
Ethernet	3x Gigabit Ethernet ports by Intel® I210 GbE controller			
PoE	IEEE 802.3at PoE+ on port #2 and #3	-	IEEE 802.3at PoE+ on port #2 and #3	-
Video Port	VGA and DVI dual display outputs via DVI-I			
USB 3.1	2x USB 3.1 Gen1 (5 Gbps) ports			
USB 2.0	2x USB 2.0 ports			
Serial Port	1x Software-programmable RS-232/ 422/ 485 ports (COM1) 3x 3-wire RS-232 ports (COM2/ 3/ 4) or 1x RS-422/ 485 port (COM2)			
Audio	1x Mic-in and 1x speaker-out			
Internal I/O Interface				
Mini-PCIe	1x full-size mini PCI Express slot with USIM socket			
Expandable I/O	1x MezIO™ expansion interface for Neousys MezIO™ modules			
Storage Interface				
mSATA	1x half-size mSATA port			
Power Supply				
DC Input	1x 3-pin pluggable terminal block for 8~35V DC input			
Mechanical				
Dimension	56 mm (W) x 108 mm (D) x 153 mm (H)			
Weight	0.96 kg			
Mounting	DIN-rail mount (standard) or Wall-mount (optional)			

	POC-300	POC-310	POC-320	POC-330
Environmental				
Operating Temperature	-25°C ~ 70°C with SSD, 100% CPU loading */** -10°C ~ 50°C with HDD, 100% CPU loading */**			
Storage Temperature	-40°C ~85°C**			
Humidity	10%~90% , non-condensing			
Vibration	Operating, 5 Grms, 5-500 Hz, 3 Axes (w/ SSD, according to IEC60068-2-64)			
Shock	Operating, 50 Grms, Half-sine 11 ms Duration (w/ SSD, according to IEC60068-2-27)			
EMC	CE/FCC Class A, according to EN 55022, EN 55024 & EN 55032			

** The 100% CPU/GPU loading for high temperature test is applied using Passmark® BurnInTest™ v8.0.*
For detail testing criteria, please contact Neousys Technology
*** For sub-zero operating temperature, a wide temperature HDD drive or Solid State Disk (SSD) is required.*

▲ POC-300 with MezIO™ - R11 and 2.5" HDD

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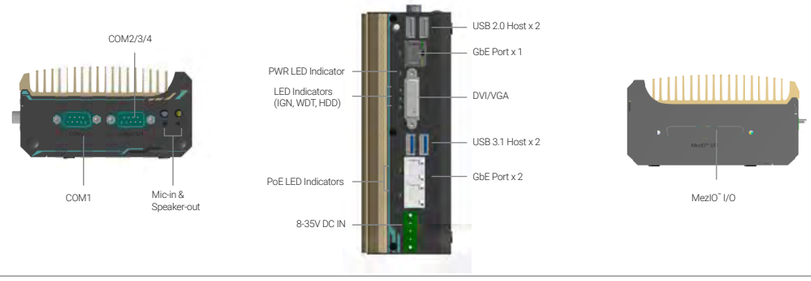
Appearance



Dimensions

Unit : mm

Ordering Information

Model No.	Product Description
POC-300	Intel® Apollo Lake Atom™ E3950 ultra-compact DIN-rail controller with 1xGbE, 2x PoE+ and 2x USB 3.1
POC-310	Intel® Apollo Lake Atom™ E3950 ultra-compact DIN-rail Controller with 3xGbE and 2x USB 3.1
POC-320	Intel® Apollo Lake Pentium® N4200 ultra-compact DIN-rail controller with 1xGbE, 2x PoE+ and 2x USB 3.1
POC-330	Intel® Apollo Lake Pentium® N4200 ultra-compact DIN-rail controller with 3xGbE and 2x USB 3.1

Ordering Model Matrix

Controller \ Pre-installed MezIO	MezIO-R11	MezIO-R12
POC-300	POC-301	POC-302
POC-310	POC-311	POC-312
POC-320	POC-321	POC-322
POC-330	POC-331	POC-332

Optional Accessories

PA-60W-OW	60W AC/DC power adapter with 12V, 5A DC output, cord end terminals for terminal block. Operating temperature : -30 to 60 °C
Wmkit-V-POC300	Wall-mount assembly for POC-300 series, vertical type
Wmkit-H-POC300	Wall-mount assembly for POC-300 series, horizontal type
Cbl-DB9F-3DB9M-15CM	1x DB9 (Female) to 3x DB9 (Male), length: 15CM
ETHY-100-2008S	Ethernet I/O expansion module with 8 isolated digital inputs and outputs
ETHY-100-2604S	Ethernet I/O expansion module with 8 isolated digital inputs and 4 relays outputs (coming soon)

MezIO™ Modules

MezIO™-C180	MezIO™ module with 4x RS-232/ 422/ 485 ports and 4x RS-232 ports
MezIO™-C181	MezIO™ module with 4x RS-232/ 422/ 485 ports and 4x RS-422/ 485 ports
MezIO™-D220	MezIO™ module with 8-CH isolated digital input and 8-CH isolated digital output
MezIO™-D230	MezIO™ module with 16-CH isolated digital input and 16-CH isolated digital output
MezIO™-V20	MezIO™ module with ignition power control function and 1x mini-PCIe socket for in-vehicle usage
MezIO™-U4	MezIO™ module with 4x USB
MezIO™-R11	MezIO™ module with SATA port for 2.5" HDD/ SSD
MezIO™-R12	MezIO™ module with SATA port for 2.5" HDD/ SSD, 4-CH isolated DI and 4-CH isolated DO

All specifications and photos are subject to change without prior notice

POC-200 Series

Ultra-Compact Atom™ Bay Trail-I Fanless Embedded Controller with PoE and USB 3.1

Key Features

- **Ultra-compact 15 cm x 10 cm (6" x 4") footprint**
- **Intel® Atom™ E3845 1.91GHz quad-core processor**
- **Rugged, -25°C to 70°C fanless operation**
- **Two 802.3at (25.5W) Gigabit PoE+ ports**
- **Three USB 3.1 ports and one USB 2.0 port**
- **One 2.5" SATA HDD/ SSD accommodation**
- **Up to two RS-232/ 422/ 485 ports and two RS-232 ports**

CE FC

**R.O.C Patent No. M492598*

Introduction

POC-200 is Neousys' breakthrough ultra-compact controller series. Inheriting the concept of favorable POC-100, POC-200 series features greater computing power and more versatile functions in its 3.5" HDD footprint.

The new Intel® Atom™ Bay Trail processor offers dramatic arithmetic and graphics performance improvement. With Atom™ E3845 quad-core processor, POC-200 can deliver more than 200% performance over previous D525/ D2550 platforms. It also features comprehensive I/O interfaces to make use of the advanced computing power. Two Gigabit Ethernet and three USB 3.1 ports are integrated so you can connect GigE/ USB 3.1 cameras for vision applications. Its IEEE 802.3at PoE+ option is capable of supplying 25.5W each port to power IP cameras for surveillance applications. POC-200 also features up to four COM ports and digital I/O for general-purpose industrial applications.

Its' compact size is another attractive feature of POC-200. The 15 x 10 cm (6"x4") footprint allows installation of POC-200 in confined spaces. While its -25°C to 70°C wide temperature operating capability eliminates the restriction for deployment environment. Neousys provides derivative models with different CPU and I/O configurations so you can always find a POC-200 that is ideal for your application.

Specifications

	POC-200	POC-210	POC-212	POC-222
System Core				
Processor	Intel® Atom™ E3845 1.91 GHz quad-core processor			Intel® Atom™ E3825 1.33 GHz dual-core processor
Graphics	Integrated Intel® HD graphics			
Memory	Up to 8GB DDR3L-1333 (single SODIMM slot)			DDR3L-1067, up to 4GB
Panel I/O Interface				
Ethernet	2x Gigabit Ethernet ports by Intel® I210 GbE controller			
PoE	IEEE 802.3at PoE+(25.5W each GbE port)	-		
Video Port	1x DVI-I for both analog RGB and DVI outputs			
Serial Port	2x RS-232/ 422/ 485 (COM1 & COM3) 2x RS-232 (COM2 & COM4)		1x RS-232/ 422/ 485 (COM1) 1x RS-232 (COM2)	
USB 3.1	3x USB 3.1 Gen1 (5 Gbps) ports			
USB 2.0	USB 2.0 port			
Audio	1x speaker-out			
DIO	4-CH isolated DI 4-CHisolated DO	8-CH 5V TTL GPIO (standard) 4-CH isolated DI + 4-CH isolated DO (optional)		
Panel I/O Interface				
Mini-PCIe	1x mini PCI Express slot with USIM socket			

	POC-200	POC-210	POC-212	POC-222
Storage Interface				
SATA	1x internal SATA port for 2.5" HDD/ SSD		1x internal SATA port with easy-swap HDD tray for 2.5" HDD/ SSD	
Power Supply				
DC Input	1x 2-pin pluggable terminal block for built-in 8~35 VDC DC input			
Mechanical				
Dimension (W x D x H)	105mm x 149mm x 58 mm		105mm x 149mm x 54mm	
Weight	1.05 kg			
Mounting	Wall-mount (standard) or DIN-rail mount (optional)			
Environmental				
Operating Temp.	-25°C ~ 70°C with SSD, 100% CPU loading **/*** -10°C ~ 50°C with HDD, 100% CPU loading **/***			
Storage Temp.	-40°C ~85°C			
Humidity	10%~90% , non-condensing			
Vibration	Operating, 5 Grms, 5-500 Hz, 3 Axes (w/ SSD, according to IEC60068-2-64)			
Shock	Operating, 50 Grms, Half-sine 11 ms Duration (w/ SSD, according to IEC60068-2-27)			
EMC	CE/FCC Class A, according to EN 55022, EN 55024 & EN 55032			

** 100% CPU loading is applied using Intel® Thermal Analysis Tool. For detail testing criteria, please contact Neousys Technology.*

*** For sub-zero operating temperature, a wide temperature mSATA SSD module is required.*

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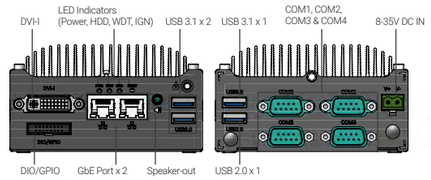
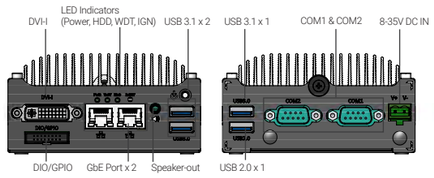
Appearance



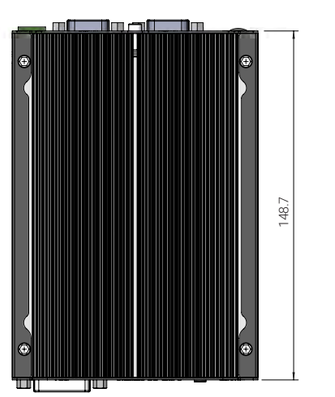
POC-200/POC-210

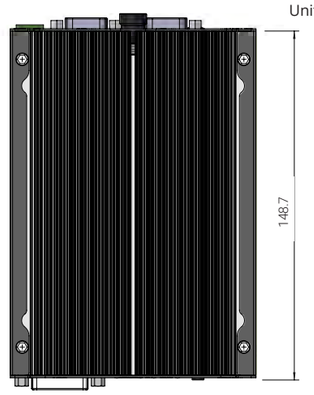


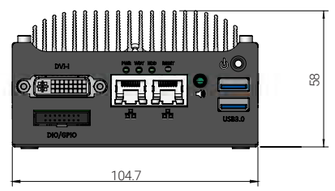
POC-212/POC-222

Dimensions

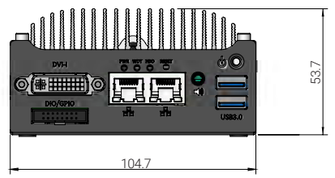
Unit : mm







POC-200/POC-210



POC-212/POC-222

Ordering Information

Model No.	Product Description
POC-200	Intel® Atom™ E3845 ultra-compact controller with 2x 802.3at PoE ports, 3x USB 3.1 ports and 4x COM ports
POC-210	Intel® Atom™ E3845 ultra-compact controller with 2x GbE ports, 3x USB 3.1 ports and 4x COM ports
POC-212	Intel® Atom™ E3845 ultra-compact controller with 2x GbE ports, 3x USB 3.1 ports and 2x COM ports
POC-222	Intel® Atom™ E3825 ultra-compact controller with 2x GbE ports, 3x USB 3.1 ports and 2x COM ports

Optional Accessories

DINRAIL-P	DIN-rail mount assembly for POC- 200 series
PA-60W-OW	60W AC/DC power adapter with 12V, 5A DC output, cord end terminals for terminal block. Operating temperature : -30 to 60 °C
ETHY-100-2008S	Ethernet I/O expansion module with 8 isolated digital inputs and outputs
ETHY-100-2604S	Ethernet I/O expansion module with 8 isolated digital inputs and 4 relays outputs (coming soon)

All specifications and photos are subject to change without prior notice

POC-120 Series

Ultra-compact Atom™ Bay Trail-I Fanless General-purpose Embedded Controller

Key Features

- **Low-profile, ultra-compact 15 cm x 10 cm x 3.4 cm footprint**
- **Intel® Atom™ E3826 1.46GHz dual-core processor**
- **Rugged, -25°C to 70°C fanless operation**
- **Two GigE ports and three USB 2.0 ports**
- **One RS-232/ 422/ 485 port and one RS-232 port**
- **I/O expansion interface for ODM projects**
- **MezIO™ interface for easy function expansion**

Introduction

POC-120 is a low-cost, entry-level embedded controller in ultra-compact dimensions. With a height of 3.4 cm, the low-profile chassis is ideal for installation into confined spaces.

POC-120 utilizes Intel® Atom™ E3826 dual-core processor and it provides general I/Os, such as GigE ports, COM ports and USB 3.1/ USB 2.0 ports. For embedded applications, instead using traditional HDD, POC-120 supports mSATA SSD to ensure reliable disk access in harsh industrial environments.

POC-120MZ also features Neousys' MezIO™ interface for I/O expansion. By customizing a mezzanine board, you can have versatile I/O functions and turn POC-120MZ from an ultra-compact controller into a tailor-made ultra-compact embedded system for your application needs.

Specifications

System Core	
Processor	Intel® Atom™ E3826 1.46 GHz dual-core processor
Graphics	Integrated Intel® HD graphics
Memory	Up to 8GB DDR3L-1333 (single SODIMM slot)
I/O Interface	
Ethernet	2x Gigabit Ethernet ports by Intel® I210 GbE controller
Video Port	1x VGA for both analog RGB output, supporting 2560x1600 resolution
Serial Port	1x RS-232/ 422/ 485 (COM1) 1x RS-232 (COM2)
USB 3.1	1x USB 3.1 port
USB 2.0	2x USB 2.0 ports
Audio	1x speaker-out
Storage Interface	
mSATA	1x full-size mSATA socket
Expansion Bus	
Expandable I/O (POC-120MZ only)	1x MezIO™ expansion port for Neousys' MezIO™ modules

Power Supply	
DC Input	Built-in 8~35V DC input
Input Connector	2-pin spring-clamp terminal block for DC input
Mechanical	
Dimension	105mm (W) x 149 mm (D) x 34mm (H) (POC-120) 105mm (W) x 149 mm (D) x 46mm (H) (POC-120MZ)
Weight	0.9 kg
Mounting	Wall-mount (standard) or DIN-rail mount (optional)
Environmental	
Operating Temperature	-25°C ~ 70°C with SSD, 100% CPU loading */**
Storage Temperature	-40°C ~ 85°C
Humidity	10%~90% , non-condensing
Vibration	Operating, 5 Grms, 5-500 Hz, 3 Axes (w/ SSD, according to IEC60068-2-64)
Shock	Operating, 50 Grms, Half-sine 11 ms Duration (w/ SSD, according to IEC60068-2-27)
EMC	CE/ FCC Class A, according to EN 55022 & EN 55024

** 100% CPU loading is applied using Intel® Thermal Analysis Tool. For detail testing criteria, please contact Neousys Technology.*
*** For sub-zero operating temperature, a wide temperature mSATA SSD module is required.*

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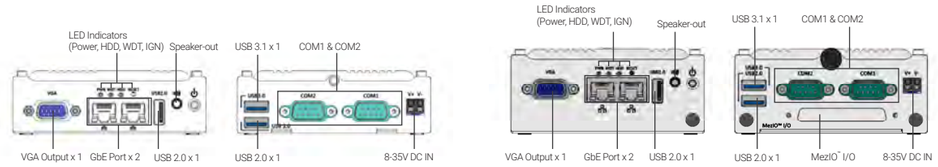
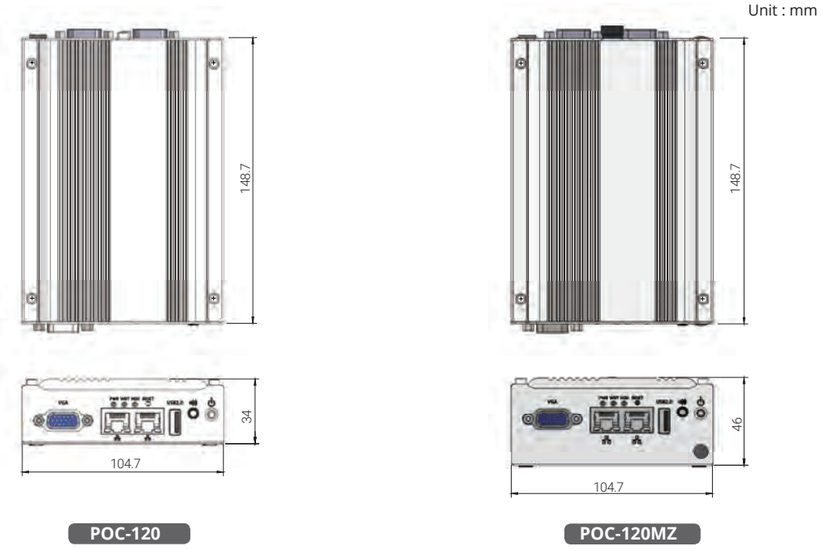
Appearance



Dimensions

Unit : mm



Ordering Information

Model No.	Product Description
POC-120	Intel® Atom™ E3826 ultra-compact controller with 2x GbE ports, 3x USB and 2x COM ports
POC-120MZ	Intel® Atom™ E3826 ultra-compact controller with 2x GbE ports, 3x USB, 2x COM ports and MezIO™ interface

Optional Accessories

DINRAIL-P	DIN-rail mount assembly for POC-120 series
PA-60W-OW	60W AC/DC power adapter with 12V, 5A DC output, cord end terminals for terminal block. Operating temperature : -30 to 60 °C

MezIO™ Modules	
MezIO™-C180	MezIO™ module with 4x RS-232/ 422/ 485 ports and 4x RS-232 ports
MezIO™-C181	MezIO™ module with 4x RS-232/ 422/ 485 ports and 4x RS-422/485 ports
MezIO™-D220	MezIO™ module with 8-CH isolated digital input and 8-CH isolated digital output
MezIO™-D230	MezIO™ module with 16-CH isolated digital input and 16-CH isolated digital output
MezIO™-R10	MezIO™ module with 2.5" HDD/ SSD accommodation and 1x mini-PCIe socket

All specifications and photos are subject to change without prior notice

ETHY-100 Series

Decentralized I/O Expansion with Dual Ethernet Ports

Key Features

- **Rich I/O combination and decentralization**
- **Daisy chain for both data and power**
- **Direct wiring and removable terminal block**
- **I/O status indicators and user definable button**
- **Built-in configurable I/O functions**

Introduction

ETHY-100-2008S is a system expansion I/O module featuring 8 digital input/ output and status monitor/ indicator. It conforms to the IEEE 802.3at Power Device (PD) specifications and can be driven by a standard Power Sourcing Equipment (PSE). It can be daisy-chained to transfer data and provide power to expand your system while the removable terminal blocks are useful when adding/ removing the device into/ out of awkward or remote locations. In addition to being a powerful external I/O module, ETHY-100-2008S also provides a friendly application programming interface (API) and designated mechanisms which allow users to configure a responsive automate system with low latency and high in performance. ETHY-100-2008S is the best automation solution.

Specifications

	ETHY-100-2008S	ETHY-100-2604S
General		
Module Status Indicator	4 LEDs	
I/O Status Indicator	1 LED for each channel	
I/O Connectors	4 removable 3.81 mm connectors	
Communication Interface	2 Ethernet ports	
Digital Input		
Channels	8 channels	
Input Type	Sinking/sourcing, channel-to-channel isolated	
Input Voltage	Logic Level 0: 0 to 5V Logic Level 1: 11 to 30V	
Isolation Voltage	2500 VDC	
Digital Output		
Channels	8 channels	4 channels
Output Type	Sink	Relay
Rated Output Voltage	24VDC	24VDC
Rated Output Current	100mA per channel	1 A per channel
Max. Output Current	500mA	2.5A
Isolation Voltage	2500 VDC	2500 VDC

	ETHY-100-2008S	ETHY-100-2604S
OS Support		
Windows	Windows 7/10 32/64-bit	
Power		
PoE PD	IEEE 802.3at PoE+ PD	
DC Input	24VDC ±10%	
Power Consumption	3W	
Mechanical		
Dimensions	125.4mm (W) x 101.8mm (H) x 25.9mm (D) (including connectors)	
Weight	450g	
Environmental		
Operating Temperature	-25°C ~ 70°C	
Storage Temperature	-40°C ~ 85°C	
Humidity	10~90%, non-condensing	
EMC	CE/FCC Class A according to EN50024 & EN50032	

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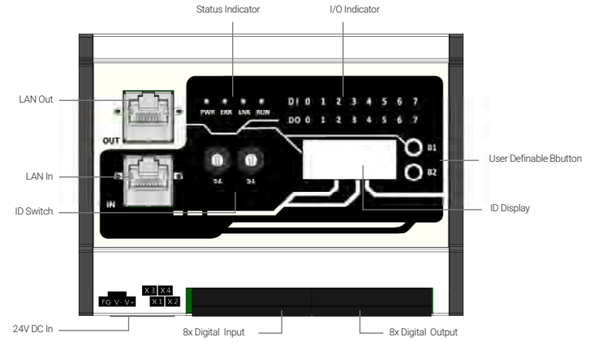
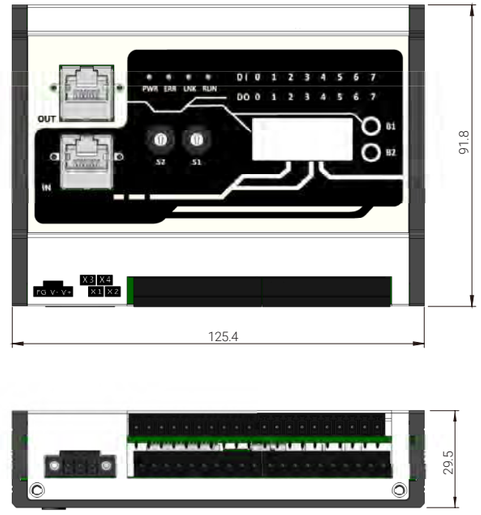
Appearance



Dimensions

Unit : mm



Ordering Information

Model No.	Product Description
ETHY-100-2008S	Ethernet I/O expansion module with 8 isolated digital inputs and outputs
ETHY-100-2604S *(Coming soon!)*	Ethernet I/O expansion module with 8 isolated digital inputs and 4 relays outputs

All specifications and photos are subject to change without prior notice

IGT-33V/ IGT-34C

TI Sitara™ AM3352 ARM-based Industrial IoT Gateway with Analog Inputs and Pre-installed Debian

CE FC

Key Features

- **Industrial grade ARM-based system with pre-installed Debian**
- **Built-in isolated analog input and DI/O channels**
- **Dual LAN and COM ports for expend**
- **12 to 25V wide-range DC input and 802.3at PoE+ PD**
- **-25°C to 70°C wide temperature operation**

Introduction

Neousys IGT-30 series, equipped with AM3352 from Texas Instrument's Sitara AM335x family, is an ARM-based Box PC aimed at Industrial Internet of Things (IIoT) Gateway and Industry 4.0 applications. As required by any industrial applications, IGT-30 series is shipped as a ready system pre-installed with Debian and in compliance with common industrial certifications such as CE/FCC, shock and vibration. It has a power input range of 12 to 25 VDC and a wide operating temperature from -25°C to 70°C to ensure IGT-30 series continues to function under harsh industrial conditions.

IGT-33V/ 34C have rich I/Os for users to connect to a raviety of industrial sensors and devices. It features one USB 2.0 port, dual 10/100M LAN ports and two COM ports (one RS-485, one configurable RS-232/422/485). In addition, IGT-33V/ 34C also integrate analog and digital ports, such as eight 0-10V voltage inputs for IGT-33V and four 4-20mA current inputs for IGT-34C. There are also two built-in isolated digital inputs for button/switch and six digital outputs for actuators or modules controll. User can easily build their own private serial automation or IIoT system.

Communication wise, IGT-30 series has a mini PCIe slot and a USIM holder allowing it to transmit acquired data and system status via 3G, 4G or WiFi (mini PCIe WiFi module). There is an opening on top of IGT-30 series for users to mount the SMA connector of the wireless module. In terms of storage, IGT-30 series has dual microSDHC slots, one internal and one external. This design allows users to separate system/ user data and can expedite in OS deployment for mass production. Inherited from IGT-20, IGT-30 series provides six LED indicators and two function buttons that can be programmed by users. The function buttons can act as controls for IGT-30 series and exclude the need for external input devices, such as keyboard/ mouse.

Specifications

	IGT-33V	IGT-34C
System Core		
Processor	TI Sitara AM3352 1GHz processor	
Memory	1GB DDR3L SDRAM	
Front-panel I/O Interface		
Ethernet	2x 10/100 LAN, 1 with PoE PD	
USB 2.0	1x USB 2.0	
SD Card	1x external T-flash socket support miscro SDHC	
Function Buttons	2x user programmable buttons	
User LEDs	6x user programmable LEDs	
Isolated DIO	2x digital input 6x digital output	
Analog Input	8x 16 bit 0-10V/ ±5V/ ±10V Voltage Input	4x 16 bit 4-20mA/ 0-20mA Current Input
Top I/O Interface		
DC-in	1x DC-input connector	
Power Button	1x power button	
Reset Button	1x reset button	
Console	1x RS-232 as Console Port	
Serial Port	1x RS-232/422/485 1x RS-485	
Antenna Hole	2x antenna hole for WiFi and 3G/LTE	

	IGT-33V	IGT-34C
Internal I/O Interface		
SD Card	1x internal T-flash socket support micro SDHC	
mPCIe	1x full size mPCIe	
SIM Card	1x internal SIM socket	
Software		
Operating System	Debian 9 pre-installed	
Power Supply		
DC Input Range	12~25V DC	
PoE+ PD	IEEE 802.3at PoE+ PD	
Mechanical		
Dimension	43mm (W) x 77mm (D) x 104mm (H)	
Weight	0.5 Kg	
Mounting	DIN-rail mount	
Mechanical		
Operating Temperature	-25°C~70°C *	
Storage Temperature	-40°C~85°C	
Humidity	5Grms	
Shock	50Grms	
EMC	CE/FCC Class A, according to EN55032 & EN55024	

** For sub-zero operating temperature, a wide temperature microSD module is required.*

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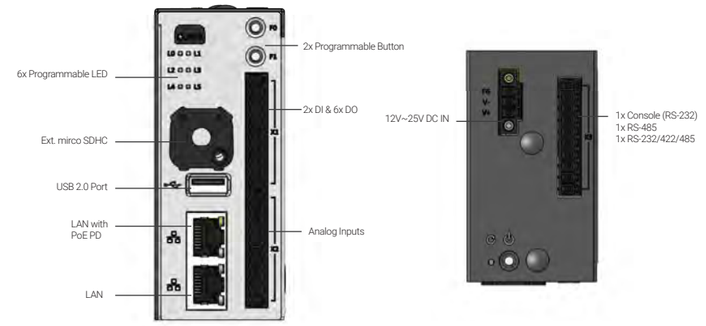
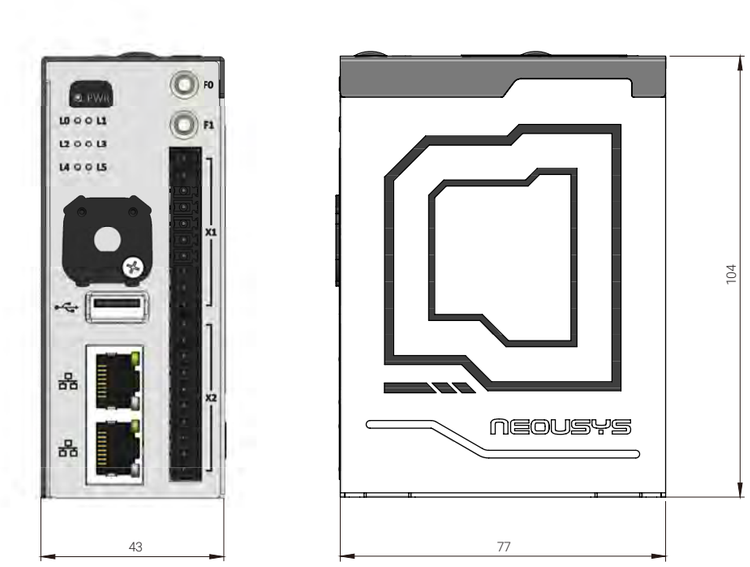
Appearance



Dimensions

Unit : mm



Ordering Information

Model No.	Product Description
IGT-33V	Industrial grade ARM-based IoT gateway with 0-10V analog inputs, dual LAN and PoE PD enable
IGT-34C	Industrial grade ARM-based IoT gateway with 4-20mA analog inputs, dual LAN and PoE PD enable

Optional Cellular Module

NSIO-LTE-7455	Cat. 6 LTE embedded socket modem

All specifications and photos are subject to change without prior notice

IGT-30D/ IGT-31D

TI Sitara™ AM3352 ARM-based Industrial IoT Gateway with Dual LAN and Pre-installed Debian

CE FC

Key Features

- **Industrial grade ARM-based system with pre-installed Debian**
- **Microsoft Azure and AWS Greengrass Certified for IoT**
- **Field-ready isolated DI/O and RS-232/422/485**
- **12 to 25V wide-range DC input and 802.3at PoE+ PD**
- **-25°C to 70°C wide temperature operation**

Introduction

Neousys IGT-30 series, equipped with AM3352 from Texas Instrument's Sitara AM335x family, is an ARM-based Box PC aimed at Industrial Internet of Things (IIoT) Gateway and Industry 4.0 applications. As required by any industrial applications, IGT-30 series is shipped as a ready system pre-installed with Debian and in compliance with common industrial certifications such as CE/FCC, shock and vibration. It has a power input range of 12 to 25 VDC and a wide operating temperature from -25°C to 70°C to ensure IGT-30 continues to function under harsh industrial conditions.

IGT-30 series supports PoE Powered Device (PD) mode meaning it can be powered by a LAN cable from a PoE Power Sourcing Equipment (PSE), and at the same time transfer data via this cable as well. IGT-30 series has I/Os that are applicable to a range of industrial grade sensors. It features one USB 2.0 port, two 10/100M LAN ports, one configurable COM port (RS-232/ 422/ 485) and an optional CAN bus port (IGT-31D only). In addition to the ports mentioned, there are also 8 built-in isolated digital input channels that accept discrete signals from various sensors or buttons/ switches. There are also 2 built-in isolated digital output channels to control actuators and indicators.

Communication wise, IGT-30 series has a mini PCIe slot and a USIM holder allowing it to transmit acquired data and system status via 3G, 4G or WiFi (mini PCIe WiFi module). There are two openings on top of IGT-30 series for users to mount the SMA connector of the wireless module. In terms of storage, IGT-30 series has dual microSDHC slots, one internal and one external. This design allows users to separate system/ user data and can expedite in OS deployment for mass production. Inherited from IGT-20, IGT-30 series provides six LED indicators and two function buttons that can be programmed by users. The function buttons can act as controls for IGT-30 series and exclude the need for external input devices, such as keyboard/ mouse.

Specifications

System Core	
Processor	TI Sitara AM3352 1GHz processor
Memory	1GB DDR3L SDRAM
Front-panel I/O Interface	
Ethernet	2x 10/100 LAN
SD Card	1x external T-flash socket support microSDHC
USB	1x USB 2.0
Isolated DIO	8-CH isolated DI and 2-CH isolated DO
Serial Port	1x software configurable RS-232/422/485
User LEDs	6x user programmable LEDs
Function Buttons	2x user programmable buttons
CAN	1x isolated CAN bus 2.0 A/B (IGT-31D only)
Top I/O Interface	
DC-in	1x DC-input connector
Power Button	1x power button
Reset Button	1x reset button
Console	1x RS-232 as Console Port
Antenna Hole	2x antenna hole for WiFi and 3G/ LTE

Internal I/O Interface	
mPCIe	1x full size mPCIe
SD Card	1x internal T-flash socket support microSDHC
SIM Card	1x internal SIM socket
Software	
Operating System	Debian 9 pre-installed
Power Supply	
DC input range	12~25V DC
PoE+ PD	IEEE 802.3at PoE+ PD
Mechanical	
Dimension	43mm(W) x 77mm(D) x 104mm(H)
Weight	0.5 Kg
Mounting	DIN-rail mount
Environmental	
Operating Temperature	-25°C ~ 70°C *
Storage temperature	-40°C ~ 80°C *
Humidity	10%~90%, non-condensing
Vibration	5Grms
Shock	50Grms
EMC	CE/FCC Class A, according to EN55032 & EN55024

** For sub-zero operating temperature, a wide temperature microSD module is required.*

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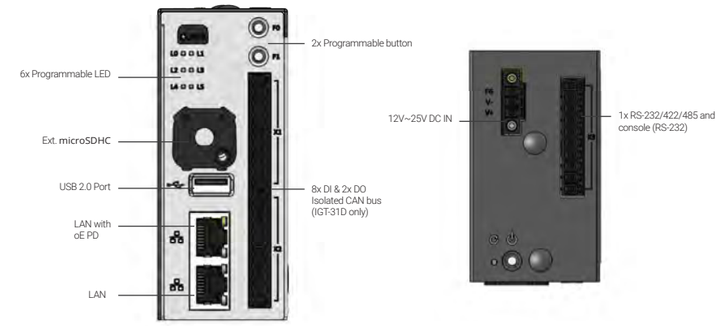
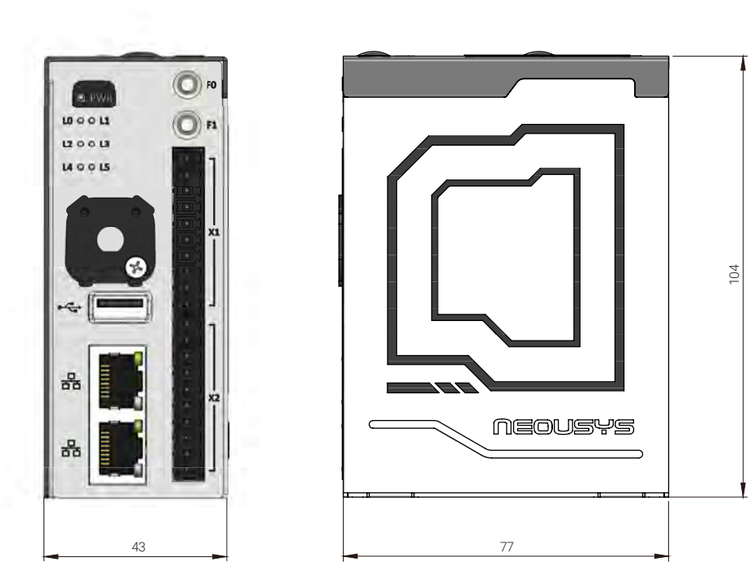
Appearance



Dimensions

Unit : mm



Ordering Information

Model No.	Product Description
IGT-30D	Industrial grade ARM-based IoT gateway with dual LAN and PoE PD enabled
IGT-31D	Industrial grade ARM-based IoT gateway with dual LAN, CAN bus and PoE PD enabled

Optional Cellular Module

NSIO-LTE-7455	Cat. 6 LTE embedded socket modem

All specifications and photos are subject to change without prior notice

IGT-20/ IGT-21/ IGT-22

Industrial Grade ARM-based Smart Wireless IoT Gateway with ARM Cortex A8, Dual T-Flash (microSDHC), and Pre-installed Debian

Key Features

- **Industrial grade ARM-based system with pre-installed Debian**
- **Microsoft Azure and AWS Greengrass Certified for IoT**
- **Field-ready isolated DI/O and serial ports**
- **8 to 25V wide-range DC input**
- **-25°C to 70°C wide temperature operation**

Introduction

Neousys IGT-20 series, equipped with AM3352 from Texas Instrument's Sitara AM335x family, is an ARM-based Box PC aimed at Industrial Internet of Things (IIoT) Gateway and Industry 4.0 applications. As required by any industrial applications, IGT-20 series is shipped as a ready system preinstalled with Debian and is in compliance with common industrial certifications such as CE/FCC, shock and vibration. It has a power input range of 8 to 25 VDC and a wide operating temperature from -25°C to 70°C to ensure IGT-20 series continues to function under harsh industrial conditions. IGT-20 series has I/Os that are applicable to a range of industrial grade sensors. It features one USB 2.0, one 10/100M LAN, COM ports and an optional CAN bus port (IGT-21 only). In addition to the ports mentioned, there are built-in isolated digital input channels that accept discrete signals from various sensors, buttons or switches. There are also built-in isolated digital output channels to control actuators and indicators.
Communication wise, IGT-20 series has a mini PCIe slot and an external USIM holder allowing it to transmit acquired data and system status via 3G, 4G or WiFi (mini PCIe WiFi module). There is an opening on top of IGT-20 series for users to mount the SMA connector of the wireless module. In terms of storage, IGT-20 series has dual microSDHC slots, one internal and one external. This design allows users to separate system/ user data and can expedite in OS deployment for mass production. IGT-20 series also provides six LED indicators and two function buttons that can be programmed by users. The function buttons can act as controls for IGT-20 series and exclude the need for external input devices, such as keyboard/ mouse.

Specifications

	IGT-20	IGT-21	IGT-22
System Core			
Processor	TI Sitara AM3352 1GHz processor		
Memory	1GB DDR3L SDRAM		
RTC	-	-	Yes
Front-panel I/O Interface			
Ethernet	1x 10/100M Ethernet		
SD Card	1x external T-flash socket support microSDHC		
SIM Card	1x external SIM socket		
USB 2.0	1x USB 2.0		
Isolated DI/O	4-CH isolated DI and 4-CH isolated DO		8-CH isolated DI and 8-CH isolated DO
Console	1x 3-wire RS-232 as Console Port		
User LEDs	6x user programmable LEDs		
User Buttons	2x user programmable buttons		
CAN	-	1x CAN bus 2.0 A/B	-
Top I/O Interface			
DC-in	1x DC-input connector		
Power Button	1x power button		
Reset Button	1x reset button		
Serial Port	2x software configurable RS-232/ 422/ 485		1xRS-232 and 1x RS-485
Antenna Opening	1x antenna opening for WiFi and 3G/LTE		

	IGT-20	IGT-21	IGT-22
Internal I/O Interface			
mPCIe	1x full size mPCIe with USB 2.0 only		
SD Card	1x internal T-flash socket support microSDHC		
Software			
Operating System	Pre-installed Debian 8		Pre-installed Debian 9
Mechanical			
Dimension	41mm(W) x 77mm(D) x 104mm(H)		
Weight	0.4 Kg		
Mounting	DIN-rail mount		
Environmental			
Operating Temperature	-25°C ~ 70°C *		
Vibration	5Grms		
Shock	50Grms		
EMC	CE/FCC Class A, according to EN 55032		

** For sub-zero operating temperature, a wide temperature microSD module is required.*

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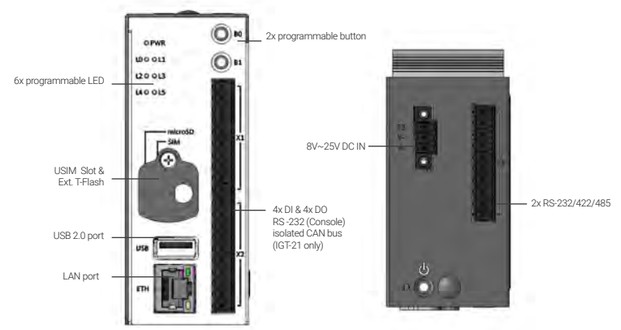
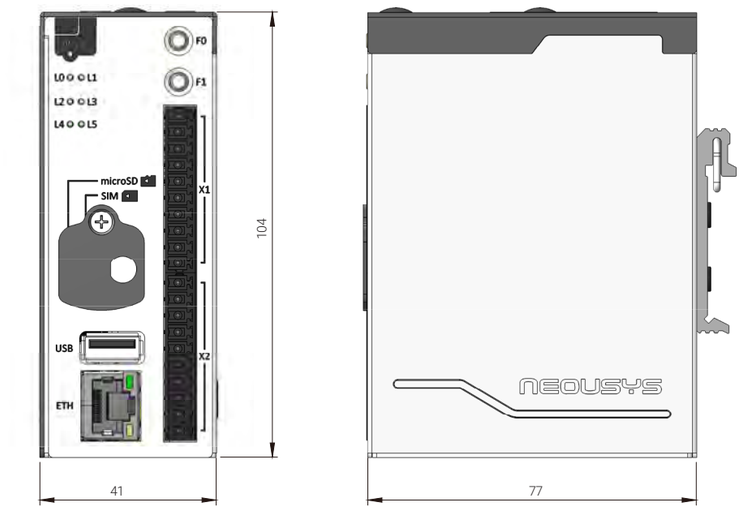
Appearance



Dimensions

Unit : mm



Ordering Information

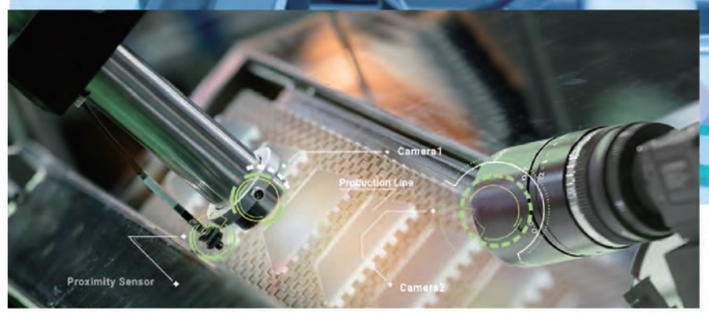
Model No.	Product Description
IGT-20	Industrial grade ARM-based IoT gateway with 4DI and 4DO
IGT-21	Industrial grade ARM-based IoT gateway with 4DI, 4DO and CAN bus
IGT-22	Industrial grade ARM-based IoT gateway with 8DI and 8DO

Optional Cellular Module

NSIO-LTE-7455	Cat. 6 LTE embedded socket modem

All specifications and photos are subject to change without prior notice

Machine Vision



Nuvis-7306RT Series

Intel® 9th/ 8th-Gen Core™ i vision controller with vision-specific I/O, real-time controller and GPU-computing

CE FC

Key Features

- **Intel® 9th/ 8th-Gen Core™ i7/i5 LGA1151 socket-type CPU**
- **Integrated vision-specific I/O**
  - **4-CH CC/CV lighting controller**
  - **4-CH camera trigger outputs**
  - **1-CH quadrature encoder input**
  - **8-CH isolated DI and 8-CH isolated DO**
- **Patented MCU-based, real-time I/O control by DTIO V2 and NuMCU**
- **Built-in camera interfaces**
  - **4-CH IEEE 802.3at Gigabit PoE+ ports with screw-lock**
  - **8-CH USB 3.1 ports with screw-lock**
- **Two x16 PCIe slots for NVIDIA 120W GPU and/or image capture card**

**R.O.C Patent No. I526834/ M534371 / M456527*

Preliminary

Introduction

Nuvis-7306RT series is an all-in-one powerful vision controller incorporating every function needed for machine vision applications. Powered by Intel® 9th/ 8th-Gen Core™ i7/i5, Nuvis-7306RT brings tremendous computing power for image processing.

Nuvis-7306RT integrates constant-current lighting controller, isolated 12V camera trigger output, encoder input for position information and DIO to connect sensors/ actuators. Thanks to Neousys' patented MCU-based architecture and DTIO/ NuMCU firmware, Nuvis-7306RT is able to overcome latencies between sensor input and trigger output. It offers microsecond-scale real-time I/O control that guarantees in-time or in-position image capture.

For deep learning vision applications, Nuvis-7306RT can accommodate an NVIDIA® 120W TDP GPU to leverage state-of-the-art object detection/ classification neural network models. Built-in vision-oriented I/O along with remarkable performance makes Nuvis-7306RT the most exceptional vision controller that fits right into the modern vision industry.

Specifications

System Core	
Processor	Supporting Intel® 9th/ 8th-Gen Coffee Lake CPU (LGA1151 socket, 65W/ 35W TDP) - Intel® Core™ i7-9700E/ i7-9700TE/ i7-8700/ i7-8700T - Intel® Core™ i5-9500E/ i5-9500TE/ i5-8500/ i5-8500T
Chipset	Intel® Q370 platform controller hub
Graphics	Integrated Intel® UHD graphics 630
Memory	Up to 64 GB DDR4 2666/ 2400 SDRAM (two SODIMM slots)
AMT	Supports AMT 12.0
TPM	Supports TPM 2.0
Vision-Specific I/O Interface	
LED Lighting Controller	4-CH LED lighting controller output, supporting - Constant current mode (up to 2A per channel, 100 kHz dimming control) - Constant voltage mode (24 VDC, 100 kHz dimming control)
Camera Trigger	4-CH camera trigger output (Isolated 12 VDC output)
Encoder Input	1-CH quadrature encoder input (A/B/Z)
Isolated Digital Output	4-CH isolated high-speed digital output (<2 us transient time, for strobe/PWM) 4-CH isolated high-current digital output (up to 500 mA rated current for actuator)
Isolated Digital Input	8-CH isolated high-speed digital input (<2 us transient time)
Real-time I/O Control	Patented MCU-based real-time I/O control with DTIO V2 or NuMCU firmware
I/O Interface	
Ethernet	6x Gigabit Ethernet ports by I219 and I210
PoE+	4x IEEE 802.3at (25.5W) Gigabit PoE+ ports by Intel® I210 with RJ45 connector
USB 3.1	4x USB 3.1 Gen2 (10 Gbps) ports 4x USB 3.1 Gen1 (5 Gbps) ports
USB 2.0	1x USB 2.0 port (internal use)
Video Port	1x VGA , supporting 1920 x 1200 resolution 1x DVI-D, supporting 1920 x 1200 resolution 1x DisplayPort, 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/ SSD	2x internal SATA port for 2.5" HDD/ SSD installation, supporting RAID 0/ 1
M.2	1x M.2 2280 M key socket (PCIe Gen3 x4) for NVMe SSD or Intel® Optane™ memory installation
mSATA	1x full-size mSATA port (mux with mini-PCIe)
Expansion Bus	
PCI Express	2x PCIe x16 slot @ Gen3, 8-lane PCIe signals in Cassette, supporting - 120W NVIDIA® GPU card - COTS CameraLink and CoaXPress camera interface card
Mini PCI-E	1x full-size mini PCI Express socket with internal SIM socket (mux with mSATA)
M.2	1x M.2 2242 B key socket with dual front-accessible SIM sockets, supporting dual SIM mode with selected M.2 LTE module
Power Supply	
DC Input	1x 3-pin pluggable terminal block for 8~35VDC DC input
Remote Ctrl. & Status Output	1x 3-pin pluggable terminal block for remote control and PWR LED output
Mechanical	
Dimension	240 mm (W) x 225 mm (D) x 111 mm (H)
Weight	3.7 kg
Mounting	Wall-mount
Environmental	
Operating Temperature	with 35W CPU and NVIDIA® 120W GPU -25°C ~ 60°C ** with 65W CPU and NVIDIA® 120W GPU -25°C ~ 60°C */ ** (configured as 35W TDP mode) -25°C ~ 50°C */ ** (configured as 65W TDP mode)
Storage Temperature	-40°C ~85°C**
Humidity	10%~90% , non-condensing
Vibration	Operating, MIL-STD-810G, Method 514.6, Category 4
Shock	Operating, MIL-STD-810G, Method 516.6, Procedure I, Table 516.6-II
EMC	CE/FCC Class A, according to EN 55032 & EN 55024

** For i7-9700E and i7-8700 running 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 obtain higher operating temperature.*

*** For sub-zero operating temperature, a wide temperature HDD or Solid State Disk (SSD) is required.*

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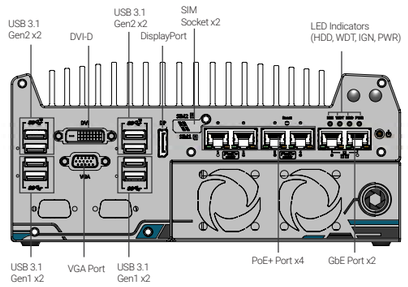
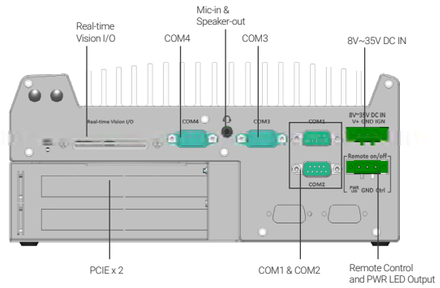
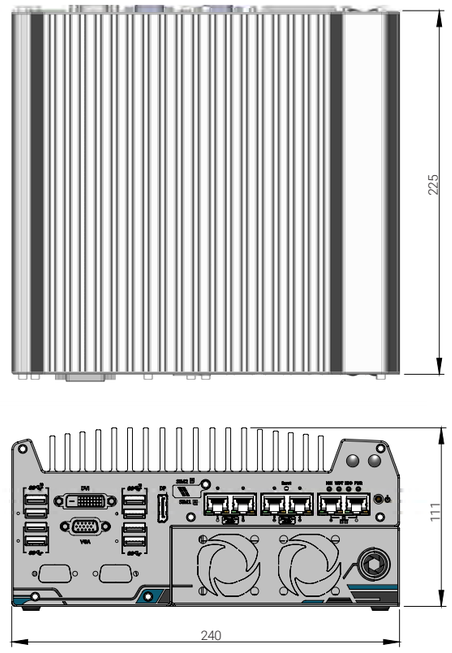
Appearance





Dimensions

Unit : mm



Ordering Information

Model No.	Product Description
Nuvis-7306RT-DTIO	Intel® 9th/ 8th-Gen Core™ i machine vision controller with vision-specific I/O, real-time controller by patented DTIO V2 and GPU-computing
Nuvis-7306RT-NuMCU	Intel® 9th/ 8th-Gen Core™ i machine vision controller with vision-specific I/O, real-time controller by patented NuMCU and GPU-computing

Optional Accessories

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-480W-DIN	480W AC/ DC power adapter DIN-rail mount, 24V 20A, 90~264VAC/ 127~370VDC, terminal block, -20 to70°C

All specifications and photos are subject to change without prior notice

Nuvis-5306RT Series

Intel® 6th-Gen Core™ i7/ i5 Vision Controller with Vision-Specific I/O, Real-time Control and GPU Computing

CE FC

Key Features

- **Intel® 6th-Gen Core™ i7/ i5 65W/ 35W CPU, up to 32 GB DDR4**
- **Integrated vision-specific I/O**
  - **4-CH CC/ CV lighting controller**
  - **4-CH camera trigger outputs**
  - **1-CH quadrature encoder input**
  - **8-CH isolated DI and 8-CH isolated DO**
- **Patented MCU-based, real-time I/O control by DTIO V2* and NuMCU**
- **Built-in camera interfaces**
  - **4-CH IEEE 802.3at Gigabit PoE+ ports**
  - **4-CH USB 3.1 ports**
- **Supports NVIDIA® GPU with up to 75W TDP GPU-accelerated machine vision**
- **Patented graphics card ventilation***

**R.O.C Patent No. I526834/ M534371 / M456527*

Introduction

As one of the most powerful vision controllers ever created, Nuvis-5306RT integrates every single function you need for machine vision applications in a compact footprint, including exceptional computing power, built-in camera interfaces and real-time vision-specific I/O control.
To ensure high quality images, a machine vision (MV) system requires accurate interaction between light, camera, actuator and sensor devices. Nuvis-5306RT integrates LED controller, camera trigger, encoder input, PWM output and digital I/O to connect and control all vision devices. All vision-specific I/Os are managed by Neousys' patented MCU-based architecture and DTIO V2/ NuMCU firmware to guarantee microsecond-scale real-time I/O control.
Computing power is another crucial requirement for a vision system. In addition to the remarkable performance brought by Intel® 6th-Gen Core™ i7/ i5 CPU, Nuvis-5306RT can also accommodate a 75W NVIDIA® GPU to leverage CPU-accelerated vision library or deep-learning vision software. Combining built-in PoE+ and USB 3.1 interfaces and the expandability for CameraLink and CoaXPress, Nuvis-5306RT is the ideal platform for demanding MV applications.

Specifications

System Core	
Processor	Supports Intel® 6th-Gen Core™ LGA1151 CPU - Intel® Core™ i7-6700 (8M Cache,3.4/ 4.0 GHz, 65W TDP) - Intel® Core™ i5-6500 (6M Cache, 3.2/ 3.6 GHz, 65W TDP) - Intel® Core™ i7-6700TE (8M Cache, 2.4/ 3.4 GHz, 35W TDP) - Intel® Core™ i5-6500TE (6M Cache, 2.3/ 3.3 GHz, 35W TDP)
Chipset	Intel® Q170 platform controller hub
Graphics	Integrated Intel® HD graphics 530
Memory	Up to 32 GB DDR4-2133 SDRAM by two SODIMM sockets
AMT	Supports AMT 11.0
TPM	Supports TPM 2.0
Vision-Specific I/O Interface	
LED Lighting Controller	4-CH LED lighting controller output , supporting - Constant current mode (up to 2A per channel, 100 kHz dimming control) - Constant voltage mode (24V DC, 100 kHz dimming control)
Camera Trigger	4-CH camera trigger output (12V DC output)
Encoder Input	1-CH quadrature encoder input (A/ B/ Z)
Isolated Digital Output	4-CH isolated high-speed DO (<2 us transient time, for strobe/PWM) 4-CH isolated high-current DO (up to 500 mA rated current)
Isolated Digital Input	8-CH isolated high-speed digital input (<2 us transient time)
Real-time I/O Control	Patented MCU-based real-time I/O control with DTIO V2 or NuMCU firmware
General I/O Interface	
Ethernet port	6x Gigabit Ethernet ports by Intel® 1x I219 and 5x I210
PoE+	IEEE 802.3at PoE+ PSE on GigE Port 3 ~ Port 6, 80 W total power budget
USB 3.1	4x USB 3.1 ports via native xHCI controller, 1000 MB/s total bandwidth
USB 2.0	4x USB 2.0 ports
Video Port	1x stacked VGA + DVI-D 2x DisplayPorts, supporting 4K2K resolution
Serial Port	2x software-programmable RS-232/422/485 port (COM1 & COM3) 1x RS-232 port (COM2)
Audio	1x Mic-in and 1x speaker-out

Storage Interface	
SATA HDD	2x internal SATA port for 2.5" HDD/ SSD installation, supporting RAID 0/1
mSATA	1x full-size mSATA port (mux with mini-PCIe)
Expansion Bus	
PCI/PCI Express	1x PCIe x16 slot @ Gen3, 8-lanes PCIe signals in Cassette, supporting - 75W NVIDIA® GPU card - COTS CameraLink and CoaXPress camera interface card
Mini PCI-E	1x internal mini PCI Express socket with front-accessible SIM socket 1x internal mini PCI Express socket with internal SIM socket (mux with mSATA)
Power Supply	
DC Input	1x 3-pin pluggable terminal block for 8~35V DC input
Remote Ctrl. & Status Output	1x 10-pin (2x5) wafer connector for remote on/off control and status LED output
Mechanical	
Dimension	240 mm (W) x 225 mm (D) x 111 mm (H)
Weight	4.5 kg
Mounting	Wall-mount
Environmental	
Operating Temperature	with i7-6700TE, i5-6500TE (35W TDP) -25°C ~ 60°C ** with i7-6700, i5-6500 (65W TDP) -25°C ~ 60°C */** (configured as 35W CPU mode) -25°C ~ 50°C */** (configured as 65W CPU mode)
Storage Temperature	-40°C ~85°C**
Humidity	10%~90% , non-condensing
Vibration	Operating, 5 Grms, 5-500 Hz, 3 Axes (w/ SSD, according to IEC60068-2-64)
Shock	Operating, 50 Grms, Half-sine 11 ms duration (w/ SSD, according to IEC60068-2-27)
EMC	CE/ FCC Class A, according to EN 55022, EN55032 & EN 55024

** For i7-6700 running 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 obtain higher operating temperature.*
*** For sub-zero operating temperature, a wide temperature HDD drive or Solid State Disk (SSD) is required.*

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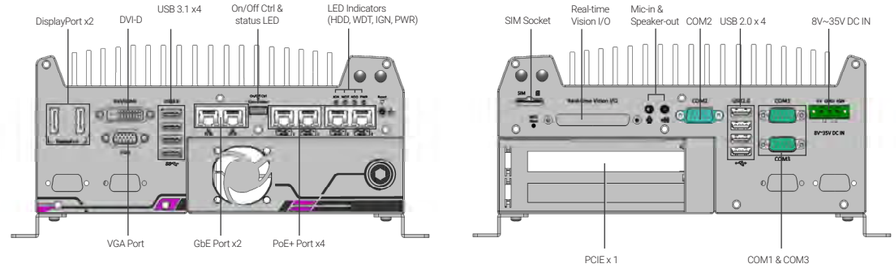
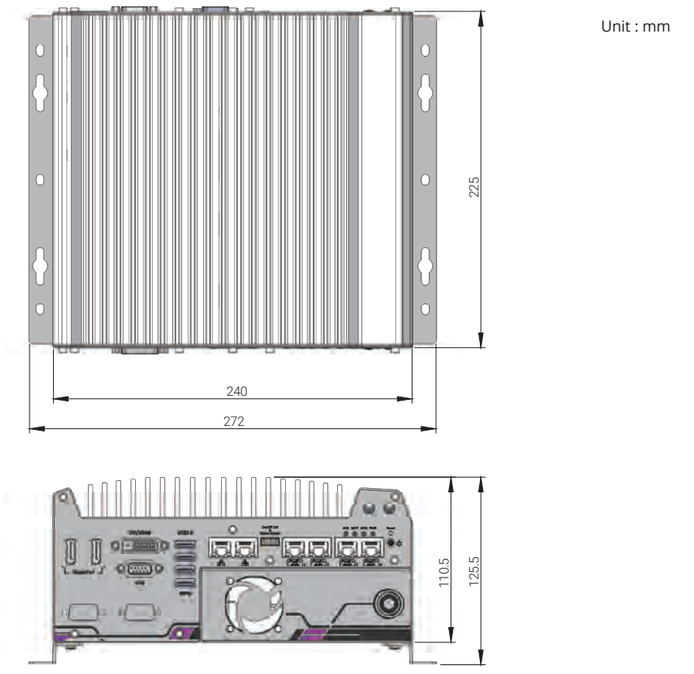
Appearance



Dimensions



Ordering Information

Model No.	Product Description
Nuvis-5306RT-DTIO	Intel® 6th-Gen Core™ vision controller with vision-specific I/O, real-time control by DTIO V2 and GPU-computing
Nuvis-5306RT-NuMCU	Intel® 6th-Gen Core™ vision controller with vision-specific I/O, real-time control by NuMCU and GPU-computing

Optional Accessories

PA-160W-OW	160W AC/DC power adapter 20V/8A; 18AWGx4C/120cm, cord end terminals for terminal block, operating temperature : -30 to 70 °C.

All specifications and photos are subject to change without prior notice

Nuvis-534RT Series

AMD Ryzen™ V1807B Ultra-compact Vision Controller with Vision-specific I/O and Real-time control

Key Features

- **AMD Ryzen™ Embedded V1807B quad-core 45W CPU**
- **Integrated vision-specific I/O**
  - **4-CH CC/ CV lighting controller**
  - **4-CH camera trigger outputs**
  - **1-CH quadrature encoder input**
  - **8-CH isolated DI and 8-CH isolated DO**
- **Patented MCU-based, real-time I/O control by DTIO V2* and NuMCU**
- **Built-in camera interfaces**
  - **Four Gigabit PoE+ ports with screw-lock**
  - **Four USB 3.1 ports with screw-lock**
- **M.2 2280 M key NVMe (Gen3 x2) socket for fast storage access**

**R.O.C Patent No. I526834*

Introduction

Nuvis-534RT is a high-performance, ultra-compact vision controller with integrated camera interfaces, vision-specific I/Os and real-time control for machine vision applications. Powered by AMD Ryzen™ Embedded V1807B 4-core/ 8-thread processor, it provides superb performances equivalent to mainstream desktop CPUs while retaining a compact 8.2 cm x 11.8 cm x 17.6 cm (3.4″ x 4.6″ x 6.9″) dimensions.
Nuvis-534RT offers unique vision-oriented I/O configurations, including constant-current lighting controller to directly drive LED lights, isolated 12V trigger output to activate cameras, encoder input to acquire position information and DIO to connect to sensors/ actuators. All of the above vision-oriented I/Os can be managed by Neousys' patented DTIO V2 or NuMCU technology to guarantee real-time trigger/ response in micro-second scale.
The combination of high performance and small footprint gives Nuvis-534RT a distinctive 1-2 punch advantage where the vision system can be easily deployed with USB 3.1 and GigE cameras and without space restrictions.

Specifications

System Core	
Processor	AMD Ryzen™ V1807B CPU (4C/ 8T, 2M Cache, 3.35/ 3.8 GHz,35W - 54W TDP)
Graphics	Vega GPU with 11 compute units
Memory	Up to 16 GB DDR4-3200 SDRAM by one SODIMM socket
TPM	Supports TPM 2.0
Vision-Specific I/O Interface	
LED Lighting Controller	4-CH LED lighting controller output , supporting - Constant current mode (up to 2 A per channel, 100 kHz dimming control) - Constant voltage mode (24 VDC, 100 kHz dimming control)
Camera Trigger	4-CH camera trigger output (isolated 12 VDC output)
Encoder Input	1-CH quadrature encoder input (A/ B/ Z)
Isolated Digital Output	4-CH isolated high-speed DO (<2 us transient time, for strobe/PWM) 4-CH isolated high-current DO (up to 500 mA rated current for actuator)
Isolated Digital Input	8-CH isolated high-speed digital input (<2 us transient time)
Real-time I/O Control	Patented MCU-based real-time I/O control with DTIO V2 or NuMCU firmware
General I/O Interface	
Ethernet port	4x Gigabit Ethernet ports by Intel® I350-AM4 controller
PoE+	IEEE 802.3at PoE+ PSE, 80 W total power budget
USB 3.1	4x USB 3.1 Gen1 (5 Gbps) ports
Video Port	1x VGA , supporting 1920 x 1200 resolution 1x DP connector, supporting 4k2k resolution
Serial Port	1x Software-programmable RS-232/422/485 ports (COM1) 3x 3-wire RS-232 ports (COM2/3/4) or 1x RS-422/485 port (COM2)
Audio	1x 3.5 mm jack for mic-in and speaker-out

Storage Interface	
M.2	1x M.2 2280 M key NVMe socket (PCIe Gen3 x2) for NVMe SSD
Power Supply	
DC Input	1x 3-pin pluggable terminal block for 8~35VDC DC input
Remote Ctrl. & Status Output	1x3-pin pluggable terminal block for remote control and PWR LED output
Mechanical	
Dimension	82 mm (W) x 118 mm (D) x 176 mm (H)
Weight	1.5 kg
Mounting	DIN-rail mount (standard) or Wall-mount (optional)
Fan	External-accessible 80mm x 80mm fan for system heat dissipation
Environmental	
Operating Temperature	-25°C ~ 70°C */**
Storage Temperature	-40°C ~85°C
Humidity	10%~90% , non-condensing
Vibration	Operating, MIL-STD-810G, Method 514.6, Category 4
Shock	Operating, MIL-STD-810G, Method 516.6, Procedure I, Table 516.6-II
EMC	CE/FCC Class A, according to EN 55032 & EN 55024

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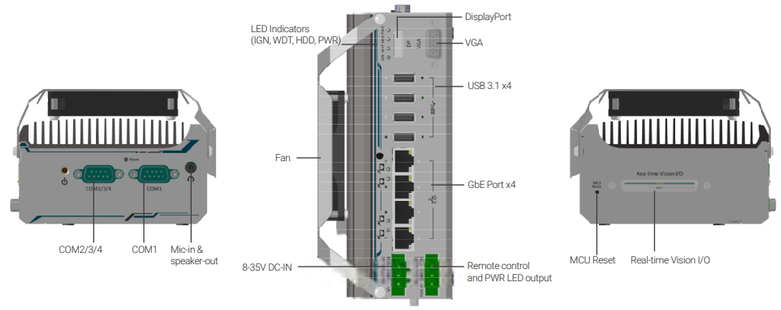
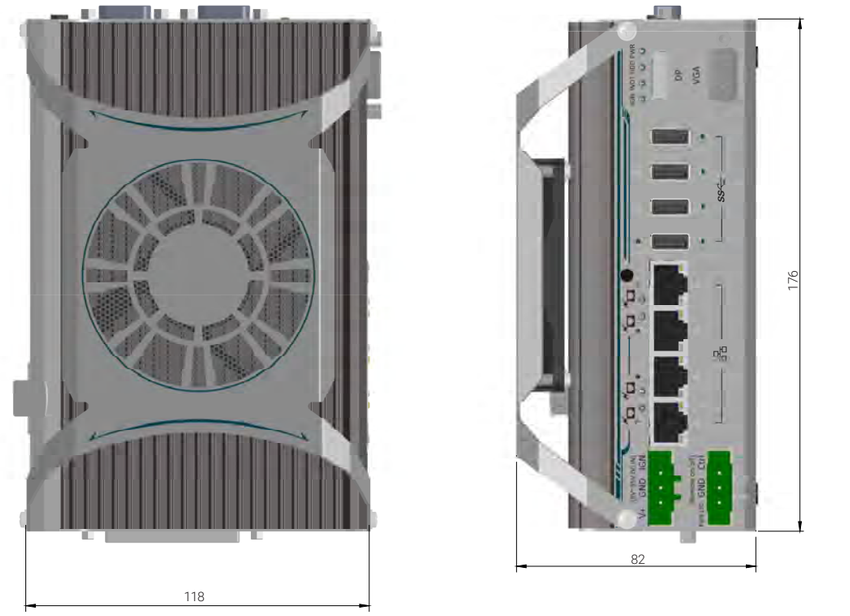
Appearance



Dimensions

Unit : mm



Ordering Information

Model No.	Product Description
Nuvis-534RT-DTIO	AMD Ryzen™ V1807B ultra-compact vision controller with vision-specific I/O and real-time control by DTIO
Nuvis-534RT-NuMCU	AMD Ryzen™ V1807B ultra-compact vision controller with vision-specific I/O and real-time control by NuMCU

Optional Accessories

PA-160W-OW	160W AC/DC power adapter 20V/8A; 18AWGx4C/120cm, cord end terminals for terminal block, operating temperature : -30 to 70 °C.

All specifications and photos are subject to change without prior notice

LTN-450 Series

4-CH/ 2-CH constant-current LED controller supporting 10A overdriving

Key Features

- **Constant current LED lighting control**
- **4-CH/ 2-CH LED outputs**
  - **Up to 2A continuous output, max 180 W rated**
  - **Up to 10A overdriving output, max 500 W peak**
- **4-CH/ 2-CH isolated trigger inputs**
- **Support versatile operating modes: continuous, pulsed, overdriving and switched**
- **RS232 interface**
- **12 ~ 35V wide-range DC input**

Introduction

LTN-450 series is a constant-current LED lighting controller with overdriving capability. Driving LED light with constant current output offers precise control of light intensity in mA scale and generates stable illumination for machine vision applications.

LTN-450 series provides up to four LED control channels capable of delivering up to 2A current continuously with a total of 180W power budget. It also has four isolated trigger inputs to accept strobe signals from cameras or proximity sensors. In addition, LTN-450 supports 10A overdriving output to strobe the LED with up to 10x brightness for a very short period of time. This gives a burst of 500W peak energy to LED lights and benefits applications such as line scan imaging and high-speed image capture. LTN-450 imposes a patent-pending, MCU-based scheme to rigidly regulate strobe pulse width and overall duty cycle to protect LED lights against burning-out.

The operating mode, output current, trigger source, trigger delay and pulse width can be easily configured via RS-232 interface. A simple GUI utility and cross-platform driver API make it easy to manipulate and control in various applications. LTN-450 series provides a cost-effective way to control the LED where precise and stable illumination matters.

Specifications

	LTN-454	LTN-452
Communication Interface	RS-232 COM port	
LED Lighting Controller	4-CH constant current outputs	2-CH LED constant current outputs
Output voltage	Continuous: 0V to 24V Overdriving: 0V to 48V	
Supply voltage	1x 3-pin pluggable terminal block for 12~35V DC input	
Output current	Up to 2A in 2.5 mA increments Up to 10A for overdriving in 10 mA increments	Up to 2A in 10 mA increments Up to 10A for overdriving in 40 mA increments
Output power	Up to 180W rated power output for continuous mode Up to 500W peak power output for overdriving mode	
Operating modes	Continuous, pulsed, overdriving and switched modes	
Trigger input	4-CH isolated trigger inputs Logic low: 0V ~ 1.5V Logic high: 5V ~ 24V	2-CH isolated trigger inputs Logic low: 0V ~ 1.5V Logic high: 5V ~ 24V
Pulse width	For overdriving mode: minimum 50 µs in 1 µs increments, maximum 30 ms according to 100% to 1000% overdriving scale For other modes: minimum 400 µs in 1 µs increments	
Pulse Delay	Minimum 0s µs in 1 µs increments	
Operating Temperature	0°C ~ 60°C *	
Dimension	47 mm(W) x 108 mm(D) x 150 mm (H)	
Mounting	DIN-rail mount	
Weight	0.9 kg	
EMC	CE/FCC	

** Due to various operating modes and current output discrepancies, active cooling may be required.*

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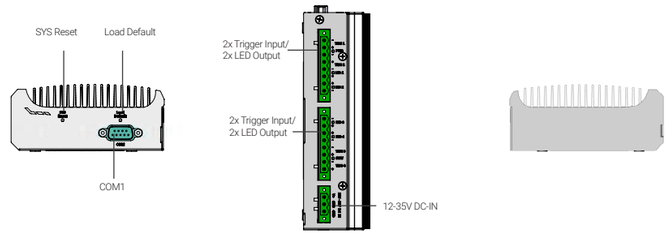
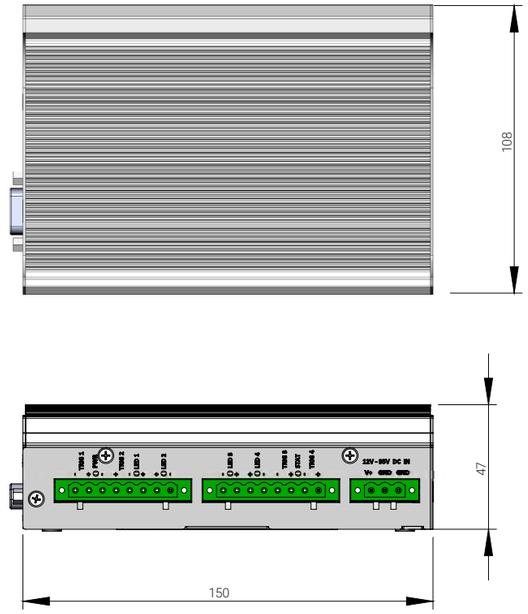
Appearance



Dimensions

Unit : mm



Ordering Information

Model No.	Product Description
LTN-454	4-CH constant-current LED controller supporting 10A overdriving output and 4x trigger inputs
LTN-452	2-CH constant-current LED controller supporting 10A overdriving output and 2x trigger inputs

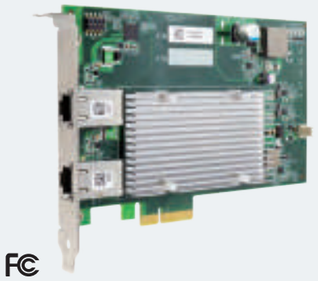
Optional Accessories

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-480W-DIN	480W AC/ DC power adapter DIN-rail mount, 24V 20A, 90~264VAC/ 127~370VDC, terminal block, -20 to70°C

All specifications and photos are subject to change without prior notice

PCIe-PoE550X

2-port 10GbE Network Adapter with IEEE 802.3at PoE+



Key Features

- **Two 10 GbE ports by Intel® X550-AT2 10 GigE controller**
- **Gen3 PCI Express x4 interface**
- **Supports 10GbE with CAT-6/ 6a cable (Max. 100 meters)**
- **Supports 802.3at PoE+ with CAT 6a cable**
- **Supports NBASE-T and 1000BASE-T with CAT-5/ 5e cable**
- **Compliant with IEEE 802.3at to deliver 25.5W each port**
- **Supports 15.5 KB jumbo frame, NIC teaming and IEEE 1588**
- **Per-port PoE+ power on/off control via API**

Introduction

Introducing the world's first 10Gbit Ethernet NIC incorporating IEEE 802.3at PoE+ capability, featuring Intel® X550-AT2, Neousys Technology's PCIe-PoE550X offers cost-effective 10GBAST-T solution for growing 10GbE applications.

PCIe-PoE550X features 10GbE NIC incorporating Power over Ethernet (PoE+) capability. It features Neousys' proven 802.3at PoE+ technology and refined power design to ensure optimal signal integrity over 10G PHY and maximal bandwidth. The combination of 10GbE and PoE opens the door to new applications such as high-performance WiFi access points and high-speed/ high-definition industrial cameras over single Ethernet cable.

10GBASE-T leverages twisted-pair copper cable and RJ45 connector that dramatically reduces the deployment cost of 10G network. PCIe-PoE550X provides 10Gbit/s connections over a distance of up to 100 meters with CAT 6a cable or 55 meters with CAT 6 cable. It also supports upcoming NBASE-T standard as well as backward compatibility with existing 1000BASE-T GbE network so you can easily implement it into your current network infrastructure.

Specifications

Bus Interface	Gen3 PCI Express x4
# of 10 GbE Port	2x 10 GbE ports by Intel® X550-AT2 controller, supporting 15.5 KB jumbo frame, teaming and IEEE 1588
Network Protocol Support	IEEE 802.3 Ethernet interface for 10GBASE-T (IEEE 802.3an), NBASE-T (IEEE 802.3bz) and 1000BASE-T (IEEE 802.3ab)
PoE Capability	Optional IEEE 802.3at-2009 (PoE+), up to 25.5W per port
Cable Requirement	For 10GBASE-T: CAT 6a (100 meters) or CAT 6 (55 meters) For 5 Gbps NBASE-T: CAT 6 (100 meters) For 2.5 Gbps NBAST-T: CAT 5e (100 meters)
Power Requirement	Maximum 11.5W for 2x 10 GbE operation Maximum 51W for powering PoE+ devices
EMC	CE Class A, according to EN 55024/ 55032 FCC Class A, according to FCC Part 15, Subpart B
EMS	IEC 61000-4-x Class/ Level 3
Operating Temperature	0°C ~ 60°C with air flow
Dimension	168 mm (W) x 111.2 mm (H)

Ordering Information

Model No.	*Product Description*
PCIe-PoE550X	2-port 10GbE Network Adapter with IEEE 802.3at PoE+
PCIe-10G550X	2-port 10GbE Network Adapter

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PCIe-PoE334LP

Low-profile 4-port Server-grade Gigabit PoE+ Card with 1 kV Surge Protection

Key Features

- **Low-profile form-factor**
- **4x ports via Intel® I350-AM4 server-grade GigE controller**
- **Compliant with IEEE 802.3at to deliver 25.5 W each port**
- **IEC 61000-4-5 Class 2 surge immunity**
- **Supports 9.5 kB jumbo frame, teaming and IEEE 1588**
- **Per-port PoE+ power on/ off control via software API**

Introduction

PCIe-PoE334LP is the latest member of Neousys' PoE NIC card family. It is the world's first PoE card to integrate 4-port server-grade GigE controller and 802.3at PoE+ into a low-profile PCIe card. The low-profile form-factor makes PCIe-PoE334LP the perfect solution for commercial off-the-shelf 2U server computers.

PCIe-PoE334LP is designed with Intel® I350-AM4 GigE controller to offer extraordinary Ethernet performance. It inherits Neousys' proven PoE technology to power your machine vision cameras and surveillance IP cameras. In addition, PCIe-PoE334LP features solid surge protection design compliant with IEC 61000-4-5 Class 2. It is capable of withstanding 1 kV surge and 8 kV ESD on signal lines. This is particularly valuable for outdoor surveillance system or factory automation equipment where power surge may damage the system through the Ethernet connection.

Incorporating low-profile form-factor and robust surge protection, PCIe-PoE334LP defines a new category of PoE card - a compact and yet solid PoE card for servers and rugged industrial applications.

Specifications

Bus Interface	x4, Gen2 PCI Express
Gigabit Ethernet Port	4x GigE ports by Intel® I350-AM4 controller, supporting 9.5 kB jumbo frame, teaming and IEEE 1588
PoE Capability	In compliance with IEEE 802.3at-2009 (PoE+), each port delivers up to 25.5 W of power 75W total power budget (limited by PCI Express bus)
Cable Requirement	CAT-5e or CAT-6 cable, 100 meters maximal
Power Requirement	Maximum 1.2 A @ 3.3 V from PCI Express bus Maximum 6.2A @ 12 V from PCI Express bus
EMC	CE Class A, according to EN 55022/ 55024/ 55032 FCC Class A, according to FCC Part 15, Subpart B
EMS	IEC 61000-4-x Class/ Level 2
Operating Temperature	0°C ~ 55°C with air flow
Dimension	168 mm (W) x 69 mm (H)

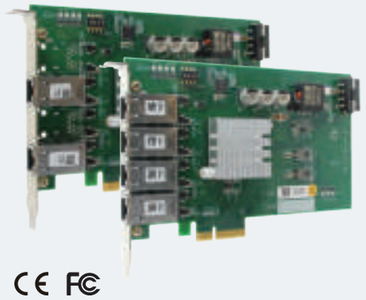
Ordering Information

Model No.	*Product Description*
PCIe-PoE334LP	Low-profile 4-port server-grade Gigabit 802.3at PoE+ card with 1 kV surge protection

All specifications and photos are subject to change without prior notice

PCIe-PoE354at/PoE352at

4-Port / 2-Port Server-grade Gigabit 802.3at PoE+ Frame Grabber Card



Key Features

- **x4, Gen2 PCI Express interface (2GB/s total bandwidth)**
- **Intel® I350 server-grade Gigabit Ethernet controller**
- **Supports four (354at) or two (352at) independent GigE ports**
- **Compliant with IEEE 802.3at to deliver 25.5 W each port**
- **Supports 9.5 kB jumbo frame, teaming and IEEE 1588**
- **Per-port PoE+ power on/ off control**

Introduction

PCIe-PoE354at is world's first PoE frame grabber card combining server-grade GigE controller and 802.3at PoE+ capability. Inheriting Neousys' expertise on PoE technology, PCIe-PoE354at further incorporates the updated 802.3at-2009 standard and offers up to 25.5W of power each port.

PCIe-PoE354at is designed with Intel® I350 Gigabit Ethernet controller. This server-grade GigE controller incorporates advanced features such as checksum offloading, segmentation offloading and intelligent interrupt generation/ moderation to increase overall Ethernet performance and reduce CPU utilization. In addition, its single-bus, multi-port topology minimizes compatibility issues with off-the-shelf motherboards when installing multiple cards.

Machine vision applications can be benefited by PCIe-PoE354at's server-grade network performance. Its 25.5W PoE+ can now power PTZ (pan-tilt-zoom) cameras for surveillance applications. With an excellent cost-per-performance ratio, PCIe-PoE354at is your ideal Power over Ethernet solution.

Specifications

	PCIe-PoE354at	PCIe-PoE352at
Bus Interface	x4, Gen2 PCI Express	
Gigabit Ethernet Port	4x GigE ports by Intel® I350-AM4 controller, supporting 9.5 kB jumbo frame, teaming and IEEE 1588	2x GigE ports by Intel® I350-AM2 controller, supporting 9.5 kB jumbo frame, teaming and IEEE 1588
PoE Capability	In compliant with IEEE 802.3at-2009 (PoE+), each port delivers up to 25.5 W of power	
Cable Requirement	CAT-5e or CAT-6 cable, 100 meters maximum	
Power Requirement	Maximum 1.2A @ 3.3V from PCI Express bus Maximum 9.6A @ 12V from PCI Express bus or on-board 4-pin power connector*	Maximum 0.9A @ 3.3V from PCI Express bus Maximum 4.8A @ 12V from PCI Express bus**
Operating Temperature	0°C ~ 55°C	
Dimension	168 mm (W) x 111 mm (H)	

** PCIe-PoE354at is designed to obtain 12 VDC for PoE devices from either PCI Express bus or on-board 4-pin power connector according to a user-configurable jumper.*
*** PCIe-PoE352at is designed to obtain 12 VDC for PoE devices directly from PCI Express bus. No external 12 VDC is needed.*

Ordering Information

Model No.	Product Description
PCIe-PoE354at	4-Port Intel® I350-AM4 server-grade Gigabit 802.3at PoE+ frame grabber card
PCIe-PoE352at	2-Port Intel® I350-AM2 server-grade Gigabit 802.3at PoE+ frame grabber card

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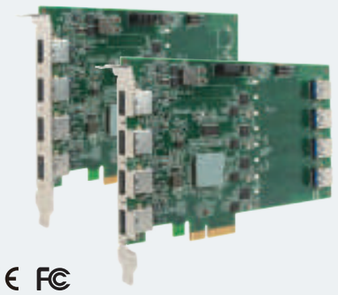
PCIe-USB380/USB340

8-Port/ 4-Port USB 3.1 Host Adapter Card with 4x Independent USB 3.1 Controllers



Key Features

- **x4 PCI Express® Gen2 interface (2GB/s total bandwidth)**
- **8-port/ 4-port by 4x NEC/ Renesas µPD720202 host controller**
- **On-board 5V DC regulated power supply, no external power needed**
- **User-configurable 900mA and 1500mA current limit**
- **Software-programmable per-port power on/ off control**
- **Supports cable-lock mechanism for reliable cable connection**
- **Supports Windows XP/ 7/ 8 and Linux**
- **Compliant with**
  - **Universal Serial Bus 3.0 specification Rev. 1.0**
  - **Intel® xHCI specification Rev. 1.0**

Introduction

Neousys PCIe-USB380/ 340 is an 8-port/ 4-port USB 3.1 host adapter specifically designed for industrial and vision applications. USB 3.1 or SuperSpeed USB, delivers up to ten times the data rate over USB 2.0 and is particularly useful for high-speed data storage and imaging devices.

Most off-the-shelf USB 3.1 cards implement multiple ports with a single USB 3.1 controller which results in significant performance degradation during multi-port operation. To achieve maximum per-port performance, PCIe-USB380 has four independent NEC/ Renesas µPD720202 USB 3.1 Host Controllers and x4 PCI Express® Gen2 interface to offer up to 5 Gbps bandwidth for each port, independently. In addition to transfer data bandwidth advantage, PCIe-USB380/ 340 features on-board regulated 5V DC power supply with a unique configurable 900mA/ 1500mA current limit to supply stable 5V DC power to external USB devices. It also supports software-programmable per-port power on/ off control for fault recovery operations.

Combining high bandwidth, industrial-grade power design and reliable cable connection, PCIe-USB380/ 340 brings convenience to interface USB 3.1 devices operating under Windows XP, 7, 8 and Linux.

Specifications

	PCIe-USB380	PCIe-PoE340
USB Ports	8x USB 3.1 ports, compatible with USB 2.0/ 1.1/ 1.0	4x USB 3.1 ports, compatible with USB 2.0/ 1.1/ 1.0
USB Connectors	4x panel-accessible USB 3.1 Type-A connectors with M2 screw threads 4x on-board USB 3.1 Type-A connectors with fix points for cable tie	4x panel-accessible USB 3.1 Type-A connectors with M2 screw threads
Bus Interface	4-lanes, Gen2 PCI Express interface, compliant with PCI Express Base specification revision 2.0	
USB Controller	4x NEC/ Renesas µPD720202 host controllers Compliant with Universal Serial Bus 3.0 specification revision 1.0 Compliant with Intel® xHCI specification revision 1.0	
USB Per-Port Current Limit	User-configurable 900mA/1500mA per-port current limit	
Power Requirement	Maximum 2.0A @ 3.3V from PCI Express bus Maximum 5.5A @ 12V from PCI Express bus for devices	Maximum 2.0A @ 3.3V from PCI Express bus Maximum 2.8A @ 12V from PCI Express bus for devices
Operating Temperature	0°C ~ 60°C	
Dimension	168 mm (W) x 111 mm (H)	

Ordering Information

Model No.	Product Description
PCIe-USB380	8-Port USB 3.1 host adapter with 4x independent USB 3.1 controllers
PCIe-USB340	4-Port USB 3.1 host adapter with 4x independent USB 3.1 controllers

Optional Accessories

Cbl-U3TA-U3MB-300CM	USB3 Type-A to Micro-B cable with latched connectors, 300cm length

All specifications and photos are subject to change without prior notice

In-vehicle Computing

Nuvo-7200VTC Series

Intel® 9th/ 8th-Gen Core™ i7/i5/i3 In-vehicle Controller with 4x or 8x PoE+ Ports, Single-slot PCIe Cassette

Key Features

- **Supports Intel® 9th/ 8th-Core™ i7/ i5/ i3 LGA1151 socket-type CPU**
- **Patented Cassette for PCIe add-on card accommodation***
- **4x or 8x 802.3at Gigabit PoE+ ports via M12 or RJ45 connectors**
- **Onboard isolated CAN bus for in-vehicle communication**
- **4-CH isolated DI and 4-CH isolated DO**
- **2x hot-swappable SATA HDD trays, supporting RAID 0/1**
- **2x M.2 B key and 3x full-size mini-PCIe sockets**
- **8~35V wide-range DC input with built-in ignition power control**
- **E-Mark and EN 50155/ EN 45545 certificate**

**R.O.C Patent No. M456527*

Introduction

Nuvo-7200VTC is the latest rugged in-vehicle controller featuring purpose-built set and effortless connectivity, powered by Intel® 9th/ 8th-Gen Core™ processors with up to 8-core/ 6-core architecture and 64GB DDR4 memory that gets a significant performance increase over previous generations. Nuvo-7200VTC provides flexibility to support a range of peripherals and connections. It has four or eight 802.3at PoE+ ports to supply 25W power to connected devices via M12 or RJ-45 connectors. Screw-lock mechanisms on GbE and USB 3.1 ports guarantee extreme rugged connectivity in shock/ vibration environments. Wireless connectivity is essential for modern in-vehicle applications and you can simultaneously utilize two M.2 and three mini-PCIe sockets with corresponding 3G/ 4G, WIFI, GPS, and CAN module for this purpose. Additionally, Neousys provides an optional 4G cellular module certified to work with renowned US telecom company to minimize implementation time and cost.

Thanks to Neousys' patented Cassette design, it has one additional PCIe slot in the Cassette module for an add-on card installation, making it that much more flexible. Nuvo-7200VTC also features two hot-swappable HDD trays, isolated CAN bus, isolated DIO, 8~35V wide-range DC input with ignition power control and is in compliance with E-Mark and EN 50155/ EN 45545. The Nuvo-7200VTC is the perfect solution with extraordinary reliability for various in-vehicle application needs.

Specifications

System Core	
Processor	Supporting Intel® 9th/ 8th-Gen Core™ CPU (LGA1151 socket, 35WTDP) - Intel® Core™ i7-9700TE/ i7-8700T - Intel® Core™ i5-9500TE/ i5-8500T - Intel® Core™ i3-9100TE/ i3-8100T
Chipset	Intel® Q370 platform controller hub
Graphics	Integrated Intel® UHD Graphics 630
Memory	Up to 64 GB DDR4 2666/ 2400 SDRAM (two SODIMM slots)
AMT	Supports AMT 12.0
TPM	Supports TPM 2.0
I/O Interface	
Ethernet	2x Gigabit Ethernet ports by Intel® I219 and I210
PoE+	4x IEEE 802.3at (25.5W) Gigabit PoE+ ports by Intel® I210 - M12 x-coded connector (Nuvo-7200VTC); - RJ45 connector (Nuvo-7204VTC) 8x IEEE 802.3at (25.5W) Gigabit PoE+ ports by Intel® I210 - RJ45 connector (Nuvo-7208VTC)
CAN	1x isolated CAN 2.0 port
Isolated DIO	4x isolated DI and 4x isolated DO
USB 3.1	4x USB 3.1 Gen2 (10 Gbps) ports 4x USB 3.1 Gen1 (5 Gbps) ports
USB 2.0	1x USB 2.0 port (internal use)
Video Port	1x VGA, supporting 1920 x 1200 resolution 1x DVI-D, supporting 1920 x 1200 resolution 1x DisplayPort, 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 Mic-in and 1x speaker-out
Storage Interface	
SATA HDD	2x hot-swappable HDD tray for 2.5" HDD/ SSD installation, supporting RAID 0/1
mSATA	1x full-size mSATA port (mux with mini-PCIe)
M.2	1x M.2 2280 M key socket (PCIe Gen3 x4) for NVMe SSD or Intel® Optane™ memory installation

Expansion Bus	
PCI Express	1x PCIe x16 slot@Gen3, 16-lanes PCIe signals in Cassette
Mini PCI-E	1x full-size mini PCI Express socket with internal SIM socket (mux with mSATA) 2x full-size mini-PCIe sockets (USB signals only) with internal SIM sockets
M.2	2x M.2 2242 B key socket, one with dual front-accessible SIM sockets, supporting dual SIM mode with selected M.2 LTE module
Power Supply	
DC Input	1x 3-pin pluggable terminal block for 8~35V DC input (IGN/ GND/ V+)
Remote Ctrl. & Status Output	1x 3-pin pluggable terminal block for remote control and PWR LED output
Mechanical	
Dimension	240 mm (W) x 225 mm (D) x 103mm (H)
Weight	3.7 kg
Mounting	Wall-mount with damping brackets (Standard) or DIN-rail mount (optional)
Environmental	
Operating Temperature	-40°C ~ 70°C */**
Storage Temperature	-40°C ~ 85°C
Humidity	10%~90% , non-condensing
Vibration	IEC61373:2010, Category 1, Class B Body mounted (part of EN50155)
Shock	IEC61373:2010, Category 1, Class B Body mounted (part of EN50155)
EMC	EN 50155/ EN 45545, E-Mark (Nuvo-7208VTC) CE/FCC Class A, according to EN 55032 & EN 55024

** For i7-9700E and i7-8700 running 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 obtain higher operating temperature.*

*** For sub-zero operating temperature, a wide temperature HDD or Solid State Disk (SSD) is required.*

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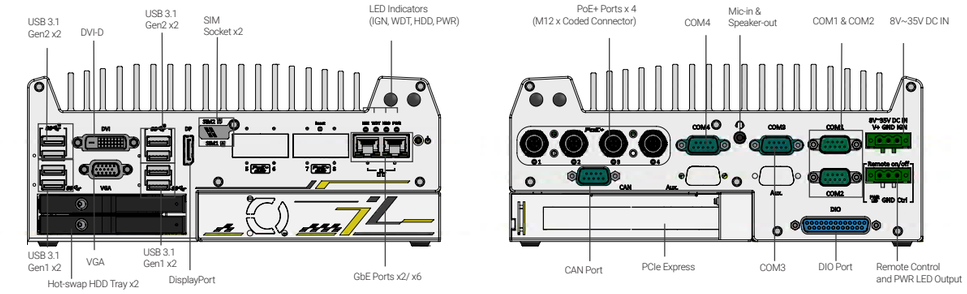
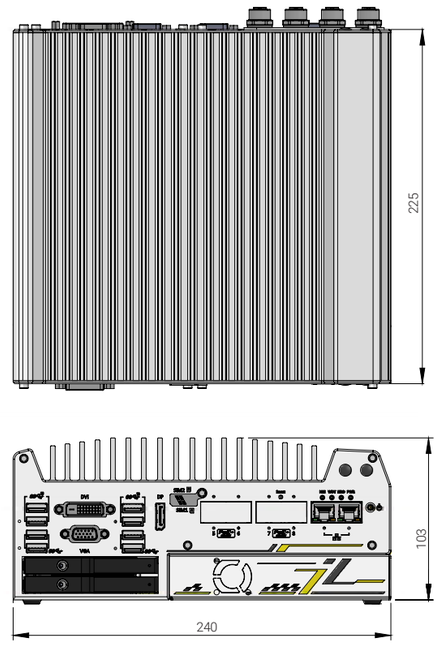
Appearance



Dimensions



Ordering Information

Model No.	Product Description
Nuvo-7200VTC	Intel® 9th/ 8th-Gen Core™ in-vehicle controller with 4x M12 PoE+ ports, DIO, CAN bus and RAID, single-slot PCI Express Cassette
Nuvo-7204VTC	Intel® 9th/ 8th-Gen Core™ in-vehicle controller with 4x RJ45 PoE+ ports, DIO, CAN bus and RAID, single-slot PCI Express Cassette
Nuvo-7208VTC	Intel® 9th/ 8th-Gen Core™ in-vehicle controller with 8x RJ45 PoE+ ports, DIO, CAN bus and RAID, single-slot PCI Express Cassette

Optional Accessories

Cbl-M12X8M-RJ45-500CM	M12 (8-pole-X-coded) to RJ45, CAT6, length : 500CM
Cbl-M12X8M-RJ45-1000CM	M12 (8-pole-X-coded) to RJ45, CAT6, length : 1000CM
PA-120W-OW	120W AC/DC power adapter 20V/6A; 18AWG/120cm; cord end terminals for terminal block, operating temperature : -30°C to 70 °C.

Optional Cellular Module

NSIO-LTE-7455	Cat. 6 LTE embedded socket modem

All specifications and photos are subject to change without prior notice

Nuvo-7250VTC Series

Intel® 9th/ 8th-Gen Core™ i7/i5/i3 In-vehicle Controller with 4x or 8x PoE+ Ports, Supercapacitor-based Power Backup Module

Key Features

- **Supports Intel® 9th/ 8th-Gen Core™ i7/ i5/ i3 LGA1151 socket-type CPU**
- **Patented supercapacitor-based uninterruptible power backup***
- **4x or 8x 802.3at Gigabit PoE+ ports via M12 or RJ45 connectors**
- **Onboard isolated CAN bus for in-vehicle communication**
- **4-CH isolated DI and 4-CH isolated DO**
- **2x hot-swappable SATA HDD trays, supporting RAID 0/ 1**
- **2x M.2 B key and 3x full-size mini-PCIe sockets**
- **8~35V wide-range DC input with built-in ignition power control**
- **EN 50155/ EN 45545 certificate**

**R.O.C Patent No. M456527/ I598820*

Introduction

Nuvo-7250VTC is a rugged in-vehicle controller that utilizes Neousys' innovative supercapacitor-based power backup solution. Powered by Intel® 9th/ 8th-Gen Core™ processors with up to 8-core/ 6-core and 64GB DDR4 memory, it offers over 50% performance increase over previous generations. Nuvo-7250VTC is equipped with supercapacitor technology to provide 2500 watt-second stored energy to sustain the system to safely shutdown during unforeseen power outages.

Nuvo-7250VTC offers a variety of peripherals and connections. It has four or eight 802.3at PoE+ ports to supply 25W power to connected devices via M12 or RJ-45 connectors. Screw-lock mechanisms on GbE and USB 3.1 ports guarantee extreme rugged connectivity in shock/ vibration environments. Internal expansion wise, it has two M.2 and three mini-PCIe sockets for corresponding modules such as 3G/ 4G, WIFI, GPS, and CAN module. Additionally, Neousys provides an optional 4G cellular module certified to work with renowned US telecom company to minimize implementation time and cost.

To top it off, Nuvo-7250VTC also features two hot-swappable HDD trays, isolated CAN bus, isolated DIO, 8~35V wide-range DC input with ignition power control and is in compliance with EN 50155/ EN 45545. Coupled with supercapacitor power backup technology, the Nuvo-7250VTC offers data protection and is the perfect solution for various in-vehicle applications.

Specifications

System Core	
Processor	Supporting Intel® 9th/ 8th-Gen Core™ CPU (LGA1151 socket, 35WTDP) - Intel® Core™ i7-9700TE/ i7-8700T - Intel® Core™ i5-9500TE/ i5-8500T - Intel® Core™ i3-9100TE/ i3-8100T
Chipset	Intel® Q370 platform controller hub
Graphics	Integrated Intel® UHD graphics 630
Memory	Up to 64 GB DDR4 2666/ 2400 SDRAM (two SODIMM slots)
AMT	Supports AMT 12.0
TPM	Supports TPM 2.0
I/O Interface	
Ethernet	2x Gigabit Ethernet ports by Intel® I219 and I210
PoE+	4x IEEE 802.3at (25.5W) Gigabit PoE+ ports by Intel® I210 - M12 x-coded connector (Nuvo-7250VTC); - RJ45 connector (Nuvo-7254VTC) 8x IEEE 802.3at (25.5W) Gigabit PoE+ ports by Intel® I210 - RJ45 connector (Nuvo-7258VTC)
CAN	1x isolated CAN 2.0 port
Isolated DIO	4x isolated DI and 4x isolated DO
USB 3.1	4x USB 3.1 Gen2 (10 Gbps) ports 4x USB 3.1 Gen1 (5 Gbps) ports
USB 2.0	1x USB 2.0 port (internal use)
Video Port	1x VGA , supporting 1920 x 1200 resolution 1x DVI-D, supporting 1920 x 1200 resolution 1x DisplayPort, 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 Mic-in and 1x speaker-out
Storage Interface	
SATA HDD	2x hot-swappable HDD tray for 2.5" HDD/ SSD installation, supporting RAID 0/ 1
mSATA	1x full-size mSATA port (mux with mini-PCIe)
M.2	1x M.2 2280 M key socket (PCIe Gen3 x4) for NVMe SSD or Intel® Optane™ memory installation

Expansion Bus	
Mini PCI-E	1x full-size mini PCI Express socket with internal SIM socket (mux with mSATA) 2x full-size mini-PCIe sockets (USB signals only) with internal SIM sockets
M.2	2x M.2 2242 B key socket, one with dual front-accessible SIM sockets, supporting dual SIM mode with selected M.2 LTE module
Power Supply	
DC Input	1x 3-pin pluggable terminal block for 8~35V DC input (IGN/ GND/ V+)
Remote Ctrl. & Status Output	1x 3-pin pluggable terminal block for remote control and PWR LED output
Power Backup	
Capacity	2500 watt-second
Mechanical	
Dimension	240 mm (W) x 225 mm (D) x 103mm (H)
Weight	4.1 kg
Mounting	Wall-mount with damping brackets (Standard) or DIN-rail mount (optional)
Environmental	
Operating Temperature	-40°C ~ 70°C */**
Storage Temperature	-40°C ~ 85°C
Humidity	10%~90% , non-condensing
Vibration	IEC61373:2010, Category 1, Class B Body mounted (part of EN50155)
Shock	IEC61373:2010, Category 1, Class B Body mounted (part of EN50155)
EMC	EN 50155, EN45545, CE/FCC Class A, according to EN 55032 & EN 55024

** For i7-9700E and i7-8700 running 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 obtain higher operating temperature.*

*** For sub-zero operating temperature, a wide temperature HDD or Solid State Disk (SSD) is required.*

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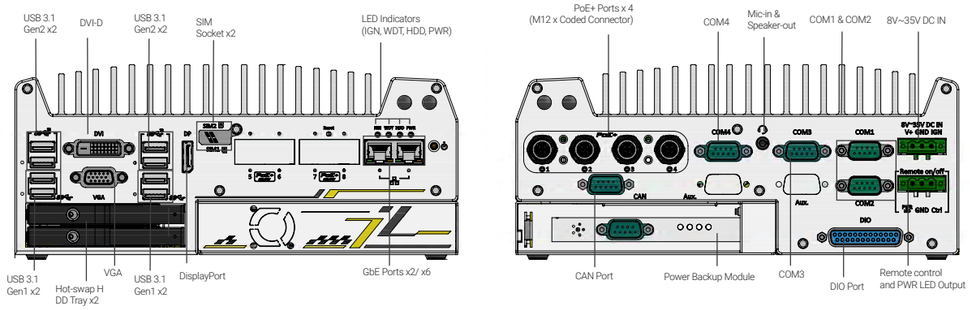
Appearance



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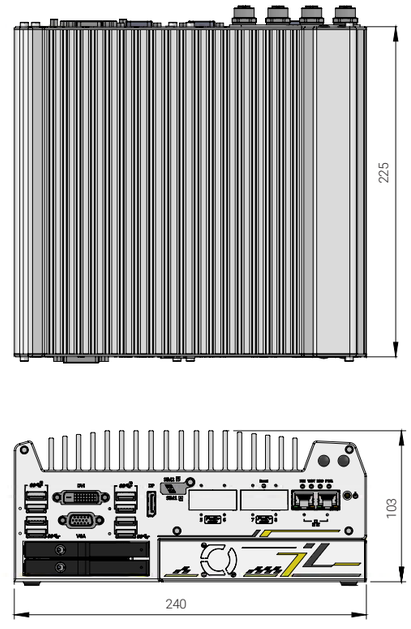

Ordering Information

Model No.	Product Description
Nuvo-7250VTC	Intel® 9th/ 8th-Gen Core™ in-vehicle controller with 4x M12 PoE+ ports, supercapacitor-based power backup module
Nuvo-7254VTC	Intel® 9th/ 8th-Gen Core™ in-vehicle controller with 4x RJ45 PoE+ ports, supercapacitor-based power backup module
Nuvo-7258VTC	Intel® 9th/ 8th-Gen Core™ in-vehicle controller with 8x RJ45 PoE+ ports, supercapacitor-based power backup module

Optional Accessories

Cbl-M12X8M-RJ45-500CM	M12 (8-pole-X-coded) to RJ45, CAT6, length : 500CM
Cbl-M12X8M-RJ45-1000CM	M12 (8-pole-X-coded) to RJ45, CAT6, length : 100CM
PA-120W-OW	120W AC/DC power adapter 20V/6A; 18AWG/120cm; cord end terminals for terminal block, operating temperature : -30 to 70 °C.

Optional Cellular Module

NSIO-LTE-7455	Cat. 6 LTE embedded socket modem

All specifications and photos are subject to change without prior notice

Nuvo-7100VTC Series

Intel® 9th/ 8th-Gen Core™ i7/i5/i3 In-vehicle Controller with 4x or 8x PoE+ Ports, DIO, CAN bus and RAID

Key Features

- **Supports Intel® 9th/8th-Gen Core™ i7/i5/i3 LGA1151 socket-type CPU**
- **4x or 8x 802.3at Gigabit PoE+ ports via M12 or RJ45 connectors**
- **Onboard isolated CAN bus for in-vehicle communication**
- **4-CH isolated DI and 4-CH isolated DO**
- **2x SATA ports with one hot-swappable HDD tray, supporting RAID 0/ 1**
- **2x M.2 B key and 3x full-size mini-PCIe sockets**
- **8~35V wide-range DC input with built-in ignition power control**
- **E-Mark and EN 50155/ EN 45545 certificate**

Introduction

Nuvo-7100VTC is a rugged in-vehicle controller featuring purpose-built set and effortless connectivity. Powered by Intel® 9th/ 8th-Gen Core™ processors with up to 8-core/ 6-core and 64GB DDR4 memory, it provides significant performance increases over previous generations.
Nuvo-7100VTC provides flexibility to support a range of peripherals and connections. It has four or eight 802.3at PoE+ ports to supply 25W power to connected devices via M12 or RJ-45 connectors. Screw-lock mechanisms on GbE and USB 3.1 ports guarantee extreme rugged connectivity in shock/ vibration environments. Wireless connectivity is essential for modern day in-vehicle applications and you can simultaneously utilize two M.2 and three mini-PCIe sockets with corresponding 3G/ 4G, WIFI, GPS, and CAN module for this purpose. Additionally, Neousys provides an optional 4G cellular module certified to work with renowned US telecom company to minimize implementation time and cost.
On top of all that, Nuvo-7100VTC also features isolated CAN bus, isolated DIO, 8~35V wide-range DC input with ignition power control and is in compliance with E-Mark and EN 50155/ EN 45545. The Nuvo-7100VTC is the perfect solution with extraordinary reliability for various in-vehicle applications.

Specifications

System Core	
Processor	Supports Intel® 9th/ 8th-Gen CPU (LGA1151 socket, 35W TDP) - Intel® Core™ i7-8700T/ i7-9700TE - Intel® Core™ i5-8500T/ i5-9500TE - Intel® Core™ i3-8100T/ i3-9100TE
Chipset	Intel® Q370 platform controller hub
Graphics	Integrated Intel® HD Graphics 630
Memory	Up to 64 GB DDR4 2666/ 2400 SDRAM (two SODIMM slots)
AMT	Supports AMT 12.0
TPM	Supports TPM 2.0
I/O Interface	
Ethernet	2x Gigabit Ethernet ports by Intel® I219 and I210
PoE+	4x IEEE 802.3at (25.5W) Gigabit PoE+ ports by Intel® I210 - M12 x-coded connector (Nuvo-7100VTC); - RJ45 connector (Nuvo-7104VTC) 8x IEEE 802.3at (25.5W) Gigabit PoE+ ports by Intel® I210 - RJ45 connector (Nuvo-7108VTC)
CAN	1x isolated CAN 2.0 port
Isolated DIO	4x isolated DI and 4x isolated DO
USB 3.1	4x USB 3.1 Gen2 (10 Gbps) ports 4x USB 3.1 Gen1 (5 Gbps) ports
USB 2.0	1x USB 2.0 port (internal use)
Video Port	1x VGA, supporting 1920 x 1200 resolution 1x DVI-D, supporting 1920 x 1200 resolution 1x DisplayPort, 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 Mic-in and 1x speaker-out
Storage Interface	
SATA HDD	1x hot-swappable HDD tray for 2.5" HDD/ SSD installation 1x Internal SATA port for 2.5" HDD/ SSD installation, supporting RAID 0/ 1
mSATA	1x full-size mSATA port (mux with mini-PCIe)
M.2	1x M.2 2280 M key socket (PCIe Gen3 x4) for NVMe SSD or Intel® Optane™ memory installation

Expansion Bus	
Mini PCI-E	1x full-size mini PCI Express socket with internal SIM socket (mux with mSATA) 2x full-size mini-PCIe sockets (USB signals only) with internal SIM sockets
M.2	2x M.2 2242 B key socket, one with dual front-accessible SIM sockets, supporting dual SIM mode with selected M.2 LTE module
Power Supply	
DC Input	1x 3-pin pluggable terminal block for 8~35V DC input (IGN/ GND/ V+)
Remote Ctrl. & Status Output	1x 3-pin pluggable terminal block for remote control and PWR LED output
Mechanical	
Dimension	240 mm (W) x 225 mm (D) x 84 mm (H)
Weight	3.5 kg
Mounting	Wall-mount with damping brackets (Standard) or DIN-rail mount (optional)
Environmental	
Operating Temperature	-40°C ~ 70°C **
Storage Temperature	-40°C ~ 85°C
Humidity	10%~90% , non-condensing
Vibration	IEC61373:2010, Category 1, Class B Body mounted (part of EN50155)
Shock	IEC61373:2010, Category 1, Class B Body mounted (part of EN50155)
EMC	EN 50155, EN 45545 E-Mark (Nuvo-7108VTC) CE/FCC Class A, according to EN 55032 & EN 55024

** For i7-9700E and i7-8700 running 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 obtain higher operating temperature.*
*** For sub-zero operating temperature, a wide temperature HDD or Solid State Disk (SSD) is required.*

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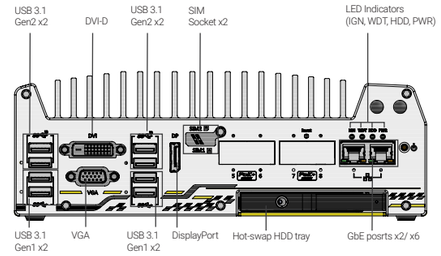
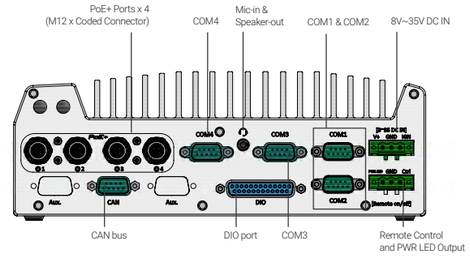
Appearance





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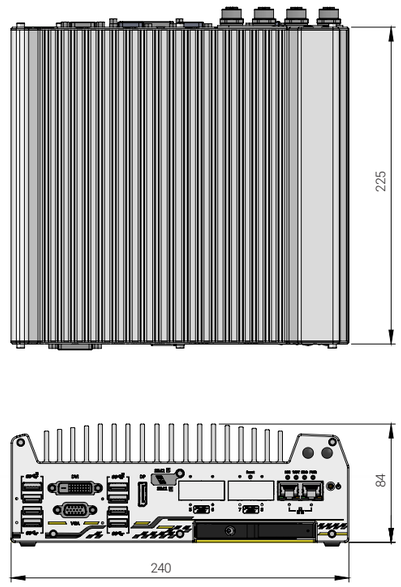

Unit : mm

Ordering Information

Model No.	Product Description
Nuvo-7100VTC	Intel® 9th/ 8th-Gen Core™ in-vehicle controller with 4x M12 PoE+ Ports, DIO, CAN bus and RAID
Nuvo-7104VTC	Intel® 9th/ 8th-Gen Core™ in-vehicle controller with 4x RJ45 PoE+ Ports, DIO, CAN bus and RAID
Nuvo-7108VTC	Intel® 9th/ 8th-Gen Core™ in-vehicle controller with 8x RJ45 PoE+ Ports, DIO, CAN bus and RAID

Optional Accessories

Cbl-M12X8M-RJ45-500CM	M12 (8-pole-X-coded) to RJ45, CAT6, length : 500CM
Cbl-M12X8M-RJ45-1000CM	M12 (8-pole-X-coded) to RJ45, CAT6, length : 1000CM
PA-120W-OW	120W AC/DC power adapter 20V/6A; 18AWG/120cm; cord end terminals for terminal block, operating temperature : -30 to 70 °C.

Optional Cellular Module

NSIO-LTE-7455	Cat. 6 LTE embedded socket modem

All specifications and photos are subject to change without prior notice

Nuvo-5100VTC Series

Intel® 6th-Gen Core™ i7/i5/i3 In-vehicle Controller with 4x or 8x PoE+ Ports, DIO, CAN bus and RAID

CE FC E13 10R-0514321

Key Features

- **Supports Intel® 6th-Gen Core™ i7/ i5/ i3 LGA1151 socket-type CPU**
- **4x or 8x 802.3at Gigabit PoE+ ports via M12 or RJ45 connectors**
- **On-board CAN bus for in-vehicle communication**
- **4-CH isolated DI and 4-CH isolated DO**
- **2x SATA ports with one hot-swappable HDD tray, supporting RAID 0/ 1**
- **4x full-size mini-PCIe sockets with SIM support**
- **8~35V wide-range DC input with built-in ignition power control**
- **EN 50155/ EN 45545 certificate & E13 No. 10R-0514321**

Introduction

Nuvo-5100VTC is an in-vehicle controller in compliant with E-Mark and EN 50155/ EN 45545 certificate. Featuring Intel® 6th-Gen Core™ CPU, it exhibits superb CPU and GPU performance for various in-vehicle applications.
Nuvo-5100VTC offers four or eight 802.3at PoE+ ports to supply 25W power to the connected device. They are implemented using RJ45 or M12 (x-coded connectors), which guarantee extremely rugged connection in shock/ vibration environments. Two more Gigabit Ethernet ports by RJ45 are available for data communication. You can also utilize four internal mini-PCIe sockets with corresponding modules for 3G/ 4G/ WIFI/ GPS communication.
In addition, Nuvo-5100VTC integrates CAN bus for in-vehicle communication, and isolated DIO for sensor/ actuator control. Combing ignition power control and dual-drive RAID storage, Nuvo-5100VTC is the perfect solution for all your in-vehicle application needs.

Specifications

System Core	
Processor	Supports Intel® 6th-Gen Core™ i7/ i5/ i3 LGA1151 CPU - Intel® Core™ i7-6700TE (8M Cache, 2.4/ 3.4 GHz, 35W TDP) - Intel® Core™ i5-6500TE (6M Cache, 2.3/ 3.3 GHz, 35W TDP) - Intel® Core™ i3-6100TE (4M Cache, 2.7 GHz, 35W TDP)
Chipset	Intel® Q170 platform controller hub
Graphics	Integrated Intel® HD graphics 530
Memory	Up to 32 GB DDR4-2133 SDRAM (two SODIMM slots)
AMT	Supports AMT 11.0
TPM	Supports TPM 2.0
I/O Interface	
Ethernet	2x Gigabit Ethernet ports by Intel® I219 and I210
PoE+	4x IEEE 802.3at (25.5W) Gigabit PoE+ ports by Intel® I210 - M12 x-coded connector (Nuvo-5100VTC); - RJ45 connector (Nuvo-5104VTC) 8x IEEE 802.3at (25.5W) Gigabit PoE+ ports by Intel® I210 - RJ45 connector (Nuvo-5108VTC)
CAN	1x CAN 2.0 port
Isolated DIO	4x isolated DI and 4x isolated DO
USB 3.1	4x USB 3.1 ports via native xHCI controller
USB 2.0	4x USB 2.0 ports
Video Port	1x stacked VGA + DVI-D 2x DisplayPorts, supporting 4K2K resolution
Serial Port	2x software-programmable RS-232/422/485 port (COM1 & COM3) 1x RS-232 port (COM2)
Audio	1x Mic-in and 1x speaker-out
Storage Interface	
SATA HDD	1x hot-swappable HDD tray for 2.5" HDD/ SSD installation 1x Internal SATA port for 2.5" HDD/ SSD installation, supporting RAID 0/ 1

Storage Interface	
mSATA	1x full-size mSATA port (mux with mini-PCIe)
Expansion Bus	
Mini PCI-E	1x full-size mini-PCIe socket with panel-accessible SIM socket 1x full-size mini-PCIe socket with internal SIM socket (mux. with mSATA) 2x full-size mini-PCIe sockets (USB signals only) with internal SIM sockets
Power Supply	
DC Input	1x 3-pin pluggable terminal block for 8~35V DC input
Remote Ctrl. & Status Output	1x 10-pin (2x5) wafer connector for remote on/ off control and status LED output
Mechanical	
Dimension	240 mm (W) x 225 mm (D) x 79 mm (H)
Weight	3.3 kg
Mounting	Wall-mount with damping brackets (Standard) or DIN-rail mount (optional)
Environmental	
Operating Temperature	-40°C ~ 70°C */**
Storage Temperature	-40°C ~ 85°C
Humidity	10%~90% , non-condensing
Vibration	Operating, 5 Grms, 5-500 Hz, 3 Axes (w/ SSD, according to IEC60068-2-64)
Shock	Operating, 50 Grms, Half-sine 11 ms Duration (w/ SSD, according to IEC60068-2-27)
Certification	EN 50155/ EN 45545 E-Mark (Nuvo-5108VTC) CE/ FCC Class A, according to EN 55022, EN 55024 & EN 55032

** For i7-6700 running 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 obtain higher operating temperature.*
*** For sub-zero operating temperature, a wide temperature HDD drive or Solid State Disk (SSD) is required.*

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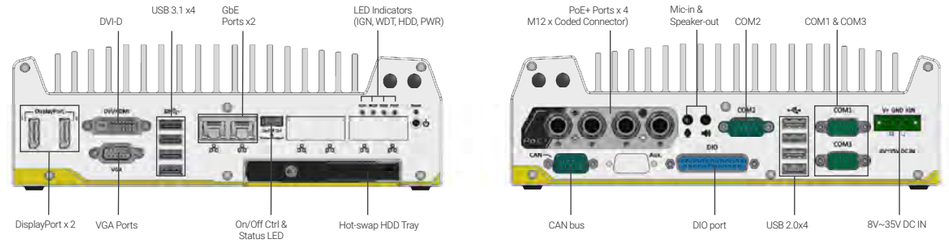
Appearance



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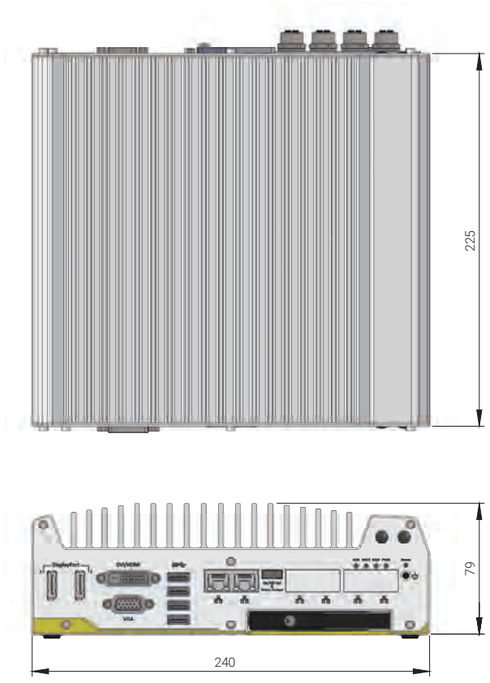

Ordering Information

Model No.	Product Description
Nuvo-5100VTC	Intel® 6th-Gen Core™ in-vehicle controller with 4x M12 PoE+ Ports, DIO, CAN bus and RAID
Nuvo-5104VTC	Intel® 6th-Gen Core™ in-vehicle controller with 4x RJ45 PoE+ Ports, DIO, CAN bus and RAID
Nuvo-5108VTC	Intel® 6th-Gen Core™ in-vehicle controller with 8x RJ45 PoE+ Ports, DIO, CAN bus and RAID

Optional Accessories

Cbl-M12X8M-RJ45-500CM	M12 (8-pole-X-coded) to RJ45, CAT6, length : 500CM
Cbl-M12X8M-RJ45-1000CM	M12 (8-pole-X-coded) to RJ45, CAT6, length : 1000CM
DINRAIL-O	DIN-rail mount assembly for Nuvo-5100VTC series
PA-120W-OW	120W AC/DC power adapter 20V/6A; 18AWG/120cm; cord end terminals for terminal block, operating temperature : -30 to 70 °C.

All specifications and photos are subject to change without prior notice

Nuvo-3100VTC Series

Intel® 3rd-Gen Core™ i7/ i5 Fanless In-vehicle Controller with 4x 802.3at PoE+ Ports and Dual 2.5” Hard Drives with RAID Support

Key Features

- **Compact dimensions, 212 mm x 165 mm x 62 mm**
- **Intel® 3rd-Gen i7/ i5 PGA-type processor**
- **4x IEEE 802.3at (25.5W) Gigabit PoE+ ports**
- **Dual 2.5” SATA ports with one easy-swap HDD tray**
- **Patented damping bracket* for in-vehicle installation**
- **8 ~ 35V wide-range DC input and built-in ignition power control**
- **3x mini-PCIe/ mSATA slots for 3G/ WIFI/ GPS module installation**
- **E13 No. 10R-0413512 and EN 50155/ EN 50121-3-2/ EN 45545 certificate**

CE FC E13 10R-0413512

**R.O.C Patent No. M491752*

Introduction

Nuvo-3100VTC is a fanless controller with E-Mark and EN 50155/ EN 50121-3-2/ EN 45545 certificate for in-vehicle use. It supports 3rd-Gen i7 quad-core CPU for to meet most in-vehicle computing needs. There are also four IEEE 802.3at PoE+ ports to facilitate Ethernet connectivity and power IP cameras for surveillance applications.

Nuvo-3100VTC takes into account all demands of in-vehicle applications. It has a very compact footprint to fit into restricted space, allows 8~35V wide-range DC input and enhanced surge protection to make Nuvo-3100VTC highly robust when implemented as an in-vehicle system. Nuvo-3100VTC support dual 2.5” hard drives in RAID configuration (RAID 0/ 1) or alternatively, take advantage of the easy-swap HDD tray for easy HDD replacement (non-RAID configuration). For in-vehicle installation, our patented mounting bracket can absorb shock/ vibration and extend overall system reliability.

Combining superior performance, PoE+ and comprehensive design, Nuvo-3100VTC offers more possibilities for in-vehicle applications!

Specifications

	Nuvo-3100VTC	Nuvo-3110VTC
System Core		
Processor	Supports Intel® 3rd-Gen Core™ - Intel® Core™ i7-3610QE (2.3/ 3.3 GHz, 6 MB cache) - Intel® Core™ i5-3610ME (2.7/ 3.3 GHz, 3 MB cache) - Intel® Celeron® 1020E (2.2 GHz, 2 MB cache)	
Chipset	Intel® QM77 platform controller hub with AMT & RAID support	
Graphics	Integrated Intel® HD graphics 4000 controller	
Memory	Up to 8GB DDR3 1333/ 1600 MHz SDRAM (single SODIMM slot)	
I/O Interface		
Ethernet	1x Gigabit Ethernet port by Intel® 82579LM, supporting Wake-on-LAN 3x Gigabit Ethernet ports by Intel® I210	
PoE	Compliant to IEEE 802.3at (25.5W) with per-port power on/ off control 75W total power budget for 4x PoE+ ports	-
Video Port	1x DVI-I for VGA/DVI output, supporting 2048x1536 (VGA) or 1920x1080 (DVI) resolution 2x DisplayPort, supporting 2560x1600 resolution	
USB 3.1	4x USB 3.1 ports	
USB 2.0	2x USB 2.0 ports	
Serial Port	2x software-programmable RS-232/ 422/ 485 (COM1 & COM2)	
Isolated DIO	4x isolated DI with COS interrupt and 4x isolated DO	
Audio	1x Mic-in and 1x speaker-out	
Storage Interface		
SATA HDD	1x internal SATA port for 2.5” HDD/ SSD 1x easy-swap HDD tray for 2.5” HDD/ SSD	
mSATA	1x full-size mSATA (SATA/ USB/ W_DISABLE#) with USIM socket	
Expansion Bus		
Mini PCI-E	1x full-size mini PCI Express socket with USIM socket 1x half-size mini PCI Express socket	

	Nuvo-3100VTC	Nuvo-3110VTC
Power Supply & Ignition Control		
DC input	1x 3-pin pluggable terminal block for 8~35V DC input	
Ignition Control	Ignition power control with user-selectable on/ off delay	
Mechanical		
Dimension	212 mm (W) x 165 mm (D) x 62 mm (H)	
Weight	2.8 kg (incl. CPU, memory and HDD)	
Mounting	Wall-mount with damping brackets (Standard) or DIN-rail mount (optional)	
Environmental		
Operating Temperature		i7-3610QE, 100% CPU loading* / i5-3610ME, 100% CPU loading* / Celeron 1020E, 100% CPU loading*
Maximum Performance		-25°C ~ 50°C** / -25°C ~ 60°C** / -25°C ~ 70°C**
General Performance		-25°C ~ 60°C** / -25°C ~ 70°C** / -25°C ~ 70°C**
Extended Temperature		-25°C ~ 70°C** / -25°C ~ 70°C** / -25°C ~ 70°C**
Storage Temperature	-40°C ~85°C**	
Humidity	10%~90% , non-condensing	
Vibration	Operating, 1 Grms, 5-500 Hz, 3 Axes (w/ HDD, according to IEC60068-2-64) Operating, 5 Grms, 5-500 Hz, 3 Axes (w/ SSD, according to IEC60068-2-64)	
Shock	Operating, 50 Grms, Half-sine 11 ms Duration (w/ SSD, according to IEC60068-2-27)	
Certification	E-Mark for vehicle applications EN 50155/ EN 50121-3-2/ EN 45545 CE/ FCC Class A, according to EN 55022, EN 55024 & EN 45545	

** The CPU loading is applied using Passmark® BurnInTest 8.0. For detail testing criteria, please contact Neousys Technology*

*** For sub-zero operating temperature, a wide temperature HDD drive or Solid State Disk (SSD) is required.*

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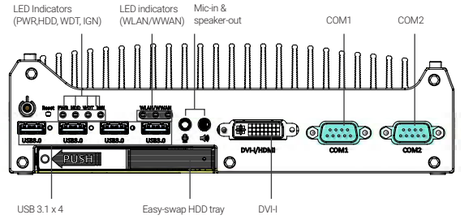
Appearance



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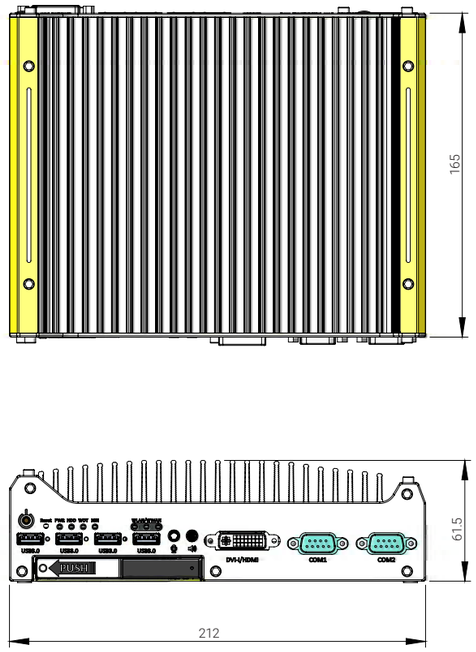

Unit : mm

Ordering Information

Model No.	Product Description
Nuvo-3100VTC	Intel® 3rd-Gen Core™ fanless in-vehicle controller with 4x IEEE 802.3at PoE+ ports and dual-drives RAID
Nuvo-3110VTC	Intel® 3rd-Gen Core™ fanless in-vehicle controller with 4x GbE ports and dual-drives RAID

Optional Accessories

DINRAIL-31	DIN-rail mount assembly for Nuvo-3100VTC series
PA-120W-OW	120W AC/DC power adapter 20V/6A; 18AWG/120cm; cord end terminals for terminal block, operating temperature : -30 to 70 °C.

All specifications and photos are subject to change without prior notice

Nuvo-2510VTC Series

Intel® Atom™ Bay Trail In-vehicle Fanless Computer with 2x IEEE 802.3at PoE+ Ports

Key Features

- **Intel® Atom™ Bay Trail E3845 quad-core processor**
- **Dual mPCIe and USIM sockets for 3G, LTE, WLAN, BT or GPS module**
- **Dual storage with 1x mSATA and 1x SATA**
- **Intelligent ignition power control**
- **1x CAN bus port (CAN 2.0A/ CAN 2.0B compliance)**
- **8 to 35V DC wide-range DC input**
- **Operating temperature from -25° to 70°C**
- **Patented damping bracket* increases stability with HDD**
- **E13 No. 10R-0513905**

CE FC E13 10R-0513905

**R.O.C Patent No. M491752*

Introduction

Nuvo-2510VTC is an in-vehicle fanless computer with Intel® Atom™ E3845 quad-core processor. Equipped with 2 IEEE 802.3at Gigabit Ethernet ports, Nuvo-2510VTC is capable of driving 25W GigE and PoE IP cameras with a single standard CAT-5e. Along with intelligent ignition power control and built-in CAN bus, Nuvo-2510VTC is ideal for light-weight mobile applications such as mobile NVR and mobile ANPR.

Designed for in-vehicle applications, Nuvo-2510VTC supports wide-range DC input and can be powered by 12VDC or 24VDC vehicle battery. It features intelligent ignition power control with selectable on and off delay and battery voltage monitoring. Nuvo-2510VTC also supports one built-in CAN bus port with compliance to CAN 2.0A and CAN 2.0B. The CAN bus is the foundation of various vehicles protocols.

Nuvo-2510VTC provides 2 PoE+ Gigabit Ethernet ports and 1 USB 3.1 port for industrial-grade cameras on IP cameras. There are also 4 serial ports and 3 USB 2.0 ports available. For mobile applications which require data transmission, Nuvo-2510VTC can install two 3G/4G modules with USIMs in its 2 mini PCI Express (mPCIe) sockets. Nuvo-2510VTC is ideal for in-vehicle applications.

Specifications

System Core	
Processor	Intel® Atom™ Bay Trail E3845 quad-core processor (1.91 GHz, 2M cache)
Graphics	Integrated Intel® HD graphics
Memory	Up to 8GB DDR3L 1333MHz SDRAM (single SODIMM slot)
Front Panel I/O Interface	
PoE Port	2x IEEE 802.3at (25.5W) Gigabit Ethernet ports by Intel® I210
Video Port	1x DB-15 connector for analog RGB, supporting 2560 x 1600 resolution
Serial Port	2x software-programmable RS-232/ 422/ 485 (COM1 & COM2)
USB 3.1	1x USB 3.1 Gen1 port
USB 2.0	3x USB 2.0 ports
Back Panel I/O Interface	
Video Port	1x DVI-I with DVI-D output, supporting 2560 x 1600 resolution
Audio	1x Mic-in and 1x speaker-out
Serial Port	2x RS-232 (COM3 & COM4)
CAN bus	1x DB-9 connector for CAN bus communications
Storage Interface	
SATA HDD	1x internal SATA port for 2.5" HDD/ SSD installation
mSATA	1x internal half-sized mSATA (SATA + USB)

Expansion Bus	
Mini PCI-E	1x full-sized mini PCI Express socket with USIM socket (PCIe + USB) 1x full-sized mini PCI Express socket with external USIM socket (USB)
Power Supply	
DC Input	1x 3-pin pluggable terminal block for ignition signal and 8~35V DC input
Mechanical	
Dimension	205 mm (W) x 145 mm (D) x 44 mm (H)
Weight	1.9 kg (incl. CPU, memory and HDD)
Mounting	Wall-mount with damping brackets (Standard) or DIN-rail mount (optional)
Environmental	
Operating Temperature	-25°C ~ 70°C with SSD, 100% CPU loading */** -10°C ~ 50°C with HDD, 100% CPU loading */**
Storage Temperature	-40°C ~85°C
Humidity	10%~90% , non-condensing
Vibration	Operating, 5 Grms, 5-500 Hz, 3 Axes (w/ SSD, according to IEC60068-2-64)
Shock	Operating, 50 Grms, Half-sine 11 ms Duration (w/ SSD, according to IEC60068-2-27)
Certification	E-Mark for vehicle applications CE/ FCC Class A, according to EN 55022 & EN 55024

** The 100% CPU loading is applied using Passmark® BurnInTest™ v7.0. For detail testing criteria, please contact Neousys Technology*

*** For sub-zero operating temperature, a wide temperature HDD drive or Solid State Disk (SSD) is required.*

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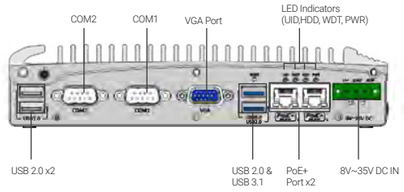
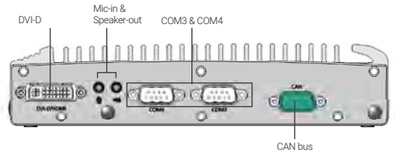
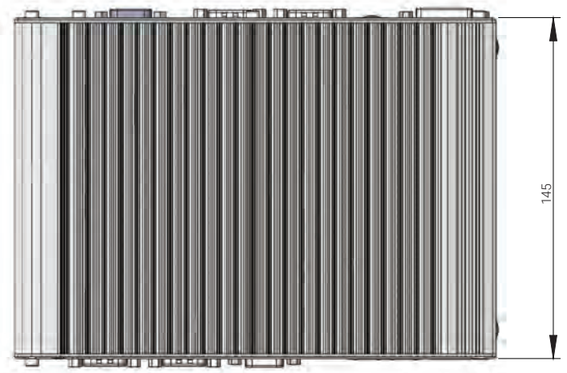
Appearance

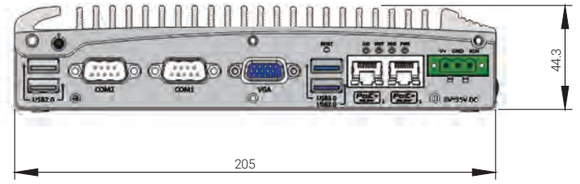




Dimensions

Unit : mm





Ordering Information

Model No.	Product Description
Nuvo-2510VTC	Intel® Atom™ E3845 in-vehicle fanless computer with 2x IEEE 802.3at PoE+ ports

Optional Accessories

DINRAIL-25	DIN-rail mount assembly for Nuvo-2510VTC series
PA-60W-OW	60W AC/DC power adapter with 12V, 5A DC output, cord end terminals for terminal block, operating temperature : -30 to 60 °C.

All specifications and photos are subject to change without prior notice

POC-551VTC

AMD Ryzen™ V1605B Ultra-compact In-vehicle Controller with PoE+, DIO and Isolated CAN bus

Key Features

- **AMD Ryzen™ embedded V1605B series quad-core 15W CPU**
- **-40°C to 70°C rugged wide temperature fanless operation**
- **Four IEEE 802.3at PoE+ ports with screw-lock**
- **One isolated CAN bus port for in-vehicle communication**
- **One M.2 socket and three mPCIe sockets**
- **M.2 2280 M key NVMe (Gen3 x2) socket for fast storage access**
- **4-CH isolated DI and 4-CH isolated DO**
- **8~35V DC input with built-in ignition power control**
- **E-Mark and EN 50155/ EN 45545 certificate**

Introduction

POC-551VTC is the next generation ultra-compact, fanless in-vehicle controller offering performances never-seen-before in this form factor. Featuring AMD Ryzen™ Embedded V1605B 4-core/ 8-thread processor, POC-551VTC delivers up to 3x times the CPU performance compared to previous POC series. It combines finesse performance, extraordinary reliability and affordability for versatile in-vehicle applications.

POC-551VTC offers four 802.3at PoE+ ports to supply 25W power to devices such as IP cameras. As wireless connectivity is essential for modern in-vehicle application, POC-551VTC with built-in one M.2 and three mini-PCIe are more applicable for in-vehicle use nowadays. It also integrates CAN bus for in-vehicle communication, and isolated DIO for sensor/ actuator control.

Combining ignition power control and wide-range DC input along with superior performance, POC-551VTC is the perfect solution for all your in-vehicle application needs in an extremely compact size!

Specifications

System Core	
Processor	AMD Ryzen™ V1605B CPU (4C/ 8T, 2M Cache, 2.0/ 3.6 GHz, 12W - 25W TDP)
Graphics	Vega GPU with 6 compute units
Memory	Up to 16 GB DDR4-2400 SDRAM by one SODIMM sockets
TPM	Supports TPM 2.0
Panel I/O Interface	
PoE+	4x IEEE 802.3at Gigabit PoE+ ports by Intel® I350-AM4
CAN	1x Isolated CAN 2.0 port
Isolated DIO	4x Isolated DI and 4x Isolated DO
USB 3.1	4x USB 3.1 Gen1 ports with screw-lock
Video Port	1x VGA, supporting 1920 x 1200 resolution 1x DisplayPort, supporting 4096 x 2160 resolution
Serial Port	1x software-programmable RS-232/ 422/ 485 ports (COM1) 3x 3-wire RS-232 ports (COM2/ 3/ 4) or 1x RS-422/ 485 port (COM2)
Audio	1x 3.5 mm jack for mic-in and speaker-out
Storage Interface	
M.2	1x M.2 2280 M key NVMe socket (PCIe Gen3/ x2) installation
mSATA	1x full-size mSATA port
Expansion Bus	
Mini PCIe	3x full-size mini PCI Express socket with internal SIM socket
M.2	1x M.2 2242 B key socket for 3G/ 4G option with USIM support

Power Supply	
DC Input	1x 3-pin pluggable terminal block for ignition signal and 8~35V DC input
Remote Ctrl.&LED Output	1x3-pin pluggable terminal block for remote control and PWR LED output
Mechanical	
Dimension	64 mm (W) x 116 mm (D) x 176 mm (H)
Weight	1.3 kg
Mounting	Wall-mount (standard) or DIN-rail mount (optional)
Environmental	
Operating Temperature	-40°C ~ 70°C
Storage Temperature	-40°C ~85°C
Humidity	10%~90% , non-condensing
Vibration	IEC61373:2010, Category 1, Class B Body mounted (part of EN50155)
Shock	IEC61373:2010, Category 1, Class B Body mounted (part of EN50155)
EMC	EN 50155, EN 45545, E-Mark for in-vehicle applications CE/FCC Class A, according to EN 55032 & EN 55024

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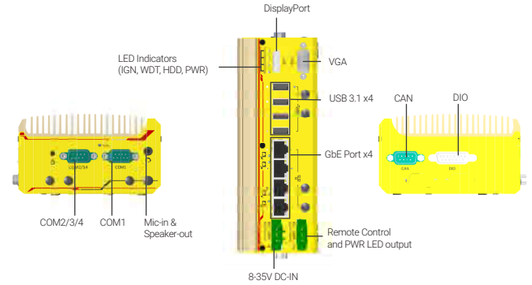
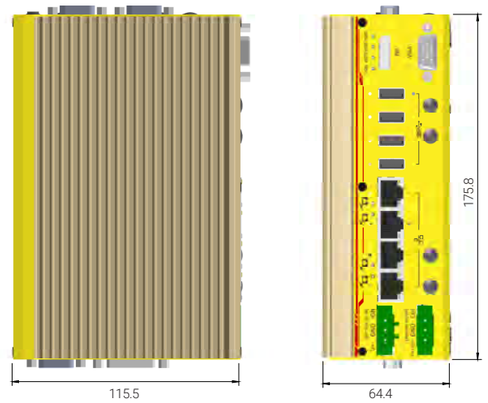
Appearance



Dimensions

Unit : mm



Ordering Information

Model No.	Product Description
POC-551VTC	AMD Ryzen™ V1605B ultra-compact In-vehicle controller with PoE+, DIO and isolated CAN bus

Optional Accessories

PA-120W-OW	120W AC/DC power adapter 20V/6A; 18AWG/120cm; cord end terminals for terminal block, operating temperature : -30 to 70 °C.
PA-60W-OW	60W AC/DC power adapter with 12V, 5A DC output, cord end terminals for terminal block. operating temperature : -30 to 60 °C.

Optional Cellular Module

NSIO-LTE-7455	Cat. 6 LTE embedded socket modem

All specifications and photos are subject to change without prior notice

POC-351VTC Series

Intel® Apollo Lake Atom™ E3950 Ultra-compact In-vehicle Controller with GbE, PoE+ and Isolated CAN bus

CE FC E13 10R-0514746

Key Features

- **Intel® Apollo Lake Atom™ E3950 quad-core processor**
- **Rugged, optional -40 °C to 70 °C fanless operation**
- **Two IEEE 802.3at PoE+ ports and one GbE port**
- **One isolated CAN bus port for in-vehicle communication**
- **One M.2 socket and three mPCIe sockets**
- **Aluminum heat-spreader for M.2/ mPCIe modules**
- **4-CH isolated DI and 4-CH isolated DO**
- **8~35V DC input with built-in ignition power control**

Introduction

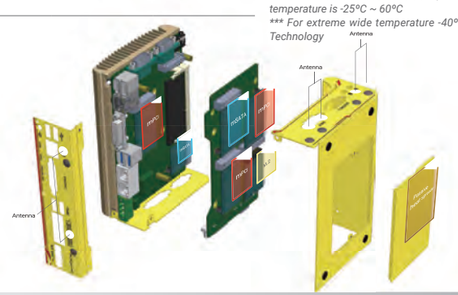
POC-351VTC is an ultra-compact, fanless in-vehicle controller powered by Intel® Apollo Lake Atom™ E3950 quad-core processor. It combines finesse performance, extraordinary reliability and affordability for versatile in-vehicle applications.
POC-351VTC offers two PoE+ ports to power devices such as IP cameras, and one additional GbE port for data communication. It also features isolated CAN bus 2.0 port and RS-232/ 422/ 485 ports for communicating with other automotive devices. Wide-range DC input and ignition power control make POC-351VTC fit for various vehicle types.
Wireless and internet access is essential for modern day in-vehicle applications and POC-351VTC has a total of four M.2/ mPCIe sockets and six antenna openings to accommodate a variety of 4G, 3G, WIFI and GPS modules. An aluminum heat-spreader is thoughtfully designed to dissipate the heat generated by modules to maintain superior operating stability, for the system and communication modules.

Specifications

System Core	
Processor	Intel® Atom™ E3950 1.6/ 2.0 GHz quad-core processor
Graphics	Integrated Intel® HD graphics 505
Memory	Up to 8GB DDR3L-1866 (single SODIMM slot)
Panel I/O Interface	
Ethernet	3x Gigabit Ethernet ports by Intel® I210 GbE controller
PoE	IEEE 802.3at PoE+ on port #2 and #3
Video Port	VGA and DVI dual display outputs via DVI-I
USB 3.1	2x USB 3.1 ports
USB 2.0	2x USB 2.0 ports
Serial Port	· 1x software-programmable RS-232/ 422/ 485 ports (COM1) · 3x 3-wire RS-232 ports (COM2/ COM3/ COM4) or 1x RS-422/485 port (COM2)
Audio	1x Mic-in and 1x speaker-out
CAN bus	1x isolated CAN 2.0 port
Isolated DIO	4x isolated DI and 4x isolated DO
Internal I/O Interface	
M.2	1x M.2 B key socket for 3G/ 4G option with USIM support
Mini-PCIe	3x full-size mini PCI Express sockets with USIM support
Storage Interface	
mSATA	1x half-size mSATA port 1x full-size mSATA port

Power Supply	
DC Input	8~35V DC input
Input Connector	3-pin pluggable terminal block for DC input (IGN/ GND/ V+)
Mechanical	
Dimension	153 mm (W) x 108 mm (D) x 56 mm (H) (POC-351VTC) 153 mm (W) x 108 mm (D) x 68 mm (H) (POC-351VTC-70)
Weight	1.0 kg (POC-351VTC) 1.1 kg (POC-351VTC-70)
Mounting	Horizontal Wall-mount (standard) or vertical Wall-mount (optional)
Environmental	
Operating Temperature	-25°C ~ 70°C */** -40°C ~ 70°C (optional) */***
Storage Temperature	-40°C ~85°C**
Humidity	10%~90% , non-condensing
Vibration	Operating, 5 Grms, 5-500 Hz, 3 Axes (w/ mSATA, according to IEC60068-2-64)
Shock	Operating, 50 Grms, Half-sine 11 ms Duration (w/ mSATA, according to IEC60068-2-27)
EMC	E-Mark for in-vehicle applications CE/ FCC Class A, according to EN 55032 & EN 55024

** For wide temperature use condition, a wide temperature/industrial mSATA module is required.*
*** For full function use condition (mini-PCIe, M.2, and mSATA are all adopted), the recommended operating temperature is -25°C ~ 60°C*
**** For extreme wide temperature -40°C ~ 70°C, it is optional with 100% screening, please contact Neousys Technology*



- mPCI x3
- mSATA x2
- M.2 x1
- Antenna x6
- Passive heat spreader for M.2 and mPCIe modules

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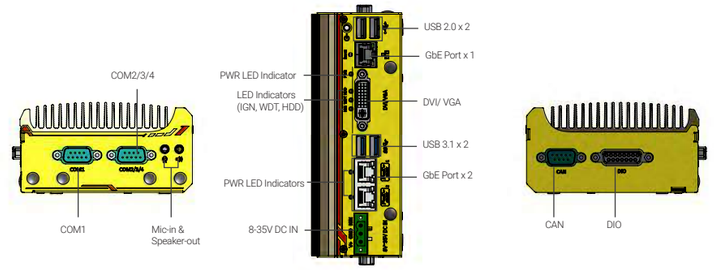
Appearance



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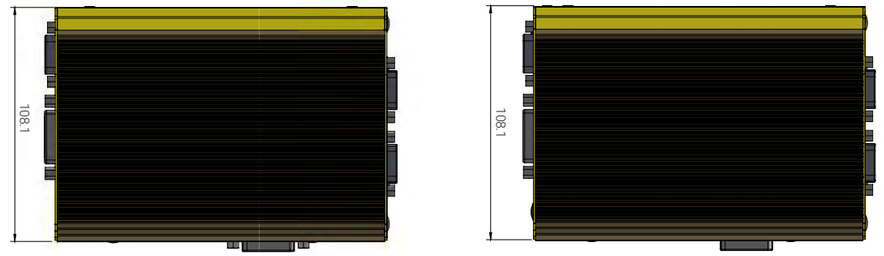

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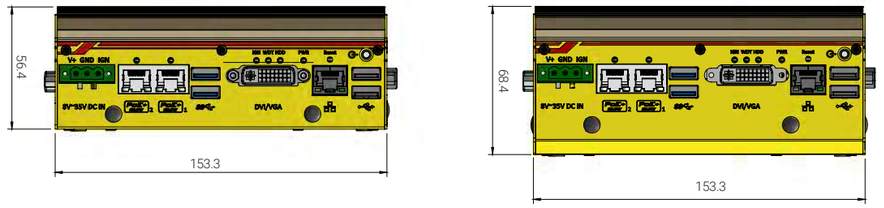

POC-351VTC **POC-351VTC-70**

Ordering Information

Model No.	Product Description
POC-351VTC	Intel® Apollo Lake Atom™ E3950 ultra-compact in-vehicle controller with 1x GbE, 2x PoE+ and isolated CAN
POC-351VTC-70	Intel® Apollo Lake Atom™ E3950 ultra-compact in-vehicle controller supporting optional LTE socket modem

Optional Accessories

Wmkit-V-POC300	Wall-mount assembly for POC-351VTC, vertical type
PA-60W-OW	60W AC/DC power adapter with 12V, 5A DC output, cord end terminals for terminal block. operating temperature : -30 to 60 °C.

Optional Cellular Module

NSIO-LTE-7455	Cat. 6 LTE embedded socket modem

All specifications and photos are subject to change without prior notice

PCIe-PoE312M

4-port Server-grade Gigabit 802.3at PoE+ Card with M12 x-coded Connectors

CE FC

Key Features

- **Intel® I350 server-grade Gigabit Ethernet controller**
- **Four M12 x-coded connectors with patent-pending housing design**
- **x4, Gen2 PCI Express interface offering 2GB/s total bandwidth**
- **Compliant with IEEE 802.3at to deliver up to 25.5 W per port**
- **Supports 9.5 kB jumbo frame, teaming and IEEE 1588**
- **Per-port PoE+ power on/off control**

Introduction

Introducing the world's first PCIe card with M12 x-coded connectors, that features Gigabit Ethernet and PoE+ functionalities. Thanks to Neousys' patent-pending housing design, PCIe-PoE312M's M12 connectors utilizes a CNC-milled aluminum block as its connector housing screw that can withstand more than extra stress on the cable/connector. It offers extremely rugged and reliable cable connection for Ethernet or PoE devices.

PCIe-PoE312M has four Gigabit Ethernet ports integrated via server-grade Intel® I350 NIC. It features checksum offloading, segmentation offloading and intelligent interrupt generation/moderation to increase overall Ethernet performance and reduce CPU utilization. It also integrates IEEE 802.3at PoE+ PSE function to deliver up to 25.5W to attached PD devices.

For fast-growing IoT, edge computing and rugged surveillance applications, reliable Ethernet connection is indispensable. Neousys' PCIe-PoE312M combines reinforced M12 connectors, PoE+ and Gigabit Ethernet to provide unparalleled connection ruggedness for most off-the-shelf computers.

Specifications

Bus Interface	x4, Gen2 PCI Express
Gigabit Ethernet Port	4x ports by Intel® I350-AM4 NIC supporting 9.5 kB jumbo frame, teaming and IEEE 1588
Port Connector	M12 x-coded connector with Neousys patent-pending housing
PoE Capability	In compliant with IEEE 802.3at-2009 (PoE+), each port delivers up to 25.5 W of power
Cable Requirement	CAT-5e or CAT-6 cable, 100 meters maximum
Power Requirement	Maximum 1.2 A @ 3.3 V from PCI Express bus Maximum 9.6 A @ 12 V from PCI Express bus or on-board 4-pin power connector
Operating Temperature	0°C ~ 55°C with airflow
Dimension	167 mm (D) x 111 mm (H) x 18.2 mm(W)*

**PCIe-PoE312M is wider than the standard PCIe card and may cause mechanical interference with the card next to it. It is recommended to leave the slot on the right empty. If you must install another card on the right, please proceed with caution!*

Ordering Information

Model No.	Product Description
PCIe-PoE312M	4-port server-grade Gigabit 802.3at PoE+ card with M12 x-coded connectors

Optional Accessories

Cbl-M12X8M-RJ45-500CM	M12 (8-pole-X-coded) to RJ45, CAT6, Length : 500CM
Cbl-M12X8M-RJ45-1000CM	M12 (8-pole-X-coded) to RJ45, CAT6, Length : 1000CM

Intelligent Video Analytics/ Surveillance

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Nuvo-5608VR Series

Intel® 6th-Gen Core™ i7/i5 Fanless Surveillance System with 8x PoE+, DIO, CAN bus and 2x 3.5" HDD Accommodation Supporting RAID 0/1

Key Features

- **Supports Intel® 6th-Gen Core™ i7/ i5/ i3 LGA1151 socket-type processor**
- **8x 802.3at PoE+ ports and 2x GbE ports**
- **2x 3.5" HDD accommodation, support RAID 0/1 with over 24 TB capacity**
- **Dedicated HDD heat-spreader for optimized thermal performance**
- **4x full-size mini-PCIe sockets with SIM support**
- **4-CH isolated DI and 4-CH isolated DO**
- **1x CAN 2.0 port**
- **8~35V wide-range DC input with built-in ignition power control**
- **Patented damping brackets* to withstand 1 Grms Vibration**

**R.O.C Patent No. M491752*

Introduction

Nuvo-5608VR is Neousys' latest fanless surveillance system designed for real-time video analysis and streaming. It incorporates 6th-Gen Core™ i CPU, IP camera connectivity and massive storage capacity for emerging intelligent surveillance/ security applications.
Featuring eight Gigabit PoE+ ports, Nuvo-5608VR provides sufficient bandwidth to collect high-definition video streams from IP cameras, while its 6th-Gen Core™ i7 CPU is capable of performing real-time video analytics. It accommodates two 3.5" hard drives with RAID 0/ 1 configuration to support more than 24 TB storage capacity for recording 8-CH, 1080p@H.264 video for over 3 months.
Neousys' patented damping-bracket is shipped with Nuvo-5608VR to protect the system against vibration in harsh environmental conditions.
Being a rugged surveillance platform, Nuvo-5608VR is equipped with dedicated HDD heat-spreaders to maintain adequate HDD operating temperature and along with extra features such as DIO, CAN bus and ignition control, Nuvo-5608VR is the perfect fit for both stationary and mobile surveillance applications.

Specifications

System Core	
Processor	Supports 6th-Gen Intel® Core™ i7/ i5/ i3 LGA1151 CPU Intel® Core™ i7-6700 (8M Cache,3.4/ 4.0 GHz, 65W TDP) Intel® Core™ i5-6500 (6M Cache, 3.2/ 3.6 GHz, 65W TDP) Intel® Core™ i3-6100 (3M Cache, 3.7 GHz, 51W TDP) Intel® Core™ i7-6700TE (8M Cache, 2.4/ 3.4 GHz, 35W TDP) Intel® Core™ i5-6500TE (6M Cache, 2.3/ 3.3 GHz, 35W TDP) Intel® Core™ i3-6100TE (4M Cache, 2.7 GHz, 35W TDP)
Chipset	Intel® Q170 platform controller hub
Graphics	Integrated Intel® HD graphics 530
Memory	Up to 32 GB DDR4-2133 SDRAM (two SODIMM slots)
AMT	Supports AMT 11.0
TPM	Supports TPM 2.0
I/O Interface	
Ethernet port	2x Gigabit Ethernet ports by Intel® I219 and I210
PoE+	8x IEEE 802.3at (25.5W) Gigabit PoE+ ports by Intel® I210, 120W total power budget*
USB 3.1	4x USB 3.1 ports via native XHCI controller
USB 2.0	4x USB 2.0 ports
Video Port	1x stacked VGA + DVI-D 2x DisplayPorts, supporting 4K2K resolution
Serial Port	2x software-programmable RS-232/ 422/ 485 ports (COM1 & COM3) 1x RS-232 port (COM2)
Isolated DIO	4x isolated DI and 4x isolated DO
CAN	1x CAN 2.0 port
Audio	1x Mic-in and 1x speaker-out
Storage Interface	
SATA HDD	2x internal SATA port for 3.5" HDD installation, supporting RAID 0/ 1
mSATA	1x full-size mSATA port (mux with mini-PCIe)

Expansion Bus	
mini-PCIe	1x full-size mini-PCIe socket with panel-accessible SIM socket 1x full-size mini-PCIe socket with internal SIM socket (mux with mSATA) 2x full-size mini-PCIe sockets (USB signals only) with internal SIM sockets
Power Supply	
DC Input	1x 3-pin pluggable terminal block for 8~35VDC input (IGN/GND/V+)
Remote Ctrl. & Status Output	1x 10-pin (2x5) wafer connector for remote on/off control and status LED output
Mechanical	
Dimension	240 mm (W) x 225 mm (D) x 98 mm (H)
Weight	3.5 kg
Mounting	Wall-mount with damping brackets
Environmental	
Operating Temperature	with 35W CPU -25°C ~ 70°C (with mSATA/ SSD) */** -10°C ~ 60°C (with 3.5" HDD) */**/*** with 65W CPU -25°C ~ 50°C (with mSATA/ SSD) */** -10°C ~ 60°C (with 3.5" HDD) */**/***
Storage Temperature	-40°C ~ 85°C
Humidity	10%~90% , non-condensing
Vibration	Operating, 1 Grms, 5-500 Hz, 3 Axes (w/ HDD and damping bracket installed, according to IEC60068-2-64)
Shock	Operating, 30 Grms, Half-sine 11 ms Duration (w/ HDD and damping bracket installed, according to IEC60068-2-27)
EMC	CE/ FCC Class A, according to EN 55032 & EN 55024

** For i7-6700 running 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 obtain higher operating temperature.*
*** For sub-zero operating temperature, a wide temperature HDD drive or Solid State Disk (SSD) is required.*
**** Depending on the HDD selected, users may encounter performance degradation in sequential disk write at low/high ambient temperature. No data integrity issue was observed in -10°C ~ 60°C operating temperature range.*

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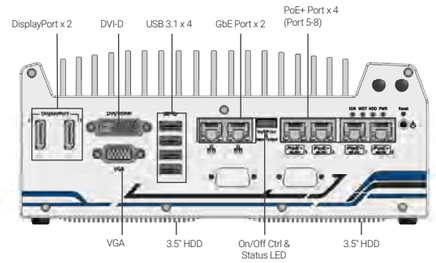
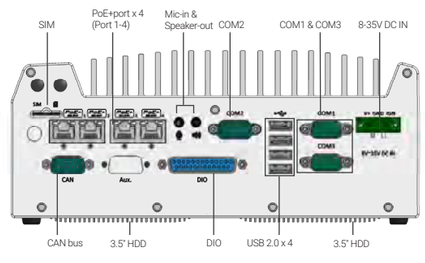
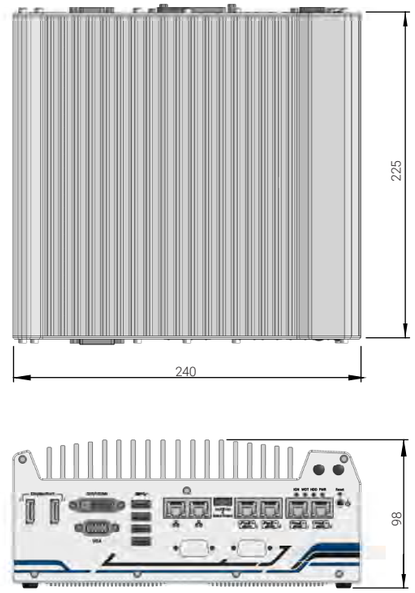
Appearance





Dimensions

Unit : mm



Ordering Information

Model No.	Product Description
Nuvo-5608VR	Intel® 6th-Gen Core™ fanless surveillance system with 8x PoE+ Ports, DIO, CAN bus and 2x 3.5" HDD RAID

Optional Accessories

PA-160W-OW	160W AC/DC power adapter 20V/8A;18AWGx4C/120cm; cord end terminals for terminal block, operating temperature : -30 to 70 °C.
PA-280W-ET2	280W AC/DC power adapter 24V/11.67A;16AWG/100cm; cord end terminals for terminal block, operating temperature : -30 to 60 °C.

All specifications and photos are subject to change without prior notice

EDX-104 Series

5-port IEEE 802.3at PoE+ Gigabit Unmanaged Industrial Ethernet Switch with PoE+ PD and DC Dual Power Input

CE FC

Key Features

- **Five 10/ 100/ 1000 Mbps Ethernet ports**
- **Supports IEEE 802.3at PoE+ PSE on port 2~5**
- **Up to 25.5 W power output on each port, total 80W power budget**
- **Dual power input**
  - **PoE+ PD (Powered Device) mode via port 1**
  - **24/ 48 VDC input with power connector**
- **EMS level 3 protection for industrial environments**
- **Industrial-grade, -25°C to 70°C fanless operation**
- **IP50 (EDX-104J) housing**

Introduction

EDX-104 series is world's first PoE+ unmanaged switch combining IEEE 802.3at PSE/ PD capability and fanless enclosure for IP protection. It offers five Gigabit Ethernet ports compliant with 802.3 (10BASE-T), 802.3u (100BASE-TX) and 802.3ab (1000BASE-T). Four of its ports support 802.3at PoE+ PSE (Power Sourcing Equipment) capability and can deliver up to 25.5W to PoE PD on each port.

The dual power mode feature is what makes EDX-104 unique. It can operate as a PoE+ PD by simply powering it using a Ethernet cable from a PSE. Or, when PSE is not available, you can plug-in 24/ 48V DC and EDX-104 becomes a PSE. The option of operating in PSE or PD mode offers setup and installation flexibility.

EDX-104 series features EMS level 3 protection, Wide temperature -25°C to 70°C fanless operation and IP protection, EDX-104 is the ideal simple and rugged Ethernet switch for your industrial applications.

Specifications

PoE Standard	IEEE 802.3at PSE (port 2~5) IEEE 802.3at PD (port 1)
Ethernet Standard	IEEE 802.3 for 10BASE-T/ IEEE 802.3u for 100BASE-TX IEEE 802.3ab for 1000BASE-T/ IEEE 802.3x for flow control
# of Port	5-port, 1000/100/10 Mbps, auto-negotiation
Switch Features	MAC table size: 8192 entries Frame buffer memory: 1 Mb Jumbo frame support: 10 KB
Ethernet Connector	RJ45, PSE power out: V+/ V+/ V-/ V- on pin 1/ 2/ 3/ 6
Power Input (PD Mode)	Via Ethernet port 1 (RJ45), total power budget for PSE: 25.5 W
Power Input (DC Mode)	24/48 VDC, via 3-pin terminal block, total power budget for PSE: 80 W
IP Rating	IP50
EMC	CE/ FCC Class A, according to EN 50022 & EN 55024 EN 50155/ 50121-3-2
EMS	EN 61000-4-2 (Level 3), EN 61000-4-3 (Level 3), EN 61000-4-4 (Level 3), EN 61000-4-5 (Level 3), EN 61000-4-6 (Level 3), EN 61000-4-8 (Level 3)
Operating Temperature	-25°C to 70°C*
Vibration	Operating, 5 Grms, 5-500 Hz, 3 Axes, according to IEC60068-2-64
Shock	Operating, 50 Grms, Half-sine 11 ms Duration, according to IEC60068-2-27
Dimension	40 mm (W) x 92 mm (D) x139 mm (H)
IP Rating	0.5kg
Mounting	DIN-rail mount

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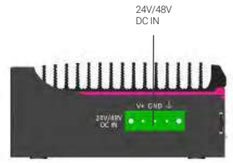
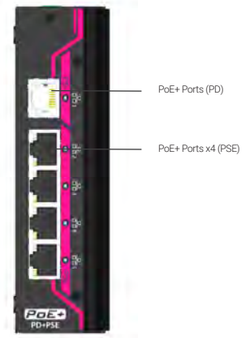
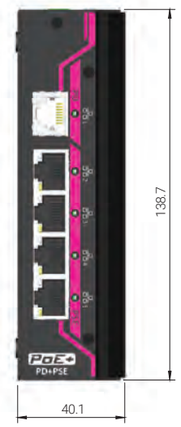
Appearance





Dimensions

Unit : mm



Ordering Information

Model No.	Product Description
EDX-104J	5-port IEEE 802.3at PoE+ unmanaged Gigabit Ethernet switch with PD/DC dual power mode, RJ45 connector and IP50 housing

Optional Accessories

PA-280W-ET2	280W AC/DC power adapter 24V/11.67A;16AWG/100cm; cord end terminals for terminal block, operating temperature : -30 to 60 °C.

All specifications and photos are subject to change without prior notice

Edge AI Computing

Nuvo-8208GC

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

Key Features

- **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 (4-lanes), one x4 (1-lane), 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**

**R.O.C Patent No. M534371 / M491752*

Introduction

Nuvo-8208GC is the world's first dual GPU platform with industrial-grade design and in-vehicle features. Designed specifically to support two high-end 250W NVIDIA® graphics cards, it offers tremendous GPU power up to 28 TFLOPS in FP32 for emerging GPU-accelerated edge computing, such as autonomous driving, vision inspection and surveillance/ security.

Nuvo-8208GC is powered by Intel® Xeon® E or 9th/ 8th-Gen Core™ 8-core/ 16-thread CPUs coupled with workstation-grade Intel® C246 chipset to support up to 128 GB ECC or non-ECC DDR4 memory. The system incorporates two hot-swappable 2.5" trays for easy HDD/ SSD replacement and an M.2 2280 NVMe socket for the ultimate disk performance. Its front-accessible GbE and USB 3.1 Gen1/ Gen2 ports feature screw-lock mechanisms for securing cable connections. In addition to the dual x16 PCIe slots for GPU installation, Nuvo-8208GC has two other x8 PCIe slots and one x4 PCIe slot for expansion cards to extend function sets like data collection, analytics and communication.

Nuvo-8208GC has a brand new power delivery design to accept 8~35V wide-range DC input and to handle heavy power requirements from dual 250W GPUs. Along with built-in ignition control, it's feasible to deploy it on a vehicle and directly power it via the car's power system. Mechanical wise, Nuvo-8208GC incorporates Neousys' patented heat dissipation design, damping brackets and patent-pending GPU press bar, making it steady and rock-solid in various conditions.

The Nuvo-8208GC is Neousys' response to the never-ending demand of TFLOPS in industrial GPU platforms. With industrial-grade power, thermal and mechanical design, it pushes versatile AI inference applications from laboratories to field applications, where reliability matters.

Specifications

System Core	
Processor	Supporting Intel® Xeon® E and 9th/ 8th-Gen CPU (LGA1151 socket) - Xeon E 2176G/ 2278GE (8C/16T) / 2278GEL (8C/16T) - i7-9700E/ i7-9700TE/ i7-8700/ i7-8700T - i5-9500E/ i5-9500TE/ i5-8500/ i5-8500T - i3-9100E/ i3-9100TE/ i3-8100/ i3-8100T
Chipset	Intel® C246 platform controller hub
Graphics	Independent GPU via x16 PEG port, or integrated Intel® UHD Graphics 630
Memory	Up to 128 GB ECC/ non-ECC DDR4 2133 SDRAM (four SODIMM slots)
AMT	Supports AMT 12.0
TPM	Supports TPM 2.0
I/O Interface	
Ethernet	1x Gigabit Ethernet port by Intel® I219-LM 1x Gigabit Ethernet port by Intel® I210-IT
Video Port	1x VGA , supporting 1920 x 1200 resolution 1x DVI-D, supporting 1920 x 1200 resolution 1x DisplayPort, supporting 4096 x 2304 resolution
Serial Port	2x software-programmable RS-232/ 422/ 485 ports (COM1/ COM2)
USB3.1	4x USB 3.1 Gen2 (10 Gbps) ports 4x USB 3.1 Gen1 (5 Gbps) ports
USB 2.0	1x USB 2.0 port (internal use)
Audio	1x Speaker-out
Storage Interface	
SATA	2x hot-swappable HDD trays for 2.5" HDD/ SSD installation
M.2	1x M.2 2280 M key socket (PCIe Gen3 x4) for NVMe SSD or Intel® Optane™ memory installation
mSATA	2x full-size mSATA port (mux with mini-PCIe)

Expansion Bus	
PCI Express	2x PCIe x16 slot@Gen3, 8-lanes 2x PCIe x8 slots@Gen3, 4-lanes 1x PCIe x4 slot@Gen3, 1-lane
M.2	1x M.2 2242 B key socket supporting dual SIM mode with selected M.2 LTE module
mini-PCIe	2x full-size mini PCI Express socket
Power Supply	
DC Input	2x 4-pin pluggable terminal block for 8~35V DC input with ignition control
Mechanical	
Dimension	225 mm (W) x 360 mm (D) x 186 mm (H)
Weight	8.6 Kg
Mounting	Wall-mount with damping brackets
Environmental	
Operating Temperature	with 35W CPU and dual NVIDIA® 250W GPU -25°C ~ 60°C ** with >= 65W CPU and dual NVIDIA® 250W GPU -25°C ~ 60°C */** (configured as 35W TDP mode) -25°C ~ 50°C */ ** (configured as 65W TDP mode)
Storage Temperature	-40°C ~ 85°C
Humidity	10%~90% , non-condensing
Vibration	Operating, MIL-STD-810G, Method 514.6, Category 4; and 3 Grms, 5-500 Hz, 3 Axes
Shock	Operating, MIL-STD-810G, Method 516.6, Procedure I, Table 516.6-II
EMC	CE/ FCC Class A, according to EN 55024 & EN 55032 EN 62368-1

** For i7-9700E and i7-8700 running 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 obtain higher operating temperature.*

*** For sub-zero operating temperature, a wide temperature HDD or Solid State Disk (SSD) is required.*

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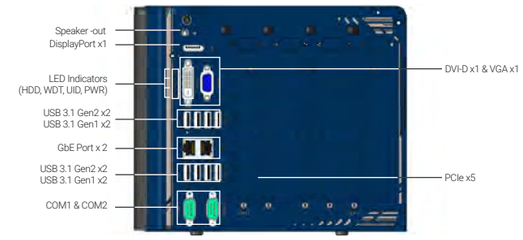
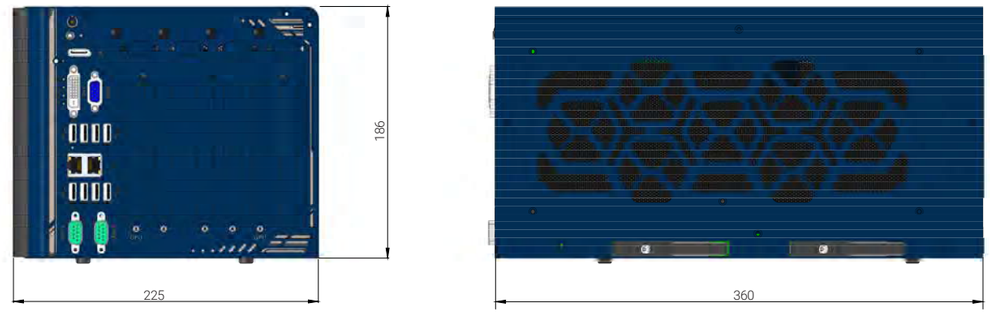
Appearance



Dimensions

Unit : mm



Ordering Information

Model No.	Product Description
Nuvo-8208GC	Industrial-grade GPU computing platform supporting dual 250W NVIDIA® graphics cards, Intel® Xeon® E or 9th/ 8th-Gen Core™ processor with 8~35V DC input and ignition control

All specifications and photos are subject to change without prior notice

Nuvo-7164GC/Nuvo-7166GC Series

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

Key Features

- **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**

Introduction

Nuvo-7164GC/Nuvo-7166GC series are ruggedized AI inference platforms designed for advanced inference acceleration applications such as voice, video, image and recommendation services. It supports NVIDIA® Tesla T4 GPU, featuring 8.1 TFLOPS in FP32 and 130 TOPs in INT8 for real-time inference based on trained neural network model. In addition, it supports Intel® 9th/ 8th-Gen Core™ 8-core/ 6-core CPU and 64 GB DDR4-2666, offering great balance between CPU, GPU and memory performance.

Thanks to Neousys' patented Cassette and air tunnel design, which guides the intake air to flow through the passive heat sink of NVIDIA® Tesla T4 making it capable of effectively dissipating the heat generated by the GPU. This promising design guarantees system operation of up to 60°C ambient temperature with sustained 100% GPU loading. What distinguishes Nuvo-7166GC from Nuvo-7164GC is that it has one additional PCIe x16 slot in the Cassette module for a second add-on card installation, making it that much more flexible for specific applications.

Both systems incorporate cutting-edge I/O technologies to boost overall system flexibility, functionality and performance. The systems feature an M.2 NVMe interface that supports disk read/ write speeds over 2000 MB/s and USB 3.1/ GbE ports for fast data transfer, such as acquiring HD video data. With the combination of a fast CPU and inference accelerator GPU, Nuvo-7164GC/ Nuvo-7166GC are ideal inference platforms for artificial intelligence applications.

Specifications

	Nuvo-7164GC	Nuvo-7166GC
System Core		
Processor	Supporting Intel® 9th/ 8th-Gen CPU (LGA1151 socket, 65W/ 35W TDP) - 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® Q370 platform controller hub	
Graphics	Integrated Intel® UHD graphics 630	
Memory	Up to 64 GB DDR4 2666/ 2400 SDRAM (two SODIMM slots)	
AMT	Supports AMT 12.0	
TPM	Supports TPM 2.0	
I/O Interface		
Ethernet	6x Gigabit Ethernet ports by I219 and 5x I210	
PoE+	Optional IEEE 802.3at PoE+ PSE for port 3 ~ port 6 100 W total power budget	
USB 3.1	4x USB 3.1 Gen2 (10 Gbps) ports 4x USB 3.1 Gen1 (5 Gbps) ports	
USB 2.0	1x USB 2.0 port (internal use)	
Video Port (Integrated Graphics)	1x VGA , supporting 1920 x 1200 resolution 1x DVI-D, supporting 1920 x 1200 resolution 1x DisplayPort, 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 ports for 2.5" HDD/ SSD installation, supporting RAID 0/ 1	
M.2 NVMe	1x M.2 2280 M key NVMe socket (PCIe Gen3 x4) for NVMe SSD installation	
mSATA	1x full-size mSATA port (mux with mini-PCIe)	

	Nuvo-7164GC	Nuvo-7166GC
Internal Expansion Bus		
PCI/PCI Express	1x PCIe x16 slot@Gen3, 16-lanes PCIe signal in Cassette for installing NVIDIA® Tesla T4 GPU	2x PCIe x16 slot@Gen3, 8-lanes PCIe signal in Cassette for installing NVIDIA® Tesla T4 GPU and one additional PCIe card
Mini PCI Express	1x full-size mini PCI Express socket with internal SIM socket (mux with mSATA)	
M.2	1x M.2 2242 B key socket with dual front-accessible SIM sockets, supporting dual SIM mode with selected M.2 LTE module	
Expandable I/O	1x MezIO™ expansion port for Neousys MezIO™ modules	
Power Supply		
DC Input	1x 3-pin pluggable terminal block for 8~35VDC 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 111 mm (H)	
Weight	4.5 Kg	
Mounting	Wall-mount (standard) or DIN-rail mount (optional)	
Environmental		
Operating Temperature	**with 35W CPU** -25°C ~ 60°C *** **with 65W CPU** -25°C ~ 60°C **/ *** (configured as 35W TDP mode) -25°C ~ 50°C **/ *** (configured as 65W TDP mode) In compliance with NVIDIA® Tesla T4 warranty policy, an operating temperature of 0°C~50°C is required for systems with Tesla T4 installed	
Storage Temperature	-40°C ~ 85°C	
Humidity	10%~90% , non-condensing	
Vibration	Operating, MIL-STD-810G, Method 514.6, Category 4	
Shock	Operating, MIL-STD-810G, Method 516.6, Procedure I, Table 516.6-II	
EMC	CE/FCC Class A, according to EN 55032 & EN 55024	

** For i7-9700E and i7-8700 running 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 obtain higher operating temperature.*

*** For sub-zero operating temperature, a wide temperature HDD or Solid State Disk (SSD) is required.*

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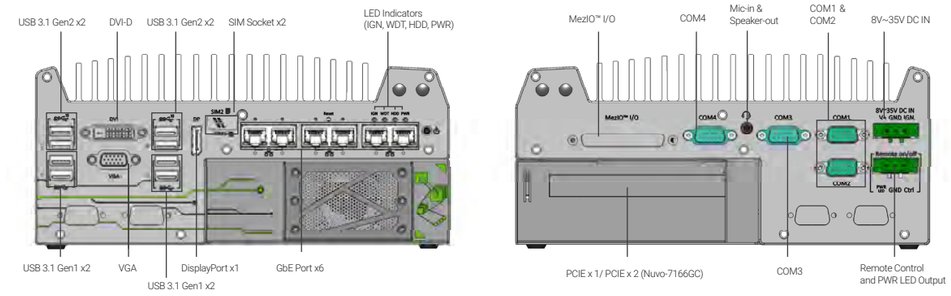
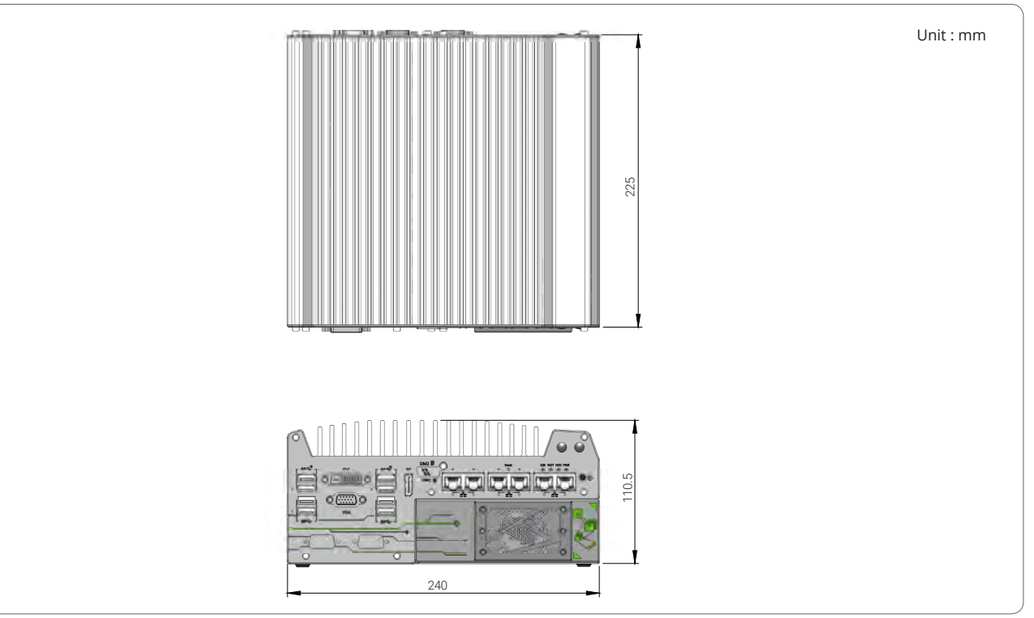
Appearance



Dimensions



Ordering Information

Model No.	Product Description
Nuvo-7164GC	Intel® 9th/ 8th-Gen Core™ AI inference platform with 6x GbE and MezIO™, supporting NVIDIA® Tesla T4 GPU
Nuvo-7166GC	Intel® 9th/ 8th-Gen Core™ AI inference platform with 6x GbE and MezIO™, supporting NVIDIA® Tesla T4 GPU and one additional PCIe x16 slot
Optional IEEE 802.3at PoE+ for GbE ports 3 ~ 6	

Optional Accessories

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.
Damping bracket	Neousys' patented damping brackets assembly for Nuvo-7160GC/ Nuvo-7164GC/ Nuvo-7166GC

MezIO™ Modules

MezIO™-C180	MezIO™ module with 4x RS-232/ 422/ 485 ports and 4x RS-232 ports	*MezIO™-V20-EP*	MezIO™ module with ignition power control function for in-vehicle application
MezIO™-C181	MezIO™ module with 4x RS-232/ 422/ 485 ports and 4x RS-422/ 485 ports	*MezIO™-U4*	MezIO™ module with 4x USB 3.1 ports
MezIO™-D220	MezIO™ module with 8-CH isolated digital input and 8-CH isolated digital output	*MezIO™-G4*	MezIO™ module with 4x GigE ports
MezIO™-D230	MezIO™ module with 16-CH isolated digital input and 16-CH isolated digital output	*MezIO™-G4P*	MezIO™ module with 4x IEEE 802.3at PoE ports

Only Nuvo-7164GC-PoE and Nuvo-7166GC-PoE support MezIO-G4P

All specifications and photos are subject to change without prior notice

Nuvo-7160GC Series

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

CE FC

Key Features

- **Supports NVIDIA® GPU graphics card up to 120W TDP**
- **Patented thermal design to allow -25°C to 60°C* wide temperature operation**
- **Intel® 9th/ 8th-Gen Core™ hexa-core 65W/ 35W LGA1151 CPU**
- **6x GigE ports, supporting 9.5 KB jumbo frame**
- **M.2 2280 M key socket (Gen3 x4) supporting NVMe SSD or Intel®Optane™ memory**
- **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**
- **Compatible with MezIO™ interface for function expansion**
- **Patented ventilation design* for graphics card**

**R.O.C Patent No. M534371/ M456527*

Introduction

Nuvo-7160GC is a ruggedized GPU-aided edge computer 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 Core™ 8-core/ 6-core CPU, offering up to 50% CPU performance enhancement over previous generations.

Thanks to Neousys' patented Cassette design and ingenious ventilation mechanism, Nuvo-7160GC can effectively dissipate the heat generated by the GPU. By introducing the guided airflow from intake to exhaust with powerful fans featuring smart fan control, it allows a 120W GPU to operate at 60°C ambient temperature under 100% GPU loading.

Nuvo-7160GC incorporates rich I/O functions such as USB 3.1 Gen2/ Gen1, GbE, COM and MezIO™ interface in its restricted footprint. It also leverages cutting-edge M.2 NVMe SSD technology for over 2000MB/s disk read/ write speed or Intel® Optane™ memory for the ultimate system acceleration. Neousys Nuvo-7160GC is the ideal solution for emerging edge computing by combining exceptional CPU and GPU performances.

Specifications

System Core	
Processor	Supporting Intel® 9th/ 8th-Gen CPU (LGA1151 socket, 65W/ 35W TDP) - 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® Q370 platform controller hub
Graphics	Integrated Intel® UHD graphics 630
Memory	Up to 64 GB DDR4 2666/ 2400 SDRAM (two SODIMM slots)
AMT	Supports AMT 12.0
TPM	Supports TPM 2.0
I/O Interface	
Ethernet	6x Gigabit Ethernet ports by I219 and 5x I210
PoE+	Optional IEEE 802.3at PoE+ PSE for Port 3 ~ Port 6 100 W total power budget
USB 3.1	4x USB 3.1 Gen2 (10 Gbps) ports 4x USB 3.1 Gen1 (5 Gbps) ports
USB 2.0	1x USB 2.0 port (internal use)
Video Port (Integrated Graphics)	1x VGA , supporting 1920 x 1200 resolution 1x DVI-D, supporting 1920 x 1200 resolution 1x DisplayPort, 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 Gen3 x4) for NVMe SSD or Intel® Optane™ memory installation
mSATA	1x full-size mSATA port (mux with mini-PCIe)

Internal Expansion Bus	
PCI/PCI Express	1x PCIe x16 slot@Gen3, 16-lanes PCIe signals in Cassette for installing an NVIDIA® graphics card up to 120W TDP (Max. graphics card dimension is 188 mm(L) x 121 mm(W), dual slot allocation)
Mini PCI Express	1x full-size mini PCI Express socket with internal SIM socket (mux with mSATA)
M.2	1x M.2 2242 B key socket with dual front-accessible SIM sockets, supporting dual SIM mode with selected M.2 LTE module
Expandable I/O	1x MezIO™ expansion port for Neousys MezIO™ modules
Power Supply	
DC Input	1x 3-pin pluggable terminal block for 8~35VDC 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 111 mm (H)
Weight	4.5 Kg
Mounting	Wall-mount (standard) or DIN-rail mount (optional)
Environmental	
Operating Temperature	**With 35W CPU and 120W GPU** -25°C ~ 60°C */** **With 65W CPU and 120W GPU** -25°C ~ 60°C */**(configured as 35W TDP) -25°C ~ 50°C */** (configured as 65W TDP)
Storage Temperature	-40°C ~ 85°C
Humidity	10%~90% , non-condensing
Vibration	Operating, MIL-STD-810G, Method 514.6, Category 4
Shock	Operating, MIL-STD-810G, Method 516.6, Procedure I, Table 516.6-II
EMC	CE/FCC Class A, according to EN 55032 & EN 55024 EN 62368-1,

** For i7-9700E and i7-8700 running 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 obtain higher operating temperature.*

*** For sub-zero operating temperature, a wide temperature HDD or Solid State Disk (SSD) is required.*

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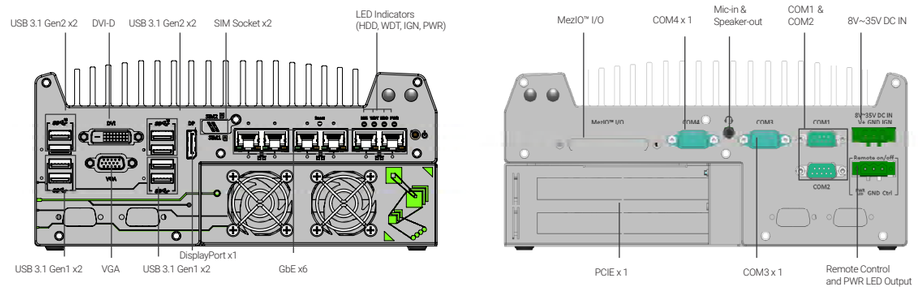
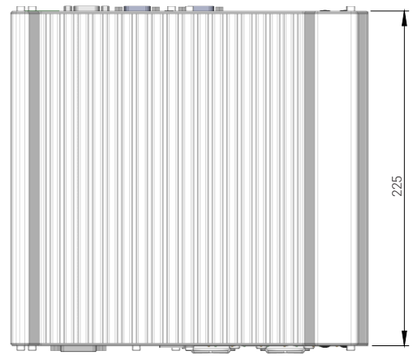
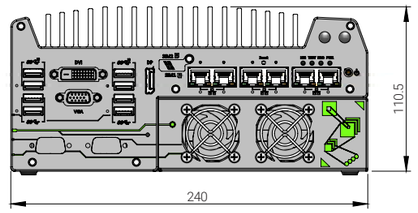
Appearance



Dimensions

Unit : mm





Ordering Information

Model No.	Product Description
Nuvo-7160GC	Intel® 9th/8th-Gen Core™ GPU-computing platform with 6x GbE and MezIO™ interface, supporting selected NVIDIA® 120W GPU
Optional IEEE 802.3at PoE+ for GbE ports 3 ~ 6	

Optional Accessories

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.
Damping bracket	Neousys' patented damping brackets assembly for Nuvo-7160GC/ Nuvo-7164GC

MezIO™ Modules

MezIO™-C180	MezIO™ module with 4x RS-232/ 422/ 485 ports and 4x RS-232 ports	***MezIO™-V20-EP***	MezIO™ module with ignition power control function for in-vehicle application
MezIO™-C181	MezIO™ module with 4x RS-232/ 422/ 485 ports and 4x RS-422/ 485 ports	***MezIO™-U4***	MezIO™ module with 4x USB 3.1 ports
MezIO™-D220	MezIO™ module with 8-CH isolated digital input and 8-CH isolated digital output	***MezIO™-G4***	MezIO™ module with 4x GigE ports
MezIO™-D230	MezIO™ module with 16-CH isolated digital input and 16-CH isolated digital output	***MezIO™-G4P***	MezIO™ module with 4x IEEE 802.3at PoE+ ports

Only Nuvo-7160-PoE support MezIO-G4P

All specifications and photos are subject to change without prior notice

Nuvo-8108GC

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

Key Features

- **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**

R.O.C Patent No. M534371 / M491752

Introduction

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.

Nuvo-8108GC is powered by Intel® Xeon® E or 9th/ 8th-Gen Core™ (up to 8-core/ 16-thread) CPUs coupled with workstation-grade Intel® C246 chipset to support up to 128 GB ECC or non-ECC DDR4 memory. The system incorporates an internal 2.5" HDD/ SSD tray and one hot-swappable 2.5" HDD/ SSD tray for easy replacement. There is also an M.2 2280 NVMe socket for the fast read/ write performance. Its front-accessible GbE and USB 3.1 Gen1/ Gen2 ports feature screw-lock mechanisms for securing cable connections. In addition to the x16 PCIe slot (8-lanes) for GPU installation, Nuvo-8108GC has other two x8 PCIe slots (4-lanes) and one x16 PCIe slot (8-lanes) for expansion cards to extend function sets like data collection, analytics and communication.

Nuvo-8108GC has a brand new power delivery design to accept 8~48V wide-range DC input and to handle heavy power requirements from 250W GPU. Along with built-in ignition control, it's feasible to deploy it on a vehicle and directly power it via the car's electrical power system. Mechanical wise, Nuvo-8108GC incorporates Neousys' patented heat dissipation design, damping brackets and patent-pending GPU press bar, making it steady and rock-solid in various conditions. The Nuvo-8108GC is Neousys' response to the never-ending demand of TFLOPS in industrial GPU platforms. With industrial-grade power, thermal and mechanical design, it pushes versatile AI inference applications from laboratories to field applications, where reliability matters.

Specifications

System Core	
Processor	Supporting Intel® Xeon® E and 9th/ 8th-Gen CPU (LGA1151 socket) - Xeon E 2176G/ 2278GE (8C/16T) / 2278GEL (8C/16T) - i7-9700E/ i7-9700TE/ i7-8700/ i7-8700T - i5-9500E/ i5-9500TE/ i5-8500/ i5-8500T - i3-9100E/ i3-9100TE/ i3-8100/ i3-8100T
Chipset	Intel® C246 Platform Controller Hub
Graphics	Independent GPU via x16 PEG port, or integrated Intel® UHD graphics 630
Memory	Up to 128 GB ECC/ non-ECC DDR4 2133 SDRAM (four SODIMM slots)
AMT	Supports AMT 12.0
TPM	Supports TPM 2.0
I/O Interface	
Ethernet	1x Gigabit Ethernet port by Intel® I219-LM 1x Gigabit Ethernet port by Intel® I210-IT
Video Port	1x VGA , supporting 1920 x 1200 resolution 1x DVI-D, supporting 1920 x 1200 resolution 1x DisplayPort, supporting 4096 x 2304 resolution
Serial Port	2x software-programmable RS-232/ 422/ 485 ports (COM1/ COM2)
USB 3.1	4x USB 3.1 Gen2 (10 Gbps) ports 4x USB 3.1 Gen1 (5 Gbps) ports
USB 2.0	1x USB 2.0 ports (internal use)
Audio	1x 3.5 mm jack for mic-in and speaker-out
Storage Interface	
SATA	1x hot-swappable HDD tray for 2.5" HDD/ SSD installation 1x Internal SATA port for 2.5" HDD/ SSD installation, supporting RAID 0/ 1
M.2	1x M.2 2280 M key socket (PCIe Gen3 x4) for NVMe SSD or Intel® Optane™ memory installation
mSATA	2x full-size mSATA port (mux with mini-PCIe)

Expansion Bus	
PCI Express	2x PCIe x16 slot@Gen3, 8-lanes 2x PCIe x8 slots@Gen3, 4-lanes
M.2	1x M.2 2242 B key socket supporting dual SIM mode with selected M.2 LTE module
Mini-PCIe	2x full-size mini PCI Express socket
Power Supply	
DC Input	2x 4-pin pluggable terminal block for 8~48V DC input with ignition control
Mechanical	
Dimension	170 mm (W) x 360 mm (D) x 186 mm (H)
Weight	5 kg
Mounting	Wall-mount with damping brackets
Environmental	
Operating Temperature	with 35W CPU and one NVIDIA® 250W GPU -25°C ~ 60°C */ ** with >= 65W CPU and one NVIDIA® 250W GPU -25°C ~ 60°C */ ** (configured as 35W TDP mode) -25°C ~ 50°C */ ** (configured as 65W TDP mode)
Storage Temperature	-40°C ~ 85°C
Humidity	10%~90% , non-condensing
Vibration	Operating, MIL-STD-810G, Method 514.6, Category 4; and 3 Grms, 5-500 Hz, 3 Axes, according to IEC 60068-2-64
Shock	Operating, MIL-STD-810G, Method 516.6, Procedure I, Table 516.6-II
EMC	CE/ FCC Class A, according to EN 55024 & EN 55032

** For i7-9700E and i7-8700 running 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 obtain higher operating temperature.*

*** For sub-zero operating temperature, a wide temperature HDD or Solid State Disk (SSD) is required.*

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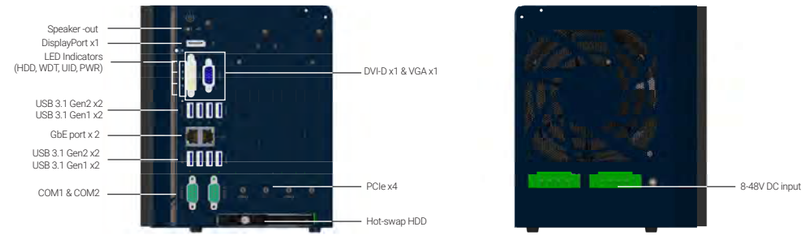
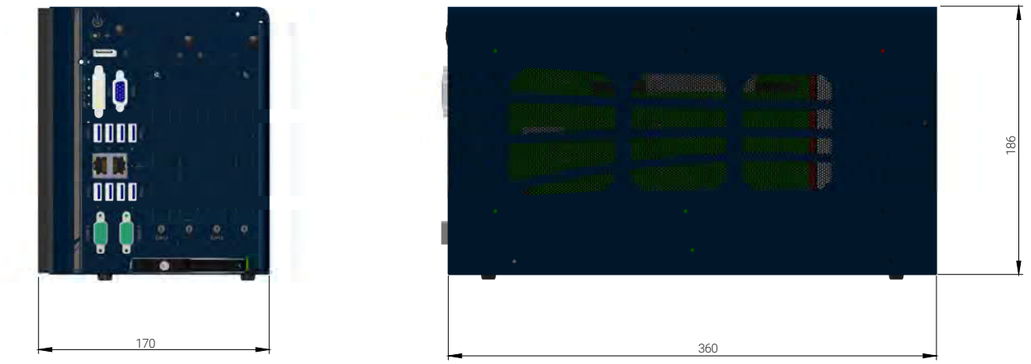
Appearance



Dimensions

Unit : mm



Ordering Information

Model No.	Product Description
Nuvo-8108GC	Industrial-grade edge AI platform supporting 250W NVIDIA® GPU Card, Intel® Xeon® E and 9th/ 8th-Gen Core™ processor with 8~48V wide-range DC input and built-in ignition control

Optional Accessories

PA-480W-DIN	480W AC-DC power Adapter(SDR-480-24) DIN-rail mount, 24V 20A, 90~264VAC/127~370VDC, Terminal Block, -20~+70°C

All specifications and photos are subject to change without prior notice

Nuvo-8240GC

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

Key Features

- **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**

Preliminary

**R.O.C Patent No. M491752*

Introduction

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 128 GB ECC or non-ECC DDR4 memory.
The system incorporates one internal 2.5" SATA HDD/ SSD slot and one hot-swappable 2.5" tray for easy HDD/ SSD replacement. There is also an M.2 2280 NVMe SSD socket for ultimate disk performance . Its front-accessible GbE and USB 3.1 Gen1/ Gen2 ports feature screw-lock mechanisms for secure cable connections. In addition to the dual x16 PCIe slots (8-lanes) for Tesla T4 installation, Nuvo-8240GC has other two x8 PCIe slots (4-lanes) for expansion cards to extend function sets, making it that much more flexible for specific applications such as data collection, analytics and communication.
Nuvo-8240GC has a brand new power delivery design to accept 8~48V wide-range DC input with built-in ignition control. Mechanical wise, Nuvo-8240GC incorporates Neousys' proven heat dissipation design, damping brackets* for withstanding 3 Grms vibration, making it steady and rock-solid in various conditions. The Nuvo-8240GC is Neousys' response to the never-ending performance demand in industrial edge AI platforms and now with double the inference power, Nuvo-8240GC is ready to take it to the next level.

Specifications

System Core	
Processor	Supporting Intel® Xeon® E and 9th/ 8th-Gen CPU (LGA1151 socket) - Xeon E 2176G/ 2278GE (8C/16T) / 2278GEL (8C/16T) - i7-9700E/ i7-9700TE/ i7-8700/ i7-8700T - i5-9500E/ i5-9500TE/ i5-8500/ i5-8500T - i3-9100E/ i3-9100TE/ i3-8100/ i3-8100T
Chipset	Intel® C246 Platform Controller Hub
Graphics	Integrated Intel® UHD Graphics 630
Memory	Up to 128 GB ECC/ non-ECC DDR4 2133 SDRAM (four SODIMM slots)
AMT	Supports AMT 12.0
TPM	Supports TPM 2.0
I/O Interface	
Ethernet	1x Gigabit Ethernet port by Intel® I219-LM 1x Gigabit Ethernet port by Intel® I210-IT
Video Port	1x VGA, supporting 1920 x 1200 resolution 1x DVI-D, supporting 1920 x 1200 resolution 1x DisplayPort, supporting 4096 x 2304 resolution
Serial Port	2x software-programmable RS-232/ 422/ 485 ports (COM1/COM2)
USB 3.1	4x USB 3.1 Gen2 (10 Gbps) ports 4x USB 3.1 Gen1 (5 Gbps) ports
USB 2.0	1x USB 2.0 ports (internal use)
Audio	1x 3.5 mm jack for mic-in and speaker-out
Storage Interface	
SATA	1x hot-swappable HDD tray for 2.5" HDD/ SSD installation 1x Internal SATA port for 2.5" HDD/ SSD installation, supporting RAID 0/ 1
M.2	1x M.2 2280 M key socket (PCIe Gen3 x4) for NVMe SSD or Intel® Optane™ memory installation
mSATA	2x full-size mSATA port (mux with mini-PCIe)

Expansion Bus	
PCI Express	2x PCIe x16 slot@Gen3, 8-lanes 2x PCIe x8 slots@Gen3, 4-lanes
M.2	1x M.2 2242 B key socket supporting dual SIM mode with selected M.2 LTE module
Mini-PCIe	2x full-size mini PCI Express socket
Power Supply	
DC Input	1x 4-pin pluggable terminal block for 8~48V DC input with ignition control
Mechanical	
Dimension	190 mm (W) x 270 mm (D) x 198 mm (H)
Weight	5 kg
Mounting	Wall-mount with damping brackets
Environmental	
Operating Temperature	**with 35W CPU** -25°C ~ 60°C */** **with 65W CPU** -25°C ~ 60°C */** (configured as 35W TDP mode) -25°C ~ 50°C */** (configured as 65W TDP mode) In compliance with NVIDIA® Tesla T4 warranty policy, an operating temperature of 0°C~50°C is required for systems with Tesla T4 installed
Storage Temperature	-40°C ~ 85°C
Humidity	10%~90% , non-condensing
Vibration	Operating, MIL-STD-810G, Method 514.6, Category 4 and 3Grms
Shock	Operating, MIL-STD-810G, Method 516.6, Procedure I,Table 516.6-II
EMC	CE/FCC Class A, according to EN 55032 & EN 55024

** For i7-9700E and i7-8700 running 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 obtain higher operating temperature.*
*** For sub-zero operating temperature, a wide temperature HDD or Solid State Disk (SSD) is required.*

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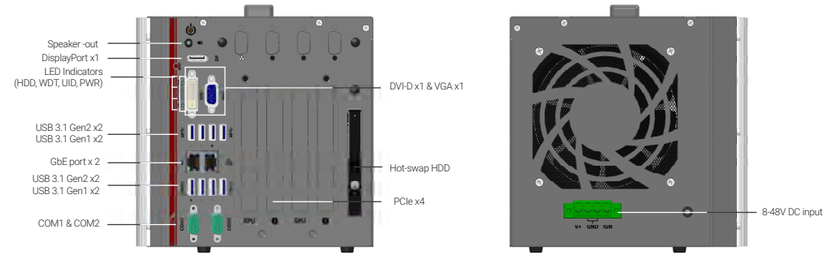
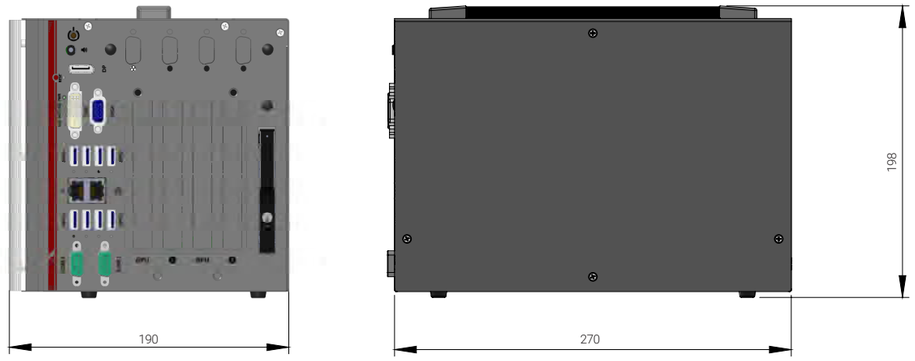
Appearance



Dimensions

Unit : mm



Ordering Information

Model No.	Product Description
Nuvo-8240GC	Industrial-grade edge AI platform supporting dual NVIDIA® Tesla T4 and Intel® Xeon® E and 9th/ 8th-Gen Core™ processor

Optional Accessories

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

All specifications and photos are subject to change without prior notice

Nuvo-6108GC/ Nuvo-6108GC-IGN

Industrial-grade in-vehicle GPU-computing Platform with 250W NVIDIA® GPU and Intel® Xeon® E3 v5, 6th-Gen Core™ Processor

CE FC

Key Features

- **Supports Intel® Xeon® E3 v5 or 6th-Gen Core™ i7/ i5 LGA1151 CPU**
- **Supports NVIDIA® GPU (up to 250W TDP)**
- **Patented thermal design for -25 °C to 60 °C rugged operation***
- **Two x8, Gen3 PCIe slots for add-on cards**
- **Dual GbE ports and four USB 3.1 ports**
- **Four 2.5” SATA hard drives with RAID 0/ 1/ 5/ 10 support**
- **Three 2.5" SATA hard drives with RAID 0/ 1/ 5 support (Nuvo-6108GC-IGN)**
- **Patented easy-swap trays* for HDD replacement (Nuvo-6108GC-IGN)**
- **Automatic temperature sensing and fan control**
- **Patented damping brackets* to withstand 1 Grms vibration**
- **Built-in ignition control (Nuvo-6108GC-IGN)**

**R.O.C Patent No. M534371 / M491241 / M491752*

Introduction

Nuvo-6108GC series is world’s first industrial-grade GPU computer supporting high-end graphics cards. It’s designed to fuel emerging GPU-accelerated applications, such as artificial intelligence, VR, autonomous driving and CUDA computing by accommodating a 250W NVIDIA® GPU.
Leveraging Intel® C236 chipset, Nuvo-6108GC series supports Xeon® E3 v5 or 6th-Gen Core™ i7/ i5 CPU with up to 32 GB ECC/ non-ECC DDR4 memory. It incorporates general computer I/O like Gigabit Ethernet, USB 3.1 and serial ports. In addition to the x16 PCIe port for GPU installation, Nuvo-6108GC series also has two x8 PCIe slots so you can install additional high performance expansion card with high bandwidths for data collection analytics and communication.
Nuvo-6108GC series comes with sophisticated power design to handle heavy power consumption and power transient of a 250W GPU. Furthermore, to have reliable GPU performance for industrial environments, Nuvo-6108GC series utilizes Neousys’ patented design*, a tuned cold air intake to effectively dissipate the heat generated by GPU. This unique design guarantees operation at 60°C under 100% GPU loading, making Nuvo-6108GC series extremely reliable for demanding field applications.
The new model Nuvo-6108GC-IGN features built-in ignition power control and two of its three 2.5” drives come with Neousys’ patented easy-swap trays for simple HDD/ SSD replacement.

Specifications

System Core	
Processor	Intel® Xeon® E3 v5 or 6th-Gen Core™ LGA1151 CPU - Intel® Xeon® Processor E3-1275 v5 (8M Cache, 3.6/ 4.0 GHz) - Intel® Xeon® Processor E3-1268L v5 (8M Cache, 2.4/ 3.4 GHz) - Intel® Core™ i7-6700 (8M Cache, 3.4/ 4.0 GHz) - Intel® Core™ i5-6500 (6M Cache, 3.2/ 3.6 GHz) - Intel® Core™ i7-6700TE (8M Cache, 2.4/ 3.4 GHz) - Intel® Core™ i5-6500TE (6M Cache, 2.3/ 3.3 GHz)
Chipset	Intel® C236 platform controller hub
Graphics	Independent GPU via x16 PEG port, or integrated Intel® HD 530 controller
Memory	Up to 32 GB ECC/ non-ECC DDR4-2133
I/O Interface	
Ethernet	1x Gigabit Ethernet port by Intel® I219-LM 1x Gigabit Ethernet port by Intel® I210-IT
Video Port	2x DVI-Ds for DVI outputs, supporting 1920x1200 resolution
Serial Port	2x software-programmable RS-232/ 422/ 485 ports
USB 3.1	4x USB 3.1 Gen1 (5 Gbps) ports
Audio	1x speaker-out
Storage Interface	
SATA	4x SATA ports for 2.5” HDD/ SSD installation, supporting RAID 0/ 1/ 5/ 10 (Nuvo-6108GC) 2x easy-swap HDD trays for 2.5” HDD/ SSD installation (Nuvo-6108GC-IGN) 1x Internal SATA port for 2.5” HDD/ SSD installation, supporting RAID 0/ 1/ 5 (Nuvo-6108GC-IGN)

Expansion Bus/ Internal I/O Interface	
PCI Express	1x PCIe x16 slot @ Gen3, 16-lanes PCIE signals for GPU 2x PCIe x8 slot @ Gen3, 4-lanes PCIE signals
M.2	1x M.2 B key socket for 3G/4G options with SIM socket
mini-PCIe	1x full-size mini PCI Express socket
Remote Ctrl. & Status Output	1x 2x6-pin 2.0mm pin-header connector for remote on/ off control and status LED output
Power Supply	
DC Input	24V DC
Input Connector	3-pin pluggable terminal block for DC input (IGN/ GND/ V+) (Nuvo-6108GC-IGN)
Mechanical	
Dimension	167 mm (W) x 360 mm (D) x 174 mm (H) (Nuvo-6108GC) 178 mm (W) x 360 mm (D) x 174 mm (H) (Nuvo-6108GC-IGN)
Weight	4.7 kg (incl. CPU, GPU, memory and HDD)
Mounting	Wall-mount with damping brackets
Environmental	
Operating Temperature	-25°C ~ 60°C with 100% CPU/ GPU loading */**
Storage Temperature	-40°C ~ 85°C
Humidity	10%~90% , non-condensing
Vibration	Operating, 1 Grms, 5-500 Hz, 3 Axes (w/ GPU, fan and HDD), according to IEC60068-2-64)
EMC	CE/ FCC Class A, according to EN 55022, EN 55024 & EN 55032

** For i7-6700 running 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 obtain higher operating temperature.*
*** For sub-zero operating temperature, a wide temperature HDD drive or Solid State Disk (SSD) is required.*

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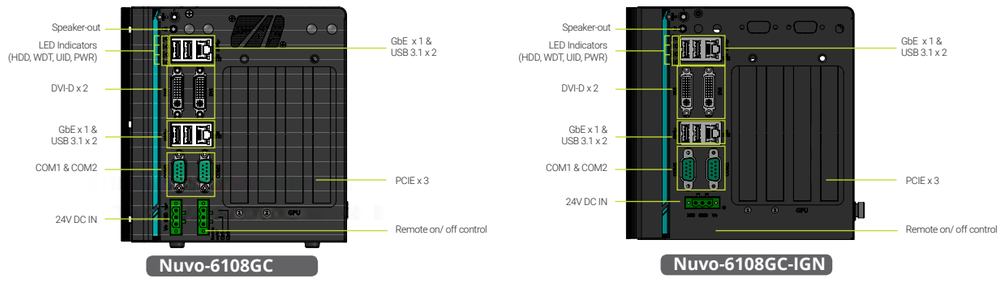
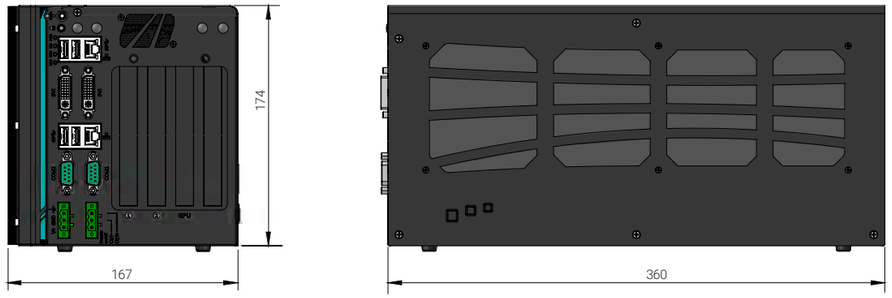
Appearance



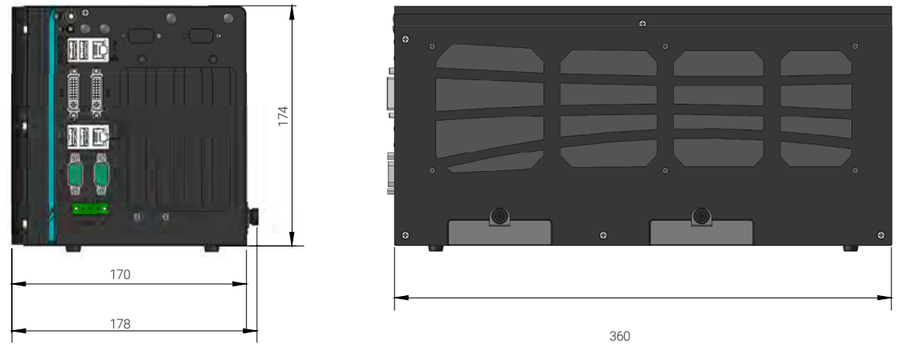
Dimensions

Nuvo-6108GC

Unit : mm



Nuvo-6108GC-IGN



Ordering Information

Model No.	Product Description
Nuvo-6108GC	Industrial-grade GPU computing platform supporting 250W NVIDIA® graphics card and Intel® Xeon® E3 v5 and 6th-Gen Core™ processor
Nuvo-6108GC-TI	Industrial-grade GPU computing platform supporting 250W NVIDIA® graphics card and Intel® Xeon® E3 v5 and 6th-Gen Core™ processor
Nuvo-6108GC-IGN	Industrial-grade GPU computing platform supporting up to 250W NVIDIA® graphics card, Intel® Xeon® E3 v5 and 6th-Gen Core™ processor with built-in ignition control and 2x easy-swap trays

Optional Accessories

PA-480W-DIN	480W AC-DC power adapter DIN-rail mount, 24V 20A, 90~264VAC/127~370VDC, terminal block, -20 to70°C

All specifications and photos are subject to change without prior notice

Nuvo-5095GC

Compact and Wide Temperature GPU-Computing Platform Supporting 75W NVIDIA® GPU and Intel® 6th-Gen Core™ Processor

Key Features

- **Supports NVIDIA® GPU with up to 75W TDP**
- **Patented thermal design to allow -25°C to 60°C wide temperature system operation**
- **Supports Intel® 6th-Gen Core™ i7/i5 LGA1151 CPU**
- **6x GigE ports, supporting 9.5 KB jumbo frame**
- **Up to 32 GB, DDR4-2133 SODIMM**
- **240 mm x 225 mm x 111 mm compact footprint**
- **Compatible with MezIO™ interface for function expansion**
- **Accommodates two 2.5" SATA HDD/ SSD with RAID 0/1 support**
- **Patented ventilation* for graphics card**

**R.O.C Patent No. M534371 / M456527*

Introduction

Nuvo-5095GC opens a new chapter for industrial computers. As the first embedded controller targeted at emerging applications of CUDA computing, autopilot, deep learning and virtual reality, Nuvo-5095GC integrates all features required for a compact, reliable and powerful GPU computing platform.

Supporting 75W NVIDIA® GPU (e.g. GTX 1050 Ti), Nuvo-5095GC possesses 768 CUDA cores to deliver tremendous computing power for arithmetic/ graphics operations. Neousys' patented Cassette technology and innovative thermal design help effectively dissipate the heat generated by the GPU, thus making this compact system capable of operating reliably at 60°C with 100% GPU loading.

Nuvo-5095GC is based on Intel® Skylake platform that supports 35W/ 65W 6th-Gen Core™ processors and up to 32GB DDR4 memory. It offers rich I/O functions, such as GbE, USB 3.1 and COM ports to connect to external devices. All these extraordinary features are integrated into a very compact, 240 x 225 x 111 mm footprint. For fast-growing GPU-computing applications, Nuvo-5095GC presents the first industrial-grade, compact and rugged platform incorporating CPU and GPU to offer performance far beyond traditional industrial computers.

Specifications

System Core	
Processor	Supports Intel® 6th-Gen Core™ LGA1151 CPU - Intel® Core™ i7-6700 (8M Cache,3.4/4.0 GHz, 65W TDP) - Intel® Core™ i5-6500 (6M Cache, 3.2/3.6 GHz, 65W TDP) - Intel® Core™ i7-6700TE (8M Cache, 2.4/3.4 GHz, 35W TDP) - Intel® Core™ i5-6500TE (6M Cache, 2.3/3.3 GHz, 35W TDP)
Chipset	Intel® Q170 platform controller hub
Graphics	Independent NVIDIA® GPU (75W TDP) or integrated Intel® HD 530/510 controller
Memory	Up to 32 GB DDR4-2133 SDRAM (two SODIMM slots)
AMT	Supports AMT 11.0
TPM	Supports TPM 2.0
I/O Interface	
Ethernet	6x Gigabit Ethernet ports by Intel® 1x I219 and 5x I210
PoE+	Optional IEEE 802.3at PoE+ PSE for GbE Port 3 ~ Port 6, 80 W total power budget
USB 3.1	4x USB 3.1 ports via native XHCI controller
USB 2.0	4x USB 2.0 ports
Video Port (Integrated Graphics)	1x stacked VGA + DVI-D 2x DisplayPorts, supporting 4K2K resolution
Serial Port	2x software-programmable RS-232/422/485 port (COM1 & COM3) 1x RS-232 port (COM2)
Audio	1x Mic-in and 1x Speaker-out
Storage Interface	
SATA HDD	2x internal SATA port for 2.5" HDD/ SSD installation, supporting RAID 0/1
mSATA	1x full-size mSATA port (mux with mini-PCIe)
Expansion Bus	
PCI/PCI Express	1x PCIe x16 slot @ Gen3, 8-lanes PCIe signals in Cassette for installing 75W NVIDIA® GPU

Expansion Bus	
Mini PCI-E	1x internal mini PCI Express socket with front-accessible SIM socket 1x internal mini PCI Express socket with internal SIM socket (mux with mSATA)
Expandable I/O	1x MezIO™ expansion port for Neousys' MezIO™ modules
Power Supply	
DC Input	1x 3-pin pluggable terminal block for 8~35VDC DC input
Remote Ctrl. & Status Output	1x 10-pin (2x5) wafer connector for remote on/off control and status LED output
Mechanical	
Dimension	240 mm (W) x 225 mm (D) x 111 mm (H)
Weight	4.5 kg (incl. CPU, GPU, memory and HDD)
Mounting	Wall-mount (standard) or DIN-rail mount (optional)
Environmental	
Operating Temperature	with **i7-6700TE**, **i5-6500TE** (35W TDP) -25°C ~ 60°C ** with **i7-6700**, **i5-6500** (65W TDP) -25°C ~ 60°C */** (configured as 35W CPU mode) -25°C ~ 50°C */** (configured as 65W CPU mode)
Storage Temperature	-40°C ~ 85°C
Humidity	10%~90% , non-condensing
Vibration	Operating, 5 Grms, 5-500 Hz, 3 Axes (w/ SSD, according to IEC60068-2-64)
Shock	Operating, 50 Grms, Half-sine 11 ms Duration (w/ SSD, according to IEC60068-2-27)
EMC	CE/ FCC Class A, according to EN 55022, EN 55024 & EN 55032

** For i7-6700 running 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 obtain higher operating temperature.*

*** For sub-zero operating temperature, a wide temperature HDD drive or Solid State Disk (SSD) is required.*

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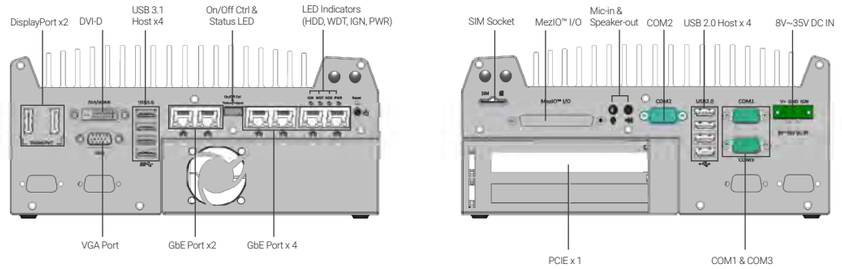
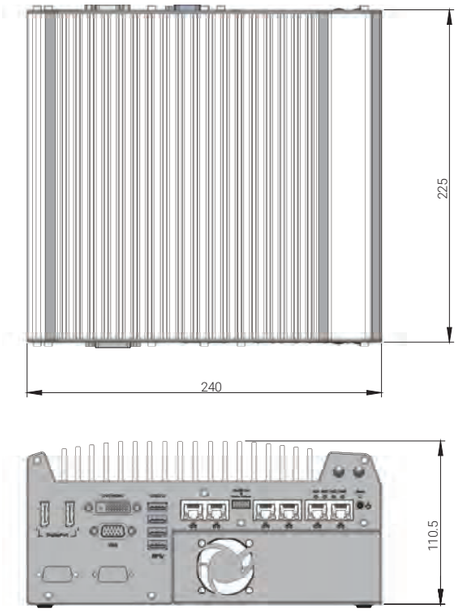
Appearance



Dimensions

Unit : mm



Ordering Information

Model No.	Product Description
Nuvo-5095GC	Intel® 6th-Gen Core™ GPU-computing platform with 6x GbE and MezIO™ interface, supporting selected 75W NVIDIA® GPU
Optional IEEE 802.3at PoE+ for GbE ports 3 ~ 6	

Optional Accessories

PA-160W-OW	160W AC/DC power adapter 20V/8A;18AWGx4C/120cm, cord end terminals for terminal block, operating temperature : -30 to 70 °C.

MezIO™ Modules

MezIO™-C180	MezIO™ module with 4x RS-232/ 422/ 485 ports and 4x RS-232 ports	*MezIO™-V20-EP*	MezIO™ module with ignition power control function for in-vehicle application
MezIO™-C181	MezIO™ module with 4x RS-232/ 422/ 485 ports and 4x RS-422/ 485 ports	*MezIO™-U4*	MezIO™ module with 4x USB 3.1 ports
MezIO™-D220	MezIO™ module with 8-CH isolated digital input and 8-CH isolated digital output	*MezIO™-G4*	MezIO™ module with 4x GigE ports
MezIO™-D230	MezIO™ module with 16-CH isolated digital input and 16-CH isolated digital output	*MezIO™-G4P*	MezIO™ module with 4x IEEE 802.3at PoE+ ports

Only Nuvo-5095GC-PoE supports MezIO-G4P

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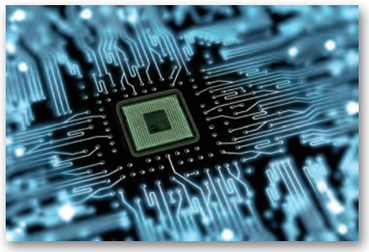
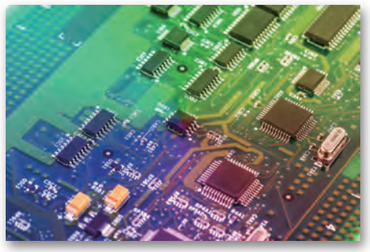
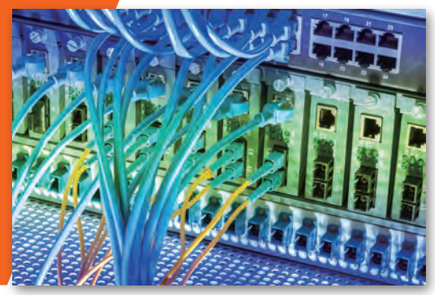
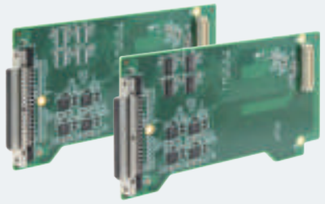




Neousys MezIO™ Modules



MezIO-C180/MezIO-C181 8-port RS-232/ 422/ 485 MezIO™ Module



Key Features

- 4x RS-232/422/485 multi-mode ports
- 4x RS-232 ports (C180) or 4x RS-422/485 ports (C181)
- Up to 921.6 Kbps baud rate
- BIOS-configurable mode/termination settings
- Supports Windows 7/8/8.1/10
- SCSI-II 68-pin connector

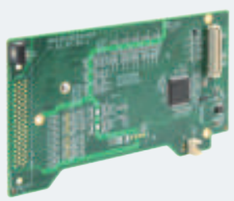
Specifications

	MezIO-C180	MezIO-C181
# of Port	4x RS-232/ 422/ 485 4x RS-232	4x RS-232/ 422/ 485 4x RS-422/ 485
Baud Rate	50 bps to 921600 bps	
FIFO	256-byte TX and RX FIFOs	
ESD Protection	8 kV	
Interface Signals	RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND RS-422: TxD+, TxD-, RxD+, RxD-, GND RS-485: Data+, Data-, GND	
Connector	68-pin SCSI-II female connector	
OS Support	Windows 7/ 8/ 8.1/ 10 and Linux kernel 2.6.32 or later	

Ordering Information

Model No.	Product Description
MezIO-C180-50	4x RS-232/ 422/ 485 and 4x RS-232 ports MezIO™ module, for Nuvo-7000/ Nuvo-5000/ POC-500/ POC-300 Series
MezIO-C180-12	4x RS-232/ 422/ 485 and 4x RS-232 ports MezIO™ module, for POC-120 series
MezIO-C181-50	4x RS-232/ 422/ 485 and 4x RS-422/ 485 ports MezIO™ module, for Nuvo-7000/ Nuvo-5000/ POC-500/ POC-300 Series
MezIO-C181-12	4x RS-232/ 422/ 485 and 4x RS-422/ 485 ports MezIO™ module, for POC-120 series
Cbl-S68M-8DB9M-50CM	SCSI-68(M) to 8x DB-9(M) cable, 50 cm

MezIO-V20 16-mode Ignition Power Control MezIO™ Module



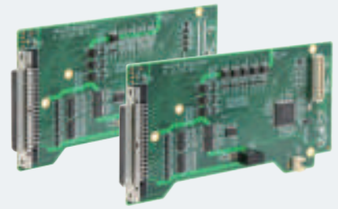
Key Features

- Ignition power control with 16 predefined on/ off delay modes
- Ultra-low 12 mA ignition-off standby power
- Advanced ignition control features
  - Low-battery protection
  - Guarded power-on/ power-off delay duration
  - System hard-off
  - BIOS POST check
- Supports 12V DC (small vehicle) and 24V DC (bus/ truck) vehicles

Ordering Information

Model No.	Product Description
MezIO-V20-EP *(Nuvo-7160GC/ Nuvo-7164GC/ Nuvo-7000E/P Nuvo-7000DE/ Nuvo-5026E/ Nuvo-5000E/P Nuvo-5095GC)*	16-mode ignition power control MezIO™ module for in-vehicle usage
MezIO-V20 *(POC-500/ POC-300/ Nuvo-7000LP/ Nuvo-5000LP)*	16-mode ignition power control and 1x mini-PCIe socket MezIO™ module for in-vehicle usage

MezIO-D230/MezIO-D220 32/ 16-CH Isolated Digital I/O MezIO™ Module



Key Features

- 16-CH isolated DI (D230) or 8-ch isolated DI (D220)
- 16-CH isolated DO (D230) or 8-ch isolated DO (D220)
- 2500 Vrms isolation voltage
- Up to 24V DC operation for DI and DO
- Up to 500 mA sink current on DO channel
- SCSI-II 68-pin connector

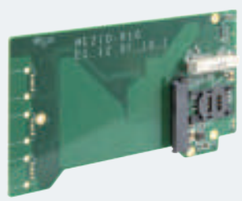
Specifications

	MezIO-D230	MezIO-D220
Isolated Digital Input		
# of Port	16	8
Logic Level	Logic high: 5 to 24 VDC ; Logic low: 0 to 1.5 VDC	
Isolation Voltage	2500 Vrms	
Operation Mode	Polling, COS	
Isolated Digital Output		
# of Channel	16	8
Operation Voltage	Up to 24 VDC	
Sink Current	500 mA for each channel (100% duty)	
Isolation Voltage	2500 Vrms	
Operation Mode	Polling, COS	

Ordering Information

Model No.	Product Description
MezIO-D230-50	16-CH isolated DI and 16-CH isolated DO MezIO™ module, for Nuvo-7000/ Nuvo-5000/ POC-500/ POC-300 Series
MezIO-D230-12	16-CH isolated DI and 16-CH isolated DO MezIO™ module, for POC-120 series
MezIO-D220-50	8-CH isolated DI and 8-CH isolated DO MezIO™ module, for Nuvo-7000/ Nuvo-5000/ POC-500/ POC-300 Series
MezIO-D220-12	8-CH isolated DI and 8-CH isolated DO MezIO™ module, for POC-120 series
Cbl-S68M-S68M-100CM	SCSI-68(M) to SCSI-68(M) cable, 100 cm
TB-10	Terminal board with 68-pin SCSI-II female connector and 68-pole terminal block

MezIO-R10 2.5” SATA HDD/ SSD and mini-PCIe Accommodation MezIO™ Module



Key Features

- Accommodates one 2.5” SATA HDD/ SSD
- One full-size mini-PCIe port with SIM socket

Ordering Information

Model No.	Product Description
MezIO-R10 ***(for POC-120MZ only)***	2.5" SATA HDD/ SSD and mPCIe accommodation MezIO™ module
MezIO-R11 ***(for POC-500/ POC-300 series only)***	MezIO™ module with 2.5" SATA HDD/ SSD
MezIO-R12 ***(for POC-500/ POC-300 series only)***	MezIO™ module with SATA port for 2.5" HDD/ SSD, 4-CH isolated DI and 4-CH isolated DO

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MezIO-U4

4-Port USB 3.1 MezIO™ Module

Key Features

- 4 x USB 3.1 ports by independent Renesas µPD720202 Host Controllers
- Up to 5 Gbps each port (MezIO-U4-50)
- Support up to 900 mA per port

Specifications

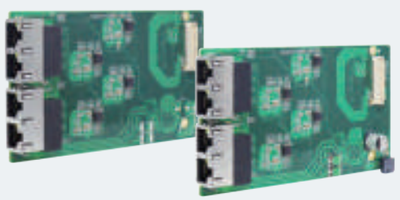
	MezIO-U4-30	MezIO-U4-50
USB Ports	4x USB 3.1 ports, compatible with USB 2.0/1.1/1.0	
USB Controller	2 x Renesas µPD720202 Host Controllers	4 x Renesas µPD720202 Host Controllers
USB Connectors	4x USB 3.1 Type-A connectors	
USB Per-Port Current Limit	900mA	
Interface Signals	5 Gbps shared by two ports	5 Gbps for each port

Ordering Information

Model No.	Product Description
MezIO-U4-30	4-port USB 3.1 MezIO™ module for POC-500 series and POC-300 series
MezIO-U4-50	4-port USB 3.1 MezIO™ module for Nuvo-7000 series and Nuvo-5000 series

MezIO- G4P/MezIO -G4

4-Port GbE with 802.3at PoE+ MezIO™ Module



Key Features

- 4x gigabit Ethernet ports
- Compliant with 802.3at PoE+ (MezIO-G4P)
- Supporting 9.5 KB jumbo frame

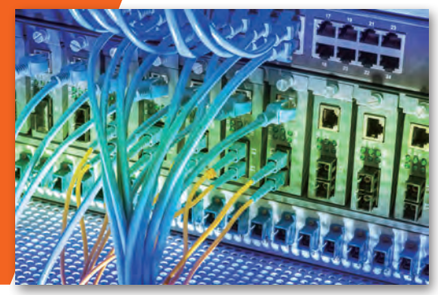
Specifications

	MezIO - G4P	MezIO - G4
Gigabit Ethernet Port	4x GigE ports by 4x Intel® I210 controllers, supporting 9.5 kB jumbo frame	
PoE Capability	Compliant with IEEE 802.3at-2009 (PoE+), each port delivers up to 25.5 W of power	-
Cable Requirement	CAT-5e or CAT-6 cable, 100 meters maximum	

Ordering Information

Model No.	Product Description
MezIO - G4P	4-Port GbE with 802.3at PoE+ MezIO™ module for Nuvo-7000 series and Nuvo-5000 series
MezIO - G4	4-Port GbE MezIO™ module for Nuvo-7000 series and Nuvo-5000 series

Accessories



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List of Optional Cable

Cable	Model Name	Description	Applicable Models
	Cbl-IDC216F-OW-300CM	DIO flat cable, with 2.0mm pitch 2x8 female connector/Open End , for digital input/output, length: 300CM	• POC-200 series
	Cbl-IDC216F-OW-500CM	DIO flat cable, with 2.0mm pitch 2x8 female connector/Open End , for digital input/output, length: 500CM	• POC-200 series
	Cbl-W210F-W210F-100CM	Remote control cable, 2x5 Pin female wafer to 2x5 Pin female wafer length: 100CM	• Nuvo-5000 series • Nuvo-5095GC series • Nuvo-5100VTC series • Nuvis-5306RT series • Nuvo-5608VR
	Cbl-IDC220F-2U2TA-15CM	USB cable, 2x USB(female) to PIN header(20 pin, female), for internal USB port connectivity, length: 15CM	• Nuvo-6000 series
	Cbl-DVII-DVII_VGA-Y-20CM	DVI-I to DVI-D/VGA splitter Y cable, length: 20CM	• POC-200 series • POC-300 series
	Cblbr-IDC220F-2U2TA-20CM	Power cable, 4 PIN power connector to wafer 2.5 4P Female, provide 12V to add-on card, length: 20CM	• Nuvo-2500E/P series • Nuvo-5000E/P series • Nuvo-7000E/P series
	Cbl-U3TA-U3MB-300CM	USB3 Type-A to Micro-B cable with latched connectors, Length: 300CM	• Nuvo-7000E/P Series • Nuvo-7100VTC Series • Nuvo-7200VTC Series • Nuvo-7250VTC Series • Nuvo-8208GC • PCIe-USB380/340
	Cbl-IDC220F-2U2TA-20CM	USB cable, 2x1- Pin header to 2x USB 2.0 with bracket.	• Nuvo-6000 series
	Cblbr-2IDC210F-2DB9M-45MM	RS232 cable braket, 2x 10 Pin header (female) to 2x DB9 (male), length: 45MM	• Nuvo-2400 series
	Cblbr-IDC226F-DB25F-13.6CM	DIO cable braket, 26 Pin header (female) to DB25 (female), length: 13.6CM	• Nuvo-2400 series

Cable	Model Name	Description	Applicable Models
	Cbl-S68M-S68M-100CM	SCSI-68 (male) to SCSI-68M (male) cable, for MezIO DIO card and TB-10, length: 100CM	• MezIO-D220 • MezIO-D230 • Nuvis-5306RT series • Nuvis-534RT series
	Cbl-S68M-8DB9M-50CM	SCSI-68 (male) to 8x DB9 (male) Cable, for MezIO COM port card, length: 50CM	• MezIO-C180 • MezIO-C181
	Cbl-DB9F-3DB9M-15CM	1x DB9 (female) to 3x DB9 (male), length: 15CM	• Nuvo-6000 series • POC-300 series • POC-500 series
	Cbl-DVID-VGA-22CM	DVI-D to VGA cable, for Nuvo-6000 series, length: 22CM	• Nuvo-6000 series • Nuvo-3100VTC
	Cbl-M12X8M-RJ45-500CM	M12 (8-pole-X-coded) to RJ45, CAT6, length : 500CM	• Nuvo-7200VTC • Nuvo-7250VTC • Nuvo-7100VTC • Nuvo-5100VTC
	Cbl-MHF-SMAF-15CM	GSM internal cable,I-PEX MHF (Female) to SMA (female), 1.13 coaxial cable, length: 15CM	
	Cbl-MHF-SMAF-30CM	GSM internal cable, I-PEX MHF (female) to SMA (female), 1.13 coaxial cable, length: 30CM	
	Cbl-MHF-RP_SMAF-30CM	WiFi internal cable, I-PEX MHF (female) to RP SMA (female), 1.13 coaxial cable, length: 30CM	
	Cbl-MHF-RP_SMAF-15CM	WiFi internal cable, I-PEX MHF (female) to RP SMA (female), 1.13 coaxial cable, length: 15CM	
	Cbl-MHF4-SMAF-30CM	LTE internal cable, IPEX MHF4 (female) to SMA (female), for M.2 module, length: 30CM	
	Cbl-MHF4-SMAF-15CM	LTE Internal Cable, IPEX MHF4 (female) to SMA (female), for M.2 module, Length: 15CM	

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