Ever Expanding Edge AI Boundaries

Wide-temperature Fanless Embedded Systems
Established in 2010, Neousys Technology designs and manufactures industrial grade rugged embedded computers 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 fields:

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

#### Rugged Embedded

- Nuvo-9000E/P/L/P/DE ..................................... P. 36
- Nuvo-9531 ............................................................ P. 40
- Nuvo-9501 ............................................................ P. 44
- Nuvo-7000E/P .......................................................... P. 50
- Nuvo-7000LP .......................................................... P. 50
- Nuvo-7501 ............................................................ P. 50
- Nuvo-5000E/P .......................................................... P. 50
- Nuvo-5000LP .......................................................... P. 50
- Nuvo-5026E ............................................................ P. 56
- Nuvo-5501 ............................................................ P. 58
- Nuvo-2600 ............................................................. P. 60
- Nuvo-8034 ............................................................. P. 62
- Nuvo-8000 ............................................................. P. 64
- Nuvo-8111 ............................................................. P. 66
- Nuvo-6000 ............................................................. P. 68

#### IoT Gateway

- IGT-33V/ IGT-34C .................................................. P. 92
- IGT-30D/ IGT-31D .................................................. P. 94
- IGT-20/ IGT-21 ...................................................... P. 96

#### Nuvo-2700DS ....................................................... P. 70
- Intel® 9th/8th-Gen Core™ i7/i5/i3 Ultra-compact Digital Signage System with 4x 4K Displays and Intel® UHD Graphics 630
- Intel® 9th/8th-Gen Core™ i7/i5/i3 Ultra-compact Digital Signage System with 4x 4K Displays and Intel® UHD Graphics 630
- Intel® 9th/8th-Gen Core™ i7/i5/i3 Ultra-compact Digital Signage System with 4x 4K Displays and Intel® UHD Graphics 630

#### Machine Vision

- Nuvis-7306RT ...................................................... P. 100
- Intel® 9th/8th-Gen Core™ i7/i5/i3 Ultra-compact Vision Control With Vision-Specific I/O, Real-time Controller and GPU Computing
- Intel® 9th/8th-Gen Core™ i7/i5/i3 Ultra-compact Vision Control With Vision-Specific I/O, Real-time Controller and GPU Computing

#### In-vehicle Computing

- Nuvo-7200VTC ..................................................... P. 114
- Intel® 9th/8th-Gen Core™ i5/i3/i7 In-vehicle Controller With 4x Or 8x PoE+ Ports, Single-slot PCIe 3.0
- Intel® 9th/8th-Gen Core™ i5/i3/i7 In-vehicle Controller With 4x Or 8x PoE+ Ports, Single-slot PCIe 3.0

#### Surveillance/ Video Analytics

- POC-551VTC ...................................................... P. 126
- AMD Ryzen™ V1000 Ultra-compact In-vehicle Controller With PoE, HDMI and Isolated CAN Bus
- POC-451VTC ...................................................... P. 128
- Intel® Elkhart Lake Atom™ x64298E Ultra-compact In-vehicle Computer With 3x 2.5GbE, PoE+ and M.2/PCIe For WiFi/4G/5G Modules
- POC-351VTC ...................................................... P. 130
- Intel® Apollo Lake Atom™ x5100 Ultra-compact In-vehicle Computer With GbE, PoE+ and Isolated CAN Bus

#### NU-110V

- NVIDIA Jetson AGX Xavier Module AI Platform Supporting 8x GMSL Automotive Cameras and 130€ Ethernet
- NVIDIA Jetson AGX Xavier Module AI Platform Supporting 8x GMSL Automotive Cameras and 130€ Ethernet
- NVIDIA Jetson AGX Xavier Module AI Platform Supporting 8x GMSL Automotive Cameras and 130€ Ethernet

#### Pie-Ce-GL26

- 64/32/16-Port Gigabit Ethernet Switches
- 64/32/16-Port Gigabit Ethernet Switches
- 64/32/16-Port Gigabit Ethernet Switches

#### Pie-Ce-NX154PoE

- 100/1000BASE-T Ethernet PoE+ Hub with 8x GbE Ports
- 100/1000BASE-T Ethernet PoE+ Hub with 8x GbE Ports
- 100/1000BASE-T Ethernet PoE+ Hub with 8x GbE Ports

#### Pie-Ce-PoE34at

- 4-Port In-vehicle Controller With 8x PoE+ Ports and 4x PoE+ Ports For Intelligent Video Analytics
- 4-Port In-vehicle Controller With 8x PoE+ Ports and 4x PoE+ Ports For Intelligent Video Analytics
- 4-Port In-vehicle Controller With 8x PoE+ Ports and 4x PoE+ Ports For Intelligent Video Analytics

#### Surveillance/ Video Analytics

- Nuvo-5608VR ...................................................... P. 148
- NVIDIA Jetson AGX Xavier Module AI Platform With 4x PoE+ Ports For Intelligent Video Analytics
- NVIDIA Jetson AGX Xavier Module AI Platform With 4x PoE+ Ports For Intelligent Video Analytics

#### Pie-Ce-PoE425bt

- 4-port 2.5GbE Network Adapter With 4x 3.5GbE Ports and 4x 3.5GbE Ports
- 4-port 2.5GbE Network Adapter With 4x 3.5GbE Ports and 4x 3.5GbE Ports
- 4-port 2.5GbE Network Adapter With 4x 3.5GbE Ports and 4x 3.5GbE Ports
Table of Contents

GPU Computing

RGS-8800GC ............................................. P. 152
AMD® EPYC™ "3000" MILAN Series Rugged HPC Server Supporting NVIDIA® RTX A6000/ A4500, 2x 10G and 4x 1G Ethernet

Nuvo-10208GC ...................................... P. 154
Industrial grade Edge AI Platform Supporting Dual NVIDIA® RTX series 350W GPU Cards, Intel® 10th/ 11th-Gen Core™ Processor with 3x Additional PCIe Slots and 10G/ 2.5G/ 1G Ethernet Ports

Nuvo-8208GC ...................................... P. 156
Industrial grade GPU Computing Platform Supporting Dual 250W NVIDIA® Graphics Card, Intel® Xeon® E or 9th/ 8th-Gen Core™ Processor

Nuvo-8108GC-XL .................................. P. 158
Industrial grade Edge AI Platform Supporting NVIDIA® RTX 30 series GPU Card, Intel® Xeon® E and 9th/ 8th-Gen Core™ Processor

Nuvo-8108GC-QD .................................. P. 160
Industrial grade Edge AI Platform Supporting NVIDIA® RTX A6000/ A4500 GPU, Intel® Xeon® E and 9th/ 8th-Gen Core™ Processor

Nuvo-8108GC ...................................... P. 162
Industrial grade Edge AI Platform Supporting 250W NVIDIA® Graphics Card, Intel® Xeon® E or 9th/ 8th-Gen Core™ Processor

Nuvo-8240GC ...................................... P. 164
Industrial grade Edge AI Platform Supporting Dual NVIDIA® Tesla T4 and Intel® Xeon® E or 9th/ 8th-Gen Core™ Processor

Nuvo-6108GC/ Nuvo-6108GC-IGN .... P. 166
Industrial grade In-vehicle GPU-computing Platform with 250W NVIDIA® GPU and Intel® Xeon® E3 v5 or 6th-Gen Core™ Processor

Nuvo-9160GC ...................................... P. 168
Ruggedized AI Inference Platform supporting 130W NVIDIA® RTX GPU and Intel® 13th/ 12th-Gen Core™ Processor

Nuvo-7168GC ...................................... P. 170
Ruggedized AI Inference Platform Supporting NVIDIA® RTX A2000 and Intel® 9th/ 8th-Gen Core™ Processor

Nuvo-7164GC/ 7166GC ......................... P. 172
Ruggedized AI Inference Platform Supporting NVIDIA® Tesla T4 and Intel® 9th/ 8th-Gen Core™ Processor

Nuvo-7160GC ...................................... P. 174
Ruggedized GPU-computing Platform Supporting 120W NVIDIA® GPU and Intel® 9th/ 8th-Gen Core™ Processor

Nuvo-5095GC ...................................... P. 176
Compact and Wide Temperature GPU-Computing Platform Supporting 75W NVIDIA® GPU and Intel® 6th-Gen Core™ Processor

Nuvo-8108GC ...................................... P. 162
Industrial grade Edge AI Platform Supporting 250W NVIDIA® Graphics Card, Intel® Xeon® E or 9th/ 8th-Gen Core™ Processor

Nuvo-8240GC ...................................... P. 164
Industrial grade Edge AI Platform Supporting Dual NVIDIA® Tesla T4 and Intel® Xeon® E or 9th/ 8th-Gen Core™ Processor

Nuvo-6108GC/ Nuvo-6108GC-IGN .... P. 166
Industrial grade In-vehicle GPU-computing Platform with 250W NVIDIA® GPU and Intel® Xeon® E3 v5 or 6th-Gen Core™ Processor

Nuvo-9160GC ...................................... P. 168
Ruggedized AI Inference Platform supporting 130W NVIDIA® RTX GPU and Intel® 13th/ 12th-Gen Core™ Processor

Nuvo-7168GC ...................................... P. 170
Ruggedized AI Inference Platform Supporting NVIDIA® RTX A2000 and Intel® 9th/ 8th-Gen Core™ Processor

Nuvo-7164GC/ 7166GC ......................... P. 172
Ruggedized AI Inference Platform Supporting NVIDIA® Tesla T4 and Intel® 9th/ 8th-Gen Core™ Processor

Nuvo-7160GC ...................................... P. 174
Ruggedized GPU-computing Platform Supporting 120W NVIDIA® GPU and Intel® 9th/ 8th-Gen Core™ Processor

Nuvo-5095GC ...................................... P. 176
Compact and Wide Temperature GPU-Computing Platform Supporting 75W NVIDIA® GPU and Intel® 6th-Gen Core™ Processor

SEMIL-1700GC ..................................... P. 180
IP67 Waterproof GPU Computer supporting NVIDIA® Tesla P40 and Intel® Xeon® E5 and 9th/ 8th Gen Core™ Processor with All M12 Connectors

SEMIL-1700 ......................................... P. 182
Half Rack IP67 Waterproof GPU Computer Supporting Intel® Xeon® E and 9th/ 8th Gen Core™ Processor with All M12 Connectors

SEMIL-1300GC ..................................... P. 184
Half Rack IP67 Waterproof GPU Computer supporting NVIDIA® Tesla T4/ Quadro P2200 and Intel® Xeon® E and 9th/ 8th Gen Core™ Processor with All M12 Connectors

SEMIL-1300 ......................................... P. 186
Half Rack/ Rugged Fanless Computer Supporting Intel® Xeon® E and 9th/ 8th Gen Core™ Processor with All M12 Connectors

Neousys MezIO® Modules ................. P. 190

Accessories ........................................ P. 194

Table of Contents

GPU Computing

RGS-8800GC ............................................. P. 152
AMD® EPYC™ "3000" MILAN Series Rugged HPC Server Supporting NVIDIA® RTX A6000/ A4500, 2x 10G and 4x 1G Ethernet

Nuvo-10208GC ...................................... P. 154
Industrial grade Edge AI Platform Supporting Dual NVIDIA® RTX series 350W GPU Cards, Intel® 10th/ 11th-Gen Core™ Processor with 3x Additional PCIe Slots and 10G/ 2.5G/ 1G Ethernet Ports

Nuvo-8208GC ...................................... P. 156
Industrial grade GPU Computing Platform Supporting Dual 250W NVIDIA® Graphics Card, Intel® Xeon® E or 9th/ 8th-Gen Core™ Processor

Nuvo-8108GC-XL .................................. P. 158
Industrial grade Edge AI Platform Supporting NVIDIA® RTX 30 series GPU Card, Intel® Xeon® E and 9th/ 8th-Gen Core™ Processor

Nuvo-8108GC-QD .................................. P. 160
Industrial grade Edge AI Platform Supporting NVIDIA® RTX A6000/ A4500 GPU, Intel® Xeon® E and 9th/ 8th-Gen Core™ Processor

Nuvo-8108GC ...................................... P. 162
Industrial grade Edge AI Platform Supporting 250W NVIDIA® Graphics Card, Intel® Xeon® E or 9th/ 8th-Gen Core™ Processor

Nuvo-8240GC ...................................... P. 164
Industrial grade Edge AI Platform Supporting Dual NVIDIA® Tesla T4 and Intel® Xeon® E or 9th/ 8th-Gen Core™ Processor

Nuvo-6108GC/ Nuvo-6108GC-IGN .... P. 166
Industrial grade In-vehicle GPU-computing Platform with 250W NVIDIA® GPU and Intel® Xeon® E3 v5 or 6th-Gen Core™ Processor

Nuvo-9160GC ...................................... P. 168
Ruggedized AI Inference Platform supporting 130W NVIDIA® RTX GPU and Intel® 13th/ 12th-Gen Core™ Processor

Nuvo-7168GC ...................................... P. 170
Ruggedized AI Inference Platform Supporting NVIDIA® RTX A2000 and Intel® 9th/ 8th-Gen Core™ Processor

Nuvo-7164GC/ 7166GC ......................... P. 172
Ruggedized AI Inference Platform Supporting NVIDIA® Tesla T4 and Intel® 9th/ 8th-Gen Core™ Processor

Nuvo-7160GC ...................................... P. 174
Ruggedized GPU-computing Platform Supporting 120W NVIDIA® GPU and Intel® 9th/ 8th-Gen Core™ Processor

Nuvo-5095GC ...................................... P. 176
Compact and Wide Temperature GPU-Computing Platform Supporting 75W NVIDIA® GPU and Intel® 6th-Gen Core™ Processor

SEMIL-1700GC ..................................... P. 180
IP67 Waterproof GPU Computer supporting NVIDIA® Tesla P40 and Intel® Xeon® E5 and 9th/ 8th Gen Core™ Processor with All M12 Connectors

SEMIL-1700 ......................................... P. 182
Half Rack IP67 Waterproof GPU Computer Supporting Intel® Xeon® E and 9th/ 8th Gen Core™ Processor with All M12 Connectors

SEMIL-1300GC ..................................... P. 184
Half Rack IP67 Waterproof GPU Computer supporting NVIDIA® Tesla T4/ Quadro P2200 GPU and Intel® Xeon® E or 9th/ 8th Gen Core™ Processor with All M12 Connectors

SEMIL-1300 ......................................... P. 186
Half Rack/ Rugged Fanless Computer Supporting Intel® Xeon® E and 9th/ 8th Gen Core™ Processor with All M12 Connectors

Neousys MezIO® Modules ................. P. 190

Accessories ........................................ P. 194
Product Highlight

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.

PCIe/PCI Expansion Cassette

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.

Industrial-grade GPU Computing Platform

Featuring patented Cassette technology and an innovative thermal ventilation design, Neousys GPU computing platforms support 75W~350W NVIDIA® GPUs. 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.

IEEE 802.3at PoE+ Ports

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

*Available on selected systems
Leading Edge Fanless Design

Neousys makes one of 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.

DTIO and NuMCU

Neousys Deterministic Trigger I/O (DTIO) and NuMCU are a MCU-based architecture technology that provides 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 sensor devices.

Patented and Effective Damping Solution

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.

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.

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.

*Available on selected systems

*Available on selected systems

*Available on selected systems

*Available on selected systems

*Available on selected systems
Product Highlight

IP67 Waterproof 2U 19" Chassis

Neousys SEMIL utilizes a customized o-ring and combines that with a stainless steel monoblock as the main chassis. There is a small service door opening at the bottom of the monoblock enclosure for maintenance purposes. The opening is concealed with stainless steel screws tightened in specific order and torque to ensure IP67 waterproof rating while retaining serviceability.

SuperCAP Power Backup Module

Neousys has patented an architecture that incorporates a microprocessor along with supercapacitor and charge/discharge controller. It 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. It has a wide operating temperature range (-40°C~85°C) and an exceptionally long operating life of 10 years or 500,000 charge-discharge cycles. These two traits help make it a reliable industrial power backup solution.

Neousys Technology GMSL2 Camera Platform

A GMSL2 camera turnkey solution including cameras, drivers, and an embedded computer

The GMSL2 automotive camera can provide high-quality images with minimal latency. It plays a critical role for perception in autonomous vehicles, teleoperation, AMR controllers, and vision-based scenarios requiring constant interaction with surroundings. Also, it has advanced features that benefit on-road and off-highway applications, such as IP67 waterproof, high dynamic range (>120dB HDR), auto white balance (AWB), and LED flicker mitigation (LFM). Not to mention the ease of deployment by a single coaxial cable for a camera, up to 15 meters.

As for applications that require dynamic illumination and short response time, the GMSL2 automotive camera outperforms the industrial GigE and IP cameras. Unlike industrial GigE cameras that are designed for fixed lighting conditions and high-speed inspections, the GMSL2 automotive cameras are intended for outdoor usage that adapts to dynamic lighting conditions within one or two frames. Both the IP cameras and the GMSL2 automotive cameras offer high dynamic range images, but the former requires extra processing time due to video encoding. On the other hand, the GMSL2 automotive cameras can output three-exposure HDR images with much shorter latency.

Although the GMSL2 automotive camera has many benefits, very limited ready-to-use solutions are available. Neousys’ GMSL2 camera platform is a turnkey solution, it includes selected cameras, pre-built drivers, and an embedded computer. You can either use it as a robotic controller, an ADAS unit, or you can use it as a GMSL2 camera frame grabber to provide real-time video streaming to another powerful GPU computer.

Ruggedized Edge AI Platform Supporting 4x GMSL2 Cameras

— Powered by NVIDIA® Jetson Xavier™ NX
### Nuvo-9000 Series

<table>
<thead>
<tr>
<th>Model Name</th>
<th>Nuvo-9000E / P / DE</th>
<th>Nuvo-9000LP</th>
<th>Nuvo-9511</th>
<th>Nuvo-9501</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimensions</strong> (W x D x H)</td>
<td>240 x 225 x 90 mm (Nuvo-9600E/P)</td>
<td>240 x 225 x 79 mm</td>
<td>212 x 165 x 83 mm</td>
<td>212 x 144 x 80 mm</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>3.6 kg (Nuvo-9000E/P)</td>
<td>3.3 kg</td>
<td>2.5 kg</td>
<td>2.5 kg</td>
</tr>
<tr>
<td><strong>Chassis Construction</strong></td>
<td>Aluminum alloy with heavy duty metal</td>
<td>Aluminum alloy with heavy duty metal</td>
<td>Aluminum alloy with heavy duty metal</td>
<td>Aluminum alloy with heavy duty metal</td>
</tr>
</tbody>
</table>

### Nuvo-9000E / P / DE

- **Model**: Nuvo-9000E / P / DE
- **Dimensions**: 240 x 225 x 90 mm (Nuvo-9600E/P)
- **Weight**: 3.6 kg (Nuvo-9000E/P)
- **Chassis Construction**: Aluminum alloy with heavy duty metal
- **Processor**: Intel® Core™ i3-12100E/ i3-12100TE
- **Chipset**: Intel® Q670E
- **Memory**: Up to 32 GB DDR4-2666/ 2400
- **Graphics**: Intel® UHD Graphics 770/ 730
- **Chassis**: Aluminum alloy with heavy duty metal
- **Operating Temperature**: -25°C  ~  70°C
- **Power Supply**: Up to 65W

### Nuvo-9000LP

- **Model**: Nuvo-9000LP
- **Dimensions**: 240 x 225 x 79 mm
- **Weight**: 3.3 kg
- **Chassis Construction**: Aluminum alloy with heavy duty metal
- **Processor**: Intel® Core™ i3-12100E/ i3-12100TE
- **Chipset**: Intel® Q670E
- **Memory**: Up to 32 GB DDR4-2666/ 2400
- **Graphics**: Intel® UHD Graphics 770/ 730
- **Chassis**: Aluminum alloy with heavy duty metal
- **Operating Temperature**: -25°C  ~  70°C
- **Power Supply**: Up to 65W

### Nuvo-9511

- **Model**: Nuvo-9511
- **Dimensions**: 212 x 165 x 83 mm
- **Weight**: 2.5 kg
- **Chassis Construction**: Aluminum alloy with heavy duty metal
- **Processor**: Intel® Core™ i5-13500E/ i5-13400E/ i5-13300E
- **Chipset**: Intel® Q670E
- **Memory**: Up to 32 GB DDR4-2666/ 2400
- **Graphics**: Intel® UHD Graphics 770/ 730
- **Chassis**: Aluminum alloy with heavy duty metal
- **Operating Temperature**: -25°C  ~  70°C
- **Power Supply**: Up to 65W

### Nuvo-9501

- **Model**: Nuvo-9501
- **Dimensions**: 212 x 144 x 80 mm
- **Weight**: 2.5 kg
- **Chassis Construction**: Aluminum alloy with heavy duty metal
- **Processor**: Intel® Core™ i7-13900E/ i7-13800E/ i7-13700E
- **Chipset**: Intel® Q670E
- **Memory**: Up to 32 GB DDR4-2666/ 2400
- **Graphics**: Intel® UHD Graphics 770/ 730
- **Chassis**: Aluminum alloy with heavy duty metal
- **Operating Temperature**: -25°C  ~  70°C
- **Power Supply**: Up to 65W
<table>
<thead>
<tr>
<th>Model Name</th>
<th>Nuvo-5000E/ P</th>
<th>Nuvo-5000LP</th>
<th>Nuvo-5026E</th>
<th>Nuvo-5501</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (W x D x H)</td>
<td>240 x 225 x 60 mm</td>
<td>240 x 225 x 77 mm</td>
<td>240 x 225 x 111 mm</td>
<td>221 x 173 x 76.2 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>3.6 kg</td>
<td>3.1 kg</td>
<td>3.7 kg</td>
<td>2.6 kg</td>
</tr>
<tr>
<td>Chassis Construction</td>
<td>Aluminum alloy with heavy duty metal</td>
<td>Aluminum alloy with heavy duty metal</td>
<td>Aluminum alloy with heavy duty metal</td>
<td>Aluminum alloy with heavy duty metal</td>
</tr>
<tr>
<td>Processor</td>
<td>Intel® Core™ i5-7200U/7200U TE</td>
<td>Intel® Core™ i5-7200U/7200U</td>
<td>Intel® Core™ i5-7200U/7200U</td>
<td>Intel® Core™ i5-7200U/7200U</td>
</tr>
<tr>
<td>Chipset</td>
<td>Intel® Q170</td>
<td>Intel® Q170</td>
<td>Intel® Q170</td>
<td>Intel® H170</td>
</tr>
<tr>
<td>Memory</td>
<td>2x 32 GB DDR4-2133</td>
<td>2x 32 GB DDR4-2133</td>
<td>2x 16 GB DDR4-2133</td>
<td>2x 16 GB DDR4-2133</td>
</tr>
<tr>
<td>Ethernet</td>
<td>6x GbE by Intel®</td>
<td>6x GbE by Intel®</td>
<td>6x GbE by Intel®</td>
<td>6x GbE by Intel®</td>
</tr>
<tr>
<td>Video Port</td>
<td>1x VGA</td>
<td>1x VGA</td>
<td>1x VGA</td>
<td>1x VGA</td>
</tr>
<tr>
<td>Audio</td>
<td>1x mic-in and speaker-out</td>
<td>1x mic-in and speaker-out</td>
<td>1x mic-in and speaker-out</td>
<td>1x mic-in and speaker-out</td>
</tr>
<tr>
<td>SATA HDD</td>
<td>2x 2.5” SSD</td>
<td>2x 2.5” SSD</td>
<td>2x 2.5” SSD</td>
<td>2x 2.5” SSD</td>
</tr>
<tr>
<td><strong>Selection Guide</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**New!**

<table>
<thead>
<tr>
<th>Model Name</th>
<th>Nuvo-2600</th>
<th>Nuvo-2700DS</th>
<th>Nuvo-8034</th>
<th>Nuvo-8111</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (W x D x H)</td>
<td>260 x 155 x 86 mm</td>
<td>173 x 174 x 50 mm</td>
<td>258 x 260 x 148 mm</td>
<td>174 x 330 x 174 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>2.3 kg (Nuvo-2600)</td>
<td>1.6 kg</td>
<td>4.5 kg</td>
<td></td>
</tr>
<tr>
<td>Chassis Construction</td>
<td>Aluminum alloy with heavy duty metal</td>
<td>Aluminum alloy with heavy duty metal</td>
<td>Aluminum alloy with heavy duty metal</td>
<td>Aluminum alloy with heavy duty metal</td>
</tr>
<tr>
<td>Processor</td>
<td>Intel® i5-7200U/7200U TE</td>
<td>Intel® i7-7500U</td>
<td>Intel® i7-7500U/7500U</td>
<td>Intel® i7-7500U/7500U</td>
</tr>
<tr>
<td>Chipset</td>
<td>Intel® Q170</td>
<td>Intel® Q170</td>
<td>Intel® Q170</td>
<td>Intel® H170</td>
</tr>
<tr>
<td>Memory</td>
<td>2x 32 GB DDR4-2133</td>
<td>2x 32 GB DDR4-2133</td>
<td>2x 16 GB DDR4-2133</td>
<td>2x 16 GB DDR4-2133</td>
</tr>
<tr>
<td>Ethernet</td>
<td>4x GbE by Intel®</td>
<td>4x GbE by Intel®</td>
<td>4x GbE by Intel®</td>
<td>4x GbE by Intel®</td>
</tr>
<tr>
<td>Video Port</td>
<td>1x DVI</td>
<td>1x DisplayPort</td>
<td>1x VGA</td>
<td>1x DisplayPort</td>
</tr>
<tr>
<td>Audio</td>
<td>1x mic-in and speaker-out</td>
<td>1x mic-in and speaker-out</td>
<td>1x mic-in and speaker-out</td>
<td>1x mic-in and speaker-out</td>
</tr>
<tr>
<td>SATA HDD</td>
<td>1x front-accessible HDD tray for 2.5” HDD/SSD</td>
<td>2x hot-swappable HDD/SSD</td>
<td>2x 2.5” HDD/SSD</td>
<td>-</td>
</tr>
<tr>
<td>M.2 (M-key)</td>
<td>-</td>
<td>1 (SATA + USB 2.0 + USIM)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.2 (E-key)</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mini PCIe</td>
<td>-</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital I/O</td>
<td>Optional 4 DI + 4 DO</td>
<td>Optional 4 DI + 4 DO</td>
<td>Optional 4 DI + 4 DO</td>
<td>Optional 4 DI + 4 DO</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-25°C ~ 70°C</td>
<td>-25°C ~ 70°C</td>
<td>-25°C ~ 70°C</td>
<td>-25°C ~ 70°C</td>
</tr>
<tr>
<td>Certification</td>
<td>CE/ FCC</td>
<td>CE/ FCC</td>
<td>CE/ FCC</td>
<td>CE/ FCC</td>
</tr>
</tbody>
</table>

*All specifications and photos are subject to change without prior notice.*
## Selection Guide

### Nuvo-8003

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (W x D x H)</td>
<td>154 x 225 x 174 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>3.6 kg</td>
</tr>
<tr>
<td>Chassis Construction</td>
<td>Aluminum alloy with heavy duty metal</td>
</tr>
<tr>
<td>Processor</td>
<td>Intel® Pentium™ G4900T</td>
</tr>
<tr>
<td>Graphics</td>
<td>Intel® HD Graphics 630</td>
</tr>
<tr>
<td>Memory</td>
<td>8 GB DDR4-2666</td>
</tr>
<tr>
<td>PoE</td>
<td>1x GbE by Intel®</td>
</tr>
<tr>
<td>Video Port</td>
<td>2x DVI-D</td>
</tr>
<tr>
<td>SATA HDD</td>
<td>2x 2.5&quot; HDD/ SSD</td>
</tr>
<tr>
<td>USB 3.2/ USB 3.1</td>
<td>3 (internal)</td>
</tr>
<tr>
<td>Digital I/O</td>
<td>1x mico-in and speaker-out</td>
</tr>
<tr>
<td>DC Input</td>
<td>8 to 35V DC</td>
</tr>
</tbody>
</table>

### Nuvo-8002

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (W x D x H)</td>
<td>184 x 225 x 174 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>3.6 kg</td>
</tr>
<tr>
<td>Chassis Construction</td>
<td>Aluminum alloy with heavy duty metal</td>
</tr>
<tr>
<td>Processor</td>
<td>Intel® Pentium™ G4900T</td>
</tr>
<tr>
<td>Graphics</td>
<td>Intel® HD Graphics 630</td>
</tr>
<tr>
<td>Memory</td>
<td>8 GB DDR4-2666</td>
</tr>
<tr>
<td>PoE</td>
<td>1x GbE by Intel®</td>
</tr>
<tr>
<td>Video Port</td>
<td>2x DVI-D</td>
</tr>
<tr>
<td>SATA HDD</td>
<td>2x 2.5&quot; HDD/ SSD</td>
</tr>
<tr>
<td>USB 3.2/ USB 3.1</td>
<td>3 (internal)</td>
</tr>
<tr>
<td>Digital I/O</td>
<td>1x mico-in and speaker-out</td>
</tr>
<tr>
<td>DC Input</td>
<td>8 to 35V DC</td>
</tr>
</tbody>
</table>

### Nuvo-8001

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (W x D x H)</td>
<td>217 x 235 x 174 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>3.6 kg</td>
</tr>
<tr>
<td>Chassis Construction</td>
<td>Aluminum alloy with heavy duty metal</td>
</tr>
<tr>
<td>Processor</td>
<td>Intel® Pentium™ G4900T</td>
</tr>
<tr>
<td>Graphics</td>
<td>Intel® HD Graphics 630</td>
</tr>
<tr>
<td>Memory</td>
<td>8 GB DDR4-2666</td>
</tr>
<tr>
<td>PoE</td>
<td>1x GbE by Intel®</td>
</tr>
<tr>
<td>Video Port</td>
<td>2x DVI-D</td>
</tr>
<tr>
<td>SATA HDD</td>
<td>2x 2.5&quot; HDD/ SSD</td>
</tr>
<tr>
<td>USB 3.2/ USB 3.1</td>
<td>3 (internal)</td>
</tr>
<tr>
<td>Digital I/O</td>
<td>1x mico-in and speaker-out</td>
</tr>
<tr>
<td>DC Input</td>
<td>8 to 35V DC</td>
</tr>
</tbody>
</table>

### In-vehicle Computing

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (W x D x H)</td>
<td>124 x 225 x 174 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>2.8 kg</td>
</tr>
<tr>
<td>Chassis Construction</td>
<td>Aluminum alloy with heavy duty metal</td>
</tr>
<tr>
<td>Processor</td>
<td>Intel® Pentium™ G4900T</td>
</tr>
<tr>
<td>Graphics</td>
<td>Intel® HD Graphics 630</td>
</tr>
<tr>
<td>Memory</td>
<td>8 GB DDR4-2666</td>
</tr>
<tr>
<td>PoE</td>
<td>1x GbE by Intel®</td>
</tr>
<tr>
<td>Video Port</td>
<td>2x DVI-D</td>
</tr>
<tr>
<td>SATA HDD</td>
<td>2x 2.5&quot; HDD/ SSD</td>
</tr>
<tr>
<td>USB 3.2/ USB 3.1</td>
<td>3 (internal)</td>
</tr>
<tr>
<td>Digital I/O</td>
<td>1x mico-in and speaker-out</td>
</tr>
<tr>
<td>DC Input</td>
<td>8 to 35V DC</td>
</tr>
</tbody>
</table>

### Machine Vision

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (W x D x H)</td>
<td>185 x 225 x 174 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>2.8 kg</td>
</tr>
<tr>
<td>Chassis Construction</td>
<td>Aluminum alloy with heavy duty metal</td>
</tr>
<tr>
<td>Processor</td>
<td>Intel® Pentium™ G4900T</td>
</tr>
<tr>
<td>Graphics</td>
<td>Intel® HD Graphics 630</td>
</tr>
<tr>
<td>Memory</td>
<td>8 GB DDR4-2666</td>
</tr>
<tr>
<td>PoE</td>
<td>1x GbE by Intel®</td>
</tr>
<tr>
<td>Video Port</td>
<td>2x DVI-D</td>
</tr>
<tr>
<td>SATA HDD</td>
<td>2x 2.5&quot; HDD/ SSD</td>
</tr>
<tr>
<td>USB 3.2/ USB 3.1</td>
<td>3 (internal)</td>
</tr>
<tr>
<td>Digital I/O</td>
<td>1x mico-in and speaker-out</td>
</tr>
<tr>
<td>DC Input</td>
<td>8 to 35V DC</td>
</tr>
</tbody>
</table>

### GPU Computing

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (W x D x H)</td>
<td>134 x 225 x 174 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>2.8 kg</td>
</tr>
<tr>
<td>Chassis Construction</td>
<td>Aluminum alloy with heavy duty metal</td>
</tr>
<tr>
<td>Processor</td>
<td>Intel® Pentium™ G4900T</td>
</tr>
<tr>
<td>Graphics</td>
<td>Intel® HD Graphics 630</td>
</tr>
<tr>
<td>Memory</td>
<td>8 GB DDR4-2666</td>
</tr>
<tr>
<td>PoE</td>
<td>1x GbE by Intel®</td>
</tr>
<tr>
<td>Video Port</td>
<td>2x DVI-D</td>
</tr>
<tr>
<td>SATA HDD</td>
<td>2x 2.5&quot; HDD/ SSD</td>
</tr>
<tr>
<td>USB 3.2/ USB 3.1</td>
<td>3 (internal)</td>
</tr>
<tr>
<td>Digital I/O</td>
<td>1x mico-in and speaker-out</td>
</tr>
<tr>
<td>DC Input</td>
<td>8 to 35V DC</td>
</tr>
</tbody>
</table>

### IoT Gateway

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (W x D x H)</td>
<td>124 x 225 x 174 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>2.8 kg</td>
</tr>
<tr>
<td>Chassis Construction</td>
<td>Aluminum alloy with heavy duty metal</td>
</tr>
<tr>
<td>Processor</td>
<td>Intel® Pentium™ G4900T</td>
</tr>
<tr>
<td>Graphics</td>
<td>Intel® HD Graphics 630</td>
</tr>
<tr>
<td>Memory</td>
<td>8 GB DDR4-2666</td>
</tr>
<tr>
<td>PoE</td>
<td>1x GbE by Intel®</td>
</tr>
<tr>
<td>Video Port</td>
<td>2x DVI-D</td>
</tr>
<tr>
<td>SATA HDD</td>
<td>2x 2.5&quot; HDD/ SSD</td>
</tr>
<tr>
<td>USB 3.2/ USB 3.1</td>
<td>3 (internal)</td>
</tr>
<tr>
<td>Digital I/O</td>
<td>1x mico-in and speaker-out</td>
</tr>
<tr>
<td>DC Input</td>
<td>8 to 35V DC</td>
</tr>
</tbody>
</table>

### Environmental

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (W x D x H)</td>
<td>124 x 225 x 174 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>2.8 kg</td>
</tr>
<tr>
<td>Chassis Construction</td>
<td>Aluminum alloy with heavy duty metal</td>
</tr>
<tr>
<td>Processor</td>
<td>Intel® Pentium™ G4900T</td>
</tr>
<tr>
<td>Graphics</td>
<td>Intel® HD Graphics 630</td>
</tr>
<tr>
<td>Memory</td>
<td>8 GB DDR4-2666</td>
</tr>
<tr>
<td>PoE</td>
<td>1x GbE by Intel®</td>
</tr>
<tr>
<td>Video Port</td>
<td>2x DVI-D</td>
</tr>
<tr>
<td>SATA HDD</td>
<td>2x 2.5&quot; HDD/ SSD</td>
</tr>
<tr>
<td>USB 3.2/ USB 3.1</td>
<td>3 (internal)</td>
</tr>
<tr>
<td>Digital I/O</td>
<td>1x mico-in and speaker-out</td>
</tr>
<tr>
<td>DC Input</td>
<td>8 to 35V DC</td>
</tr>
<tr>
<td>Model Name</td>
<td>Nuvis-7308RT</td>
</tr>
<tr>
<td>-----------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Dimensions (W x D x H)</td>
<td>240 x 225 x 111 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>4.5 kg</td>
</tr>
<tr>
<td>Chassis Construction</td>
<td>Aluminum alloy with heavy duty metal</td>
</tr>
<tr>
<td>Processor</td>
<td>Intel® Core™ i7-7700/ i7-7700TE/ i7-7700T/ i7-7700</td>
</tr>
<tr>
<td>Chipset</td>
<td>-</td>
</tr>
<tr>
<td>Memory</td>
<td>Up to 64 GB DDR4-2666/2400</td>
</tr>
<tr>
<td>PoE</td>
<td>Intel 802.3at (25.5W) for 4-GbE ports</td>
</tr>
<tr>
<td>Ethernet</td>
<td>6x GbE by Intel® Q19 and Q20</td>
</tr>
<tr>
<td>Video Port</td>
<td>1x VGA</td>
</tr>
<tr>
<td>USB 3.0</td>
<td>2</td>
</tr>
<tr>
<td>USB 3.2/USB 3.1</td>
<td>-</td>
</tr>
<tr>
<td>Audio</td>
<td>4x mic-in and speaker-out</td>
</tr>
<tr>
<td>Digital I/O</td>
<td>Optional via MezIO® module</td>
</tr>
<tr>
<td>SATA HHD</td>
<td>Optional via MezIO® module</td>
</tr>
<tr>
<td>mSATA</td>
<td>-</td>
</tr>
<tr>
<td>M.2 (M-key)</td>
<td>1</td>
</tr>
<tr>
<td>M.2 (E-key)</td>
<td>-</td>
</tr>
<tr>
<td>SIM</td>
<td>-</td>
</tr>
<tr>
<td>OS</td>
<td>Yes</td>
</tr>
<tr>
<td>PC/PCI Express</td>
<td>-</td>
</tr>
<tr>
<td>DC Input</td>
<td>8 to 35V DC</td>
</tr>
<tr>
<td>Ignition Control</td>
<td>Optional via MezIO® module</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-25°C ~ 70°C</td>
</tr>
<tr>
<td>Certification</td>
<td>CE/ FCC</td>
</tr>
<tr>
<td>Released Date</td>
<td>2021 Q3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model Name</th>
<th>POC-400</th>
<th>POC-465AWP</th>
<th>POC-40</th>
<th>POC-300</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (W x D x H)</td>
<td>56 x 108 x 153 mm</td>
<td>100 x 159.7 x 99 mm</td>
<td>52 x 89 x 112 mm</td>
<td>56 x 108 x 153 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>0.06 kg</td>
<td>1.45 kg</td>
<td>0.06 kg</td>
<td>0.06 kg</td>
</tr>
<tr>
<td>Chassis Construction</td>
<td>Aluminum alloy with heavy duty metal</td>
<td>Aluminum alloy with heavy duty metal</td>
<td>Aluminum alloy with heavy duty metal</td>
<td>Aluminum alloy with heavy duty metal</td>
</tr>
<tr>
<td>Processor</td>
<td>Intel® Elkhart Lake Atom™ x64GSE</td>
<td>Intel® Elkhart Lake Atom™ x64GSE</td>
<td>Intel® Elkhart Lake Atom™ x64GSE</td>
<td>Intel® Pentium™ N4020 quad-core</td>
</tr>
<tr>
<td>Chipset</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Memory</td>
<td>Up to 256 GB DDR4-3200</td>
<td>Up to 512 GB DDR4-3200</td>
<td>Up to 512 GB DDR4-3200</td>
<td>Up to 512 GB DDR4-3200</td>
</tr>
<tr>
<td>PoE</td>
<td>Optional (Port 2 to 3, IEEE 802.3at, 25.5W)</td>
<td>Optional (Port 2 to 3, IEEE 802.3at, 25.5W)</td>
<td>Optional (Port 2 to 3, IEEE 802.3at, 25.5W)</td>
<td>Optional (Port 2 to 3, IEEE 802.3at, 25.5W)</td>
</tr>
<tr>
<td>Ethernet</td>
<td>3x 2 GbE by Intel® Q225</td>
<td>2x 2 GbE by Intel® Q225</td>
<td>2x 2 GbE by Intel® Q225</td>
<td>2x 2 GbE by Intel® Q225</td>
</tr>
<tr>
<td>Video Port</td>
<td>2x DisplayPort</td>
<td>1x DisplayPort</td>
<td>1x DisplayPort</td>
<td>1x DisplayPort</td>
</tr>
<tr>
<td>Serial Port</td>
<td>1x RS-232</td>
<td>1x isolated RS-232 via M12</td>
<td>1x isolated RS-232 via M12</td>
<td>1x isolated RS-232 via M12</td>
</tr>
<tr>
<td>USB 3.0</td>
<td>2</td>
<td>2 (via M12)</td>
<td>2</td>
<td>2 (via M12)</td>
</tr>
<tr>
<td>USB 3.2/USB 3.1</td>
<td>-</td>
<td>-</td>
<td>4</td>
<td>-</td>
</tr>
<tr>
<td>Audio</td>
<td>4x mic-in and speaker-out</td>
<td>4x mic-in and speaker-out</td>
<td>4x mic-in and speaker-out</td>
<td>4x mic-in and speaker-out</td>
</tr>
<tr>
<td>Digital I/O</td>
<td>Optional via MezIO® module</td>
<td>Optional 4 D1 + 4 DO</td>
<td>Optional via MezIO® module</td>
<td>Optional via MezIO® module</td>
</tr>
<tr>
<td>SATA HHD</td>
<td>Optional via MezIO® module</td>
<td>Optional via MezIO® module</td>
<td>Optional via MezIO® module</td>
<td>Optional via MezIO® module</td>
</tr>
<tr>
<td>mSATA</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>M.2 (M-key)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>M.2 (E-key)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>SIM</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>OS</td>
<td>Yes</td>
<td>-</td>
<td>-</td>
<td>Yes</td>
</tr>
<tr>
<td>PC/PCI Express</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>DC Input</td>
<td>8 to 35V DC</td>
<td>8 to 35V DC</td>
<td>8 to 35V DC</td>
<td>8 to 35V DC</td>
</tr>
<tr>
<td>Ignition Control</td>
<td>Optional via MezIO® module</td>
<td>Built-in</td>
<td>Built-in (POC-40G)</td>
<td>Optional via MezIO® module</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-25°C ~ 70°C</td>
<td>-25°C ~ 70°C</td>
<td>-25°C ~ 70°C</td>
<td>-20°C ~ 70°C</td>
</tr>
<tr>
<td>Certification</td>
<td>CE/ FCC</td>
<td>CE/ FCC</td>
<td>CE/ FCC</td>
<td>CE/ FCC</td>
</tr>
<tr>
<td>Released Date</td>
<td>2021/7</td>
<td>2023/Q4</td>
<td>2021/10</td>
<td>2021/7</td>
</tr>
</tbody>
</table>
## Nuvo-6108GC

<table>
<thead>
<tr>
<th>Model Name</th>
<th>Nuvo-6108GC-QD</th>
<th>Nuvo-8204GC</th>
<th>Nuvo-6108GC</th>
<th>Nuvo-6108GC-XQ</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimensions (W x H x D)</strong></td>
<td>170.2 x 360 x 201.8 mm</td>
<td>190.2 x 211 x 185.5 mm</td>
<td>167.2 x 304 x 174 mm</td>
<td>176.2 x 304 x 174 mm</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>5.8 kg</td>
<td>5 kg</td>
<td>4.7 kg</td>
<td>4.7 kg</td>
</tr>
<tr>
<td><strong>Chassis</strong></td>
<td>Aluminum alloy with heavy duty metal</td>
<td>Aluminum alloy with heavy duty metal</td>
<td>Aluminum alloy with heavy duty metal</td>
<td>Aluminum alloy with heavy duty metal</td>
</tr>
<tr>
<td><strong>Processor</strong></td>
<td>Intel® Core™ i3-13100E/i3-13100TE</td>
<td>Intel® Core™ i5-13500E/i5-13500TE</td>
<td>Intel® Core™ i5-13500E/i5-13500TE</td>
<td>Intel® Core™ i5-13900E/i5-13900TE</td>
</tr>
<tr>
<td><strong>Chipset</strong></td>
<td>Intel® Q670</td>
<td>Intel® Q570</td>
<td>Intel® Q570</td>
<td>Intel® Q570</td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>Up to 256 GB DDR5-4800</td>
<td>Up to 32 GB DDR4-2133</td>
<td>Up to 32 GB DDR4-2133</td>
<td>Up to 32 GB DDR4-2133</td>
</tr>
<tr>
<td><strong>PoE</strong></td>
<td>1 x PoE port, or 2 x PoE ports</td>
<td>1 x PoE port, or 2 x PoE ports</td>
<td>1 x PoE port, or 2 x PoE ports</td>
<td>1 x PoE port, or 2 x PoE ports</td>
</tr>
<tr>
<td><strong>Power Supply</strong></td>
<td>8 to 35V DC</td>
<td>8 to 35V DC</td>
<td>8 to 35V DC</td>
<td>8 to 35V DC</td>
</tr>
<tr>
<td><strong>Operating Temperature</strong></td>
<td>-25°C ~ 70°C</td>
<td>-25°C ~ 70°C</td>
<td>-25°C ~ 70°C</td>
<td>-25°C ~ 70°C</td>
</tr>
<tr>
<td><strong>Certification</strong></td>
<td>CE/ FCC</td>
<td>CE/ FCC</td>
<td>CE/ FCC</td>
<td>CE/ FCC</td>
</tr>
</tbody>
</table>

## Nuvo-8108GC

<table>
<thead>
<tr>
<th>Model Name</th>
<th>Nuvo-8108GC-QD</th>
<th>Nuvo-8108GC-XQ</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimensions (W x H x D)</strong></td>
<td>268 x 400 x 196 mm</td>
<td>235 x 360 x 186 mm</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>6.5 kg</td>
<td>6 kg</td>
</tr>
<tr>
<td><strong>Chassis</strong></td>
<td>Aluminum alloy with heavy duty metal</td>
<td>Aluminum alloy with heavy duty metal</td>
</tr>
<tr>
<td><strong>Processor</strong></td>
<td>Intel® Core™ i3-8100/ i3-8100T</td>
<td>Intel® Core™ i5-8500/ i5-8500T</td>
</tr>
<tr>
<td><strong>Chipset</strong></td>
<td>Intel® Q370</td>
<td>Intel® Q370</td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>16GB (max.)</td>
<td>16GB (max.)</td>
</tr>
<tr>
<td><strong>Power Supply</strong></td>
<td>8 to 48V DC</td>
<td>8 to 48V DC</td>
</tr>
<tr>
<td><strong>Operating Temperature</strong></td>
<td>-25°C ~ 70°C</td>
<td>-25°C ~ 70°C</td>
</tr>
<tr>
<td><strong>Certification</strong></td>
<td>CE/ FCC</td>
<td>CE/ FCC</td>
</tr>
</tbody>
</table>

## Nuvo-10208GC

<table>
<thead>
<tr>
<th>Model Name</th>
<th>Nuvo-10208GC</th>
<th>Nuvo-8204GC</th>
<th>Nuvo-8108GC</th>
<th>Nuvo-8108GC-XQ</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimensions (W x H x D)</strong></td>
<td>268 x 400 x 196 mm</td>
<td>235 x 360 x 186 mm</td>
<td>170 x 330 x 198 mm</td>
<td>193 x 388 x 198 mm</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>8 kg</td>
<td>5 kg</td>
<td>5.2 kg</td>
<td>5 kg</td>
</tr>
<tr>
<td><strong>Chassis</strong></td>
<td>Aluminum alloy with heavy duty metal</td>
<td>Aluminum alloy with heavy duty metal</td>
<td>Aluminum alloy with heavy duty metal</td>
<td>Aluminum alloy with heavy duty metal</td>
</tr>
<tr>
<td><strong>Processor</strong></td>
<td>Intel® Core™ i7-8700/ i7-8700T</td>
<td>Intel® Core™ i7-8700/ i7-8700T</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Chipset</strong></td>
<td>Intel® Q370</td>
<td>Intel® Q370</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>16GB (max.)</td>
<td>16GB (max.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Power Supply</strong></td>
<td>8 to 48V DC</td>
<td>8 to 48V DC</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Operating Temperature</strong></td>
<td>-25°C ~ 70°C</td>
<td>-25°C ~ 70°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Certification</strong></td>
<td>CE/ FCC</td>
<td>CE/ FCC</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Nuvo-2018GC

<table>
<thead>
<tr>
<th>Model Name</th>
<th>Nuvo-2018GC</th>
<th>Nuvo-2018GC-XQ</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimensions (W x H x D)</strong></td>
<td>220 x 270 x 200 mm</td>
<td>220 x 270 x 200 mm</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>5.6 kg</td>
<td>5 kg</td>
</tr>
<tr>
<td><strong>Chassis</strong></td>
<td>Aluminum alloy with heavy duty metal</td>
<td>Aluminum alloy with heavy duty metal</td>
</tr>
<tr>
<td><strong>Processor</strong></td>
<td>Intel® Core™ i3-7100U</td>
<td>Intel® Core™ i3-7100U</td>
</tr>
<tr>
<td><strong>Chipset</strong></td>
<td>Intel® Q780</td>
<td>Intel® Q780</td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>16GB (max.)</td>
<td>16GB (max.)</td>
</tr>
<tr>
<td><strong>Power Supply</strong></td>
<td>8 to 48V DC</td>
<td>8 to 48V DC</td>
</tr>
<tr>
<td><strong>Operating Temperature</strong></td>
<td>-25°C ~ 70°C</td>
<td>-25°C ~ 70°C</td>
</tr>
<tr>
<td><strong>Certification</strong></td>
<td>CE/ FCC</td>
<td>CE/ FCC</td>
</tr>
<tr>
<td>Model Name</td>
<td>Nuvo-9160GC</td>
<td>Nuvo-9168GC</td>
</tr>
<tr>
<td>------------</td>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td><strong>Dimensions (W x D x H)</strong></td>
<td>240 x 225 x 110.5 mm</td>
<td>240 x 225 x 111 mm</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>3.5 kg</td>
<td>4.5 kg</td>
</tr>
<tr>
<td><strong>Chassis</strong></td>
<td>Aluminum alloy with heavy-duty metal</td>
<td>Aluminum alloy with heavy-duty metal</td>
</tr>
<tr>
<td><strong>Processor</strong></td>
<td>Intel® Core™ i7-11700/11700TE</td>
<td>Intel® Core™ i7-11700/11700TE</td>
</tr>
<tr>
<td><strong>Chipset</strong></td>
<td>Intel® Q470 Express</td>
<td>Intel® Q470 Express</td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>Up to 64 GB DDR4</td>
<td>Up to 64 GB DDR4</td>
</tr>
<tr>
<td><strong>Video Port</strong></td>
<td>1x VGA, 1x HDMI, 1x DisplayPort</td>
<td>1x VGA, 1x HDMI, 1x DisplayPort</td>
</tr>
<tr>
<td><strong>Ethernet</strong></td>
<td>2x 2.5GbE (2/2) and 1x GbE (2/1)</td>
<td>2x 2.5GbE (2/2) and 1x GbE (2/1)</td>
</tr>
<tr>
<td><strong>Audio</strong></td>
<td>1x mic-in and speaker-out</td>
<td>1x mic-in and speaker-out</td>
</tr>
<tr>
<td><strong>Software and Expansion</strong></td>
<td>Optional via MezIO module</td>
<td>Optional via MezIO module</td>
</tr>
<tr>
<td><strong>SATA HDD</strong></td>
<td>2x 2.5/3.5SDD</td>
<td>2x 2.5/3.5SDD</td>
</tr>
<tr>
<td><strong>mSATA</strong></td>
<td>1 (max. with mini-PCIe)</td>
<td>1 (max. with mini-PCIe)</td>
</tr>
<tr>
<td><strong>M.2 (Key A)</strong></td>
<td>1 (Gen 3x4)</td>
<td>1 (Gen 3x4)</td>
</tr>
<tr>
<td><strong>Mini PCIe</strong></td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td><strong>M.2 (Key-B/S-Key)</strong></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Mezz</strong></td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>PC/104 Express</strong></td>
<td>1x PCIe x1 slot (B, Gen 3)</td>
<td>1x PCIe x1 slot (B, Gen 3)</td>
</tr>
<tr>
<td><strong>DC Input</strong></td>
<td>8 to 48 VDC</td>
<td>8 to 48 VDC</td>
</tr>
<tr>
<td><strong>Ignition Control</strong></td>
<td>Optional via MezIO module</td>
<td>Optional via MezIO module</td>
</tr>
<tr>
<td><strong>Operating Temperature</strong></td>
<td>-25°C ~ 60°C</td>
<td>-25°C ~ 60°C</td>
</tr>
<tr>
<td><strong>Certification</strong></td>
<td>CE/ FCC</td>
<td>CE/ FCC</td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>Model Name</th>
<th>Nuvo-5959GC</th>
<th>Nuvo-7200VTC</th>
<th>Nuvo-7250VTC</th>
<th>Nuvo-7100VTC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimensions (W x D x H)</strong></td>
<td>240 x 225 x 111 mm</td>
<td>240 x 225 x 103 mm</td>
<td>240 x 225 x 103 mm</td>
<td>240 x 225 x 84 mm</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>4.5 kg</td>
<td>3.7 kg</td>
<td>4.1 kg</td>
<td>3.5 kg</td>
</tr>
<tr>
<td><strong>Chassis</strong></td>
<td>Aluminum alloy with heavy-duty metal</td>
<td>Aluminum alloy with heavy-duty metal</td>
<td>Aluminum alloy with heavy-duty metal</td>
<td>Aluminum alloy with heavy-duty metal</td>
</tr>
<tr>
<td><strong>Processor</strong></td>
<td>Intel® Core™ i7-9700/9700TE</td>
<td>Intel® Core™ i7-9700/9700TE</td>
<td>Intel® Core™ i7-9700/9700TE</td>
<td>Intel® Core™ i7-9700/9700TE</td>
</tr>
<tr>
<td><strong>Chipset</strong></td>
<td>Intel® Q370 Express</td>
<td>Intel® Q370 Express</td>
<td>Intel® Q370 Express</td>
<td>Intel® Q370 Express</td>
</tr>
<tr>
<td><strong>Graphics</strong></td>
<td>Intel UHD Graphics 600</td>
<td>Intel UHD Graphics 600</td>
<td>Intel UHD Graphics 600</td>
<td>Intel UHD Graphics 600</td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>Up to 32 GB DDR4</td>
<td>Up to 32 GB DDR4</td>
<td>Up to 32 GB DDR4</td>
<td>Up to 32 GB DDR4</td>
</tr>
<tr>
<td><strong>Video Port</strong></td>
<td>1x VGA, 1x HDMI, 1x DisplayPort</td>
<td>1x VGA, 1x HDMI, 1x DisplayPort</td>
<td>1x VGA, 1x HDMI, 1x DisplayPort</td>
<td>1x VGA, 1x HDMI, 1x DisplayPort</td>
</tr>
<tr>
<td><strong>USB 3.2/USB 3.1</strong></td>
<td>4 (Port 1-4)</td>
<td>4 (Port 1-4)</td>
<td>4 (Port 1-4)</td>
<td>4 (Port 1-4)</td>
</tr>
<tr>
<td><strong>Audio</strong></td>
<td>1x mic-in and speaker-out</td>
<td>1x mic-in and speaker-out</td>
<td>1x mic-in and speaker-out</td>
<td>1x mic-in and speaker-out</td>
</tr>
<tr>
<td><strong>Software and Expansion</strong></td>
<td>Optional via MezIO module</td>
<td>Optional via MezIO module</td>
<td>Optional via MezIO module</td>
<td>Optional via MezIO module</td>
</tr>
<tr>
<td><strong>SATA HDD</strong></td>
<td>2x 2.5/3.5SDD</td>
<td>2x 2.5/3.5SDD</td>
<td>2x 2.5/3.5SDD</td>
<td>2x 2.5/3.5SDD</td>
</tr>
<tr>
<td><strong>mSATA</strong></td>
<td>1 (max. with mini-PCIe)</td>
<td>1 (max. with mini-PCIe)</td>
<td>1 (max. with mini-PCIe)</td>
<td>1 (max. with mini-PCIe)</td>
</tr>
<tr>
<td><strong>M.2 (Key) - 2x PCIe slots</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Mini PCIe</strong></td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td><strong>M.2 (Key-B/S-Key)</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Mezz</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>PC/104 Express</strong></td>
<td>1x PCIe x1 slot, supporting NVIDIA® GPU (7100)</td>
<td>1x PCIe x1 slot, supporting NVIDIA® GPU (7100)</td>
<td>1x PCIe x1 slot, supporting NVIDIA® GPU (7100)</td>
<td>1x PCIe x1 slot, supporting NVIDIA® GPU (7100)</td>
</tr>
<tr>
<td><strong>DC Input</strong></td>
<td>8 to 35V DC</td>
<td>8 to 35V DC</td>
<td>8 to 35V DC</td>
<td>8 to 35V DC</td>
</tr>
<tr>
<td><strong>Ignition Control</strong></td>
<td>Optional via MezIO module</td>
<td>Optional via MezIO module</td>
<td>Optional via MezIO module</td>
<td>Optional via MezIO module</td>
</tr>
<tr>
<td><strong>Operating Temperature</strong></td>
<td>-40°C ~ 70°C</td>
<td>-40°C ~ 70°C</td>
<td>-40°C ~ 70°C</td>
<td>-40°C ~ 70°C</td>
</tr>
<tr>
<td><strong>Certification</strong></td>
<td>CE/ FCC</td>
<td>CE/ FCC</td>
<td>CE/ FCC</td>
<td>CE/ FCC</td>
</tr>
</tbody>
</table>

**Page Numbers:**
- P. 101 - 110
- P. 111 - 117
- P. 121 - 127
- P. 133 - 135
- P. 178 - 177
- P. 174 - 175
- P. 176 - 177
- P. 156 - 177
- P. 158 - 119
### Selection Guide

#### Nuvo-5100VTC

<table>
<thead>
<tr>
<th>Model Name</th>
<th>Nuvo-5100VTC</th>
<th>Nuvo-2610VTC</th>
<th>Nuvo-2615RL</th>
<th>POC-551VTC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (W x D x H)</td>
<td>246 x 225 x 79 mm</td>
<td>256 x 155 x 58 mm (Nuvo-2610VTC)</td>
<td>205 x 155 x 86 mm (Nuvo-2615RL)</td>
<td>205 x 155 x 86 mm (Nuvo-2615RL)</td>
</tr>
<tr>
<td>Power Supply</td>
<td>8 to 35V DC</td>
<td>8 to 35V DC</td>
<td>8 to 35V DC</td>
<td>8 to 35V DC</td>
</tr>
<tr>
<td>Chipset</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Graphics</td>
<td>Intel® HD Graphics 530</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Memory</td>
<td>Up to 32GB DDR4-2133</td>
<td>Up to 32GB DDR4-3200</td>
<td>Up to 32GB DDR4-3200</td>
<td>Up to 16GB DDR4-2400</td>
</tr>
<tr>
<td>Storage Interface</td>
<td>1x mSATA</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Audio</td>
<td>1 stereo in</td>
<td>2x RS-232/422/485 ports via M12</td>
<td>3x 3-wire RS-232 or 1x RS-422/485</td>
<td>3x 3-wire RS-232 or 1x RS-422/485</td>
</tr>
<tr>
<td>Video Port</td>
<td>1x DisplayPort</td>
<td>1x HDMI</td>
<td>1x HDMI</td>
<td>1x HDMI</td>
</tr>
<tr>
<td>PoE</td>
<td>IEEE 802.3at (25.5W) for 4x 802.3at PoE ports</td>
<td>IEEE 802.3at (25.5W) for 4x 802.3at PoE ports</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ethernet</td>
<td>2x GbE by Intel® X710 and 2x GbE via PCIe (offloads PCIe traffic)</td>
<td>4x GbE by Inte</td>
<td>4x GbE by Intel® 82599</td>
<td>4x GbE by Intel® 82599</td>
</tr>
<tr>
<td>USB 2.0</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>USB 2.0/3.1</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>SATA HHD</td>
<td>1x 2.5&quot; HDD/SSD</td>
<td>1x 2.5&quot; HDD/SSD</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SIM</td>
<td>1x mini-SIM</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>GPS PPS</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Digital I/O</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>DC Input</td>
<td>8 to 35V DC</td>
<td>8 to 35V DC</td>
<td>8 to 35V DC</td>
<td>8 to 35V DC</td>
</tr>
<tr>
<td>Ignition Control</td>
<td>Built-in</td>
<td>Built-in</td>
<td>Built-in</td>
<td>Built-in</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40°C ~ 70°C</td>
<td>-40°C ~ 70°C</td>
<td>-40°C ~ 70°C</td>
<td>-40°C ~ 70°C</td>
</tr>
<tr>
<td>Certification</td>
<td>E-Mark, EN50565, EN61375, CE/FCC</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Released Date</td>
<td>2016/6</td>
<td>2017/9</td>
<td>2020/6</td>
<td>2022/6</td>
</tr>
</tbody>
</table>

### Coming soon!

- Nuvo-2612VTC (Nuvo-2610VTC)
- Nuvo-2611VTC (Nuvo-2610VTC)
- Nuvo-2615VTC (Nuvo-2615RL)

#### Nuvo-2615VTC

<table>
<thead>
<tr>
<th>Model Name</th>
<th>Nuvo-2615VTC</th>
<th>Nuvo-2615RL</th>
<th>POC-551VTC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (W x D x H)</td>
<td>246 x 225 x 79 mm</td>
<td>205 x 155 x 86 mm (Nuvo-2615RL)</td>
<td>205 x 155 x 86 mm (Nuvo-2615RL)</td>
</tr>
<tr>
<td>Power Supply</td>
<td>8 to 35V DC</td>
<td>8 to 35V DC</td>
<td>8 to 35V DC</td>
</tr>
<tr>
<td>Chipset</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Graphics</td>
<td>Intel® HD Graphics 530</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Memory</td>
<td>Up to 32GB DDR4-2133</td>
<td>Up to 32GB DDR4-3200</td>
<td>Up to 16GB DDR4-2400</td>
</tr>
<tr>
<td>Storage Interface</td>
<td>1x mSATA</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Audio</td>
<td>1 stereo in</td>
<td>2x RS-232/422/485 ports via M12</td>
<td>3x 3-wire RS-232 or 1x RS-422/485</td>
</tr>
<tr>
<td>Video Port</td>
<td>1x DisplayPort</td>
<td>1x HDMI</td>
<td>1x HDMI</td>
</tr>
<tr>
<td>PoE</td>
<td>IEEE 802.3at (25.5W) for 4x 802.3at PoE ports</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ethernet</td>
<td>2x GbE by Intel® X710 and 2x GbE via PCIe (offloads PCIe traffic)</td>
<td>4x GbE by Intel® 82599</td>
<td>4x GbE by Intel® 82599</td>
</tr>
<tr>
<td>USB 2.0</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>USB 2.0/3.1</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>SATA HHD</td>
<td>1x 2.5&quot; HDD/SSD</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SIM</td>
<td>1x mini-SIM</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>GPS PPS</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Digital I/O</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>DC Input</td>
<td>8 to 35V DC</td>
<td>8 to 35V DC</td>
<td>8 to 35V DC</td>
</tr>
<tr>
<td>Ignition Control</td>
<td>Built-in</td>
<td>Built-in</td>
<td>Built-in</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40°C ~ 70°C</td>
<td>-40°C ~ 70°C</td>
<td>-40°C ~ 70°C</td>
</tr>
<tr>
<td>Certification</td>
<td>E-Mark, EN50565, EN61375, CE/FCC</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Released Date</td>
<td>2016/6</td>
<td>2020/6</td>
<td>2022/6</td>
</tr>
</tbody>
</table>

### Coming soon!

- Nuvo-2612VTC (Nuvo-2610VTC)
- Nuvo-2611VTC (Nuvo-2610VTC)
- Nuvo-2615VTC (Nuvo-2615RL)

#### POC-451VTC

<table>
<thead>
<tr>
<th>Model Name</th>
<th>POC-451VTC</th>
<th>POC-351VTC</th>
<th>Nuvo-110V</th>
<th>Nuvo-51V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (W x D x H)</td>
<td>153 x 158 x 72 mm</td>
<td>154 x 158 x 56 mm (POC-351VTC)</td>
<td>193 x 158 x 56 mm</td>
<td>193 x 158 x 56 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>1.4 kg</td>
<td>1.0 kg (POC-351VTC)</td>
<td>1.4 kg (POC-351VTC)</td>
<td>1.4 kg (POC-351VTC)</td>
</tr>
<tr>
<td>Chipset</td>
<td>Intel® Core™ i3-6100TE</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Graphics</td>
<td>Intel® HD Graphics 5500</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Memory</td>
<td>Up to 32GB DDR4-2666</td>
<td>Up to 16GB DDR4-2400</td>
<td>Up to 8GB DDR3L-1600</td>
<td>Up to 8GB DDR3L-1600</td>
</tr>
<tr>
<td>Storage Interface</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Audio</td>
<td>1 stereo in</td>
<td>1 stereo in</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Video Port</td>
<td>1x DisplayPort</td>
<td>1x DisplayPort</td>
<td>1x DisplayPort</td>
<td>1x DisplayPort</td>
</tr>
<tr>
<td>PoE</td>
<td>IEEE 802.3at (25.5W) for 2x 802.3at PoE ports</td>
<td>IEEE 802.3at (25.5W) for 2x 802.3at PoE ports</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ethernet</td>
<td>3x 2.5GBASE-T by Intel® X520</td>
<td>3x 2.5GBASE-T by Intel® X520</td>
<td>1x 10GBASE-T 10G by Intel® X550-AT</td>
<td>1x 10GBASE-T 10G by Intel® X550-AT</td>
</tr>
<tr>
<td>USB 2.0</td>
<td>2x</td>
<td>2x</td>
<td>2x</td>
<td>2x</td>
</tr>
<tr>
<td>USB 2.0/3.1</td>
<td>2x</td>
<td>2x</td>
<td>2x</td>
<td>2x</td>
</tr>
<tr>
<td>Audio</td>
<td>1x mic-in and speaker-out</td>
<td>1x mic-in and speaker-out</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SATA HHD</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SIM</td>
<td>1x micro-SIM</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Pokemon PPS(4-key)</td>
<td>2x</td>
<td>2x</td>
<td>2x</td>
<td>2x</td>
</tr>
<tr>
<td>Video Port</td>
<td>1x DisplayPort</td>
<td>1x DisplayPort</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PoE</td>
<td>IEEE 802.3at (25.5W) for 2x 802.3at PoE ports</td>
<td>IEEE 802.3at (25.5W) for 2x 802.3at PoE ports</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Audio</td>
<td>1x mic-in and speaker-out</td>
<td>1x mic-in and speaker-out</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SATA HHD</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SIM</td>
<td>1x micro-SIM</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Pokemon PPS(4-key)</td>
<td>2x</td>
<td>2x</td>
<td>2x</td>
<td>2x</td>
</tr>
<tr>
<td>Video Port</td>
<td>1x DisplayPort</td>
<td>1x DisplayPort</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PoE</td>
<td>IEEE 802.3at (25.5W) for 2x 802.3at PoE ports</td>
<td>IEEE 802.3at (25.5W) for 2x 802.3at PoE ports</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Audio</td>
<td>1x mic-in and speaker-out</td>
<td>1x mic-in and speaker-out</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SATA HHD</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SIM</td>
<td>1x micro-SIM</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Pokemon PPS(4-key)</td>
<td>2x</td>
<td>2x</td>
<td>2x</td>
<td>2x</td>
</tr>
<tr>
<td>Video Port</td>
<td>1x DisplayPort</td>
<td>1x DisplayPort</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>DC Input</td>
<td>8 to 35V DC</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ignition Control</td>
<td>Built-in</td>
<td>Built-in</td>
<td>Built-in</td>
<td>Built-in</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-25°C ~ 70°C</td>
<td>-25°C ~ 70°C</td>
<td>-25°C ~ 70°C</td>
<td>-25°C ~ 70°C</td>
</tr>
</tbody>
</table>

### Coming soon!

- POC-351VTC (Nuvo-351VTC)
- Nuvo-110V (Nuvo-110V)
- Nuvo-51V (Nuvo-51V)

**All specifications and photos are subject to change without prior notice.**
**Model Name**

<table>
<thead>
<tr>
<th>Model Name</th>
<th>NRU-220S</th>
<th>NRU-120S</th>
<th>NRU-32S</th>
<th>Nuvo-5680VR</th>
</tr>
</thead>
</table>

**Dimensions (W x D x H)**

<table>
<thead>
<tr>
<th>Model</th>
<th>230 x 173 x 66 mm</th>
<th>230 x 173 x 66 mm</th>
<th>173 x 144 x 58 mm</th>
<th>240 x 225 x 98 mm</th>
</tr>
</thead>
</table>

**Weight**

1x isolated RS-485

<table>
<thead>
<tr>
<th>Model</th>
<th>2.7 kg</th>
<th>1.4 kg</th>
<th>3.1 kg</th>
</tr>
</thead>
</table>

**Chassis Construction**

Aluminum alloy with heavy duty metal

<table>
<thead>
<tr>
<th>Model</th>
<th>Aluminum alloy with heavy duty metal</th>
<th>Aluminum alloy with heavy duty metal</th>
<th>Aluminum alloy with heavy duty metal</th>
</tr>
</thead>
</table>

**Processor**

NVIDIA Jetson AGX Orin™

<table>
<thead>
<tr>
<th>Model</th>
<th>NVIDIA Jetson AGX Xavier™</th>
<th>NVIDIA Jetson AGX Xavier™</th>
<th>NVIDIA Jetson AGX Xavier™</th>
</tr>
</thead>
</table>

**Chipset**

- Intel® Q77

**Memory**

- 8 GB LPDDR4x @ 1866 MHz
- 8 GB LPDDR4x @ 2133 MHz
- 8 GB LPDDR4x @ 2666 MHz
- 16 GB LPDDR4x @ 2133 MHz

**Power Supply**

- 4 x 48 ports
- 4 x 48 ports
- 4 x 48 ports
- 4 x 48 ports

**Expansion Bus**

- PCIe 3.0 x 16 (for 4 GbE ports)
- PCIe 3.0 x 16 (for 4 GbE ports)
- PCIe 3.0 x 16 (for 4 GbE ports)
- PCIe 3.0 x 16 (for 4 GbE ports)

**PCI/PCI Express**

- 2x 3.5" HDD/SSD
- 2x front-accessible 2.5" SSD
- 2x SSD + 1x PD port
- 2x MicroSD

**Video Port**

- 1x DisplayPort
- 1x DisplayPort
- 2x DisplayPort
- 1x DisplayPort

**Serial Port**

- 1x RS-232/422/485
- 2x RS-232/422/485
- 4x RS-232 (IGT-22)
- 4x RS-232 (IGT-22)

**Audio**

- 1x Line in and speaker-out
- 1x Line in and speaker-out

**Video Analytics**

- 16x 12-bit
- 16x 12-bit
- 16x 12-bit
- 16x 12-bit

**VGA/HD/2K Outputs**

- 2 x 2K
- 2 x 2K
- 2 x 2K
- 2 x 2K

**Option**

- Ethernet (IGT-30D/31D) 2 x 10/100M Ethernet (IGT-30D/31D) 2 x 10/100M Ethernet (IGT-30D/31D) 2 x 10/100M Ethernet (IGT-30D/31D)

**Ethernet (IGT-30D/31D)**

- 2 x 10/100M Ethernet (IGT-30D/31D) 2 x 10/100M Ethernet (IGT-30D/31D) 2 x 10/100M Ethernet (IGT-30D/31D) 2 x 10/100M Ethernet (IGT-30D/31D)

**Audio**

- 1x Line in and speaker-out (IGT-30D/31D) 1x Line in and speaker-out (IGT-30D/31D) 1x Line in and speaker-out (IGT-30D/31D) 1x Line in and speaker-out (IGT-30D/31D)

**USB 3.0**

- 2x 2.5Gbps by Intel® Q25 4x 1Gbps
- 2x 2.5Gbps by Intel® Q25 4x 1Gbps
- 2x 2.5Gbps by Intel® Q25 4x 1Gbps
- 2x 2.5Gbps by Intel® Q25 4x 1Gbps

**Certification**

- CE/ FCC
- CE/ FCC
- CE/ FCC
- CE/ FCC

**Dimensions (W x D x H)**

<table>
<thead>
<tr>
<th>Model</th>
<th>43 x 77 x 104 mm</th>
<th>43 x 77 x 104 mm</th>
<th>45 x 77 x 104 mm</th>
<th>41 x 77 x 104 mm</th>
</tr>
</thead>
</table>

**Weight**

1x isolated RS-485

<table>
<thead>
<tr>
<th>Model</th>
<th>0.5 kg</th>
<th>0.5 kg</th>
<th>0.5 kg</th>
<th>0.5 kg</th>
</tr>
</thead>
</table>

**Chassis Construction**

Heavy duty metal

<table>
<thead>
<tr>
<th>Model</th>
<th>Heavy duty metal</th>
<th>Heavy duty metal</th>
<th>Heavy duty metal</th>
<th>Heavy duty metal</th>
</tr>
</thead>
</table>

**Chipset**

- NVIDIA Jetson AGX Xavier™
- NVIDIA Jetson AGX Xavier™
- NVIDIA Jetson AGX Xavier™
- NVIDIA Jetson AGX Xavier™

**Memory**

- 1GB DDR3L
- 1GB DDR3L
- 1GB DDR3L
- 1GB DDR3L

**Power Supply**

- 4x 1Gbps
- 4x 1Gbps
- 4x 1Gbps
- 4x 1Gbps

**Expansion Bus**

- PCIe 3.0 x 16 (for 4 GbE ports)
- PCIe 3.0 x 16 (for 4 GbE ports)
- PCIe 3.0 x 16 (for 4 GbE ports)
- PCIe 3.0 x 16 (for 4 GbE ports)

**PCI/PCI Express**

- 2x 3.5" HDD/SSD
- 2x front-accessible 2.5" SSD
- 2x SSD + 1x PD port
- 2x MicroSD

**Video Port**

- 1x DisplayPort
- 1x DisplayPort
- 2x DisplayPort
- 1x DisplayPort

**Serial Port**

- 1x RS-232/422/485
- 2x RS-232/422/485
- 4x RS-232 (IGT-22)
- 4x RS-232 (IGT-22)

**Audio**

- 1x Line in and speaker-out (IGT-30D/31D) 1x Line in and speaker-out (IGT-30D/31D) 1x Line in and speaker-out (IGT-30D/31D) 1x Line in and speaker-out (IGT-30D/31D)

**Video Analytics**

- 16x 12-bit
- 16x 12-bit
- 16x 12-bit
- 16x 12-bit

**VGA/HD/2K Outputs**

- 2 x 2K
- 2 x 2K
- 2 x 2K
- 2 x 2K

**Option**

- Ethernet (IGT-30D/31D) 2 x 10/100M Ethernet (IGT-30D/31D) 2 x 10/100M Ethernet (IGT-30D/31D) 2 x 10/100M Ethernet (IGT-30D/31D)

**Ethernet (IGT-30D/31D)**

- 2 x 10/100M Ethernet (IGT-30D/31D) 2 x 10/100M Ethernet (IGT-30D/31D) 2 x 10/100M Ethernet (IGT-30D/31D) 2 x 10/100M Ethernet (IGT-30D/31D)

**Audio**

- 1x Line in and speaker-out (IGT-30D/31D) 1x Line in and speaker-out (IGT-30D/31D) 1x Line in and speaker-out (IGT-30D/31D) 1x Line in and speaker-out (IGT-30D/31D)

**USB 3.0**

- 2x 2.5Gbps by Intel® Q25 4x 1Gbps
- 2x 2.5Gbps by Intel® Q25 4x 1Gbps
- 2x 2.5Gbps by Intel® Q25 4x 1Gbps
- 2x 2.5Gbps by Intel® Q25 4x 1Gbps

**Certification**

- CE/ FCC
- CE/ FCC
- CE/ FCC
- CE/ FCC
<table>
<thead>
<tr>
<th>Model Name</th>
<th>SEMIL-1744GC</th>
<th>SEMIL-1724GC</th>
<th>SEMIL-1748GC</th>
<th>SEMIL-1728GC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimensions</strong></td>
<td>440 x 310 x 86.5 mm</td>
<td>440 x 310 x 86.5 mm</td>
<td>440 x 310 x 86.5 mm</td>
<td>440 x 310 x 86.5 mm</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>12 kg</td>
<td>12 kg</td>
<td>12 kg</td>
<td>12 kg</td>
</tr>
<tr>
<td><strong>Chassis Construction</strong></td>
<td>Aluminum alloy with stainless steel / waterproof</td>
<td>Aluminum alloy with stainless steel / waterproof</td>
<td>Aluminum alloy with stainless steel / waterproof</td>
<td>Aluminum alloy with stainless steel / waterproof</td>
</tr>
<tr>
<td><strong>IP Rating</strong></td>
<td>IP67</td>
<td>IP67</td>
<td>IP67</td>
<td>IP67</td>
</tr>
<tr>
<td><strong>Processor</strong></td>
<td>Intel® Core™ i3-8100/ i3-8100T</td>
<td>Intel® Core™ i3-8100/ i3-8100T</td>
<td>Intel® Core™ i3-8100/ i3-8100T</td>
<td>Intel® Core™ i3-8100/ i3-8100T</td>
</tr>
<tr>
<td><strong>Expansion Bus</strong></td>
<td>1x PCIe with NVIDIA Quadro P2200</td>
<td>1x PCIe with NVIDIA Quadro P2200</td>
<td>1x PCIe with NVIDIA Quadro P2200</td>
<td>1x PCIe with NVIDIA Quadro P2200</td>
</tr>
<tr>
<td><strong>Power Supply</strong></td>
<td>8 to 48V DC (M12 S-coded)</td>
<td>8 to 48V DC (M12 S-coded)</td>
<td>8 to 48V DC (M12 S-coded)</td>
<td>8 to 48V DC (M12 S-coded)</td>
</tr>
<tr>
<td><strong>Operating Temperature</strong></td>
<td>-25°C to 70°C</td>
<td>-25°C to 70°C</td>
<td>-25°C to 70°C</td>
<td>-25°C to 70°C</td>
</tr>
<tr>
<td><strong>Released Date</strong></td>
<td>2019/7</td>
<td>2019/7</td>
<td>2019/7</td>
<td>2019/7</td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>Model Name</th>
<th>SEMIL-1704</th>
<th>SEMIL-1714j</th>
<th>SEMIL-1708</th>
<th>SEMIL-1718j</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimensions</strong></td>
<td>220 x 310 x 86.5 mm</td>
<td>220 x 310 x 86.5 mm</td>
<td>220 x 310 x 86.5 mm</td>
<td>220 x 310 x 86.5 mm</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>5.8 kg</td>
<td>6 kg</td>
<td>5.8 kg</td>
<td>6 kg</td>
</tr>
<tr>
<td><strong>Chassis Construction</strong></td>
<td>Aluminum alloy with stainless steel</td>
<td>Aluminum alloy with stainless steel</td>
<td>Aluminum alloy with stainless steel</td>
<td>Aluminum alloy with stainless steel</td>
</tr>
<tr>
<td><strong>IP Rating</strong></td>
<td>IP67</td>
<td>IP67</td>
<td>IP67</td>
<td>IP67</td>
</tr>
<tr>
<td><strong>Processor</strong></td>
<td>Intel® Core™ i5-9500E/ i5-9500TE/ Xeon E-2176G</td>
<td>Intel® Core™ i5-9500E/ i5-9500TE/ Xeon E-2176G</td>
<td>Intel® Core™ i5-9500E/ i5-9500TE/ Xeon E-2176G</td>
<td>Intel® Core™ i5-9500E/ i5-9500TE/ Xeon E-2176G</td>
</tr>
<tr>
<td><strong>Expansion Bus</strong></td>
<td>1x PCIe with NVIDIA Quadro P2200</td>
<td>1x PCIe with NVIDIA Quadro P2200</td>
<td>1x PCIe with NVIDIA Quadro P2200</td>
<td>1x PCIe with NVIDIA Quadro P2200</td>
</tr>
<tr>
<td><strong>Power Supply</strong></td>
<td>8 to 48V DC (M12 S-coded)</td>
<td>8 to 48V DC (M12 S-coded)</td>
<td>8 to 48V DC (M12 S-coded)</td>
<td>8 to 48V DC (M12 S-coded)</td>
</tr>
<tr>
<td><strong>Operating Temperature</strong></td>
<td>-25°C to 70°C</td>
<td>-25°C to 70°C</td>
<td>-25°C to 70°C</td>
<td>-25°C to 70°C</td>
</tr>
</tbody>
</table>
## Selection Guide

### Neousys Intelligent Embedded Systems

<table>
<thead>
<tr>
<th>Model Name</th>
<th>SEMIL-1341GC</th>
<th>SEMIL-1321GC</th>
<th>SEMIL-1301I</th>
<th>SEMIL-1311J</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimensions</strong></td>
<td>440 x 310 x 85.5 mm</td>
<td>440 x 310 x 85.5 mm</td>
<td>220 x 310 x 85.5 mm</td>
<td>220 x 310 x 85.5 mm</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>12 kg</td>
<td>12 kg</td>
<td>5.8 kg</td>
<td>6 kg</td>
</tr>
<tr>
<td><strong>Chassis</strong></td>
<td>Aluminum alloy with stainless steel</td>
<td>Aluminum alloy with stainless steel</td>
<td>Aluminum alloy with stainless steel</td>
<td>Aluminum alloy with stainless steel</td>
</tr>
<tr>
<td><strong>IP Rating</strong></td>
<td>IP65</td>
<td>IP65</td>
<td>IP65</td>
<td>IP65</td>
</tr>
<tr>
<td><strong>Processor</strong></td>
<td>Intel® C620-2176G6-C2276G6/2276G6/3276G6/2276G6/3276G6/2276G6</td>
<td>Intel® Core™ i3-8100/8600/8100T/8500/8500T</td>
<td>Intel® Core™ i3-9100E/9100TE/i7-8700/8700T</td>
<td>Intel® Core™ i3-9100E/9100TE/i7-8700/8700T</td>
</tr>
<tr>
<td><strong>Power Supply</strong></td>
<td>8 to 48V DC</td>
<td>8 to 48V DC</td>
<td>8 to 48V DC</td>
<td>8 to 48V DC</td>
</tr>
<tr>
<td><strong>Chipset</strong></td>
<td>Intel® C246</td>
<td>Intel® C246</td>
<td>Intel® C246</td>
<td>Intel® C246</td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>Up to 64 GB</td>
<td>Up to 64 GB</td>
<td>Up to 64 GB</td>
<td>Up to 64 GB</td>
</tr>
<tr>
<td><strong>Audio</strong></td>
<td>1x mic-in and speaker-out</td>
<td>1x mic-in and speaker-out</td>
<td>1x mic-in and speaker-out</td>
<td>1x mic-in and speaker-out</td>
</tr>
<tr>
<td><strong>SATA HDD</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>USB 2.0</strong></td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>PCI/PCI Express</strong></td>
<td>1x PCIe with NVIDIA® Quadro P2200 pre-installed</td>
<td>1x PCIe with NVIDIA® Quadro P2200 pre-installed</td>
<td>-</td>
<td>PCIe 2.0 pre-installed</td>
</tr>
<tr>
<td><strong>DC Input</strong></td>
<td>8 to 48V DC</td>
<td>8 to 48V DC</td>
<td>8 to 48V DC</td>
<td>8 to 48V DC</td>
</tr>
<tr>
<td><strong>Ignition Control</strong></td>
<td>Built-in</td>
<td>Built-in</td>
<td>Built-in</td>
<td>Built-in</td>
</tr>
</tbody>
</table>

### Specifications

- **Rugged Embedded**
- **Machine Vision**
- **IoT Gateway**
- **In-vehicle Computing**
- **Surveillance/ Video Analytics**
- **Edge AI Computing**
- **SEMIL**
**Introduction**

Nuvo-9000 Series is Neousys’ new rugged embedded computer based on Intel® 13th/12th-Gen platform. Benefiting from cutting-edge Intel® 7 photolithography, the latest Core™ processor desktops come with up to 24 cores and 32 threads and presents an incredible boost of computational performance. Combining the increase of DDR5 memory bandwidth and PCIe Gen 5 high-speed disk interface, users can expect an overall system performance improvement of up to 2x when compared to previous 10th/11th Gen platforms.

Nuvo-9000 Series inherits Neousys’ patented expansion Cassette design to provide great versatility by allowing additional installation of PCIe or PCI add-on cards. There are three platforms.

With its field-proven thermal design, significant CPU and I/O upgrades, and multiple expansion methods, the Neousys Nuvo-9000 series fits your need for ruggedness, performance, and scalability for a variety of applications.

**Specifications**

**System Core**
- **Processor**
  - Supporting Intel® 11th/10th-Gen CPU (LGA14b8 socket, 65W TDP)
- **Chipset**
  - Intel® Q270T platform controller hub
- **Memory**
  - Up to 4x DDR4 2666/3200/4266R (two 1600 MHz slots)
- **I/O**
  - Supports HDMI 2.1 (if DDR4 4266R)
- **Power**
  - Supporting 100-240VAC/ 20VA PoE+ PS for Part 2 - Part 5 (5.5x2.5 mm) 150 W total power budget

**Interface**
- **Network**
  - 1x 2.5G Ethernet by Q270T and 1x Gigabit Ethernet by Q155M (Nuvo-9000E/ P/DE/ LP) with screw-lock
  - 5x 2.5G Ethernet by I225-IT and 1x Gigabit Ethernet by I219-LM (Nuvo-9002P/ 9006P/ 9002DE/ 9006DE) (Nuvo-9000E/ P/DE/ LP)
  - 1x PCI slot in Cassette (Nuvo-9002P/ 9006P)
  - 2x PCIe x16 slots@Gen3, 8-lanes PCIe signals in Cassette (Nuvo-9002DE/ 9006DE)
- **USB**
  - 2x USB 3.0 (2x USB 2.0)
  - 2x USB 3.2 Gen2x1 (2x USB 2.0)
- **Audio**
  - 1x 3-pin pluggable terminal block for 3.5 mm jack input
  - 1x 3-pin pluggable terminal block for remote control and PWR LED output
  - 1x 2.5G Ethernet by Q270T

**Mechanical**
- **Dimension**
  - 240 mm (W) x 225 mm (D) x 79 mm (H) (Nuvo-9000LP series)
  - 240 mm (W) x 225 mm (D) x 90 mm (H) (Nuvo-9000E/ P series)
- **Weight**
  - 240 g (Nuvo-9000E series)
  - 3.36 kg (Nuvo-9000LP series)
  - 3.58 kg (Nuvo-9000E/ P series)/ 3.89 kg (Nuvo-9000DE series)

**Power Supply**
- **Input**
  - 100-240VAC/ 20VA PoE+ PS for Part 2 - Part 5 (5.5x2.5 mm)
- **Output**
  - 24V/11.67A; 16AWG/100cm; cord end terminals for terminal block, operating temperature: -30°C to 60°C.

**Power Consumption**
- **Operating Consumption**
  - 240W (Nuvo-9000 series)
  - 280W AC/DC power adapter 24V/11.67A; 16AWG/100cm; cord end terminals for terminal block, operating temperature: -30°C to 70°C, recommended for 35W CPU
- **Standby Consumption**
  - 20W

**Optional Accessories**
- **Model No.:**
  - Nuvo-9002E
  - Nuvo-9002P
  - Nuvo-9006E
  - Nuvo-9006P

**Ordering Information**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuvo-9002E</td>
<td>Intel® 13th/12th-Gen Core™ Rugged Embedded Computer with 2x 2.5GbE/ GbE, USB 3.2 Type-C, single-slot PCIe Cassette &amp; MezIO® interface</td>
</tr>
<tr>
<td>Nuvo-9002P</td>
<td>Intel® 13th/12th-Gen Core™ Rugged Embedded Computer with 2x 2.5GbE/ GbE, USB 3.2 Type-C, single-slot PCIe Cassette &amp; MezIO® interface</td>
</tr>
<tr>
<td>Nuvo-9006E</td>
<td>Intel® 13th/12th-Gen Core™ Rugged Embedded Computer with 2x 2.5GbE/ GbE, USB 3.2 Type-C, single-slot PCIe Cassette &amp; MezIO® interface</td>
</tr>
<tr>
<td>Nuvo-9006P</td>
<td>Intel® 13th/12th-Gen Core™ Rugged Embedded Computer with 6x 2.5GbE/ GbE, USB 3.2 Type-C, single-slot PCIe Cassette &amp; MezIO® interface</td>
</tr>
</tbody>
</table>

**Dimensions**

- **Unit:** mm
  - **Width:** 240 mm
  - **Depth:** 225 mm
  - **Height:** 79 mm (Nuvo-9000LP series)
  - **Height:** 90 mm (Nuvo-9000E/ P series)

**Key Features**

- **Supports Intel® 13th/12th-Gen Core™ 24C/ 32T 65W/ 65W CPU**
- **Patented Cassette for PCIe/Pcie add-on card accommodation**
- **Rugged, -25°C to 70°C fail-safe operation**
- **Up to 2x 35W and 1x GigE ports with optional PoE+, supporting 9.5 KB**
- **USB 3.2 Gen2x1 type-C and 8x USB 3.2 2.0 type-A ports**
- **MezIO® interface for easy function expansion**
- **VGA/ DVI D input/output independent display, supporting 4KX resolution**

**System Core**

- **Intel® 13th/12th-Gen CPU**
  - Supporting 13th-Gen Core™ Rugged Embedded Computer with 6x 2.5GbE/ GbE, USB 3.2 Type-C, single-slot PCIe Cassette & MezIO® Interface
  - Supporting Intel® 12th-Gen Core™ Rugged Embedded Computer with 2x 2.5GbE/ GbE, USB 3.2 Type-C, single-slot PCIe Cassette & MezIO® Interface
  - Supporting Intel® 13th-Gen Core™ Rugged Embedded Computer with 6x 2.5GbE/ GbE, USB 3.2 Type-C, single-slot PCIe Cassette & MezIO® Interface
  - Supporting 6x 2.5GbE/ GbE, USB 3.2 Type-C, single-slot PCIe Cassette & MezIO® Interface

**Overview**

- **MezIO®-G4P**
  - Supports M.2 NVMe SSD (PCIe Gen 4x4 NVMe)
  - Supports 32 CH isolated digital input and 32 CH isolated digital output
  - Supports 16x IEEE 802.3at PoE+ PSE for Port 3 ~ Port 6 (2.5GbE)

- **MezIO®-V20-EP**
  - Supports 4x USB 3.1 ports
  - Supports 16-CH isolated digital input and 16-CH isolated digital output
  - Supports ignition power control function for in-vehicle application

- **MezIO®-C181**
  - Supports 8x GPIOs
  - Supports 8x USB 2.0 ports (type-A)
  - Supports 8x COM ports (3 COM0, 2 COM1, 1 COM2)

- **MezIO®-D220**
  - Supports M.2 NVMe SSD (PCIe Gen 4x4 NVMe)
  - Supports 2x PCI/PCI Express slots in Cassette
  - Supports 2x PCIe x16 slots
  - Supports 1x PCIe x16 slot

- **MezIO®-D230**
  - Supports 2x PCI/PCI Express slots in Cassette
  - Supports 2x PCIe x16 slots
  - Supports 1x PCIe x16 slot

- **MezIO®-G4P**
  - Supports 4x IEEE 802.3at PoE+ ports
  - Supports 8x USB 3.2 Gen2x1 type-C and 8x USB 3.2 2.0 type-A ports
  - Supports 2x PCIe x16 slots
  - Supports 1x PCIe x16 slot

- **MezIO®-V20-EP**
  - Supports 4x USB 3.1 ports
  - Supports 16-CH isolated digital input and 16-CH isolated digital output

- **MezIO®-C181**
  - Supports 8x GPIOs
  - Supports 8x USB 2.0 ports (type-A)
  - Supports 8x COM ports (3 COM0, 2 COM1, 1 COM2)

- **MezIO®-D220**
  - Supports M.2 NVMe SSD (PCIe Gen 4x4 NVMe)
  - Supports 2x PCI/PCI Express slots in Cassette
  - Supports 2x PCIe x16 slots
  - Supports 1x PCIe x16 slot

- **MezIO®-D230**
  - Supports 2x PCI/PCI Express slots in Cassette
  - Supports 2x PCIe x16 slots
  - Supports 1x PCIe x16 slot

- **MezIO®-G4P**
  - Supports 4x IEEE 802.3at PoE+ ports
**Nuvo-9000 Series**

### Ordering Information

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuvo-9002DE</td>
<td>Intel® 13th/12th-Gen Core™ Rugged Embedded Computer with 2x 2.5GbE/GbE, USB 3.2 Type-C, dual-slot PCIe &amp; Cage &amp; MezIO™ Interface</td>
</tr>
<tr>
<td>Nuvo-9006DE</td>
<td>Intel® 13th/12th-Gen Core™ Rugged Embedded Computer with 2x 2.5GbE/GbE, USB 3.2 Type-C, dual-slot PCIe &amp; Cage &amp; MezIO™ Interface</td>
</tr>
<tr>
<td>PoE+ Option</td>
<td>Option of 802.3at PoE+ PSE for 2.5GbE port 3 ~ port 6</td>
</tr>
</tbody>
</table>

**Optional Accessories**

- **MezIO™ Modules**
  - MezIO™-C180: Module with 4x RS-232/422/485 ports and 4x RS-232 ports
  - MezIO™-C181: Module with 4x RS-232/422/485 ports and 4x RS-422/485 ports
  - MezIO™-O230: Module with 8-CH isolated digital input and 8-CH isolated digital output
  - MezIO™-O232: Module with 16-CH isolated digital input and 16-CH isolated digital output
  - MezIO™-V20-EP: Module with ignition power control function for in-vehicle application
  - MezIO™-U4: Module with 4x USB 3.1 ports
  - MezIO™-M4: Module with 4x GigE ports
  - MezIO™-G4P: Module with 4x EEE 802.3at PoE+ ports

**Appearance**

**Dimensions**

**Optional Accessories**

- **MezIO™-C180**: Module with 4x RS-232/422/485 ports and 4x RS-232/485 ports
- **MezIO™-C181**: Module with 4x RS-232/422/485 ports and 4x RS-422/485 ports
- **MezIO™-O230**: Module with 8-CH isolated digital input and 8-CH isolated digital output
- **MezIO™-O232**: Module with 16-CH isolated digital input and 16-CH isolated digital output
- **MezIO™-V20-EP**: Module with ignition power control function for in-vehicle application
- **MezIO™-U4**: Module with 4x USB 3.1 ports
- **MezIO™-M4**: Module with 4x GigE ports
- **MezIO™-G4P**: Module with 4x EEE 802.3at PoE+ ports

All specifications and photos are subject to change without prior notice.

www.neousys-tech.com

All rights reserved. Copyright© 2023 Neousys Technology Inc.
Nuvo-9531 is one of the most compact fanless computers based on the Intel® 13th Gen platform. Measuring just 212 x 165 x 63 mm, it can fit into restricted spaces, such as in robotic arm and ARM applications. Despite its compact size, Nuvo-9531 does not compromise on performance. Built on the advanced Intel® 7-process, Intel® 13th Gen processors have up to 24 cores/32 threads to deliver up to 2x the performance when compared to previous Intel® 10th Gen platforms.

Nuvo-9531 has rich I/O functions. It features four 2.5GbE with optional PoE+ and four USB3.2 Gen 1 ports for multiple camera connectivity for machine vision and surveillance applications. In addition, it features a Gen4 x4 M.2 NVMe slot for the latest NVMe SSD that supports read/write speeds up to 7000 MB/s; a hot-swappable HDD tray to hot-swap the storage drive without turning off the system or dismantling the chassis; two mPCIe and one M.2 E key slots to install WiFi or 5G/4G wireless communication modules. The system is also equipped with 8x DIO, 2x COM ports, and dual display outputs for your industrial embedded application needs.

As a compact embedded computer, Nuvo-9531 delivers excellent computing performance and offers an abundance of I/O connections. It is suitable for a variety of industrial applications, especially when installation space is limited.
**Nuvo-9501 Series**

**Key Features**

- Intel® 13th/12th Gen Core™ Compact Fanless Computer with 2x 2.5GbE and 4x USB3.2

**Introduction**

Nuvo-9501 is a cost-effective compact fanless embedded computer based on the Intel® 13th/12th Gen platform. Built on the advanced Intel® 7 process, Intel® 13th Gen processors offer up to 24 cores/32 threads to deliver up to 2x the performance when compared to previous Intel® 10th or 11th Gen platforms. Nuvo-9501 is a cost-effective, compact and yet powerful fanless embedded computer that offers the ultimate computing for various industrial applications.

Nuvo-9501 offers essential I/O functions for general industrial needs including dual 2.5GbE ports, dual display ports and four USB3.2 ports. In addition, it features a Gen4 x4 M.2 NVMe slot for the latest NVMe SSD with read/write speeds up to 7000 MB/s. Also, it supports a 2.5" or 3.5" HDD for high capacity storage needs such as data collection or surveillance applications. It also offers two mPCIe and one M.2 key slots for installing WiFi or 4G wireless communication modules.

As a cost-effective and compact embedded computer, Nuvo-9501 delivers excellent computing performance and offers essential I/O connectivity to meet customers' needs and cost. It is suitable for a variety of industrial applications.

**Specifications**

- **System Core**
  - Supporting Intel® 13th/12th Gen Core™ CPU
  - 8-Channel graphics, 16-Channel Direct Media Interface (DMI), 16-Channel HyperTransport (HT), 16-Channel PCIe Gen4 x4

- **Chipset**
  - Intel® H410E platform controller hub

- **Graphics**
  - Integrated Intel® UHD Graphics

- **Memory**
  - Up to 32GB non-ECC DDR4 3200 SDRAM (one SODIMM slot)

- **Video Port**
  - 1x DisplayPort, supporting 4096 x 2304 resolution

- **Audio**
  - 2x 3-wire RS-232/422/485 ports (COM1)

- **I/O Interface**
  - 2x USB 2.0 ports, 4x USB 3.2 Gen1 (5 Gbps) ports

- **Power Supply**
  - DC Input: 12-24 VDC with 2x 2.5GbE, 4x USB3.2 and 8x isolated DIO

- **Environmental**
  - Temperature: Operating: -10°C to 60°C * (Nuvo-9501)
  - Storage: -40°C to 85°C

**Ordering Information**

- **Model No.**
  - Nuvo-9501
  - Nuvo-9505

**Optional Accessories**

- PA-160W-OW: 160W AC/DC power adapter 20V/8A; 18AWG/120cm; cord end terminals for terminal block, operating temperature: -30°C to 70°C (recommended for 65W CPU)

- PA-280W-ET2: 280W AC/DC power adapter 24V/11.67A; 16AWG/100cm; cord end terminals for terminal block, operating temperature: -30°C to 70°C (recommended for 65W CPU)

**Fan kit with 52mm x 52mm fan for Nuvo-9501 series**
Rugged Embedded

Nuvo-7000E/P/DE Series

**Key Features**

- **Intel® 9th/8th-Gen Core™ i** processors with up to 6 cores/8 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 performance improvement over previous 6th and 7th-Gen platforms.

**Specifications**

**System Core**

- Processor: Supporting Intel® 9th/8th-Gen CPU (LGA1151/1200), supporting PCIe 3.0 Gen3 / 5.0 Gen2
- Cassette: (Nuvo-7002/7006/7000/P) supporting PCIe-PoE354at and pre-installed Fankit-25
- Cassettes: (Nuvo-7000 DE) supporting Wezy-25

**Chipset**

- Intel® Q770 platform controller hub

**Graphics**

- Integrated Intel® UHD graphics 600

**Memory**

- Up to 64 GB DDR4 2666/2400 SDRAM (two SODIMM slots)
- Supports TPM 2.0

**Performance**

- 1x PCI slot in Cassette (Nuvo-7002P/7006P) (Nuvo-7002DE/7006DE)

**Power Supply**

- 160W AC/DC power adapter 20V/8A; 18AWGx4C/120cm, cord length compatible with national standards

**Environmental**

- **Temperature**
  - Operating: -40°C ~ 85°C
  - Storage: -25°C ~ 70°C

**Dimensions**

- **Weight**
  - 3.58 kg (Nuvo-7000E/P series)

**Ordering Information**

**Nuvo-7000E/P/DE Series**

- **Model No.**
  - Nuvo-7002E
  - Nuvo-7003P
  - Nuvo-7006E-PoE
  - **Model No.**

**Optional Accessories**

- DINrail-0:
  - DINrail mount assembly for Nuvo-7000 series

- **Cassette Modules (Nuvo-7000 E/P only)**
  - CSM-Pe354:
  - CSM-R800:

**Mezi® Modules**

- Mezi®-C180
  - Mezi® module with 4x RS-232/422/485 ports and 1x M.2 Gen2 x4 slot

**Mezi®-C181
  - Mezi® module with 4x RS-232/422/485 ports and 1x M.2 Gen2 x4 slot

**Mezi®-D220
  - Mezi® module with 1x isolated digital input and 1x isolated digital output

**Mezi®-D220-P
  - Mezi® module with 1x isolated digital input and 1x isolated digital output

**Mezi®-V20-FP
  - Mezi® module with 4x isolated power control function for in-viale application

**Mezi®-G4
  - Mezi® module with 4x USB 3.1 ports

**Mezi®-G4-P
  - Mezi® module with 4x GbE ports for GbE ports 3 ~ 6

---

*For sub-zero operating temperature, add 10% to HDD, WDT, IGN, PWR

*For sub-zero operating temperature, add 10% to HDD, WDT, IGN, PWR

*For sub-zero operating temperature, add 10% to HDD, WDT, IGN, PWR

*For sub-zero operating temperature, add 10% to HDD, WDT, IGN, PWR
**Nuvo-7000LP Series**

**Intel® 9th/8th-Gen Core™ i** processors with up to 6-core/8-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.

The Nuvosys Nuvo-7000LP series is powered by Intel® 9th or 8th-Gen Core™ fanless controller with 6x GbE ports, MezIO™ Interface and Low-profile Chassis. The Neousys 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.

- Intel® 9th/8th-Gen Core™ i processors with up to 6-core/8-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.
- The Neousys Nuvo-7000LP series is powered by Intel® fanless controller with 6x GbE ports, MezIO™ Interface and Low-profile Chassis.

**Key Features**

- Intel® 9th/8th-Gen Core™ i processors with up to 6-core/8-core architecture.
- MezIO™ Interface and Low-profile Chassis.
- All specifications and photos are subject to change without prior notice.

**Introduction**

The Neousys Nuvo-7000LP series is powered by Intel® 9th/8th-Gen Core™ i processors with up to 6-core/8-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 from-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-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**

### Processor
- Supporting Intel® 9th/8th-Gen CPU (LGA1151 socket, 9th/8th Gen)
- Intel® Core™ i7-9700E/i7-9700TE/i7-9700T
- Intel® Core™ i5-9500E/i5-9500TE/i5-8500/i5-8500T
- Intel® Core™ i3-9100E/i3-9100TE/i3-8100/i3-8100T
- Intel® Core™ i5-9500E/i5-9500TE/i5-8500/i5-8500T

### Chipset
- Intel® Q370 platform controller hub

### Graphics
- Intel® Integrated Graphics

### Memory
- Up to 64 GB DDR4 2666/2400 SDRAM (two SODIMM slots)

### Storage Interface
- 1x 3.5 mm jack for mic-in and speaker-out
- 1x full-size mSATA port (mux with mini-PCIe)
- 1x internal SATA port for 2.5" HDD/SSD installation
- 1x DisplayPort, supporting 4096 x 2304 resolution
- 1x DVI-D, supporting 1920 x 1200 resolution
- 1x VGA, supporting 1920 x 1200 resolution
- 4x USB 3.1 Gen2 (10 Gbps) ports

### Expansion Bus
- Mini PCI Express
  - 1x full-size mini PCI Express socket with internal SIM socket (mux with mini-PCIe)
  - M.2
  - 1x M.2 2222 key B key socket with dual from-accessible SIM sockets

### Expandable I/O
- 4x USB 3.1 Gen2 ports
- 4x USB 3.1 Gen1 ports

### Video Port
- 2x software-programmable 4k-2k/4k2k/2k2k ports (COM1/COM2)
- HDMI, DVI, VGA ports

### Mechanical
- 240 mm (l)x220 mm (w)x79 mm (h)
- 3.1 kg
- Wall-mount (stand-off) or DIN-rail mount (optional)

### Environmental
- Operating Temperature: -25°C ~ 70°C
- Storage Temperature: -40°C ~ 85°C

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

### Ordering Information

**Model No.**
- Nuvo-7000LP
- Nuvo-7006LP

**Product Description**
- Intel® 9th/8th-Gen Core™ fanless controller with 6x GbE ports, MezIO™ Interface and Low-profile Chassis.
- Intel® 9th/8th-Gen Core™ fanless controller with 6x GbE ports, MezIO™ Interface and Low-profile Chassis.

**Optional Accessories**
- PA-160W-OW: 160W AC/DC power adapter 20V/8A; 18AWGx4C/120cm, cord end terminals for terminal block, operating temperature: -40°C to 70°C.

**Impulse NuoV5000_7000**
- Neousys’ patented damping brackets assembly for Nuvo-7000/DE/DNV/Nuvo-7000LP Series.

**MezIO™ Modules**
- MezIO™-C180
- MezIO™ module with 4x RS-232/422/485 ports and 4x RS-232 ports
- MezIO™-C181
- MezIO™ module with 8x RS-232/422/485 ports and 4x RS-232/422 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 GbE ports
- MezIO™-G4P
- MezIO™ module with 4x IEEE 802.3at PoE+ ports
Nuvo-7501 Series

**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 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" HDD or 2.5" SSD. For Nuvo-7505D, it offers isolated DO 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**

<table>
<thead>
<tr>
<th>Nuvo-7501</th>
<th>Nuvo-7505D</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System Core</strong></td>
<td><strong>System Core</strong></td>
</tr>
<tr>
<td>Processor</td>
<td>Supporting: Intel® 9th/8th-Gen Core™ i7/i5/i3 Compact Fanless Computer with 2x GbE and up to 6x COM</td>
</tr>
<tr>
<td>Graphics</td>
<td>Integrated Intel® UHD 630</td>
</tr>
<tr>
<td>Memory</td>
<td>Up to 64 GB DDR4 2666/ 2400 SDRAM (2x SODIMM slots)</td>
</tr>
<tr>
<td><strong>Ethernet Port</strong></td>
<td><strong>Ethernet Port</strong></td>
</tr>
<tr>
<td>2x Gigabit Ethernet ports by I219 and I210</td>
<td>2x Gigabit Ethernet ports by I219 and I210</td>
</tr>
<tr>
<td>4x USB 3.1 Gen1 (5 Gbps) ports</td>
<td>4x USB 3.1 Gen1 (5 Gbps) ports</td>
</tr>
<tr>
<td><strong>Serial Port</strong></td>
<td><strong>Serial Port</strong></td>
</tr>
<tr>
<td>2x RS-232 ports (COM1/ COM2)</td>
<td>2x RS-232 ports (COM1/ COM2)</td>
</tr>
<tr>
<td>2x isolated software-programmable RS-232 ports</td>
<td>2x isolated software-programmable RS-232 ports</td>
</tr>
<tr>
<td><strong>Audio</strong></td>
<td><strong>Audio</strong></td>
</tr>
<tr>
<td>1x 3.5 mm jack for mic-in and speaker-out</td>
<td>1x 3.5 mm jack for mic-in and speaker-out</td>
</tr>
<tr>
<td><strong>Storage Interface</strong></td>
<td><strong>Storage Interface</strong></td>
</tr>
<tr>
<td>SATA HDD</td>
<td>1x internal SATA port for 3.5&quot; HDD or 2.5&quot; HDD/ SSD</td>
</tr>
<tr>
<td>M.2</td>
<td>1x M.2 2280 SATA interface</td>
</tr>
</tbody>
</table>

**Internal Expansion Bus**

- 1x full-size mini PCI Express slot
- 1x M.2 2242 B key socket with internal SIM socket

**Power Supply**
- DC Input 1x 3-pin pluggable terminal block for 8 to 35V DC input
- Remote CH & Status Output 1x 15-pin (2x5) pin header for remote on/off control and status LED output

**Mechanical**
- Dimension: 255mm (W) x 173mm (D) x 76mm (H)
- Weight: 2.48 kg
- Mounting Well-resist (standard) or DIN-rail mount (optional)

**Environmental**
- Operating Temperature -25°C - 60°C
- Storage Temperature -40°C - 65°C
- Humidity 10% - 90%, non-condensing
- Vibration Operating: MIL-STD-810G, Method 516.6, Procedure I, Table 516.6-II
- 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

**Model No.**
- **Nuvo-7501** Intel® 9th/8th-Gen Core™ i7/i5/i3 Compact Fanless Computer with 2x GbE and 4x COM
- **Nuvo-7505D** Intel® 9th/8th-Gen Core™ i7/i5/i3 Compact Fanless Computer with isolated DIO, isolated COM and 2x GbE

**Optional Accessories**
- PA-120W-05W 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
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™ 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: one M.2 2280 socket for SIM card, one mini PCI Express socket for internal SIM card, and one full-size mini PCI Express socket for external SIM card, allowing for a variety of wireless communication 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.
**Nuovo-5000E/P Series**

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

### Key Features

- **Intel® 6th-Gen Core™** 17/15/13 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 5.2” SATA HDD/ SSD with RAID 0/ 1 support
- VGA/ DVI/ DP triple independent display, supporting 4K2K resolution

### Introduction

Nuovo-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, Nuovo-5000 also incorporates Neousys MezIO® interface. 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 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.

### Specifications

**System Core**

- Intel® Core™ i7-6700 (8M Cache, 2.4 GHz / 4.0 GHz, LGA1151)
- Intel® Core™ i5-6600T (6M Cache, 2.7 GHz, LGA1151)
- Intel® Core™ i5-6500TE (6M Cache, 2.3 GHz, LGA1151)
- Intel® Core™ i3-6090U (2M Cache, 2.0 GHz, LGA1156)
- Intel® Core™ i3-6100TE (4M Cache, 2.7 GHz, LGA1151)
- Intel® Celeron® G3900 (2M Cache, 2.8 GHz, LGA1151)
- Intel® Celeron® G4400 (3M Cache, 3.3 GHz, LGA1151)
- Intel® Core™ i5-6500 (6M Cache, 3.0 GHz to 3.6 GHz, LGA1151)
- Intel® Core™ i7-6700 (8M Cache, 3.4 GHz to 4.0 GHz, LGA1151)

**Expansion Bus**

- 1x PCIe x1 slot in Cassettes (Nuovo-5000/5100/E)
- 1x PCIe x1 slot (4G), 1x PCIe x4 slot (8G), 1x PCIe x8 slot (16G)

**Storage Interface**

- 1x internal Mini PCIe socket with internal SIM socket
- 1x internal Mini PCIe socket with internal SIM socket (mux with mSATA)
- 1x internal Mini PCIe socket with 8 to 35V DC IN

**CPU/PCI Express**

- 1x PCIe x1 slot in Cassettes (Nuovo-5000/5100/E)
- 1x PCIe x1 slot (4G), 1x PCIe x4 slot (8G), 1x PCIe x8 slot (16G)

**Memory**

- 1x internal Mini PCIe socket with internal SIM socket
- 1x internal Mini PCIe socket with front-accessible SIM socket
- 1x internal Mini PCIe socket with 8 to 35V DC IN

**Power Supply**

- 1x PCIe x4 slot with Intel C246 Chipset
- 1x PCIe x8 slot with Intel C246 Chipset
- 1x PCIe x8 slot with Intel C246 Chipset

**Dimensions**

- 240 mm (W) x 225 mm (D) x 50 mm (H)
- 250 mm (W) x 225 mm (D) x 60 mm (H)
- 250 mm (W) x 225 mm (D) x 70 mm (H)
- 250 mm (W) x 225 mm (D) x 80 mm (H)

**Environmental**

- Operating: -25°C ~ 50°C **
- Storage: -25°C ~ 70°C **
- Operating: 20%~90% non-condensing
- Humidity: 10%~90% non-condensing
- Vibration: Operating: 0.5g, 10-550Hz, 3 axes (w sine, according to ECN0803-2-6)
- Shock: Operating: 50g, 11ns, 6 axes (w sine, according to ECN0803-2-7)
- EMI: Operating: according to EN 55022, EN 55032, EN 61326 & EN 60950

**Ordering Information**

- Nuovo-5000E
  - Intel® 6th-Gen Core™ fanless controller with 6x GbE, PCI Express Cassette and MezIO® Interface
- Nuovo-5000P
  - Intel® 6th-Gen Core™ fanless controller with 6x GbE, PCI Express Cassette and MezIO® Interface
- Nuovo-5006E
  - Intel® 6th-Gen Core™ fanless controller with 6x GbE, PCI Express Cassette and MezIO® Interface
- Nuovo-5006P
  - Intel® 6th-Gen Core™ fanless controller with 6x GbE, PCI Express Cassette and MezIO® Interface

**Optional Accessories**

- DINRAIL-G 2U rail mount assembly for Nuovo-5000 series
- FanHr-25 Fan assembly for 1x cassette, 252x251x195mm
- PA-120W-O 1200W AC/DC power adapter 208-240V, 160W/125W, 250x250x125mm
- Dmpbr-Nuvo5000_7000 Nexsys’ patented damping bracket assembly for Nuovo-5000E/P

**Key Features**

- **Rugged Embedded**
- **Nuovo-5000 Series**
- **Intel® 6th-Gen Core™/i7/ i5 Fanless Controller with 6x GbE, Expansion Cassette and MezIO® Interface**

**Key Features**

- **Rugged Embedded**
- **Nuovo-5000 Series**
- **Intel® 6th-Gen Core™/i7/ i5 Fanless Controller with 6x GbE, Expansion Cassette and MezIO® Interface**

**Introduction**

Nuovo-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, Nuovo-5000 also incorporates Neousys MezIO® interface. 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 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.
Nuvo-5000LP Series

Intel® 6th-Gen Core™ low-profile fanless controller with 2x GbE and MezIO® Interface
Interface and Low-profile Chassis

Key Features

- Intel® 6th-Gen Core™ 17 / 15 / 35W / 65W LA151 CPU
- MezIO® Interface for easy function expansion
- Rugged, -25°C to 70°C fanless operation
- Up to 6x GigE ports, supporting 9.5KB jumbo frame
- Up to 320GB, 64RX-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 4KXK resolution
- 77mm low-profile design

Introduction

Nuvo-5000LP/5000LP 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-5000LP supports LA151 socket-type CPUs so one can choose an Intel® 6th-Gen Core™ CPU from the options listed. It also incorporates Neousys’ MezIO® Interface for additional or application-oriented I/O expansion. By installing an optional MezIO® 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

- Intel® Core™ i7-6700TE (6M Cache, 2.3/3.3 GHz, 35W TDP)
- Intel® Core™ i5-6500TE (6M Cache, 2.3/3.6 GHz, 65W TDP)*
- Intel® Core™ i3-6100 (3M Cache, 3.7 GHz, 51W TDP)*
- Intel® Pentium® G4400TE (2M Cache, 2.3 GHz, 35W TDP)
- Intel® Pentium® G3900TE (2M Cache, 2.3 GHz, 35W TDP)
- Intel® Pentium® G3900 (2M Cache, 2.8 GHz, 51W TDP)*
- Intel® Celeron® G3900TE (2M Cache, 2.3 GHz, 35W TDP)
- Intel® Celeron® G3900 (2M Cache, 2.8 GHz, 51W TDP)*

Memory

- 8GB, DDR4-2133 SODIMM (two SODIMM slots)
- Supports DDR4-2666 RAM (one SODIMM slot)

Chipset

- Intel® Q170 platform controller hub

Processor

- Intel® Core™ i5-6500TE (6M Cache, 2.3/3.3 GHz, 35W TDP)
- Intel® Core™ i7-6700TE (8M Cache, 2.4/3.4 GHz, 35W TDP)
- Intel® Celeron® G3900TE (2M Cache, 2.3 GHz, 35W TDP)

Audio

- 1x mic-in and 1x speaker-out

Video Port

- 4x USB 2.0 ports
- 4x USB 3.1 ports

Expansion Bus

- 1x internal mini PCIe Express socket with front accessibility
- 1x internal mini PCIe Express socket with internal SIM socket (with mSIMA)

Expansion I/O

- 1x MezIO™ expansion interface for Neousys’ MezIO® Modules

I/O Interface

- DC input: 1x 3-pin plug-in terminal block for 8x 3x5 DC input
- Sensor Ctrl.: 1x 8-channel or 16-channel optional expansion interface for easy function expansion
- Status Output: remote on/off control and status LED output

Environmental

- Operating Temperature
  - -25°C ~ 70°C **
  - -25°C ~ 50°C ***(configured as 35W CPU mode)

- Storage Temperature
  - -40°C ~ 85°C

- Humidity
  - 10% - 90%, non-condensing

- Vibration
  - Operating: 5G, 5-500Hz, 3 axes, 1/3sin; 10-150Hz, 2 axes, 1/3sin
  - Shock: 55G, half-sine 11ms duration

- EMI
  - CE, FCC, CE, as per EN55022, EN55024 & EN55032

- CE Marking
  - CE, FCC, CE, as per EN55022, EN55024 & EN55032

 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-1200-6W: 120W AC/DC power adapter 20/6A, 18AWG/120cm, cord end terminals for terminal block, operating temperature: -30°C 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-VP4: MezIO® module with 4x RS-232/422/485 ports
MezIO-D220: MezIO® module with 8x CAN isolated digital input and 8x CAN isolated digital output
MezIO-D230: MezIO® module with 16-CH isolated digital input and 16-CH isolated digital output

* 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.

*** Optional MezIO® card with 16-CH isolated digital input

**** Optional MezIO® card with 8-CH isolated digital output

#### Appendix

- All rights reserved. Copyright© 2023 Neousys Technology Inc.
- Last updated: 15 - Jan 2020
- All specifications and photos are subject to change without prior notice.
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 USB 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.

### 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**

### Specifications

#### Processor
- **Intel® Core™-i7-6700 (35W TDP)** (mux with mSATA)
- **Intel® Core™-i5-6500TE (35W TDP)**
- **Intel® Core™-i5-6500 (65W/51W TDP)**
- **Intel® Core™-i3-6100TE (35W TDP)**
- **Intel® Core™-i3-6100 (65W/51W TDP)**
- **Intel® Core™-i5-6500 (65W/51W TDP)**
- **Intel® Core™-i7-6700 (65W/51W TDP)**

#### Chipset
- **Intel® Q170/ Q370 platform controller hub**

#### Memory
- 1x RS-232 port (COM2) (COM1 & COM3)
- 2x software-programmable RS-232/422/485 port
- 2x DisplayPort, supporting 4K2K resolution

#### Expansion Bus
- **PCI/PCI Express**
- **2x PCIe x8 slot @ Gen3, 4-lanes PCIe signals in expansion Cassette**
- **Mini PCIe**
- **1x internal mini PCIe Express socket with from accessible 16mm socket**
- **Expandable I/O**
- **1x MezIO® expansion port for Neousys’ MezIO® modules**

#### Power Supply
- **AC Input**
- **DC Input**
- 1x 3-pin pluggable terminal block for 8 to 35V DC input
- **Remote Ctrl. & Status Output**
- 1x 10 pin (2x 5pin) connector for remote control and status LED output

#### Dimensions

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Unit : mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>170.5</td>
</tr>
<tr>
<td>Depth</td>
<td>151</td>
</tr>
<tr>
<td>Height</td>
<td>92</td>
</tr>
</tbody>
</table>

#### Operating Environment

<table>
<thead>
<tr>
<th>Condition</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temperature</td>
<td>-25°C to 70°C (mux with mSATA)</td>
</tr>
<tr>
<td>Humidity</td>
<td>10% - 90%, non-condensing</td>
</tr>
<tr>
<td>Vibration</td>
<td>Operating, 5 Gms, 5-500 Hz, 3 Axes (Per MIL-STD-810F, Method 516.6, Procedure B, Test No. 102)</td>
</tr>
<tr>
<td>Shock</td>
<td>Operating, 50 Gms, half sine 1 ms duration (Per MIL-STD-810F, Method 514.14)</td>
</tr>
</tbody>
</table>

#### InfiniBand Interface
- **Dual PCIe Cassette**
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-232/222/485 ports and 2x RS-232 ports**
- **VGA + DVI dual display outputs**
- **Accommodates one 3.5" HDD or 2.5" HDD/SSD**
- **Optional B-CH isolated DI and B-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™ 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.

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

<table>
<thead>
<tr>
<th>System Core</th>
<th>Chipset</th>
<th>Processor</th>
<th>Memory</th>
<th>Graphics</th>
<th>Processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel® H110 platform controller hub</td>
<td>Intel® H110 platform controller hub</td>
<td>Intel® 6th-Gen Core™ i7/i5/i3 Compact Fanless Embedded Controller with isolated DIO &amp; 3x GbE</td>
<td>Up to 16GB DDR4-2133 (single SODIMM slot)</td>
<td>Integrated Intel® HD 530/540 controller</td>
<td>Intel® 6th-Gen Core™ i7/ i5/ i3 LGA 1151 socket CPU</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expansion Bus/ Internal I/O Interface</th>
<th>mini-PCIe</th>
<th>1x full-size mini PCI Express socket</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB 2.0</td>
<td>1x internal USB 2.0 port</td>
<td></td>
</tr>
<tr>
<td>Video port</td>
<td>1x VGA</td>
<td></td>
</tr>
<tr>
<td>Serial Port</td>
<td>1x 2x6-pin 2.0mm pin-header connector for remote on/off control and status LED output</td>
<td></td>
</tr>
<tr>
<td>Storage Interface</td>
<td>SATA SSD 5x CH isolated DI and 8-CH isolated DO (optional)</td>
<td></td>
</tr>
</tbody>
</table>

| Dimensions | 221 mm (W) x 173 mm (D) x 76.2 mm (H) |

<table>
<thead>
<tr>
<th>Environmental</th>
<th>Operating Temperature</th>
<th>-25°C - 70°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storage</td>
<td>Temp. Range (°C) -40°C - 85°C</td>
<td></td>
</tr>
<tr>
<td>Humidity</td>
<td>10% - 90%, non-condensing</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vibration</th>
<th>Operating, 5 Gms, 5-500 Hz, 3 Axes (w/ SSD, according to IEC60068-2-64)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shock</td>
<td>Operating, 50 Gms, half sine 11 ms duration (w/ SSD, according to IEC60068-2-27)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EMC/CE/ FCC</th>
<th>Operating, 50 Grms, half sine 11 ms duration (w/ SSD, according to IEC60068-2-27)</th>
</tr>
</thead>
</table>

For the following operating environments, the highest operational temperature shall be limited to 85°C and non-condensing -30°C to 70°C. The embedded controller shall be designed to limit external parasitic capacitance to ensure EMC compliance. The power dissipation of 400W is required to maintain higher operational temperatures. For further details concerning temperature, a complete temperature HDB driver or 'ESD-safe' driver (SSD) is required.
Nuvo-2600 Series

Key Features
- Intel® Elkhart Lake Atom® x6425E quad-core 2.0GHz/3.0GHz 12W processor
- Rugged -25°C to 70°C fanless operation
- 4x Gigabit PoE+ ports via RJ-45 connector with screw-lock
- 1x isolated RS-485 port and 1x RS-422/485 with 15 kV ESD protection
- 3x 3-wire RS-232 ports (COM2/3/4) or 1x RS-422/485 (COM2)
- 4x Gigabit PoE+ ports via RJ-45 connectors with screw-lock
- 1x isolated RS-485 port with 15 kV ESD protection (COM1)
- 1x front-accessible 2.5" SATA SSD tray (up to 15mm height)
- 1x M.2 2280 SATA
- 1x patented Cassette for single-slot PCIe card (Nuvo-2600E), or 1x 2500 watt-second SuperCAP UPS (Nuvo-2600J)
- 8V to 35V wide-range DC input with remote control and optional ignition power control

Introduction
The Nuvo-2600 series is an Intel® Elkhart Lake Atom® x6425E fanless box-PC with flexible expansions to fulfill versatile factory automation and machine vision applications that require a compact footprint, Gigabit PoE+ capability, and front-accessible data storage with CPU performance at 12W of low power consumption.

Powered by Intel® Elkhart Lake Atom® x6425E quad-core CPU, the Nuvo-2600 series delivers 320% CPU performance improvement compared with previous Nuvo-2500 series. The Nuvo-2600 series has four Gigabit PoE+ and one USB 3.1 port with screw-lock mechanisms to secure camera connections. In addition to its internal M.2 2280 SATA SSD for system storage, Nuvo-2600 has one front-accessible 2.5" HDD SSD tray accommodating a 7/15mm 2.5" SSD/HDD up to 5TB in storage capacity. It also has one isolated RS-485 port and isolated DIO to provide robust connections with industrial devices. For internal expansion, the Nuvo-2600 series provides two mini PCIe sockets and one M.2 3042/3052 B key socket to support 45/50 mobile broadband.

To meet diverse deployment requirements, the Nuvo-2600 series comes in two variants. The Nuvo-2600E has a PCIe Cassette for an additional PCIe card, e.g., USB or GbE frame grabber, isolated DIO, or industrial communication card. While Nuvo-2600J has an integrated SuperCAP UPS that can withstand power interruption or voltage fluctuation in industrial environments. Featuring Intel Elkhart Lake Atom® quad-core CPU, wide temperature operation, industrial I/O interfaces, and expansion Cassette module, Nuvo-2600 series is the perfect, multi-purpose fanless box-PC for factory automation and machine vision applications.

Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Intel® Elkhart Lake Atom® x6425E quad-core 2.0GHz/3.0GHz 12W processor</td>
</tr>
<tr>
<td>Graphics</td>
<td>Integrated HD® UHD Graphics</td>
</tr>
<tr>
<td>Memory</td>
<td>Up to 32 GB DDR4-3200 SDRAM by one SODIMM socket</td>
</tr>
<tr>
<td>Expansion Card</td>
<td>PCIe x4 slot @ 2-lane PCIe 3.0 signal in Cassette (Nuvo-2600E only)</td>
</tr>
<tr>
<td>PoE Capability</td>
<td>In-compliant with IEEE 802.3at PoE+ PSE, maximal 25.5W output on single PoE+ port. Compatible with 802.3af (PoE) and 802.3at (PoE+) PD</td>
</tr>
<tr>
<td>Video Port</td>
<td>PCI-E and HDMI dual displays outputs via DVI connector</td>
</tr>
<tr>
<td>Audio</td>
<td>1x 3.5 mm jack for mic-in and speaker-out</td>
</tr>
<tr>
<td>Isolated I/O</td>
<td>4x 3-pin isolated DIO</td>
</tr>
<tr>
<td>Internal I/O Interface</td>
<td>Front-accessible 2.5&quot; SSD/HDD (up to 15mm height)</td>
</tr>
<tr>
<td><strong>PCI-Express Slot</strong></td>
<td>PCIe 3.0 x1, 1x PCIe 3.0 x1, 2x PCIe 3.0 x2 in Cassette (Nuvo-2600E only)</td>
</tr>
<tr>
<td><strong>Mini-PCIe</strong></td>
<td>1x full-size mini PCI-Express socket with PCIe and USB 2.0 port</td>
</tr>
<tr>
<td><strong>M.2 Key</strong></td>
<td>1x M.2 3042/3052 B key with 15 kV ESD protection (COM1)</td>
</tr>
<tr>
<td>Storage Interface</td>
<td>PCI-E and HDMI dual displays outputs via DVI connector</td>
</tr>
<tr>
<td>SATA HDD</td>
<td>1x front-accessible SSD tray (up to 15mm height)</td>
</tr>
</tbody>
</table>

Nuovo-2600 Series

Appearance

Dimensions

Ordering Information

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuvo-2600E</td>
<td>Intel® Elkhart Lake Atom® x6425E fanless box-PC with 4x GbE, 7/15mm 2.5&quot; HDD and PCIe expansion Cassette</td>
</tr>
<tr>
<td>Nuvo-2600E-PoE</td>
<td>Intel® Elkhart Lake Atom® x6425E fanless box-PC with 4x PoE+ GbE, 7/15mm 2.5&quot; HDD and PCIe expansion Cassette</td>
</tr>
<tr>
<td>Nuvo-2600E-IGN</td>
<td>Intel® Elkhart Lake Atom® x6425E fanless box-PC with 4x GbE, 7/15mm 2.5&quot; HDD and PCIe expansion Cassette and ignition power control</td>
</tr>
<tr>
<td>Nuvo-2600E-PoE-IGN</td>
<td>Intel® Elkhart Lake Atom® x6425E fanless box-PC with 4x PoE+ GbE, 7/15mm 2.5&quot; HDD and PCIe expansion Cassette and ignition power control</td>
</tr>
<tr>
<td>Nuvo-2600J</td>
<td>Intel® Elkhart Lake Atom® x6425E fanless box-PC with 4x GbE, 7/15mm 2.5&quot; HDD and SuperCAP UPS and ignition power control</td>
</tr>
<tr>
<td>Nuvo-2600J-PoE</td>
<td>Intel® Elkhart Lake Atom® x6425E fanless box-PC with 4x PoE+ GbE, 7/15mm 2.5&quot; HDD and SuperCAP UPS and ignition power control</td>
</tr>
<tr>
<td>Nuvo-2600J-IGN</td>
<td>Intel® Elkhart Lake Atom® x6425E fanless box-PC with 4x GbE, 7/15mm 2.5&quot; HDD and SuperCAP UPS and ignition power control</td>
</tr>
</tbody>
</table>

Optional Accessories

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA-120W-OW</td>
<td>120W AC/DC power adapter 20V/24W, 18AWGx1.5mm², cold-end terminated for terminal block, operating temperature: -30 to 70°C</td>
</tr>
<tr>
<td>PA-160W-OW</td>
<td>160W AC/DC power adapter 24V/20W, 18AWGx1.5mm², cold-end terminated for terminal block, operating temperature: -30 to 70°C</td>
</tr>
<tr>
<td>WMB-1000</td>
<td>Wall mounting kit for Nuvo-2600 and Nuvo-2610VT series, including wall mounting brackets and screws</td>
</tr>
</tbody>
</table>

Fankit-25 Single fan kit for the PCIe cassette of Nuvo-2610 and Nuvo-2610VT series, including one 25x25mm fan and screws
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), independent GPU via x16 (@ x8 signals) PEG port, and two are x8 slots (@ Gen3). The system is capable of accommodating one 180W NVIDIA® GPU for modern AI applications. Additionally, there are 3 PCIe slots to support legacy PCI cards for general industrial usage.

Nuvo-8034 supports Intel® 9th/8th-Gen Core™ processor, 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 to 35V wide-range DC input. The system features two hot-swappable trays that support 2.5” SATA HDD/SSD 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 Gen 1 ports for screw-lock USB 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.

**Key Features**

- Supports Intel® 9th/8th Gen Core™ i7/i5/i3 LGA1511 CPU
- Two x16 PCIe, two x8 PCIe, and three PCIe 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 Gen 2 and 4x USB 3.1 Gen 1 ports with screw-lock
- Two front-accessible, hot-swappable 2.5 SATA SSD/ HDD with RAID 0/1 support
- M.2 2280 M key NVMe (Gen3 x4) for fast storage access

**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 accommodating one NVIDIA GPU for modern AI applications. Additionally, there are 3 PCIe slots to support legacy PCI cards for general industrial usage.

Nuvo-8034 supports Intel® 9th/8th-Gen Core™ 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 to 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 Gen 1 ports for screw-lock USB 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**
  - Supporting Intel® Xeon® E and 8th/7th-Gen CPU (LGA1511 socket)
  - 1x 2.7 GHz, 2x 2.2 GHz, 2x 2.0 GHz, 2x 1.9 GHz (Gen11)
  - nuvoCore™® E-2124G/ E-2176G/ E-2278GE/ E-2278GEL
  - nuvoCore™® E-2176G/ E-2124G/ E-2278GE/ E-2278G (Gen10)
  - nuvoCore™® E-2124G/ E-2176G/ E-2278GE/ E-2278GEL (Gen11)

- **Chipset**
  - Intel® C246 chipset

- **Graphics**
  - Independent GPU via x16 (8-bit signals) PEG port
  - Independent GPU via x16 (@ x8 signals) PEG port, requiring dedicated power source

- **Memory**
  - Up to 32GB DDR4 3200MHz SO-DIMM (four SO-DIMM slots)
  - Supports XMP 2.0

- **TPM**
  - Supports TPM 2.0

- **I/O Interface**
  - 1x Gigabit Ethernet port by Intel® GBE1210AM with screw-lock
  - 1x Gigabit Ethernet port by Intel® D1617T with screw-lock
  - 1x VGA, supporting 1920 x 1200 resolution
  - 1x DisplayPort, supporting 4096 x 2304 resolution
  - 3x PCIe x16 slots@Gen3, 8-lanes
  - 2x PCIe x8 slots@Gen3, 4-lanes
  - 2x PCIe x4 slots@Gen3, 2-lanes
  - 1x 3-pin pluggable terminal block for 8 to 35V DC input
  - 1x 3-pin pluggable terminal block for remote control
  - 1x 3-pin pluggable terminal block for 8 to 35V DC input

- **Video Port**
  - 1x DVI-D, supporting 1920 x 1200 resolution
  - 1x DisplayPort, supporting 4096 x 2304 resolution

- **I/O Interface**
  - 1x HDMI, supporting 1920 x 1200 resolution
  - 1x DisplayPort, supporting 4096 x 2304 resolution
  - 1x 3-pin pluggable terminal block for 8 to 35V DC input
  - 1x 3-pin pluggable terminal block for remote control

- **Serial Port**
  - 1x serial port by COM1/COM2 (RJ45)
  - 1x serial port by COM3/COM4 (optional)

- **USB 2.0**
  - 2x USB 3.1 Gen2 (10Gbps) ports with screw-lock
  - 2x USB 3.1 Gen1 (5Gbps) ports with screw-lock
  - 2x USB 3.1 Gen1 (5Gbps) ports (mux with mini-PCIe)

- **Audio**
  - 1x Line-in for line-in and speaker-out
  - 1x Line-out for line-out and headphone-out

- **Storage Interface**
  - 1x 2.5” D500 SSD (max 200GB), M.2 2280 M key NVMe (Gen3 x4) for fast storage access
  - 2x full-size mini-PCI pro port at low profile (screws can be removed)
  - 4x USB 3.1 Gen2 (10Gbps) ports in front panel with screw-lock
  - 2x USB 3.1 Gen2 (10Gbps) ports in front panel with screw-lock
  - 2x full-size mini-PCI Express slot with internal SATA socket (screws can be removed)

- **Power Supply**
  - DC Input: 2x 2.1 mm plug (pin 1 and 2 for DC input)
  - Fanless: 2x 2.1 mm plug (pin 1 and 2 for DC input)

- **Thermal Design**
  - Operating: MIL-STD-810G, Method 516.6, Category 4
  - Storage: MIL-STD-810G, Method 516.6-II, Procedure I, Table 516.6-II

- **Environmental**
  - Temperature: -25°C ~ 60°C with 100% CPU/ GPU loading
  - Temperature: -40°C ~ 85°C
  - Humidity: 10%~95%, non-condensing
  - Vibration: Operating, MIL-STD-810G, Method 516.6, Category 4
  - Shock: Operating, MIL-STD-810G, Method 516.6, Procedure 2

- **Certification**
  - CE/FCC Class A, according to EN 55032 & EN 55024

**Ordering Information**

**Nuvo-8034**

**Model No.**

**Product Description**

- 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-0W**
  - 160W AC-DC power Adapter, 20V 8A, 90~264VAC/127~370VDC, Open-Wire Terminal, -30°C to 70°C

- **PA-280W-012**
  - 280W AC-DC power adapter 24V/11.7A, 16AWG/100cm, cord ends terminals for terminal block, operating temperature: -30°C to 60°C

- **PA-480W-0IN**
  - 48W AC-DC power Adapter(DIN-Rail/24V/0.75A 2-pin mount, 24V 20A, 90~264VAC/127~370VDC, Terminal Block, -30°C to 70°C
  - Power input range: 10Pin Female to 0.89 Male Cable, 20CM
Nuvo-8000 Series

Key Features

- Supports Intel® 9th/ 8th-Gen Core™ i7/i5/i3, Pentium® and Celeron®
- LGA1151 CPU
- Up to five expansion slots, a mixed combination of x16 PCIe, x4 PCIe, and PCI slots
- Dedicated heat dissipation for -25°C to 60°C wide-temperature operation
- 2x GbE, 4x USB 3.1 Gen1 and 5x COM ports
- Dual DVI display outputs
- Up to 2x 2.5” SATA HDD/ SSD accommodation and 1x mSATA socket
- Wall-mounting and rack-mounting available

Introduction

Nuvo-8000 series systems are cost-effective box-PCs with up to 5 expansion slots that can perfectly replace your bulky rack-mount or wall-mount IPC systems. Leveraging Intel® 9th Gen Core™ desktop processor with H310 chipset, it delivers the same computing power as traditional IPCs but in a much more compact footprint with a budgetary price.

There are four models in the Nuvo-8000 series with various expansion configurations. Customers can choose from a compact 3-slot PCIe system to a 5-slot system with up to three PCIe slots or up to four PCI slots, that best suit their industrial automation or machine vision application needs. It features from-accessible I/Os including two GbE, four USB 3.1 Gen1 and five COM ports that make it easier to access when it is rack-mounted or placed inside a cabinet. Storage wise, Nuvo-8000 series systems have two 2.5” SATA SSD/ HDD and one mSATA socket to support various storage devices. The system can also support a 125W INNUDA® GPU to offer TFLOPS computing power for modern deep-learning applications.

Nuvo-8000 series systems are designed with satisfying industrial demands in mind. Retaining traditional IPC expansion capabilities and fulfilling diverse application requirement in an extremely compact form-factor with industrial-grade reliability.

Specifications

Nuvo-8000 Series

<table>
<thead>
<tr>
<th>System Core</th>
<th>Nuvo-8003</th>
<th>Nuvo-8023</th>
<th>Nuvo-8032</th>
<th>Nuvo-8041</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Intel® 9th Gen Core™ i7/ i5/ i3, LGA1151</td>
<td>Intel® 9th Gen Core™ i7/ i5/ i3, LGA1151</td>
<td>Intel® 9th Gen Core™ i7/ i5/ i3, LGA1151</td>
<td>Intel® 9th Gen Core™ i7/ i5/ i3, LGA1151</td>
</tr>
<tr>
<td>Chipset</td>
<td>Intel® H310 platform controller hub</td>
<td>Intel® H310 platform controller hub</td>
<td>Intel® H310 platform controller hub</td>
<td>Intel® H310 platform controller hub</td>
</tr>
<tr>
<td>Graphics</td>
<td>Integrated Intel® and Graphics IDE, or independent 128MB GPU via x16 PCIe slot</td>
<td>Integrated Intel® and Graphics IDE, or independent 128MB GPU via x16 PCIe slot</td>
<td>Integrated Intel® and Graphics IDE, or independent 128MB GPU via x16 PCIe slot</td>
<td>Integrated Intel® and Graphics IDE, or independent 128MB GPU via x16 PCIe slot</td>
</tr>
<tr>
<td>Memory</td>
<td>Up to 32 GB DDR4 2666 SDRAM (one SODIMM slot)</td>
<td>Up to 32 GB DDR4 2666 SDRAM (one SODIMM slot)</td>
<td>Up to 32 GB DDR4 2666 SDRAM (one SODIMM slot)</td>
<td>Up to 32 GB DDR4 2666 SDRAM (one SODIMM slot)</td>
</tr>
</tbody>
</table>

Expansion Bus

<table>
<thead>
<tr>
<th>PCI Express</th>
<th>Nuvo-8003</th>
<th>Nuvo-8023</th>
<th>Nuvo-8032</th>
<th>Nuvo-8041</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCI Express x16</td>
<td>3.0 Gen2, 1-lane</td>
<td>3.0 Gen2, 1-lane</td>
<td>3.0 Gen2, 1-lane</td>
<td>3.0 Gen2, 1-lane</td>
</tr>
<tr>
<td>PCI Express x8</td>
<td>3.0 Gen2, 4-lanes</td>
<td>3.0 Gen2, 4-lanes</td>
<td>3.0 Gen2, 4-lanes</td>
<td>3.0 Gen2, 4-lanes</td>
</tr>
<tr>
<td>PCI Express x4</td>
<td>3.0 Gen3, 2-lanes</td>
<td>3.0 Gen3, 2-lanes</td>
<td>3.0 Gen3, 2-lanes</td>
<td>3.0 Gen3, 2-lanes</td>
</tr>
<tr>
<td>PCI Express x1</td>
<td>2.0 Gen2, 1-lane</td>
<td>2.0 Gen2, 1-lane</td>
<td>2.0 Gen2, 1-lane</td>
<td>2.0 Gen2, 1-lane</td>
</tr>
</tbody>
</table>

Mechanical

| Weight | Nuvo-8003 | 1.35 kg | Nuvo-8023 | 1.54 kg | Nuvo-8032 | 1.54 kg | Nuvo-8041 | 1.54 kg |

Environmental

| Operating Temperature | -20°C ~ 60°C |
| Storage Temperature | -20°C ~ 85°C |
| Humidity | 10%~90%, non-condensing |

Vibration

| Operating | 10g, 5 to 500 Hz, per MIL-STD-202, Method 314.6, Category 4 |
| Shock | 100g, 5 to 500 Hz, per MIL-STD-202, Method 312, Procedure B |

EMC

| C&TE Class A, according to EN55032 & EN55035 |

Mounting

| Mounting Options | Wall-mounting, rack-mounting available |

Dimensions

| Nuvo-8003 | 3.11” H x 2.36” W x 1.77” D |
| Nuvo-8023 | 3.11” H x 2.36” W x 1.77” D |
| Nuvo-8032 | 3.11” H x 2.36” W x 1.77” D |
| Nuvo-8041 | 3.11” H x 2.36” W x 1.77” D |

Ordering Information

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuvo-8003</td>
<td>Intel® 9th Gen Core™ i7/i5/i3 fanless rugged Box-PC with 1x PCIe and 4x PCI expansion slots</td>
</tr>
<tr>
<td>Nuvo-8023</td>
<td>Intel® 9th Gen Core™ i7/i5/i3 fanless rugged Box-PC with 2x PCIe and 3x PCI expansion slots</td>
</tr>
<tr>
<td>Nuvo-8032</td>
<td>Intel® 9th Gen Core™ i7/i5/i3 fanless rugged Box-PC with 3x PCIe and 2x PCI expansion slots</td>
</tr>
<tr>
<td>Nuvo-8041</td>
<td>Intel® 9th Gen Core™ i7/i5/i3 fanless rugged Box-PC with 4x PCIe and 1x PCI expansion slots</td>
</tr>
</tbody>
</table>

Optional Accessories

| PA-120W-DW | 120W AC/DC power adapter 20V/ 6A, 18AWG 12cm, cord end terminals for terminal block, operating temperature -30°C to 70°C |
| PA-160W-DW | 160W AC/DC power adapter 20V/ 8A, 18AWG 12cm, cord end terminals for terminal block, operating temperature -30°C to 70°C |
| PA-280W-DL2 | 280W AC/DC power adapter 24V/ 11.7A, 18AWG 12cm, cord end terminals for terminal block, operating temperature -50°C to 60°C |
| Fan kit 92 | Fan kit for Nuvo-8000, 52x52x25.5 mm |
| RM-80000 | Rack mounting assembly for Nuvo-8000/ 8000 series |
Nuvo-8111 Series is a cost-effective box-PC with 3 expansion slots designed specifically to support an advanced mid to high-end 200W NVIDIA® graphics card, such as an RTX 3060/3060 Ti, to offer stunning edge AI performance. Offering tremendous GPU power up to 20 TFLOPS in FP32 for emerging GPU-accelerated applications, they boost the performance and efficiency of factory automation, image recognition, product inspection, pick and place robots, etc.

Nuvo-8111 series leverages an Intel® 9th/8th Gen Core™ processor with H310 chipset. It has one x16 Gen3 PCIe slot for accommodating a GPU card, and an additional x4 PCIe and a PCI slot for industrial I/O cards such as DIO, AIO, communication or motion control card. It features front-accessible I/Os including two GbE, four USB 3.1 Gen1 and five COM ports for easy access when it is rack-mounted or placed inside a cabinet. Storage-wise, the system supports two 2.5” SATA SSD/ HDDs plus one mSATA socket to house an mSATA SSD. As edge AI demand continues to grow for traditional production and factory automation, Neousys Nuvo-8111 seeks to fulfill this need. With mid to high-end GPU support, expansion capability, compact and rugged design that plays an important role in bringing artificial intelligence to the edge and factory floors, the Nuvo-8111 is no doubt the most cost-effective AI platform for automation in its class!

**Introduction**

Nuvo-8111 Series

Cost-effective AI Platform for Factory Automation Supporting NVIDIA® 200W GPU and Intel® 9th/8th Gen Core™ Processor

**Key Features**

- Intel® 9th/8th Gen Core™ i7/ i5/ i3, Pentium® and Celeron® LGA151 CPU
- Supports NVIDIA® GPU up to 200W TDP
- An additional x4 PCIe, and a PCI slot for add-on cards
- -25°C to 60°C wide-temperature operation
- 2x GBE, 4x USB 3.1 Gen1 and 5x COM ports
- Dual DVI display outputs
- Up to 2x 2.5” SATA SSD/ SSD accommodation and 1x mSATA socket

**Specifications**

- **System Core**
  - Processor: Intel® 9th/8th Gen Core™, Pentium® or Celeron®
  - Memory: Up to 32 GB DDR4 2666 SDRAM (one SODIMM socket)
- **Graphics**
  - GPU: NVIDIA® RTX 3060/3060 Ti via x16 PEG port
  - Integrated Intel® UHD graphics 630, or independent NVIDIA® GPU up to 200W TDP
- **Audio**
  - Audio: 1x 3.5 mm jack for mic-in and speaker-out
- **Serial Port**
  - Serial Port: 3x 3-wire RS-232 ports (COM3/COM4/COM5)
  - Additional software-programmable RS-422/485 port (COM2)
- **Internal Expansion Bus**
  - PCI Express: 1x PCIe x1 slot (Gen3, 16-lane for GPU installation)
  - 1x PCIe x1 slot (Gen2, 4-lane signal)
  - 1x PCIe x4 slot @Gen2, 4-lane signal
  - 1x PCIe x1 slot (Gen1)
  - 1x 33MHz/32-bit PCI slot
- **Power Supply**
  - Input: 24V DC IN, COM3/4/5
  - Output: 12V (4A), 5V (4A)
- **Dimensions & Weight**
  - Dimensions: 174 mm(W) x 330 mm(D) x 174 mm(H)
  - Weight: 4.51kg
- **Environmental**
  - Operating Temperature: -25°C to 60°C
  - Storage Temperature: -40°C to 85°C
  - Humidity: 10% to 90%, non-condensing
- **Vibration**
  - Operating: 0.135g rms (10-2kHZ)
  - Shock: 1g (2ms pulse)
- **EMC**
  - CE/FCC Class A, according to EN 55032 & EN 55035

**Ordering Information**

- Model No.: Nuvo-8111
- Product Description: Intel® 9th 8th Gen Core™ i7/i5/i3 expansion box PC with 2x PCIe and 1x PCI, supporting NVIDIA® 200W graphics card

**Optional Accessories**

- PA-280W-ET2: 280W AC/DC power adapter
- WKS-184-8111: Wall mounting assembly for Nuvo-8111 series, horizontal type

**Dimensions**

- Unit: mm

---

All specifications and photos are subject to change without prior notice. Last updated: 9 - Mar 2022

---

Celeron
Core™ i3-9100TE/ i3-8100*/ i3-8100T
Core™ i5-9500TE/ i5-8500*/ i5-8500T
Core™ i7-9700TE/ i7-8700*/ i7-8700T
G4900T (2M Cache, 2.9GHz, 35W TDP)
H310 platform controller hub
Integrated Intel® UHD graphics 630, or independent NVIDIA® GPU up to 200W TDP
Intel® 9th/8th Gen Core™ processor with H310 chipset. It has one x16 Gen3 PCIe slot for accommodating a GPU card, and an additional x4 PCIe and a PCI slot for industrial I/O cards such as DIO, AIO, communication or motion control card. It features front-accessible I/Os including two GbE, four USB 3.1 Gen1 and five COM ports for easy access when it is rack-mounted or placed inside a cabinet. Storage-wise, the system supports two 2.5” SATA SSD/ HDDs plus one mSATA socket to house an mSATA SSD.

As edge AI demand continues to grow for traditional production and factory automation, Neousys Nuvo-8111 seeks to fulfill this need. With mid to high-end GPU support, expansion capability, compact and rugged design that plays an important role in bringing artificial intelligence to the edge and factory floors, the Nuvo-8111 is no doubt the most cost-effective AI platform for automation in its class!
**Introduction**

Nuvo-6000 series is the perfect replacement of 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 more compact form-factor and fanless operation. Nuvo-6000 Series has up to 5-slot capacity that gives the same level of expandability as most IPCs. With different PCIe and PCI combination from 2 PCIe slots to 5 PCIe/PCI slots, Nuvo-6000 Series makes up four models for customers to choose. There must be one that best meets your industrial automation or machine vision application needs.

**Specifications**

<table>
<thead>
<tr>
<th>Nuvo-6002</th>
<th>Nuvo-6032</th>
<th>Nuvo-6023</th>
<th>Nuvo-6041</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System Core</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Processor</td>
<td>Supports Intel® 6th-Gen Core™, Pentium® and Celeron® CPU; LGA1151 socket-type CPU <strong>(Core™ i7/ i5/ i3)</strong>, <strong>Pentium® G4400TE</strong> (3M Cache, 2.4 GHz, 35W TDP), <strong>Intel® Celeron® G3930T</strong> (2.2 GHz, 35W TDP)</td>
<td><strong>Intel® Core™ i7-6700TE</strong> (8M Cache, 2.4/ 3.4 GHz, 35W TDP)</td>
<td><strong>Intel® Pentium® G4400TE</strong> (3M Cache, 2.4 GHz, 35W TDP)</td>
</tr>
<tr>
<td>Chipset</td>
<td>Intel® H110 platform controller hub</td>
<td>Intel® H110 platform controller hub</td>
<td>Intel® H110 platform controller hub</td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>Up to 16 GB DDR4-2133 (single SODIMM slot)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Networking</strong></td>
<td>2x GbE, 4x USB 3.1 and 5x COM ports</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Audio</strong></td>
<td>1x Speaker-out</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Storage Interface</strong></td>
<td>3x SATA ports for 2.5&quot; HDD/SSD installation</td>
<td>3x SATA ports for 2.5&quot; HDD/SSD installation</td>
<td>3x SATA ports for 2.5&quot; HDD/SSD installation</td>
</tr>
<tr>
<td><strong>SATA-HDD</strong></td>
<td>1x full-size mSATA port (mux with mini-PCIe)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Expansion Bus**

| PCI Express | 1x PCIe x8 slot | 1x PCIe x8 slot | 1x PCIe x8 slot | 1x PCIe x8 slot |
| PCI | | | | |
| mSATA | 1x full-size mSATA socket (mux with USB 2.0 signals) | | | |

**Power Supply**

| DC Input | 1x 3-pin pluggable terminal block for 8 to 35V DC input |

**Mechanical**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Width (W) x Depth (D) x Height (H)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuvo-6002</td>
<td>184 mm x 225 mm x 174 mm</td>
</tr>
<tr>
<td>Nuvo-6032</td>
<td>225 mm x 225 mm x 184 mm</td>
</tr>
<tr>
<td>Nuvo-6023</td>
<td>225 mm x 225 mm x 184 mm</td>
</tr>
<tr>
<td>Nuvo-6041</td>
<td>225 mm x 225 mm x 184 mm</td>
</tr>
</tbody>
</table>

**Environmental**

| Operating Temperature | -25°C ~ 65°C |
| Storage Temperature | -40°C ~ 85°C |

**Ordering Information**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuvo-6002</td>
<td>Intel® 6th-Gen Core™ Fanless Box PC with 1x PCIe x16 slot and 5x PCIe x4 slots</td>
</tr>
<tr>
<td>Nuvo-6032</td>
<td>Intel® 6th-Gen Core™ Fanless Box PC with 1x PCIe x16 slot, 1x PCIe x8 (4x4 signals) slot and 3x PCI slots</td>
</tr>
<tr>
<td>Nuvo-6023</td>
<td>Intel® 6th-Gen Core™ Fanless Box PC with 3x PCIe slots and 1x PCIe slots</td>
</tr>
<tr>
<td>Nuvo-6041</td>
<td>Intel® 6th-Gen Core™ Fanless Box PC with 5x PCIe x4 and 4x PCI slots</td>
</tr>
</tbody>
</table>

**Optional Accessories**

- **PA-120W-DW**
  - 120W AC/ DC power adapter 20V/ 1A, 18AWG/ 1.20m, cord end terminals for terminal block, operating temperature: -30°C to 70°C
- **PA-160W-DW**
  - 160W AC/DC power adapter 20V/ 1.2A, 18AWG/ 1.20m, cord end terminals for terminal block, operating temperature: -30°C to 70°C
- **FanKit-80**
  - Fan assembly for Nuvo-6000 series, 80x80x15 mm
- **Cbl-DB9F-3DB9M-15CM**
  - 1x DB9 (female) to 3x DB9 (male), for Nuvo-6000 series, length: 15CM
- **DINRAIL-E**
  - DIN-rail mount assembly for Nuvo-6000 series
- **RMKit-Nuvo6000**
  - Rack-mounting assembly for Nuvo-6000/ 6000 series
Nuvo-2700DS series is a rugged digital signage system with AI inference capability for personalized user experience and audience measurement. Powered by AMD Ryzen™ Embedded V1605B, it can output to four 4K displays and playback 4K H.265 videos at 60fps. By supporting two Google Edge TPU, it delivers a total of 8 TOPS AI inference performance in a fanless compact form factor. The wide operating temperature and fanless design make it ideal for 24/7 applications in harsh indoor and outdoor environments, such as flight information display system (FIDS) or train schedule board. Furthermore, Nuvo-2700DS can also be deployed for mobile applications due to the inclusion of ignition power control and full bandwidth support of WIFI 6, 4G LTE, and 5G network modules.

Nuvo-2700DS series signifies a new age of AI enabled digital signage player for harsh environments and mobile applications. You can utilize Nuvo-2700DS as a video wall player to playback to 4K ultra high definition visual displays or deploy Nuvo-2700DS as a low power fanless Edge AI platform for emerging AI applications. With AI inference from Google Edge TPU’s, Nuvo-2700DS creates an interactive and personalized experience, but moreover, it can quantify offline campaign like never before and offer insight data.

Key Features
- AMD Ryzen™ embedded V1605B series quad-core 15W CPU
- Rugged -25°C to 70°C fanless operation
- 4x 4K DP display, 3840 x 2160 resolution per output
- AI inference capability by 2x optional Edge TPU
- 1x M.2 3042/3052 B-Key for 4G/5G module
- 2x USB3.1 Gen 1 and 2x USB2.0
- RV to 35V wide-range DC input with built-in ignition power control
- Flexible power input options: mini-DIN or terminal block
POC-700 Series

**Key Features**

- **1x 3-pin pluggable terminal block for 8 to 35V DC input**
- **4x USB 3.2 Gen2 ports with screw-lock**
- **1.2 kg**
- **64 (W) x 116 (D) x 176 (H) mm**
- **-40°C ~ 85°C**
- **4x Gb Ethernet ports by Intel**
- **Up to 16 GB DDR5-4800 SDRAM (one SODIMM socket)**
- **EN62368-1**
- **73**

Introduction

POC-700 is Neousys’ next generation ultra-compact embedded controller utilizing the latest Intel® Alder Lake i3-N305 processor that is capable of delivering up to 1.3x the CPU performance when compared to previous POC-500 series. Neousys’ POC-700 is powered by Intel’s Alder Lake i3-N305, an 8-core/8-thread processor, coupled with Intel UHD Graphics with 32EUs to support Intel® OpenVINO™ for AI inference capabilities. The systems adopts DDR5-4800 to offer up to 1.8x memory bandwidth over DDR4 to boost overall system performance. It also has four USB3.2 Gen2 and four GigE PoE+ ports with screw lock mechanisms to connect and secure industrial cameras for machine vision applications. Display output wise, there are HDMI and DP video outputs to support high-definition display devices. As for connections and expansions, POC-700 features isolated DIO for device monitoring/control, 2x M.2 2280 M key for SATA SSD and a mini-PCIe socket for wireless WiFi, LTE/F5G or CAN bus device.

Measuring just 64 x 116 x 176mm, the ultra-compact POC-700 can easily fit into restricted space and is a seamless upgrade from POC-500 series with identical footprint. Benefiting from the performance gains of the latest Intel® i3 N305 CPU, wide-temperature fanless design, and ample interfaces for industrial cameras and IOs, POC-700 is perfect for machine vision and smart city applications.

**Specifications**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Intel® Alder Lake Core™ i3-N305 processor (8C/8T, 1.8/3.8 GHz, 15W TDP)</td>
</tr>
<tr>
<td>Graphics</td>
<td>Integrated Intel® UHD Graphics with 32EUs</td>
</tr>
<tr>
<td>Memory</td>
<td>Up to 16 GB DDR5-4800 SDRAM (one SODIMM socket)</td>
</tr>
<tr>
<td>TPM</td>
<td>Supports TPM 2.0 (fTPM/dTPM)</td>
</tr>
<tr>
<td>Panel I/O Interface</td>
<td>1x 3-pin pluggable terminal block for remote control and PWR LED output</td>
</tr>
<tr>
<td>Power Supply</td>
<td>1x 4-pin pluggable terminal block for 8 to 35V DC input</td>
</tr>
<tr>
<td>Dimensions</td>
<td>64 (W) x 116 (D) x 176 (H) mm</td>
</tr>
<tr>
<td>Weight</td>
<td>1.2 kg</td>
</tr>
<tr>
<td>Mounting</td>
<td>Optional (3M adhesive tape or wall mount (optional))</td>
</tr>
<tr>
<td>Environment</td>
<td>Operating Temperature: -25°C ~ 70°C</td>
</tr>
<tr>
<td></td>
<td>Humidity: 15%~90%, non-condensing</td>
</tr>
<tr>
<td></td>
<td>Vibration: Operating, M4-STD-B10G, Method 5.6.6, Category 4</td>
</tr>
<tr>
<td></td>
<td>Shock: Operating, M4-STD-B10G, Method 5.6.4, Procedure 1, Table 5.6.4.6</td>
</tr>
<tr>
<td></td>
<td>Safety</td>
</tr>
<tr>
<td></td>
<td>EMC</td>
</tr>
</tbody>
</table>

**Optional Accessories**

- **MeziO™-C180** module with 4x RS-232/422/485 ports and 4x RS-232 ports
- **MeziO™-C181** module with 4x RS-232/422/485 ports and 4x RS-422/423 ports
- **MeziO™-V20** module with ignition power control function and 1x mini-PCIe socket for in-vehicle usage
- **MeziO™-U4** module with 4x USB 3.1 A ports
- **MeziO™-R11** module with SATA port for 2.5” HDD / SSD
- **MeziO™-R12** module with SATA port for 2.5” THD / SSD, 4x CH isolated DI and 4x CH isolated DO

**POC-700 Series**

- **Intel® Core™ i3-N305 Ultra-Compact Embedded Controller with 4x PoE+, 4x USB 3.2 and MeziO™ Interface**
- **MeziIO™ - MeziIO™ - MeziIO™ - MeziIO™ - MeziIO™ - MeziIO™ - MeziIO™**
POC-500 Series

**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 performance 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 is 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 the M.2 2280 NVMe SSD (PCIe Gen3 x2) to support 2x times the disk read/write speed over typical 3.5” SATA SSD.

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 116 x 166 mm (2.5” x 6.9” x 6.6”), 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 for 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**

- **System Core**
  - AMD Ryzen™ Embedded V1000 CPU
  - 4x PoE+, 4x USB 3.1 and MezIO™ interface
- **Power Supply**
  - 1x 3-pin plug-compatible modular block for PWR DC input
  - Remote Ctrl.&LED
  - 1x 3-pin plug-compatible terminal block for remote control and PWR LED output
- **Mechanical**
  - Dimension: 64 (W) x 116 (D) x 116 (H) mm
  - 62 (W) x 110 (D) x 176 (H) mm
  - Weight: 1.1 kg
  - 1.4 kg
  - Mounting: DIN-rail mount or (optional) wall-mounting kit
- **Environmental**
  - Operating Temperature: -25°C ~ 70°C (limited)
  - Storage Temperature: -40°C ~ 85°C
  - Humidity: 10%~90% non-condensing
  - Vibration: Operating: 0.25g (at 50~400Hz, 10~505Hz, Per Category) Non-operating: 1g (at 50~400Hz)
  - Shock: Operating: 30g @ 5ms, Non-operating: 110g @ 5ms
  - Safety: CE IEC61131-2, UL 508
  - EMI: CEI CCE Class A, according to EN 55032 & EN 55024

**Ordering Information**

- **Model No.** POC-515
- **Product Description** AMD Ryzen™ V1000 ultra-compact embedded controller with 4x PoE+ ports, 4x USB 3.1 ports and MezIO™ interface

**Optional Accessories**

- **PA-120W-DW** 120W AC/DC power adapter 200-240V; 18-25V/1200mA; cord end terminals for terminal block; operating temperature: -30 to 70°C
- **PA-60W-DW** 60W AC/DC power adapter with 12V, 5A DC output, cord end terminals for terminal block; operating temperature: -30 to 60°C

**Cbl-08BF-089M-15CM** 1x DB9 (female) to 3x DB9 (male); length: 15CM

**MezIO™ Modules**

- **MezIO-C710** MezIO™ module with 4x RS-232/422/485 ports and 1x 10/100/1000BASE-T Ethernet port
- **MezIO-C711** MezIO™ module with 4x RS-232/422/485 ports and 8x 10/100/1000BASE-T Ethernet ports
- **MezIO-D20** MezIO™ module with 8-CH isolated digital input and 8-CH isolated digital output
- **MezIO-D20-210** 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 mm-P422 port for in-vehicle usage
- **MezIO-U4** MezIO™ module with 4x USB 3.1 ports
- **MezIO-G4** MezIO™ module with 4x GigE ports
- **MezIO-R11** MezIO™ module with SATA port for 2.5” HDD/SSD
- **MezIO-R12** MezIO™ module with SATA port for 4.5” HDD/SSD, 4x USB isolated IO and 4-Ch isolated DIO
POC-400 Series

Intel® Elkhart Lake Atom® x6425E Ultra-compact Fanless Embedded Computer with 2.5GbE & PoE+

**Key Features**
- Intel® Elkhart Lake Atom® x6425E quad-core 2.0GHz/ 3.0GHz 12W processor
- Rugged -25 °C to 70 °C fanless operation
- 2x 2.5GbE PoE+ ports and 1x 2.5GbE port with screw-lock
- 2x USB 3.1 Gen1 and 2x USB 2.0 ports with screw-lock
- M.2 2280 M key SATA Interface
- Dual DP display outputs supporting 4096 x 2160 resolution
- Front I/O access DIN mounting design
- MezIO® compatible

**Introduction**
POC-400 is an ultra-compact fanless embedded computer for industrial applications. It utilizes the latest Intel® Elkhart Lake platform Atom® x6425E 4-core CPU that can deliver 1.8x CPU and 2x GPU performance improvement, compared to the previous generation. In addition to the performance boost, POC-400 features an ultra-compact design measuring just 56 x 108 x 153 mm, which can easily fit into restricted spaces. The system comes with a DIN-rail mounting chassis and an abundance of front-access I/O interfaces. Featuring three 2.5GBASE-T Ethernet ports with IEEE 802.3 PoE+ capability, they provide higher data bandwidth for devices such as NBASE-T cameras and is backward-compatible with 1000/100Mbps Ethernet. It also has two 4K DisplayPort, 2x USB 3.1 Gen1, 2x USB 2.0 and CDM ports for general industrial applications.

Supporting Neousys’ proprietary MezIO® interface for function expansion, you can add functions such as isolated DIO, RS-232/422/485, ignition control and 4G/ 5G by installing a MezIO® module. Moreover, POC-400 comes with an internal M.2 E key slot for a Google TPU or an Intel® Movidius™ VPU module to transform it into a lightweight AI inference platform at the edge.

Combining the new 10nm Atom® CPU, 2.5G Ethernet ports, PoE+ and ultra-compact enclosure with function expansion capabilities, Neousys® POC-400 is a compact and yet versatile embedded computer that can fuel various industrial applications.

**Specifications**

- **System Core**
  - Processor: Intel® Elkhart Lake Atom® x6425E quad-core 2.0GHz/3.0GHz 12W processor
  - Graphics: Integrated Intel® UHD Graphics
  - Memory: Up to 32GB DDR4-3200 SDRAM by one SODIMM socket
- **PoE**
  - Optional 8x 802.3at PoE+ on port #2 and #3, 50W total power
- **POE+**
  - -40°C ~85°C
  - 1x M.2 2280 SATA interface
  - 1x 3.5 mm jack for mic-in and speaker-out
  - 3x 2.5GBASE-T Ethernet ports by Intel® I225 GbE controllers
- **Audio**
  - 1x 3-pin pluggable terminal block for 8 to 35V DC input
  - 2x DisplayPort connector, 2x USB 3.1 Gen1, 2x USB 3.0 Host, 2x USB 2.0 ports
- **Optional Accessories**
  - Optional 1x 3.5 mm jack for mic-in and speaker-out

**Environmental**

- Operating Temperature: -25°C ~ 70°C (33°F ~ 158°F)  
- Storage Temperature: -40°C ~ 85°C (-40°F ~ 185°F)
- Humidity: 10% ~ 90% non-condensing

**TSMC**

- 65nm technology process
- 22nm logic technology process
- 0.13µm for memory and interface products

**EMC**

- CE/EMC: EN 61000-6-3, EN 61000-6-4

**Optional Accessories**

- **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 ETH-422/485 ports
  - MezIO®-D220: MezIO® module with X1 isolated digital input and X1 isolated digital output
  - MezIO®-D320: 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®-U11: MezIO® module with SATA port for 2.5” HDD/ SSD
  - MezIO®-U12: MezIO® module with SATA port for 2.5” HDD/ SSD, 4CH isolated DI and 4CH isolated DD

**Dimensions**

Unit: mm

- Width: 107.5 mm
- Height: 108 mm
- Depth: 153 mm

POC-400 Series

Intel® Elkhart Lake Atom® x6425E ultra-compact DIN-rail fanless rugged computer with 1x 2.5GbE, 2x 2.5Gb PoE+ and 2x USB 3.1 Gen1

POC-410
Intel® Elkhart Lake Atom® x6425E ultra-compact DIN-rail series rugged computer with 3x 2.5GbE and 2x USB 3.1 Gen1

POC-410

Optional 1x 3.5 mm jack for mic-in and speaker-out

**Ordering Information**

- **Model No.**
  - POC-400
  - POC-410

- **Product Description**
  - Intel® Elkhart Lake Atom® x6425E ultra-compact DIN-rail fanless computer with 3x 2.5GbE and 2x USB 3.1 Gen1
  - Intel® Elkhart Lake Atom® x6425E ultra-compact DIN-rail series rugged computer with 3x 2.5GbE and 2x USB 3.1 Gen1

- **Optional Accessories**
  - Cbl-DB9F-3DB9M-15CM
  - Wmkit-V-POC400
  - Wmkit-H-POC400
  - Wall-mount assembly for POC-400 series, vertical type

- **Optional 1x 3.5 mm jack for mic-in and speaker-out**

- **Environmental**
  - Operating Temperature: -30°C to 60°C
  - Storage Temperature: -40°C to 85°C
  - Humidity: 10% to 90% non-condensing

- **TSMC**

- **EMC**

- **Certificate**

- **Warranty**

- **Contact**

- **Website**

- **Support**

- **Documentation**

- **Terms of Use**

- **Privacy Policy**

- **Legal Notice**

- **Cookies**

- **Contact**

- **Website**

- **Support**

- **Documentation**

- **Terms of Use**

- **Privacy Policy**

- **Legal Notice**

- **Cookies**
POC-40

Introduction

POC-40 is an extremely compact fanless computer with dimensions measuring just 52 x 89 x 112 mm. It features Intel Elkhart Lake Atom® processor and is designed for space-restricted applications such as factory data collection, rugged edge computing and mobile gateway.

Utilizing Intel’s 10nm process technology, the new Elkhart Lake Atom® x6211E dual-core processor can deliver up to 1.8 times the performance boost over its previous generation. In comparison to POC-200, POC-40 provides 1.9 times computing performance at only half the size. It features generic IO functions, such as two Gigabit Ethernet ports, four USB 3.1 Gen1/2 ports, four COM ports and optional isolated digital I/Os for industrial communication and control. In addition, by adopting dedicated M.2 B key and E key slots, the POC-40 can fully harness the bandwidth of 5G and WiFi 6 wireless communications to provide wide-area coverage and real-time data transmission for industrial and mobile gateway applications.

With a similar footprint as a PICO-ITX motherboard, Neousys’ POC-40 is perfect for projects that require above par performance in an extremely compact package. Ideal for both edge computing and gateway applications, it is a low power consumption and lightweight fanless computer that offers wide-temperature operation for harsh environments.

Specifications

<table>
<thead>
<tr>
<th>System Core</th>
<th>Intel® Elkhart Lake Atom® x6211E dual-core processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Intel® Elkhart Lake Atom® x6211E dual-core processor</td>
</tr>
<tr>
<td>Graphics</td>
<td>Integrated Intel® UHD Graphics</td>
</tr>
<tr>
<td>Memory</td>
<td>Up to 32 GB DDR4/2133 (double-side size)</td>
</tr>
<tr>
<td>TPM</td>
<td>Supports TPM 2.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Panel I/O Interface</th>
<th>Supporting 4096 x 2160 resolution @ 60Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethernet</td>
<td>2x Gigabit Ethernet ports by Intel® I/O-Gig controllers</td>
</tr>
<tr>
<td>USB 3.1</td>
<td>1x USB 3.1 Gen1/2x 3.1 Gen1 ports</td>
</tr>
<tr>
<td>USB 2.0</td>
<td>1x USB 2.0 ports</td>
</tr>
<tr>
<td>Video Port</td>
<td>1x DisplayPort connector, supporting 4096 x 2160 resolution @ 60Hz</td>
</tr>
<tr>
<td>Serial Port</td>
<td>1x software-programmable RS-232/422/485 port (COM1) or COM2/COM3/COM4</td>
</tr>
<tr>
<td>Isolated Digital I/O</td>
<td>Optional 4-ch isolated digital input and 4-ch isolated digital output</td>
</tr>
</tbody>
</table>

| Storage Interface     | M.2 1x M.2 2280 M key SATA interface                |

Key Features

- Intel® Elkhart Lake Atom® x6211E direct processor
- 52 x 89 x 112 mm extremely compact form factor
- Rugged -25°C to 70°C fanless wide-temperature operation
- Two GigE ports, two USB 3.1 Gen1 ports and two USB2.0 ports
- M.2 2280 M key SATA storage interface
- One M.2 B key socket supporting 5G/ 4G 3042/3052 modules
- One M.2 E key socket for WiFi 5/ WiFi 6 modules
- One COM port with RS-232/ 422/ 485 modes and three RS-232 COM ports
- Optional 4-ch isolated digital input and 4-ch isolated digital output
- M.2 E key socket for WiFi 5/ WiFi 6 modules
- DIN-rail mount (optional)
- Wall-mount assembly for POC-40 series, vertical type

Dimensions

POC-40

Ordering Information

POC-40

Model No.  Product Description
POC-40  Intel® Elkhart Lake Atom® x6211E Extreme-compact Embedded Computer with 2x GbE and 2x USB 3.1
POC-40-DIO  Intel® Elkhart Lake Atom® x6211E Extreme-compact Embedded Controller with 2x GbE and 2x USB 3.1 and isolation DIO
POC-40-DIO-I2C  Intel® Elkhart Lake Atom® x6211E Extreme-compact Embedded Controller with 2x GbE, 2x USB 3.1 and I2C power control

Environmental

Operating Temperature  -20°C ~ 70°C
Humidity  10%~90%, non-condensing
Vibration  Operating: M1-5.7-G/105G, Method 5.6.6, Category 4
Shock  Operating: M1-5.7-G/105G, Method 5.6.6, Procedure 1 Table 5.16.6
EMC  EN55032 Class A, according to EN 55032 & EN 55022

Remote Control 1x Serial Port 1x DisplayPort

Memory

Up to 32 GB DDR4-3200 SDRAM (one SODIMM slot)

Software

- Supports fTPM 2.0
- Intel® Operating, MIL-STD-810G, Method 516.6, Procedure I, Table 2x USB 3.1 Gen1 (5 Gbps) ports
- 2x USB 2.0 ports
- 1x software-programmable RS-232/ 422/ 485 port (COM1)
- 1x 4-pin pluggable terminal block for 12-20V DC input with optional ignition power control
- Remote-strap 1x 4-pin pluggable terminal block for remote control
- Mechanical Dimension  52 mm (W) x 89 mm (D) x 112 mm (H)
- Single  0.6 kg
- Weight  0.6 kg
- Mounting DIN rail mount (standard) or wall mount (optional)

IO Interface

- 1x DisplayPort connector, supporting 4096 x 2160 resolution @ 60Hz
- 1x software-programmable RS-232/422/485 port (COM1) or COM2/COM3/COM4

System Core

- Intel® Elkhart Lake Atom® x6211E Dual-core processor can deliver up to 1.8 times the performance boost over its previous generation.
- In comparison to POC-200, POC-40 provides 1.9 times computing performance at only half the size.

Intel® Elkhart Lake Atom® x6211E dual-core processor designed for space-restricted applications such as factory data collection, rugged edge computing and mobile gateway.

Dimensions

POC-40

Optiona Ohcecessories

PAX-60W-750

60W AC/DC power adapter with 12V, 5A DC output, cord end terminals for terminal block. Operating temperature: -30 to 60°C

Winkel 7-V-POC40

Wall-mount assembly for POC-40 series, vertical type

CBL-DB9F-3DB9M-15CM

1x DB9 (Female) to 3x DB9 (Male), length: 15CM

www.neousys-tech.com
**POC-465AWP**

**Key Features**
- IP65-rated waterproof and dustproof design
- Intel® Elkhart Lake Atom® x6425E quad-core 2.0GHz/3.0GHz 12W processor
- 2x 2.5GbE Ethernet ports via M12 X-coded connectors
- 1x isolated RS-232 and 1x isolated RS-422/485 via M12 A-coded connectors
- 2x USB 2.0 ports via M12 A-coded connectors
- 1x VGA port via M12 A-coded connector
- Rugged Embedded

**Introduction**

POC-465AWP is a new segment of Neousys fanless computers featuring an IP65 rating based on Intel® Elkhart Lake Atom. The acronym AWP stands for affordability, waterproof, and protection. In short, the POC-465AWP is designed to solve your everyday environmental challenges. With IP65 protection, the stainless steel and aluminum chassis, the air-right system prevents internal PCB/PCB corrosion in high salinity or humidity situations. Additionally, the hermetic enclosure can be deployed into grimy or dusty air-polluted environments such as a farm or mining site without being affected. The system also features -25°C to 70°C wide operating temperature capability and an efficient heat dissipation design to minimize thermal throttling.

Connection-wise, POC-465AWP comes with M12 connectors to ensure connection in demanding, shock, and vibration environments. The system has two 2.5G Ethernet ports, one isolated RS-232, and one isolated RS-422/485. The isolated design protects the motherboard from voltage spikes that may damage internal components. It also has a VGA, two USB2.0, an M.2 M key to support SATA SSD, and a mini-PCIe for wireless WiFi/LTE, CAN bus, etc.

Combining IP65, M12 and great thermal design, POC-465AWP is reliable and highly tolerant to challenging conditions to fulfill versatile applications. Its ultra-compact size fits easily into confined spaces, and its waterproof capability makes it suitable for outdoor applications like wildfire detection, unmanned vehicle; or harsh environments like food/beverage manufacturing and pharmaceutical processing. The IP65 rating is an additional function that can enhance a product’s value and quality, and such is the case with Neousys’ POC-465AWP.

**Specifications**

**System Core**
- Processor: Intel® Elkhart Lake Atom® x6425E quad-core 2.0GHz/3.0GHz 12W processor
- Memory: Up to 32GB DDR4-3200 SDRAM by one SODIMM socket
- TPM: Supports TPM 2.0 (fTPM/dTPM)

**I/O Interface**
- Ethernet: 2x 2.5GbE Ethernet ports by Intel® Q247-T via M12 A-coded, 8-pin, connector
- Native Video Port: 1x VGA connector, supporting 1600 x 1200 resolution, via M12 A-coded connector
- Serial Port: 1x isolated RS-232 port (COM1) and 1x isolated RS-422/485 port, jSMA, via M12 A-coded, 8-pin connector
- USB: 2x USB 2.0 ports via M12 A-coded, 8-pin connector

**Storage Interface**
- M.2: 1x M.2 2280 M key socket for SATA SSD

**Internal Expansion Bus**
- MiniPCIE: 1x full-size mini PCI Express socket with internal micro SIM socket

**Power Supply**
- DC-input: 9-36V DC input with ignition power control input via M12 A-coded 5-pin connector

**Mechanical**
- Dimension: 106 mm (W) x 159.7 mm (D) x 79 mm (H)
- Weight: 1.45kg

**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 516.6a

**EMC**
- CE/FCC Class A, according to EN 55032 & EN 55035
- CE/EMC: According to EN 61000-6-2

**Ordering Information**

**Model No.**
- POC-465AWP: IP65 Waterproof Computer with Intel® Atom® x6425E, 2x 2.5GbE and isolated COM Ports

**Optional Accessories**

- **PA-60W-04U**: 55W AC/DC power adapter with 1x 12V, 5A DC output, center terminal for terminal block. Operating temperature: -30°C to 55°C.
- **Wmkit-POC465AWP**: Wall-mount assembly for POC-465AWP

**Appearance**

**Dimensions**

**Unit:** mm

**Table**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>POC-465AWP</td>
<td>IP65 Waterproof Computer with Intel® Atom® x6425E, 2x 2.5GbE and isolated COM Ports</td>
</tr>
</tbody>
</table>

**Optional Accessories**

- **PA-60W-04U**: 55W AC/DC power adapter with 1x 12V, 5A DC output, center terminal for terminal block. Operating temperature: -30°C to 55°C.
- **Wmkit-POC465AWP**: Wall-mount assembly for POC-465AWP
**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

### Specifications

<table>
<thead>
<tr>
<th>POC-300</th>
<th>POC-310</th>
<th>POC-320</th>
<th>POC-330</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Core</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Processor</td>
<td>Intel® Pentium® N4200 / Intel® Atom® E3950</td>
<td>Intel® Pentium® N4200 / Intel® Atom® E3950</td>
<td>Intel® Pentium® N4200 / Intel® Atom® E3950</td>
</tr>
<tr>
<td>Memory</td>
<td>Up to 8GB DDR3L-1866 (single SODIMM slot)</td>
<td>Up to 8GB DDR3L-1866 (single SODIMM slot)</td>
<td>Up to 8GB DDR3L-1866 (single SODIMM slot)</td>
</tr>
<tr>
<td>Panel I/O Interface</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethernet</td>
<td>2x Gigabit Ethernet ports by Intel® GbE controller</td>
<td>2x Gigabit Ethernet ports by Intel® GbE controller</td>
<td>2x Gigabit Ethernet ports by Intel® GbE controller</td>
</tr>
<tr>
<td>PoE</td>
<td>POE-320: PoE on port 4 and 5. 10/100/1000 PoE total power budget</td>
<td>POE-330: PoE on port 4 and 5. 10/100/1000 PoE total power budget</td>
<td>POE-330: PoE on port 4 and 5. 10/100/1000 PoE total power budget</td>
</tr>
<tr>
<td>Video Port</td>
<td>VGA and DVI dual display outputs via DVI-I</td>
<td>VGA and DVI dual display outputs via DVI-I</td>
<td>VGA and DVI dual display outputs via DVI-I</td>
</tr>
<tr>
<td>USB 2.0</td>
<td>2x USB 2.0 (1x Hi-speed)</td>
<td>2x USB 2.0 (1x Hi-speed)</td>
<td>2x USB 2.0 (1x Hi-speed)</td>
</tr>
<tr>
<td>USB 3.1</td>
<td>2x USB 3.1 (1x Hi-speed)</td>
<td>2x USB 3.1 (1x Hi-speed)</td>
<td>2x USB 3.1 (1x Hi-speed)</td>
</tr>
<tr>
<td>Audio</td>
<td>1x Line-in and 1x speaker-out</td>
<td>1x Line-in and 1x speaker-out</td>
<td>1x Line-in and 1x speaker-out</td>
</tr>
<tr>
<td>Internal I/O Interface</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MezIO®</td>
<td>1x high-speed PCIe Expansion slot with USB header</td>
<td>1x high-speed PCIe Expansion slot with USB header</td>
<td>1x high-speed PCIe Expansion slot with USB header</td>
</tr>
<tr>
<td>Storage Interface</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mSATA</td>
<td>1x Half-size mSATA port</td>
<td>1x Half-size mSATA port</td>
<td>1x Half-size mSATA port</td>
</tr>
<tr>
<td>Power Supply</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DC Input</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechanical</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimensions</td>
<td>56 mm (W) x 185 mm (D) x 153 mm (H)</td>
<td>56 mm (W) x 185 mm (D) x 153 mm (H)</td>
<td>56 mm (W) x 185 mm (D) x 153 mm (H)</td>
</tr>
<tr>
<td>Weight</td>
<td>0.94 kg</td>
<td>0.94 kg</td>
<td>0.94 kg</td>
</tr>
<tr>
<td>Mounting</td>
<td>DIN-rail mount (standard) or Wall-mount (optional)</td>
<td>DIN-rail mount (standard) or Wall-mount (optional)</td>
<td>DIN-rail mount (standard) or Wall-mount (optional)</td>
</tr>
</tbody>
</table>

### Key Features
- Operating Temperature: -25 °C to 70 °C with SSD, 100% CPU loading
- Storage Temperature: -40 °C to 85 °C
- Humidity: 10%~90%, non-condensing
- Vibration: Operating: 5 Grms, 5-500 Hz, 3 Axes
- Shock: Operating: 50 Grms, Half-sine 11 ms Duration, (w SSD, according to IEC60068-2-24)
- EMC: CE/CB/CEC Class A, according to EN 55022, EN 55324 & EN 55502

### Optional Accessories
- PA-60W-OW: 60W AC/DC power adapter with 12V, 5A DC output, cond end termina for terminal block. Operating temperature: -10°C to 50°C
- Winkit-V-POC300: Wall-mount assembly for POC-300 series, vertical type
- Winkit-H-POC300: Wall-mount assembly for POC-300 series, horizontal type
- CBL-D9F-D230-15CM: 1x DB9 (female) to 3x DB9 (male), length: 15CM
- MezIO® Modules
  - MezIO®-C140: Module with 4x RS-232/422/485 ports and 4x RS-232 ports
  - MezIO®-C181: Module with 4x RS-232/422/485 ports and 4x RS-422/485 ports
  - MezIO®-D220: Module with 2x 10/100/1000Base-T ethernet and 2x 10/100 Base-T ethernet
  - MezIO®-V20: Module with 1x 10/100 Base-T ethernet and 1x RS-422/485 serial port
  - MezIO®-Q4: Module with 4x USB 3.1 ports
  - MezIO®-R11: Module with 2x SATA port for 2.5” SSD and 4x 10/100 Base-T ethernet
  - MezIO®-R12: Module with 2x SATA port for 2.5” SSD and 4x 10/100 Base-T ethernet
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 it make 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. 1598820) 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.

<table>
<thead>
<tr>
<th></th>
<th>PB-2500J</th>
<th>PB-9250J</th>
<th>Off-line UPS</th>
<th>Interactive UPS</th>
<th>On-line UPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy storage technology</td>
<td>Supercapacitor</td>
<td>Supercapacitor</td>
<td>Battery</td>
<td>Battery</td>
<td>Battery</td>
</tr>
<tr>
<td>Backup time</td>
<td>1~3 mins</td>
<td>1~10 mins</td>
<td>&gt;30 mins</td>
<td>&gt;30 mins</td>
<td>&gt;30 mins</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-25°C~+65°C</td>
<td>-25°C~+65°C</td>
<td>0°C~40°C</td>
<td>0°C~40°C</td>
<td>0°C~40°C</td>
</tr>
<tr>
<td>Lifespan</td>
<td>&gt;10 yrs</td>
<td>&gt;10 yrs</td>
<td>2 yrs @ 25°C</td>
<td>2 yrs @ 25°C</td>
<td>2 yrs @ 25°C</td>
</tr>
<tr>
<td>Regulated power output</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Shutdown control</td>
<td>Automatic, plug &amp; play</td>
<td>Automatic, plug &amp; play</td>
<td>Via RS-232 and software</td>
<td>Via RS-232 and software</td>
<td>Via RS-232 and software</td>
</tr>
</tbody>
</table>

Industries and Photos are subject to change without notice.
Introduction

Neousys’ PB-9250J-110V is a newly designed SuperCap UPS accepting 110V DC input for fast-growing railway applications. Composed with eight 370F supercapacitors, PB-9250J-110V provides 9250 watt-second stored energy to sustain back-end system from seconds to minutes during power loss. Different from traditional battery-based UPS systems, supercapacitor has a wide operating temperature range and long operating life up to 10 years. Neousys’ PB-9250J-110V features -35 to 65°C operating temperature range and extremely high durability.

Thanks to Neousys’ patented CAP energy management technology, PB-9250J-110V provides sophisticated features such as real-time energy/power consumption monitoring, high/low voltage protection, and auto/manual shutdown control. It automatically manages boot and shutdown to help your system thrive on trains with unstable power source. Additional digital output channels are incorporated for indicating system status such as charging/discharging and power button control.

While computer systems are widely deployed in various railway applications, the rolling stock’s electrical stability still remains a focal point and is crucial for system reliability. PB-9250J-110V can protect the computer or other equipment against power interruption when a train passes through a level crossing or a railroad switch. Furthermore, with its EN 50155 and EN 45545 certificate, PB-9250J-110V can be used in any environment such as trains or most railway environments.

Key Features

- Universal standalone power backup module compatible with all box-PCs
- Supports 43-160V wide-range DC input for railway application
- Super capacitor-based, -40 to 70°C operation for EN 50155 OT4 class conformity
- 9250 watt-second energy capacity
- Maximum 120W output power for the connected back-end system
- Over 10 years lifespan, or 500,000 charge/discharge 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
- EN 50155 and EN 45545 certificate

Specifications

- Composition: 8x 370F, 3.0V supercapacitors
- Capacity: 9250 watt-second
- Expected lifespan: >10 years
- Operating temperature: -25 to 65°C
- Storage temperature: -40°C ~ 80°C
- Over 10 years lifespan, or 500,000 charge/discharge cycles
- Maximum output power: 120W
- Maximum output voltage: 24 VDC
- Input voltage: 43-160VDC

Mechanical

- Dimension: 110(W) x 175.2(H) x 128.2(D) mm
- Weight: 2.33 kg

Environmental

- Operating life: 500,000 charging/discharging cycles*
- Operating temperature: -40°C ~ 65°C
- Storage temperature: -40°C ~ 80°C

Supercapacitor Configuration

- Composition: 8x 370F, 3.0V supercapacitors
- Capacity: 9250 watt-second
- Expected lifespan: >10 years
- Operating temperature: -25 to 65°C
- Storage temperature: -40°C ~ 80°C

Additional Features

- Supports 43-160V wide-range DC input for railway application
- Super capacitor-based, -35 to 65°C operating temperature range and extremely high durability
- Patented CAP energy management technology
- 9250 watt-second energy capacity
- Maximum 120W output power for the connected back-end system
- Over 10 years lifespan, or 500,000 charge/discharge cycles
- High/low voltage protection
- Auto/manual shutdown control
- Monitoring energy and power consumption to extend operation time
- EN 50155 and EN 45545 certificate

Ordering Information

Model No. PB-9250J-110V
Product Description 9250 watt-second Supercapacitor-based UPS Module with 110V DC Input for Railway Application

Optional Accessories

WHRK-X-PB9250J-110V Wall-mount assembly for PB-9250J-110V, vertical type
PB-9250J-SA/ PB-4600J-SA/ PB-2580J-SA
Industrial-grade Standalone Intelligent Supercapacitor-based Uninterruptible Power Backup Module

Key Features
- Universal standby power backup module compatible with all box-PCs
- Supercapacitor-based, -25 to 65°C wide temperature operation
- Up to 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
- Safe system shutdown
- Versatile operating mode
- Normal backup mode
- Ignition control mode for standard box-PC and in-vehicle controller
- EN50155 certificate

Introduction
The PB series 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°C to 65°C and have extremely high durability lasting over 10 years. PB-9250J-SA and PB-4600J-SA are composed of eight and four 370F/3.0V supercapacitors, respectively, while PB-2580J-SA is composed of eight 100F/2.7V supercapacitors. They each offer 9250, 4600 and 2580 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 up to 180W of power to the back-end system and automatically manage boot and shutdown without installing additional drivers software. In addition to the UPS-like power backup module, 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 a 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, Neousys PB series can work with most off-the-shelf box-PCs. And with properties such as maintenance-free energy storage and uninterruptible power supply, the PB series can prevent the connected back-end system from data loss during a power outage in harsh industrial environments!

Specifications

<table>
<thead>
<tr>
<th>PB-9250J-SA</th>
<th>PB-4600J-SA</th>
<th>PB-2580J-SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superiaracitor Configuration</td>
<td>8x 370F, 3.0V supercapacitors</td>
<td>6x 370F, 3.0V supercapacitors</td>
</tr>
<tr>
<td>Capacity</td>
<td>9250 watt-second</td>
<td>4600 watt-second</td>
</tr>
<tr>
<td>Expected lifespan</td>
<td>10+ years</td>
<td></td>
</tr>
<tr>
<td>Lifecyle</td>
<td>500,000 charging/discharging cycles*</td>
<td></td>
</tr>
<tr>
<td>Power Specification</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input Voltage</td>
<td>12 to 36V DC input</td>
<td></td>
</tr>
<tr>
<td>Input Connector</td>
<td>1x 3-pin pluggable terminal block (V+, GND, IGN)</td>
<td></td>
</tr>
<tr>
<td>Output Voltage</td>
<td>Charge mode: DC, IN bypass (DC_OUT = DC_IN)</td>
<td></td>
</tr>
<tr>
<td>Output Power</td>
<td>Maximum 180W output**</td>
<td></td>
</tr>
<tr>
<td>Output Connector</td>
<td>Maximum 120W output**</td>
<td></td>
</tr>
<tr>
<td>I/O Interface</td>
<td>Industrial-grade terminal block (V+, GND, IGN, OUT)</td>
<td></td>
</tr>
<tr>
<td>COM Port</td>
<td>1x 9-pin DB9 Serial RS-232</td>
<td></td>
</tr>
<tr>
<td>Isolated DIO</td>
<td>1x 10-pin pluggable terminal block for - PWM, 3741 output</td>
<td>- DIO, STAF input</td>
</tr>
</tbody>
</table>

| Mechanical |
| Dimension | 82.5mm(W) x 175.2mm(H) x 128.2mm(D) |
| Weight | 1.7 kg |
| Mounting | DIN rail mount (standard) or Wall mount (optional) |

| Environmental |
| Operating Temperature | -40°C ~ 65°C with reduced energy capacity |
| Storage Temperature | -40°C ~ 65°C |

| Vibration |
| Compliant with (IEC 3733-2016), Category I, Class B Body mounted part of EN61373-2016 |

| Shock |
| Compliant with (IEC 61373-2016), Category I, Class B Body mounted part of EN61373-2016 |

| EMC |
| Compliant with EN61000-6-2:2007, CENELEC Class A, according to EN 55022 & EN 55035 of EN50155-2, EN50155-3, EN50361-1 & EN50362-1, EN50362-2, and EN50362-3, and EN50362-4 |

| Ordering Information |
| Model No. | Product Description |
| PB-9250J-SA | Standalone intelligent supercapacitor-base power backup module with 9250 W energy capacity |
| PB-4600J-SA | Standalone intelligent supercapacitor-base power backup module with 4600 W energy capacity |
| PB-2580J-SA | Standalone intelligent supercapacitor-base power backup module with 2580 W energy capacity |

| Optional Accessories |
| Wmk/H-9250J | Wall mount assembly for PB Series, vertical type |
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

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 superior 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. 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

<table>
<thead>
<tr>
<th>Model</th>
<th>PB-2500J-PCIe</th>
<th>PB-2500J-CSM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supercapacitor configuration</td>
<td>8x 100F, 3.0V ultracapacitors</td>
<td>-</td>
</tr>
<tr>
<td>Capacity</td>
<td>2500 watt-second</td>
<td>-</td>
</tr>
<tr>
<td>Expected lifespan</td>
<td>-10 years @ 25°C with 2500 w capacity*</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>76,000 hours @ 50°C with 2000 w capacity*</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>34,000 hours @ 65°C with 2100 w capacity*</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>15,000 hours @ 55°C with 2300 w capacity*</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>7,200 hours @ 65°C with 2500 w capacity*</td>
<td>-</td>
</tr>
</tbody>
</table>

*Expected lifespan is 2.5x when configured as 2100 watt-second energy capacity, or 4.8x when configured as 1750 watt-second energy capacity.

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.

Ordering Information

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PB-2500J-PCIe</td>
<td>Intelligent supercapacitor-based power backup PCIe card with 2500 w energy capacity</td>
</tr>
<tr>
<td>PB-2500J-CSM</td>
<td>Intelligent supercapacitor-based power backup Cassette module with 2500 w energy capacity, for Nuvo-5000 series</td>
</tr>
<tr>
<td>PB-2500J-CSM7</td>
<td>Intelligent supercapacitor-based power backup Cassette module with 2500 w energy capacity, for Nuvo-7000 series</td>
</tr>
</tbody>
</table>

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

All specifications and photos are subject to change without prior notice.

Last updated: 15 - Jan 2020

www.neousys-tech.com
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 expand
- 12 to 25V wide-range DC input and RS232/PoE+ PD
- -25°C to 70°C wide temperature operation

Introduction

Neousys IGT-30 series, equipped with AM3352 from Texas Instruments’ Sitara AM33xx 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 variety 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 control. User can easily build their own private serial automation or IoT 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

<table>
<thead>
<tr>
<th>Feature</th>
<th>IGT-33V</th>
<th>IGT-34C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System Core</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Processor</td>
<td>TI Sitara AM3352 1GHz processor</td>
<td></td>
</tr>
<tr>
<td>Memory</td>
<td>1GB DDR3L SDRAM</td>
<td></td>
</tr>
<tr>
<td><strong>Exterior panel I/O Interface</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethernet</td>
<td>2x10/100M LAN, 1 with PoE PD</td>
<td></td>
</tr>
<tr>
<td>USB 2.0</td>
<td>1x USB 2.0</td>
<td></td>
</tr>
<tr>
<td>SD Card</td>
<td>1x external TF flash support supports SDHC</td>
<td></td>
</tr>
<tr>
<td>Function Buttons</td>
<td>2x user programmable buttons</td>
<td></td>
</tr>
<tr>
<td>User LEDs</td>
<td>6x user programmable LEDs</td>
<td></td>
</tr>
<tr>
<td>Isolated DIO</td>
<td>2x digital input</td>
<td></td>
</tr>
<tr>
<td>Analog Input</td>
<td>8x 16-bit 0-10V Voltage Input</td>
<td>8x 16-bit 0-10V Voltage Input</td>
</tr>
<tr>
<td></td>
<td>4x 16-bit 0-5V Voltage Input</td>
<td>4x 16-bit 0-5V Voltage Input</td>
</tr>
<tr>
<td><strong>Top I/O Interface</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DC IN</td>
<td>1x DC input connector</td>
<td></td>
</tr>
<tr>
<td>Power Button</td>
<td>1x power button</td>
<td></td>
</tr>
<tr>
<td>Reset Button</td>
<td>1x reset button</td>
<td></td>
</tr>
<tr>
<td>Console</td>
<td>1x RS-232 as Console Port</td>
<td></td>
</tr>
<tr>
<td>Serial Port</td>
<td>1x RS-232/422/485</td>
<td>1x RS-485</td>
</tr>
<tr>
<td>Antenna Hole</td>
<td>2x antenna hole for WiFi and IGT/TE</td>
<td></td>
</tr>
<tr>
<td><strong>Internal I/O Interface</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD Card</td>
<td>1x internal TF flash support support micro SDHC</td>
<td></td>
</tr>
<tr>
<td>SIM Card</td>
<td>1x internal SIM card</td>
<td></td>
</tr>
<tr>
<td>Operating System</td>
<td>Debian 9 pre-installed</td>
<td></td>
</tr>
<tr>
<td><strong>Software</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power Supply</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DC Input Range</td>
<td>12 to 25V DC input</td>
<td></td>
</tr>
<tr>
<td>FPG A</td>
<td>802.3at PoE+ PD</td>
<td></td>
</tr>
<tr>
<td>Mechanical Dimensions</td>
<td>44mm (L) x 104mm (W) x 77mm (H)</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>0.55kg</td>
<td></td>
</tr>
<tr>
<td>Mounting</td>
<td>DIN-rail mount</td>
<td></td>
</tr>
<tr>
<td><strong>Environmental</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-20°C~70°C</td>
<td></td>
</tr>
<tr>
<td>Storage</td>
<td>-40°C~85°C</td>
<td></td>
</tr>
<tr>
<td>Humidity</td>
<td>5Grms</td>
<td></td>
</tr>
<tr>
<td>Shock</td>
<td>50Grms</td>
<td></td>
</tr>
<tr>
<td>EMC</td>
<td>CE/KCC Class A, according to EN55032 &amp; EN55022</td>
<td></td>
</tr>
</tbody>
</table>

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 Accessories

N510-LTE-7455 Cat. 5 LTE embedded socket modem
**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 Instruments' 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 25VDC and a wide operating temperature from -20°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.

**Specifications**

<table>
<thead>
<tr>
<th>System Core</th>
<th>Processor</th>
<th>TI Sitara™ AM3352 Dual-core processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory</td>
<td>1GB DDR3L SDRAM</td>
<td></td>
</tr>
<tr>
<td>Front-panel I/O Interface</td>
<td>Ethernet 2x 10/100LAN</td>
<td></td>
</tr>
<tr>
<td>USB</td>
<td>1x USB 2.0</td>
<td></td>
</tr>
<tr>
<td>Isolated DI/O</td>
<td>8-CH isolated DI and 2-CH isolated DO</td>
<td></td>
</tr>
<tr>
<td>Serial Port</td>
<td>1x software configurable RS-232/422/485</td>
<td></td>
</tr>
<tr>
<td>User LEDs</td>
<td>6x user programmable LEDs</td>
<td></td>
</tr>
<tr>
<td>Function Buttons</td>
<td>24 user programmable buttons</td>
<td></td>
</tr>
<tr>
<td>CAN</td>
<td>1x isolated CAN bus (IGT-31D only)</td>
<td></td>
</tr>
<tr>
<td>Top I/O Interface</td>
<td>DC IN 1x DC Input connector</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Power Button 1x power button</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reset Button 1x reset button</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Console 1x RS-232 am Console Port</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Antenna Hole 2x antenna hole for WiFi and 3G LTE</td>
<td></td>
</tr>
</tbody>
</table>

**Internal I/O Interface**

- 1x serial via COM
- 1x Ethernet via LAN
- 1x isolated USB socket via microSDHC
- 1x internal LAN socket

**Software**

- Operating System: Debian pre-installed

**Power Supply**

- DC Input Range: 12 to 25V DC input
- PoE+ PD: IEEE 802.3at PoE+

**Performance**

- Operating temperature: -20°C ~ 70°C
- Storage temperature: -40°C ~ 85°C
- Humidity: 10%~90%, non-condensing
- Vibration: 5G (rms)
- Shock: 50G (rms)
- EMC: CE/ FCC Class A, according to EN55032 & EN55034

**Ordering Information**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IGT-30D</td>
<td>Industrial grade ARM-based IoT gateway with dual LAN and PoE PD enabled</td>
</tr>
<tr>
<td>IGT-31D</td>
<td>Industrial grade ARM-based IoT gateway with dual LAN, CAN bus and PoE PD enabled</td>
</tr>
</tbody>
</table>

**Optional Accessories**

- NS10-LTE-7455 Cat. 6 LTE Embedded Socket modem
**Introduction**

Neousys IGT-20 series, equipped with AM3352 from Texas Instruments’ 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.

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.

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

---

**Specifications**

<table>
<thead>
<tr>
<th>System Core</th>
<th>IGT-20</th>
<th>IGT-21</th>
<th>IGT-22</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>TI AM3352 1GHz processor</td>
<td>TI AM3352 1GHz processor</td>
<td>TI AM3352 1GHz processor</td>
</tr>
<tr>
<td>Memory</td>
<td>1GB DDR3L</td>
<td>1GB DDR3L</td>
<td>1GB DDR3L</td>
</tr>
<tr>
<td>RTC</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Front-panel U/I Interface**

<table>
<thead>
<tr>
<th>Ethernet</th>
<th>1x 10/100M Ethernet</th>
<th>1x 10/100M Ethernet</th>
<th>1x 10/100M Ethernet</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD Card</td>
<td>1x internal T-Flash socket support SDHC</td>
<td>1x internal T-Flash socket support SDHC</td>
<td>1x internal T-Flash socket support SDHC</td>
</tr>
<tr>
<td>USB 2.0</td>
<td>1x USB 2.0</td>
<td>1x USB 2.0</td>
<td>1x USB 2.0</td>
</tr>
<tr>
<td>Isolated DI/O</td>
<td>4-CH isolated DI and 4-CH isolated DO</td>
<td>8-CH isolated DI and 8-CH isolated DO</td>
<td>8-CH isolated DI and 8-CH isolated DO</td>
</tr>
<tr>
<td>Console</td>
<td>1x 3-wire RS-232 as Console Port</td>
<td>1x 3-wire RS-232 as Console Port</td>
<td>1x 3-wire RS-232 as Console Port</td>
</tr>
<tr>
<td>User Buttons</td>
<td>2x user programmable buttons</td>
<td>2x user programmable buttons</td>
<td>2x user programmable buttons</td>
</tr>
<tr>
<td>CAN</td>
<td>1x CAN bus 2.0 A/B</td>
<td>1x CAN bus 2.0 A/B</td>
<td>1x CAN bus 2.0 A/B</td>
</tr>
</tbody>
</table>

**User I/O Interface**

<table>
<thead>
<tr>
<th>DC IN</th>
<th>1x DC Input connector</th>
<th>1x DC Input connector</th>
<th>1x DC Input connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Button</td>
<td>1x power button</td>
<td>1x power button</td>
<td>1x power button</td>
</tr>
<tr>
<td>Reset Button</td>
<td>1x reset button</td>
<td>1x reset button</td>
<td>1x reset button</td>
</tr>
<tr>
<td>Serial Port</td>
<td>2x software configurable RS-232 / 422 / 485</td>
<td>1x RS-232 and 1x RS-485</td>
<td>1x RS-232 and 1x RS-485</td>
</tr>
<tr>
<td>Antenna Opening</td>
<td>1x antenna opening for WiFi and 3G/LTE</td>
<td>1x antenna opening for WiFi and 3G/LTE</td>
<td>1x antenna opening for WiFi and 3G/LTE</td>
</tr>
</tbody>
</table>

---

**Ordering Information**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IGT-20</td>
<td>Industrial grade ARM-based IoT gateway with 4DI and 4DO</td>
</tr>
<tr>
<td>IGT-21</td>
<td>Industrial grade ARM-based IoT gateway with 4DI, 4DO and CAN bus</td>
</tr>
<tr>
<td>IGT-22</td>
<td>Industrial grade ARM-based IoT gateway with 8DI and 8DO</td>
</tr>
</tbody>
</table>

---

**Optional Accessories**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSIO-LTE-7455</td>
<td>Cat. 6 LTE embedded socket modem</td>
</tr>
</tbody>
</table>
Machine Vision

Nuvis-7306RT Series

Key Features

- Intel® 9th/8th-Gen Core™ i vision controller with vision-specific I/O, real-time controller and GPU-computing
- Intel® Q370 platform controller hub
- Intel® Chipset
- Processor 9th/8th-Gen Core™ i7/i5, Nuvis-7306RT brings tremendous computing power for image processing.
- Machine Vision

For deep learning vision applications, Nuvis-7306RT can accommodate an NVIDIA® 120W 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**

<table>
<thead>
<tr>
<th>System Core</th>
<th>Graphics</th>
<th>Memory</th>
<th>Storage Interface</th>
<th>Processor</th>
<th>Chipset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel® 9th/8th-Gen Core™ i7/i5 LGA1151 socket-type CPU</td>
<td>Integrated Intel® UHD graphics 630</td>
<td>16GB DDR4</td>
<td>SATA HDD/ SSD</td>
<td>Intel® Q370 platform controller hub</td>
<td></td>
</tr>
<tr>
<td>9th/8th-Gen Coffee Lake CPU 120W TDP GPU with dual SIM mode with selected M.2 LTE module</td>
<td></td>
<td></td>
<td>M.2</td>
<td>Intel® Chipset</td>
<td></td>
</tr>
<tr>
<td>9th/8th-Gen Coffee Lake CPU 120W TDP GPU to leverage state-of-the-art object detection/classification neural network models.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Optional Accessories</th>
<th>Ordering Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA-280W-E12</td>
<td>PA-480W-DVN</td>
</tr>
</tbody>
</table>

All specifications and photos are subject to change without prior notice.

All rights reserved. Copyright © 2023 Neousys Technology Inc.
Machine Vision

Nuvis-5306RT Series

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

Key Features

- Intel® 6th-Gen Core™ i7/i5 65W/35W CPU, up to 32 GB DDR4
- Integrated vision-specific I/O
- 4-CH CC/CCV lighting controller
- 4-CH camera trigger outputs
- 1-CH quadrature encoder input
- 8-CH isolated DI and 9-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

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

- Supports Intel® 6th-Gen Core™ LGA1151 CPU:
  - Core™ i7-6700TE (6M Cache, 2.4/ 3.4 GHz, 35W TDP)
  - Core™ i5-6500TE (6M Cache, 2.3/ 3.6 GHz, 65W TDP)
- 6th-Gen Core™ LGA1151 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 HIC lighting controller output, supporting Constant current mode (up to 5A per channel, 160V dimming control)
- Constant voltage mode (48V, 100kHz 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 (can be connected to FPGA/PWM)
- 4-CH isolated high-speed DO (up to 500 mA speed current)
- Isolated Digital Input: 8-CH isolated high-speed digital input (I/O can be connected to FPGA/PWM)
- Real-time I/O Control: Integrated NuMCU-based real-time I/O control with DTIO V2 or NuMCU firmware

Storage Interface

- SATA HDD: 2x internal SATA port for 3.5" HDD/SSD installation, supporting RAID 0/1
- mSATA: 1x full-size mSATA port (mSATA)

Expansion Bus

- PCIe x4: 1x PCIe x16 slot @ 8x, 8-lanes PCIe signals in Cascade, supporting - 2x PCIe® x4 slot card
- COTS CameraLink and CoaXPress camera interface cards

Mini PCIe

- 1x internal mini PCIe Express card with front-accessible SIM socket
- 1x internal mini PCIe Express card with integrated SIM socket

Power Supply

- DC Input: 1x 3-pin pluggable terminal block for 8 to 35V DC input
- Sense Ctrl. & Status Output: 1x pin-header, 4-pin header
- Status LED: 1x 4-pin header for remote status control and status LED output

Mechanical

- Dimension: 240 mm(W) x 225 mm(D) x 110 mm(H)
- Weight: 4.5 kg
- Mounting: Wall-mount

Environmental

- Storage: -40°C ~ 85°C (configured as 65W CPU mode) with i7-6700, i5-6500 (65W TDP)
- Operating: -25°C ~ 50°C (configured as 65W CPU mode) with i7-6700TE, i5-6500TE (35W TDP)

Ordering Information

Model No. Product Description

Nuvis-5306RT-D70 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 ends for terminal block, operating temperature: -30 to 70 °C.
Fankit-40 Fan assembly for 2-slot Cassette, 40x40x10 mm

All specifications and photos are subject to change without prior notice.

Nuvis-5306RT Series

www.neousys-tech.com
Nuvis-534RT Series

**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 NVMe SSD

**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
| Graphics | VGA 80-pin with 11 compute units
| Memory | Up to 32 GB DDR4-3200 SDRAM by one SOGDRM
| TPM | Supports TPM 2.0
| Vision-Specific I/O Interface | Camera Trigger | 4-CH camera trigger output (isolated 12VDC output) on DTIO
| | Encoder Input | 1-CH quadrature encoder input (A/B2)
| | Isolated Digital Output | 4-CH isolated high-speed DO (-2us transient time, for strobe/PWM)
| | Isolated Digital Input | 6-CH isolated high-speed digital input (+2us 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 | 1x Gigabit Ethernet ports by default USG-AM4 controller
| | PoE | IEEE 802.3at PoE+ PoE, 90W total power budget
| | USB 3.1 | 4x USB 3.1 Gen1 (5 Gbps) ports
| Video Port | 1x VGA, supporting 1920*1200 resolution
| | 1x DP connector, supporting 4K60 resolution
| Serial Port | 1x Software programmable RS-232/422/485 ports (COM1)
| | 4x RS-232 ports (COM2/3/4) or 1x RS-422/485 ports (COMX)
| Audio | 1x 3.5mm jack for mic-in and speaker-out

**Dimensions**

- Unit: mm
- Width: 90 mm
- Depth: 118 mm
- Height: 176 mm
- Weight: 1.5 kg

**Operating Temperature**
- -25°C ~ 70°C **Emergency**
- -40°C ~ 85°C
- -40°C ~ 60°C **Nominal**

**Environmental**
- Operating, MIL-STD-810G, Method 516.6, Procedure I, Shock
- Operating, MIL-STD-810G, Method 514.6, Category 4
- Humidity: 10%~90% non-condensing
- Vibration: Operating, M4-STD-B135, Method 516.4, Category 4
- Shock: Operating, M4-STD-B135, Method 516.4, Procedure 1, Table 516.4-A
- EMC: CATTCA Class A, according to EN 55022 & EN 55324

---

**Ordering Information**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuvis-534RT-DTIO</td>
<td>AMD Ryzen™ V1807B ultra-compact vision controller with vision-specific I/O and real-time control by DTIO</td>
</tr>
<tr>
<td>Nuvis-534RT-NuMCU</td>
<td>AMD Ryzen™ V1807B ultra-compact vision controller with vision-specific I/O and real-time control by NuMCU</td>
</tr>
</tbody>
</table>

**Additional Information**
- AMD Ryzen™ Embedded V1807B quad-core 45W CPU supports up to 32 GB DDR4-3200 SDRAM by one SOGDRM.
- AMD Ryzen™ Embedded V1807B CPU supports up to 32 GB DDR4-3200 SDRAM by four SOGDRM.
- AMD Ryzen™ Embedded V1807B supports up to 32 GB DDR4-3200 SDRAM by four SOGDRM.
**LTN-450 Series**

**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
- Support RS-232 and Ethernet interface
- 12 to 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 power 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 or Ethernet 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**

<table>
<thead>
<tr>
<th></th>
<th>LTN-454</th>
<th>LTN-452</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>1x RS-232 COM port</td>
<td>1x Ethernet port</td>
</tr>
<tr>
<td>Interface</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LED Lighting</td>
<td>4-CH constant current outputs</td>
<td>2-CH LED constant current outputs</td>
</tr>
<tr>
<td>Controller</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output voltage</td>
<td>Continuous: 5V to 24V</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Overdriving: 5V to 40V</td>
<td></td>
</tr>
<tr>
<td>Supply voltage</td>
<td>1x 3-pin pluggable terminal block for 12 to 32V DC input</td>
<td></td>
</tr>
<tr>
<td>Output current</td>
<td>1A to 26A at 1A increments</td>
<td>1A to 10A for overdriving in 10mA increments</td>
</tr>
<tr>
<td>Output power</td>
<td>10A to 100W adjustable power output for continuous mode</td>
<td>Up to 500W peak power output for overdriving mode</td>
</tr>
<tr>
<td>Operating modes</td>
<td>Continuous, pulsed, overdriving and switched modes</td>
<td></td>
</tr>
<tr>
<td>Trigger input</td>
<td>4-CH isolated trigger inputs</td>
<td>2-CH isolated trigger inputs</td>
</tr>
<tr>
<td></td>
<td>Logic low: 0V ~ 1.5V</td>
<td>Logic low: 0V ~ 1.5V</td>
</tr>
<tr>
<td></td>
<td>Logic high: 5V ~ 24V</td>
<td>Logic high: 5V ~ 24V</td>
</tr>
<tr>
<td>Pulse width</td>
<td>For overdriving mode: minimum 50µs, 1 µs increments, maximum 30 ms according to 100% to 100% overdriving scale</td>
<td>For continuous mode: 0.5 µs to 3ms increments</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0°C ~ 40°C</td>
<td>0°C ~ 40°C</td>
</tr>
<tr>
<td>Dimensions</td>
<td>47mm x 108mm x 150mm (L x W x H)</td>
<td>47mm x 108mm x 150mm (L x W x H)</td>
</tr>
<tr>
<td>Mounting</td>
<td>Diffused mount</td>
<td>Diffused mount</td>
</tr>
<tr>
<td>Weight</td>
<td>0.9 kg</td>
<td>1.0 kg</td>
</tr>
<tr>
<td>EMC</td>
<td>CUL/CEC, according to EN60950-1/EN61010-1/EN61010-2-1004-2</td>
<td>CUL/CEC, according to EN60950-1/EN61010-1/EN61010-2-1004-2</td>
</tr>
</tbody>
</table>

* For precision operating modes and control output discrepancies, please consult the manufacturer.

**Ordering Information**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTN-454</td>
<td>4-CH constant-current LED controller supporting 10A overdriving output and 4 trigger inputs</td>
</tr>
<tr>
<td>LTN-452</td>
<td>2-CH constant-current LED controller supporting 10A overdriving output and 2 trigger inputs</td>
</tr>
</tbody>
</table>

**Optional Accessories**

- **PA-280W-ET2**: 280W AC/DC power adapter 24V 11.67A, T66x95/150cm, 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°C to 70°C
**PCIe-PoE454 Series**

**Key Features**
- 4-port SGBASE-T Ethernet ports by four Marvel AQ111C controllers
- Compliant with IEEE 802.3at to deliver up to 25.5 W for each port
- Supports 5G/2.5G/1G/100M link speed
- x4, Gen3 PCI Express interface offering 40G/s total bandwidth
- Per-port PoE+ power on/off control
- Compatible with COTS NBASE-T industrial cameras

**Introduction**
PCIe-PoE454at is an industrial-grade 4-port SGBASE-T frame grabber card with 2x 3.7at PoE+ capability for advanced machine vision applications. It leverages Marvel AQ111C SGBASE-T Ethernet controller to offer dedicated 5 Gb/s Ethernet bandwidth for each port. Furthermore, it is backward compatible with 2.5G, 1G, 100M link speeds to support legacy Ethernet devices and can transmit data utilizing economical Cat 5e Ethernet cables up to 100 meters without bandwidth degradation.

SGBASE-T, or NBASE-T, is an emerging technology, especially for the machine vision market. Cameras with a SGBASE-T Ethernet interface have up to 5 times the Ethernet bandwidth compared to Gigabit Ethernet, thus supporting higher resolution and frame rate. PCIe-PoE454at provides high port density to provide four SGBE ports in a standard half-size PCIe card form factor. In addition, it comes with IEEE 802.3at PoE+ function so you can simply power the NBASE-T camera using a single Ethernet cable.

For machine vision systems requiring multiple high-resolution SGBASE-T cameras, PCIe-PoE454at is the ideal frame grabber that provides high port density, 24/7 reliable operation, and excellent throughput performance without frame loss.

**Specifications**

<table>
<thead>
<tr>
<th>PCIe-PoE454at</th>
<th>PCIe-PoE454at</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bus Interface</strong></td>
<td>Gen3 PCI Express interface</td>
</tr>
<tr>
<td><strong>No of Port</strong></td>
<td>4x SGBASE-T Ethernet ports by four Marvel AQ111C controllers, supporting 5G, 2.5G, 1G, 100M link speed</td>
</tr>
<tr>
<td><strong>Port Capability</strong></td>
<td>In compliance with IEEE 802.3at-2009 (PoE+), each port delivers up to 25.5 W of power</td>
</tr>
<tr>
<td><strong>Ethernet Connector</strong></td>
<td>4x RJ-45 connections</td>
</tr>
<tr>
<td><strong>Cable Requirement</strong></td>
<td>CAT-5e or CAT-6 cable, 100 meters maximum</td>
</tr>
<tr>
<td><strong>Power Requirement</strong></td>
<td>Maximum 11.5W for 2x 10 GbE operation</td>
</tr>
<tr>
<td><strong>Network Protocol Support</strong></td>
<td>Maximum 8.5 A@12V (102W) with onboard 6-pin PCIe power connector connected</td>
</tr>
<tr>
<td><strong>EMS</strong></td>
<td>CE Class A, according to EN 300328:2005</td>
</tr>
<tr>
<td><strong>Operating Temperature</strong></td>
<td>0°C – 55°C with airflow</td>
</tr>
<tr>
<td><strong>Dimension</strong></td>
<td>162.7 mm (W) x 111.2 mm (D)</td>
</tr>
</tbody>
</table>

**Ordering Information**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCIe-N454at</td>
<td>4-port SGBASE-T Ethernet 802.3at PoE+ Machine Vision Frame Grabber Card</td>
</tr>
<tr>
<td>PCIe-N452</td>
<td>2-port SGBASE-T Ethernet Machine Vision Frame Grabber Card</td>
</tr>
</tbody>
</table>

---

**PCIe-PoE550X**

**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 100BASE-TX with CAT 5/6e 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 10GbE Ethernet NIC incorporating IEEE 802.3at PoE+ capability, featuring Intel® X550-AT2, Neousys Technology’s PCIe-PoE550X offers cost-effective 10GBASE-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 cables.

10GBASE-T leverages twisted-pair copper cable and RJ45 connector that dramatically reduces the deployment cost of 10G network. PCIe-PoE550X provides 10GbE 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 networks so you can easily implement it into your current network infrastructure.

**Specifications**

<table>
<thead>
<tr>
<th>PCIe-PoE550X</th>
<th>PCIe-PoE550X</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bus Interface</strong></td>
<td>Gen3 PCI Express x4</td>
</tr>
<tr>
<td><strong>No of Port</strong></td>
<td>2x 10 GbE ports by Intel® X550-AT2 controller, supporting 15.5 KB jumbo frame, teaming and IEEE 1588</td>
</tr>
<tr>
<td><strong>Network Protocol Support</strong></td>
<td>IEEE 802.3 Ethernet interface for 10GBASE-T (IEEE 802.3ab), NBASE-T (IEEE 802.3bz) and 1000BASE-T (IEEE 802.3ab)</td>
</tr>
<tr>
<td><strong>Port Capability</strong></td>
<td>Optional IEEE 802.3at-2009 (PoE+), up to 25.5W per port</td>
</tr>
<tr>
<td><strong>Cable Requirement</strong></td>
<td>For 10GBASE-T, CAT 6a (100 meters) or CAT 6 (55 meters)</td>
</tr>
<tr>
<td><strong>Power Requirement</strong></td>
<td>Maximum 51W for powering PoE+ devices</td>
</tr>
<tr>
<td><strong>EMC</strong></td>
<td>CE Class A, according to EN 55032:2012</td>
</tr>
<tr>
<td><strong>Operating Temperature</strong></td>
<td>0°C – 50°C with airflow</td>
</tr>
<tr>
<td><strong>Dimension</strong></td>
<td>168 mm (W) x 111.2 mm (D)</td>
</tr>
</tbody>
</table>

**Ordering Information**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCIe-TG50X</td>
<td>2-port 10GBASE-T Network Adapter with IEEE 802.3at PoE+</td>
</tr>
<tr>
<td>PCIe-TG550X</td>
<td>2-port 10GBASE-T Network Adapter</td>
</tr>
</tbody>
</table>
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: x8, 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 (PoE+) standard; each port delivers up to 25.5 W of power
- Cable Requirement: CAT 5e or CAT 6 cable, 100 meters maximum
- Power Requirement: CAT 5e or CAT 6 cable, 100 meters maximum
- Operating Temperature: 0°C ~ 55°C with air flow
- Dimension: 140 mm (W) x 88 mm (D)

Ordering Information

Model No. | Product Description
--- | ---
PCIe-PoE334LP | Low-profile 4-port Server-grade Gigabit 802.3at PoE+ card with 1 kV Surge Protection

Machine Vision

www.neousys-tech.com

Last updated: 9 - Mar 2021

PCIe-PoE354at

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

Key Features

- x4, Gen2 PCI Express interface (20Gb/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 the 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 per 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

<table>
<thead>
<tr>
<th>PCIe-PoE354at</th>
<th>PCIe-PoE352at</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus Interface: x8, Gen2 PCI Express</td>
<td>x8, Gen2 PCI Express</td>
</tr>
<tr>
<td>Gigabit Ethernet Port: 4x GigE ports by Intel® I350-AM4 controller, supporting 9.5 kB jumbo frame, teaming and IEEE 1588</td>
<td>2x GigE ports by Intel® I350-AM2 controller, supporting 9.5 kB jumbo frame, teaming and IEEE 1588</td>
</tr>
<tr>
<td>PoE Capability: In compliance with IEEE 802.3at (PoE+) standard; each port delivers up to 25.5 W of power</td>
<td>In compliance with IEEE 802.3at-2009 (PoE+), each port delivers up to 25.5 W of power</td>
</tr>
<tr>
<td>Cable Requirement: CAT 5e or CAT 6 cable, 100 meters maximum</td>
<td>CAT 5e or CAT 6 cable, 100 meters maximum</td>
</tr>
<tr>
<td>Power Requirement: Maximum 6.2A @ 12V from PCI Express bus or Maximum 5.5A @ 12V from PCI Express bus</td>
<td>Maximum 1.2A @ 3.3V from PCI Express bus or Maximum 0.9A @ 3.3V from PCI Express bus</td>
</tr>
<tr>
<td>Operating Temperature: 0°C ~ 55°C</td>
<td>0°C ~ 55°C</td>
</tr>
<tr>
<td>Dimension: 198 mm (W) x 111 mm (D)</td>
<td>114 mm (W) x 111 mm (D)</td>
</tr>
</tbody>
</table>

Ordering Information

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCIe-PoE354at</td>
<td>4-Port Intel® I350-AM4 server-grade Gigabit 802.3at PoE+ Frame grabber card</td>
</tr>
<tr>
<td>PCIe-PoE352at</td>
<td>2-Port Intel® I350-AM2 server-grade Gigabit 802.3at PoE+ Frame grabber card</td>
</tr>
</tbody>
</table>

Machine Vision

www.neousys-tech.com

Last updated: 29 - Oct 2020
Neousys PCIe-USB381F is an industrial-grade 8-port USB 3.1 Gen1 (formerly USB 3.0) frame grabber card for machine vision applications. Featuring 4x PCI Express Gen2 interface and four Fresco FL1100SX xHCI controllers, PCIe-USB381F can provide up to 400MB/s sustained data transfer rate per port with four USB3 cameras operating simultaneously, or provide a total bandwidth of 1600MB/s when eight cameras are plugged in.

All eight USB ports of PCIe-USB381F are accessible on the faceplate for easy cabling. Each port can deliver standard 900mA regulated 5V output to power USB3 cameras or user-configurable 1800mA output via onboard jumpers for devices that require higher power consumption. It also supports software-programmable per-port power on/off control to reset cameras or other devices for fault recovery.

The steady 400 MB/s data throughput satisfies the bandwidth requirement of most off-the-shelf industrial USB3 cameras. Pairing reliable 5VDC power output and per-port on/off control, PCIe-USB381F can benefit a variety of vision-related applications such as machine vision, factory automation and medical imaging.

### Key Features
- 4x PCI Express® Gen2 interface (2GB/s total bandwidth)
- 8x USB 3.1 Gen1 ports by 4x Fresco FL1100SX xHCI controllers
- Onboard 5VDC regulated power supply, no external power needed
- User-configurable 900mA and 1800mA current limit
- Software-programmable per-port power on/off control*
- Supports Windows 7/10 operating systems

### Specifications

<table>
<thead>
<tr>
<th>USB Ports</th>
<th>8x USB 3.1 Gen1 ports, compatible with USB 2.0/1.1/1.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB Connectors</td>
<td>8x panel-accessible Type-A USB connectors</td>
</tr>
<tr>
<td>Bus Interface</td>
<td>4-lanes, Gen2 PCI Express interface, compliant with PCI Express Base Specification Revision 2.0</td>
</tr>
<tr>
<td>USB3 Host Controller</td>
<td>4x Fresco FL1100SX host controllers, compliant with Intel® xHCI Specification Revision 1.0</td>
</tr>
<tr>
<td>Per-Port Current Limit</td>
<td>User-configurable 900mA/1800mA per-port current limit</td>
</tr>
<tr>
<td>Power Requirement</td>
<td>Maximal 2.0 A@5V from PCI Express bus</td>
</tr>
<tr>
<td>Maximal 5.5 A@12V from PCI Express bus for all connected USB devices</td>
<td></td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0~--40°C with ambient airflow</td>
</tr>
<tr>
<td>Dimension</td>
<td>117.7 mm (W) x 111.2 mm (H)</td>
</tr>
</tbody>
</table>

### Ordering Information

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCIe-USB381F</td>
<td>8-Port USB 3.1 Gen1 frame grabber card with 4x independent USB3 controllers</td>
</tr>
</tbody>
</table>

* Support software-programmable per-port power on/off control for port 0/2/3/4/5/6/7
Nuvo-7200VTC is the latest rugged in-vehicle controller featuring purpose-built set and effortless connectivity, powered by Intel® 9th Gen Core™ processors with up to 6-core b-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 G6 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 option of 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 DO, 8 to 35V wide-range DC input with ignition power control and 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**
- Supporting Intel® 9th/8th-Gen Core™ CPU (LGA1151 socket, 35WTDP)
- Intel® Core™ i3-9100TE/ i3-8100T
- Intel® Core™ i7-9700TE/ i7-8700T

**Chipset**
- Intel® Q270/Intel® Q250/Intel® Q370

**Memory**
- Up to 64 GB DDR4/3200 2400 SDRAM (two SODIMM slots)
- 2x hot-swappable SATA HDD trays, supporting RAID 0/1

**Audio**
- 1x full-size mini PCI Express socket with internal SIM socket (with/microSIM)
- 2x full-size mini PCI Express sockets (USB signals only) with internal SIM sockets

**Video Port**
- 1x DVI-D, supporting 1920 x 1200 resolution
- 1x VGA, supporting 1920 x 1200 resolution

**Expansion Bus**
- PCIe Express

**Expansion Port**
- 1x PCIe x4 slot (Gen3), 2x lanes PCIe signals in Cassette

**Power Supply**
- DC Input: 8 to 35V wide-range DC input with built-in ignition power control
- E-Mark and EN 50155/ EN 50455 certificate

**EmPower Port**
- 2x PoE+ ports (4x or 8x)
- 4-CH isolated DI and 4-CH isolated DO
- Onboard isolated CAN bus for in-vehicle communication

**Mechanical**
- Stencil: 1.0mm
- Mechanical dimension: 240 mm (W) x 225 mm (D) x 103 mm (H)
- Weight: 3.7 kg

**Environmental**
- Operating temperature: -40°C ~ 85°C
- Storage temperature: -90°C ~ 105°C
- Humidity: 10%~95%, non-condensing
- Vibration: IEC61373:2010, Category 1, Class B (body mounted)

**EMC**
- EN 55032:2012, Class B
- EN 55024:2010, Class B

**Network**
- 2x 10/100/1000BASE-T Ethernet ports (4x or 8x)
- 8x IEEE 802.3at (25.5W) Gigabit PoE+ ports by Intel®

**Software**
- Supports TPM 2.0
- Supports Intel® AMT
- Supports Intel® AES-NI
- Supports Intel® QuickAssist Technology

**Certiﬁcation**
- CE/FCC Class A, according to EN 55032 & EN 55024
- EN 50155/ EN 50455 certificate

**Ordering Information**

**Model No.**
- Nuvo-7200VTC
- Nuvo-7204VTC
- Nuvo-7208VTC

**Product Description**
- Nuvo-7200VTC: Intel® 9th/8th-Gen Core™ in-vehicle controller with 4x M12 PoE+ ports. DIO, CAN bus and RAID, single-slot PCIe Express Cassette
- Nuvo-7204VTC: Intel® 9th/8th-Gen Core™ in-vehicle controller with 4x M12 PoE+ ports, DIO, CAN bus and RAID, single-slot PCIe Cassette
- Nuvo-7208VTC: Intel® 9th/8th-Gen Core™ in-vehicle controller with 8x M12 PoE+ ports. DIO, CAN bus and RAID, single-slot PCIe Express Cassette

**Optional Accessories**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBL-12XMM-RJ45-500CM</td>
<td>M12 (8-pole-X-coded) to RJ45, CAT6, length : 500CM</td>
</tr>
<tr>
<td>CBL-12XMM-RJ45-1000CM</td>
<td>M12 (8-pole-X-coded) to RJ45, CAT6, length : 1000CM</td>
</tr>
<tr>
<td>PA-120W-0V</td>
<td>120W AC/DC power adapter, 20VA/1, 18Watt/20mA, cord and terminals for terminal block, operating temperature : -40°C to 70°C</td>
</tr>
</tbody>
</table>

**Optional Cellular Module**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>CAT</th>
<th>CAT</th>
<th>CAT</th>
<th>CAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSIO-LTE-7455</td>
<td>6 LTE</td>
<td>5 LTE</td>
<td>4G LTE</td>
<td>3G EDGE</td>
</tr>
</tbody>
</table>
Nuvo-7250VTC Series

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 PoE+ ports to supply 25W power to connected devices via M12 or RJ45 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 option of 4G cellular module certified to work with renowned US telecom company to minimize downtime and cost.
- To top it off, Nuvo-7250VTC also features two hot-swappable HDD trays, isolated CAN bus, isolated DO, 8 to 35V wide-range DC input with ignition power control and in compliance with E-Mark and 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® 8th-Gen Core™ processors with up to 6-core i7 or 4-core i5 and 64GB DDR4 memory, it offers over 50% performance increase over previous generations.
- Chipset: Intel® Q370 platform controller hub
- Memory: Up to 64GB DDR4 2666/2400 SDRAM (two SODIMM slots)
- Memory Type: 2x 2500 watt-second
- Expansion Bus: 4x USB 3.1 Gen2 (10 Gbps) ports
- Audio: 1x mic-in and 1x speaker-out
- Expansion: 1x DisplayPort, supporting 4096 x 2304 resolution
- Serial Port: 4x isolated DI and 4x isolated DO
- Ethernet: 2x software-programmable RS-232/422/485 ports (COM1/COM2)
- RF Interface: 1x 3-pin pluggable terminal block for 8 to 35V DC input (IGN/GND/+)
- Supply Voltage: 10%~90% , non-condensing
- Mechanical: Dimensions: 240 mm (W) x 225 mm (D) x 103mm (H)
- Operating Temperature: -40°C ~ 85°C
- Storage Temperature: -40°C ~ 105°C
- Weight: 4.1 kg
- Power: 240 mm (W) x 225 mm (D) x 103mm (H)
- Mounting: Bracketless, up to 3U Vesa mount
- Humidity: 10%~90%, non-condensing
- Vibration: 0.4g (operating)/ 1.5g (non-operating), according to EN 50155 & EN 60724
- Shock: 11g (operating)/ 40g (non-operating), according to EN 50155 & EN 60724
- EMI: E-Mark, EN 50155, EN 50581

Specials...

Nuvo-7250VTC is a rugged in-vehicle controller that utilizes Neousys’ innovative supercapacitor-based power backup solution. Powered by Intel® 8th-Gen Core™ processors, it brings up to 6 cores/8-cores & 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 in safety 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 RJ45 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 option of 4G cellular module certified to work with renowned US telecom company to minimize downtime and cost.

To top it off, Nuvo-7250VTC also features two hot-swappable HDD trays, isolated CAN bus, isolated DO, 8 to 35V wide-range DC input with ignition power control and in compliance with E-Mark and 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.

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

*** 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.

**EMC:**

- EN 55032 & EN 55024 Class A Body mounted (part of EN50155)
- EN 301 489-17, EN 301 893, EN 300 330, EN 301 511, EN 61000-6-3, EN 55022
- EN 50581

*** Notice: Operability and vibration test are conducted at display, the highest operating temperature shall be limited to 40°C to obtain lower operating temperature.
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 6-core/ 8-core and 64GB DDR4 memory, it provides significant performance increases over previous generations.

- Supports Intel® 9th/8th-Gen Core™ 17/15/3 LGA1151 socket-type CPU
- 4x 4x USB 3.1 Gen2 (10 Gbps) ports
- 1x full-size mSATA port (mux with mini-PCIe)
- Supports TPM 2.0
- -40°C ~ 70°C */*/
- 1x  isolated CAN 2.0 port
- EN 50155, E-Mark
- 2x software-programmable RS-232/422/485 ports (COM1/COM2)
- 2x Gigabit Ethernet ports by Intel®
- Hot-swap HDD tray
- Integrated Intel® 3-pin pluggable terminal block for 8 to 35V DC input
- 2x M.2 2242 B key socket, one with dual front-accessible SIM
- 4x isolated DI and 4x isolated DO
- Supports AMT 12.0
- Intel®
- Up to 64 GB DDR4 2666/2400 SDRAM (two SODIMM slots)
- 1x mic-in and 1x speaker-out
- DIO port
- Intel®

**Nuvo-7100VTC** Series 9th/8th-Gen Core™ In-vehicle Controller with 4x or 8x PoE+ Ports, DIO, CAN bus and RAID

### Key Features
- Supports Intel® 9th/8th-Gen Core™ 17/15/3 LGA1151 socket-type CPU
- 4x 4x USB 3.1 Gen2 Gigabit PoE ports via M12 or RJ45 connectors
- Onboard isolated CAN bus for in-vehicle communication
- 1x full-size mSATA port with one hot-swappable HDD tray, supporting RAID 0/1
- 2x M.2 B key and 3x full-size mini-PCIe sockets
- 8 to 35V wide-range DC input with built-in ignition power control
- E-Mark and EN 50155/EN 45545 certificate

### Specifications

#### System Core
- **Processor**: Supporting max. 9th/8th Gen Core™ CPU, EUCA I1 (socket, 20B174)
- **Chipset**: Intel® Core™ Processor, E15/4000T/4000T
- **Memory**: Up to 64GB DDR4 DDIMM (2x SODIMM slots)
- **Video Port**: 1x DisplayPort, supporting 4096 x 2304 resolution
- **Audio**: 1x Internal SATA port for 2.5” SSD installation, 1x SATA HDD, 1x internal SATA port for 2.5” HDD installation, supporting RAID1/0/5
- **Expansion Bus**: Mini PCI-E x2, 1x full-size mPCIe port (1x micro SIM socket, 2x full-size mini-PCIe, 2x full-size mini-PCIe with internal SIM sockets)
- **Power Supply**: DC input 1x 3-pin 3W terminal block for 8 to 35V DC input (IGN/GND/3V3)
- **Remote Ctrl. & Status Output**: 1x 3-pin 3.3V terminal block for remote control and PWM LED output

#### Environmental
- **Operating Temperature**: -40°C ~ 70°C
- **Humidity**: 10%~90%, non-condensing
- **Shock**: 225G/322ms/242ms, supporting 1500 x 1500 resolution
- **Storage Temperature**: -40°C ~ 85°C
- **EAC**: Class B (part of EN50155)
- **EMC**: EN 55015, 4th Party
- **CE/FCC Class A**: according to EN 55022 & EN 55024

#### Remote Control & Status Output
- **Power Supply**: DC input
- **Remote Ctrl. & Status Output**: 1x 3-pin 3.3V terminal block for remote control and PWM LED output

### Ordering Information

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

### Optional Accessories

#### Optional Cellular Module

- **CA-M12X8M-845-1000CM**: 912 (polar-A coded) to RJ45, CAT5e, length: 1000CM
- **CA-M12X8M-845-1000CM**: 912 (polar-A coded) to RJ45, CAT5e, length: 1000CM
- **PA-120W-O12W**: 120W AC/DC power adapter 20V/6A, 18AWG/120cm, cord and terminals for terminal block, operating temperature -30 to 70°C

### Optional Cellular Module

- **NSIO-LTE-7455**: Cat. 6 LTE embedded socket modem
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. Combining ignition power control and dual-drive RAID storage, Nuvo-5100VTC is the perfect solution for all your in-vehicle application needs.

**Specifications**

**System Core**
- Supports Intel® 6th-Gen Core™ Processor (LGA1151 socket-type CPU)
- Supports Intel® 3/4 GB DDR3L/ DDR4 SDRAM (two SODIMM slots)
- Supports Intel® TurboBoost Technology
- Supports Intel® Active Management Technology 11.0
- Supports Intel® Quick Sync Video
- Supports Intel® HD Graphics 530

**Graphics**
- Integrated Intel® HD graphics 530

**Memory**
- Up to 32 GB (DDR4-2133)

**Video Port**
- 2x DisplayPorts, supporting 4K2K resolution
- 2x HDMI (V1.4a) ports
- 1x RS-232 port (COM2)
- 2x software-programmable RS-232/422/485 port (COM1 & COM3)

**Audio**
- 4x isolated DI and 4x isolated DO
- 1x mic-in and 1x speaker-out

**Network Interface**
- 4x or 8x 802.3at PoE+ ports (with built-in ignition power control)
- 2x RJ45 connectors (Nuvo-5108VTC)
- 4x M12 (8-pole-X-coded) to RJ45, CAT6, length : 1000CM (Nuvo-5104VTC)
- 4x M12 (8-pole-X-coded) to RJ45, CAT6, length : 500CM (Nuvo-5100VTC)

**Expansion Bus**
- 1x Mini PCIE-E (Nuvo-5108VTC)
- 1x full-size mPCIe slot

**Storage Interface**
- 1x full-size mSATA port
- 1x full-size mini-PCIe x4 slot

**Power Supply**
- 8x PoE+ Ports, DIO, CAN bus and RAID

**Environmental**
- Operating Temperature: -40°C to 70°C
- Storage Temperature: -40°C to -85°C
- Humidity: 10% to 90% non-condensing

**Certification**
- E-Mark and EN 50155/ EN 45545 certificate

**Dimensions**

**Ordering Information**

**Model No.**
- Nuvo-5100VTC
- Nuvo-5104VTC
- Nuvo-5108VTC

**Product Description**
- Intel® 6th-Gen Core™ In-vehicle controller with 4x RJ45 PoE+ Ports, DIO, CAN bus and RAID
- Intel® 6th-Gen Core™ In-vehicle controller with 8x RJ45 PoE+ Ports, DIO, CAN bus and RAID
- Intel® 6th-Gen Core™ In-vehicle controller with 8x RJ45 PoE+ Ports, DIO, CAN bus and RAID

**Optional Accessories**
- PA-120W-0W
- DINRAIL-O
- Cbl-M12X8M-RJ45-500CM
- Cbl-M12X8M-RJ45-1000CM
- Cbl-M12X8M-RJ45-2000CM
- Cbl-M12X8M-10A-500CM
- Cbl-M12X8M-10A-1000CM

**Contact Information**

www.neousys-tech.com

All rights reserved. Copyright© 2023 Neousys Technology Inc.

Last updated: 15 - Jan 2020
Nuvo-2610VTC Series

Introduction

The Nuvo-2610VTC series is a rugged Intel®-based in-vehicle computer that incorporates four M12 Gigabit PoE+ connectors and one front-accessible 2.5” HDD tray, supporting up to 15mm height HDD/SSD. It is designed to fulfill multi-purpose applications such as on-road, off-highway, or railway applications from mobile gateways, data loggers, to network video recorders (NVR).

Powerd by Intel® Elkhart Lake Atom® x6425E quad-core CPU, the Nuvo-2610VTC series delivers 1.8x the CPU performance when compared with the previous generation, Nuvo-2610VTC. To provide robust Ethernet connectivity, the Nuvo-2610VTC series offers four Gigabit PoE+ ports via M12 x-coded connectors and one USB 3.1 with the screw-lock mechanism. In addition to the internal M.2 2280 SATA SSD for system storage, Nuvo-2610VTC also has one front-accessible 2.5” HDD tray accommodating a 2.5” SATA HDD/SSD with up to 15mm height and 5TB capacity. For internal expansion, it provides two mini-PCIe sockets for WiFi, GNSS, and CAN modules plus one M.2 3042/3052 B Key socket for 4G/5G mobile broadband module.

Key Features

- **Intel® Elkhart Lake Atom® x6425E quad-core 2.0GHz/3.0GHz 12W processor**
- **Rugged -40°C to 70°C fanless operation, compliant with EN 50155 Class OT4**
- **4x PoE+ GbE ports via M12 x-coded connectors**
- **1x front-accessible 2.5” 15mm HDD tray and 1x M.2 3042/3052 B Key for 4G/5G mobile broadband**
- **2x 3-wire RS-232 ports (COM2/3/4) or 1x RS-422/485 (COM2)**
- **1x isolated RS-485 port with 15 kV ESD protection (COM1)**
- **1x USB 3.1 gen1 ports with screw-lock**
- **10%~90% , non-condensing**
- **-40°C ~ 70°C***
- **Integrated Intel® I210 via M12 x-coded connectors**
- **4-CH isolated DI and 4-CH isolated DO**
- **Up to 32 GB DDR4-3200 SDRAM by one SODIMM socket**
- **1x front-accessible HDD tray for 2.5” HDD/SSD installation (up to 15mm height)**
- **Elkhart Lake Atom®-based in-vehicle computer with M12 PoE+ connectivity and built-in SuperCAP UPS, the Nuvo-2610VTC series can withstand harsh and unstable electrical environments for off-highway applications such as trucks, cargo vehicles, and rolling stock.**

Specifications

**System Core**

- Processor: Intel® Elkhart Lake Atom® x6425E quad-core 2.0GHz/3.0GHz 12W processor
- Graphics: Integrated intel® UHD Graphics
- Memory: Up to 32GB DDR4-3200 SDRAM by one SODIMM socket

**Panel I/O Interface**

- PoE: 4x Intel® 802.3at (25.5W) Gigabit PoE+ ports by Intel® Gbe x-coded connectors
- USB 2.0: 2x USB 2.0 port with screw-lock
- Serial Port: 1x isolated RS-485 port with 15 kV ESD protection (COM1)
- Audio: 1x 3.5 mm jack for Mic-in and Speaker-out

**Expansion Bus**

- Mini-PCIe: 1x PCIe x4 slot x8 pin, 2x PCIe signal in Cassette
- M.2 slot: 1x M.2 3042/3052 B Key (USB 3.1 + USB 2.0) for 4G/5G module
- M.2 B key: 1x M.2 3042/3052 B Key with USB 3.1 + USB 2.0 signal
- Storage Interface: 1x 2.5” SATA HDD slot (DATA interface only) for SATA SSD installation
- SATA HDD: 1x front-accessible HDD tray for 2.5” HDD SSD installation (up to 15mm height)

**Memory**

- Up to 32GB DDR4-3200 SDRAM via one SODIMM socket

**Graphics**

- Integrated Intel® UHD Graphics

**Power Supply**

- DC Input: 1x 3-pin pluggable terminal block for 80-240V AC or 85-265V DC input with built-in power control (IGN/GND/V+)
- Remote Ctrl. & LED Output: 1x 3-pin pluggable terminal block for remote control and PWR LED output

**Power Backup**

- Capacity: 2500 watt-seconds (Nuvo-2611VTC only)

**Environmental**

- Temperature: Operating: -40°C ~ 70°C
- Humidity: 10%~90%, non-condensing
- EMC: EN 50155-17, Clause 13.4.8

**Dimensions**

- Unit: mm
- Width: 205 mm (W) x 155 mm (D) x 86 mm (H)

**Input & Output**

- DC Input: 8 to 35V  DC IN
- LED Indicators: Remote ON/OFF
- Power Supply: 120W AC/DC power adapter 20V/6A; 18AWG/120cm; cord end terminals for terminal block, operating temperature: -30 to 70°C.
- Power Supply: 160W AC-DC power adapter 20V/8A; 18AWG/120cm; cord end terminals for terminal block, operating temperature: -30 to 70°C.

**Optional Accessories**

- 160W AC-DC power adapter 20V/8A; 18AWG/120cm; cord end terminals for terminal block, operating temperature: -30 to 70°C.
- 8 to 35V  DC IN

**Ordering Information**

- For sub-zero operating temperature, a wide temperature HDD drive or Solid State Disk (SSD) is required.
The Nuvo-2615RL series is an EN50155 and EN45545-compliant, fanless Intel® Atom®-based railway computer for video-based rolling stock applications such as NVR (network video recorder) and video analytics. Nuvo-2615RL has a dedicated thermal design to meet EN50155 OT4 class (-40°C to 70°C) fanless operation with max CPU performance and up to 50W PoE+ delivery. To overcome the challenging railway conditions, from voltage fluctuations to power outage interruptions, Nuvo-2615RL is equipped with an isolated wide 43V to 160V DC input design and a built-in SuperCAP UPS to support more than 30 seconds of operation time without power supply. If power outage time exceed the sustainable duration, the internal microcontroller (MCU) will trigger a software shutdown before running out of SuperCAP energy to protect the hardware, data, and minimize maintenance costs. Powered by Intel® Elkhart Lake Atom® x6425E quad-core CPU, the Nuvo-2615RL series delivers 1.8x the CPU performance compared with Intel’s previous Atom generation, Apollo Lake. The Nuvo-2615RL series features 4x PoE+ GbE ports with up to 50W total power budget for IP camera connectivity. In addition to the internal M.2 2280 SATA SSD for system storage, Nuvo-2615RL has one front-accessible 2.5" HDD tray accommodating a 2.5" SATA HDD/SSD up to 15mm in height and 5TB in capacity. For internal expansion, it provides two mini-PCIe sockets for WiFi, GNSS, and CAN modules. There is also an M.2 3042/3052 B Key socket for 4G/5G mobile broadband modules. Integrating an Intel Atom® quad-core x6425E, -40°C to 70°C fanless operations, M12 PoE+ connectivity, up to 5TB data storage capacity, 2500 watt-second SuperCAP UPS, 43V to 160V wide-range DC input, and EN50155 and EN45545 compliance, the Nuvo-2615RL series is the ideal rugged transportation computer for vision-based rolling stock applications.

### Specifications

- **Power Supply**
  - DC Input: 1 x 8-pin plug-in terminal block for isolated 43V to 160V DC input
  - Power Backup: 125 watt-second SuperCAP UPS

- **Dimensions**
  - Dimension: 265 mm (W) x 156 mm (D) x 46 mm (H)
  - Weight: 2.7 kg
  - Mounting: Damping bracket (standard); Wall mount (optional)

- **Environmental**
  - Operating Temperature: -40°C to 70°C, compliant with EN50155 Class OT4
  - Storage Temperature: -40°C to -85°C
  - Humidity: 10%~90%, non-condensing
  - Vibration: 0.5G/17-150Hz, Category 1: Class B Body Mounted (part of EN50155 pending)
  - Shock: 15G/120-1200Hz, Category 1: Class B Body Mounted (part of EN50155 pending)
  - EMI: EN 50121-4:2 Class A & CECC: Class A, according to EN 50555 & EN 55553

- **Ordering Information**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuvo-2615RL-H</td>
<td>Nuvo-2615RL-H: Elkhart Lake Atom® x6425E Railway Fanless Computer with 4x M12 PoE+ and 43V to 160V ultra-wide-range DC input</td>
</tr>
</tbody>
</table>
POC-551VTC

AMD Ryzen™ V1000 Ultra-compact In-vehicle Controller with PoE+, DIO and Isolated CAN bus

**Key Features**
- AMD Ryzen™ embedded V1000 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 to 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 V1000 4-core/ 8-thread processor, POC-551VTC delivers up to 3x times the CPU performance compared to previous generation, POC-351VTC. It combines finecore performance, extraordinary reliability and affordability for versatile in-vehicle applications. POC-551VTC offers four 802.3at PoE+ ports to supply 25W power to device 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**

<table>
<thead>
<tr>
<th>System Core</th>
<th>Processor</th>
<th>AMD Ryzen™ V1000 Series (CPU) (4C/8T, 24W TDP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphics</td>
<td>Vega GPU with L2 cache cache (on-chip)</td>
<td></td>
</tr>
<tr>
<td>Memory</td>
<td>Up to 16GB DDR4</td>
<td>16GB DDR4-2400 SDRAM by one SD/3DIMM sockets</td>
</tr>
<tr>
<td>TPM</td>
<td>Supports TPM 2.0</td>
<td></td>
</tr>
<tr>
<td>Panel I/O Interface</td>
<td>Ethernet port</td>
<td>4x Gigabit Ethernet ports (4x RJ45)</td>
</tr>
<tr>
<td></td>
<td>USB port</td>
<td>4x USB 3.1 Gen1 ports (4x USB Type-C)</td>
</tr>
<tr>
<td></td>
<td>Audio</td>
<td>1x software-programmable Audio (2CH RCA Line In/Out)</td>
</tr>
<tr>
<td></td>
<td>Video Port</td>
<td>1x DisplayPort, 1x HDMI, 1x VGA, 1x Mini DisplayPort</td>
</tr>
<tr>
<td></td>
<td>Serial Port</td>
<td>3x 3-wire RS-232 ports (COM2/3/4) or 1x RS-422/485 port and 1x DisplayPort (1x HDMI)</td>
</tr>
<tr>
<td></td>
<td>CAN</td>
<td>1x CAN 2.0 port</td>
</tr>
<tr>
<td></td>
<td>Isolated DIO</td>
<td>4x isolated DIO and 4x isolated DO</td>
</tr>
<tr>
<td></td>
<td>M.2</td>
<td>M.2 2280 M key NVMe (Gen3 x2) socket (1x M.2)</td>
</tr>
</tbody>
</table>

**Power Supply**
- DC Input: 8 to 35V DC input with built-in ignition power control (IGN/0V+/GND)
- Remote On/Off: 1x 2-pin plug-in terminal block for remote control and PWR LED output

**Mechanical**
- Dimension: 64 mm (W) x 116 mm (D) x 176 mm (H)
- Weight: 1.1 kg

**Environmental**
- Temperature: -40°C ~ 70°C for wide temperature use condition, a wide temperature/industrial mSATA module is required.
- Storage Temperature: -40°C ~ 70°C for full function use condition (mini-PCIe, M.2, and mSATA are all adopted), the recommended operating temperature is -25°C ~ 60°C.
- Humidity: 10% ~ 90% non-condensing

**EMC**
- CE/FCC Class A, according to EN 55032 & EN 55024
- IEC61373:2010, Category 1

**Shock**
- Class B Body mounted (part of EN50155)

**Vibration**
- Class B Body mounted (part of EN50155)
- EN 50155, IEC61373, 3 axes for in-vehicle applications
- EN50550/ IEC68-2-6, Class 3, Table 529/120/121:6
- 2m drop test per IEC68-2-25

**Ordering Information**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>POC-551VTC</td>
<td>AMD Ryzen™ V1000 Series ultra-compact In-vehicle controller with PoE+, DIO and Isolated CAN bus</td>
</tr>
</tbody>
</table>

**Optional Accessories**

- FA-120W-OW: 120W AC/DC power adapter 230/1A, 16.5VDC/120W, cord end terminals for terminal block, operating temperature: -30 to 70°C
- FA-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
POC-451VTC Series

**Intel® Elkhart Lake Atom® x6425E Ultra-compact in-vehicle Computer with 3x 2.5G,PoE+ and M.2/mPCIe for WiFi/4G/5G Modules**

**Key Features**
- Intel® Atom® x6425E quad-core processor
- Rugged -25°C to 70°C fanless operation
- 2x 2.5GBe PoE+ ports and 1x 2.5GBe port
- 1x M.2 2242/3052 B key for 4G/5G module
- 2x M.2 2230 E key for WiFi and edge TPU module
- Conduction-cooled heat sink for M.2/mPCIe modules
- Dual M.2 2280 M key for SATA SSD
- 8~35V DC input with built-in ignition power control

**Introduction**
POC-451VTC is an ultra-compact in-vehicle computer with E-Mark certificate for in-vehicle applications, such as mobile gateway, mobile surveillance and passenger information system. It leverages the latest Intel® Elkhart Lake Atom® x6425E CPU, delivering 1.8x and 2x performance improvement for the CPU and GPU respectively, compared to the previous generation, POC-351VTC. POC-451VTC provides multiple M.2 and mPCIe slots for installation of 4G/5G, WIFI6/6E, CAN bus and edge TPU module for modern in-vehicle applications. It can therefore extend WiFi and broadband wireless communication as well as AI inference functionality inside a compact footprint. More than that, POC-451VTC introduces a dedicated conduction-cooled heat spreader to bring out and dissipate heat generated by M.2/mPCIe modules to maintain optimal system performance at high temperature environment.

**Specifications**

**System Core**
- Processor: Intel® Elkhart Lake Atom® x6425E quad-core (2GHz/3.0GHz) 12W processor
- Graphics: Integrated Intel® UHD Graphics
- Memory: Up to 32 GB DDR4 3200 SDRAM by one SODIMM socket

**Panel I/O Interface**
- Ethernet: 2x 2.5GBASE-T Ethernet ports by Intel® Q25 GbE controllers
- PoE: 65W Buck/Step-up PoE+ on port #1 and #2
- Video Port: 2x DisplayPort connectors, supporting 4096 x 2160 resolution @ 60Hz
- USB 3.1: 2x USB 3.1 Gen1 (5 Gbps)
- USB 2.0: 2x USB 2.0 ports
- Serial Port: 1x software-programmable RS-232/422/485 ports (COM1); 3x 3-wire RS-485 ports (COM2/3/4) or 1x RS-422/485 port (COM2)
- Audio: Optional; 1x 3.5 mm jack for mic-in and speaker-out
- Isolated I/O: 1x isolated RS-485 and 1x isolated I2C
- Internal Expansion Bus: M.2 M key
  - M.2 M key: 2x M.2 2230 M key sockets for WIFI and edge TPU module
  - M.2 B key: 1x M.2 2280 M key for 4G/5G module with dual SIM support
- MiniPCIe: 1x full-size mini PCIe socket (USB2 signal only)

**Power Supply**
- DC Input: 1x 9-pin plug (turbine mechanical lock for 8V to 35V DC input with built-in ignition power control (IGN/GND/V+))

**Mechanical**
- Dimension: 153 mm (W) x 108 mm (D) x 72 mm (H)
- Weight: 1.4 kg
- Mounting: 3-in-1 (VESA 75x75, 100x100, and DIN-rail mount (optional))

**Storage Interface**
- Vertical-type wall-mount (standard)
- DIN-rail mount (optional)

**Environmental**
- Temperature:
  - Operating: -25°C ~ 70°C*/**
  - Storage: -40°C ~ 85°C
- Humidity: 10%~90%, non-condensing
- Shock:
  - Operating: MIL-STD-810G, Method 514.6, Category 4
  - Shock: MIL-STD-810G, Method 516.6, Procedure I, Table 516.6
- E-mark

**EMC**
- CE/ FCC Class A, according to EN 55032 & EN 55035

**Ordering Information**

<table>
<thead>
<tr>
<th>Model-No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>POC-451VTC</td>
<td>Intel® Elkhart Lake Atom® x6425E ultra-compact in-vehicle computer with 3x 2.5G, PoE+ and M.2/mPCIe for WiFi/4G/5G modules</td>
</tr>
</tbody>
</table>

**Optional Accessories**

<table>
<thead>
<tr>
<th>Description</th>
<th>Model No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA-60W-OW</td>
<td>65W AC/DC power adapter with 12V, 5A DC output, cord end terminals for terminal block, operating temperature: -30 to 60°C</td>
</tr>
<tr>
<td>PA-120W-OW</td>
<td>120W AC/DC power adapter 20V/6A, 18AWG, 120cm; cord end terminals for terminal block, operating temperature: -30 to 70°C</td>
</tr>
<tr>
<td>CBL-5807-30BRM-15CM</td>
<td>1x DB9 (Female) to 3x DB9 (Male), length 15CM</td>
</tr>
</tbody>
</table>

*For wide temperature use condition (mini-PCIe and M.2 are all adopted), the operating temperature may be constrained by controller and PoE modules. Please contact Neousys Technology.**

**For full function use condition (three PoE+ and 2x I2C are all adopted), for operating temperature may be constrained by controller and PoE modules. Please contact Neousys Technology.**

[Image of POC-451VTC Series]
POC-351VTC Series

Key Features

- Intel® Apollo Lake Atom™ E3950 quad-core processor
- Rugged, -25 °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-spreaders for M.2 and mPCIe modules
- 8 to 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 finest 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 holes to accommodate a variety of 4G, 3G, WIFI and GPS modules. An aluminum heat-spread for M.2/ mPCIe modules is thoughtfully designed to dissipate the heat generated by modules to maintain superior operating stability, for the system and communication modules.

Specifications

- **Intel® Atom™ E3950 quad-core processor**
- **Integrated Intel® HD graphics 505**
- **Up to 8GB DDR3L-1866 (single SODIMM slot)**

Power Supply

- DC Input: 1x 2-pin pluggable terminal block for 8 to 35V DC input with built-in ignition power control (IGN/GND/V+)
- Input Connector: 1x 2-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)
- Weight: 1.0 kg (POC-351VTC-70)

Environmental

- Operating Temperature: -40°C ~ 70°C (optional) **
- Storage Temperature: -25°C ~ 70°C */**

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

**WMI-M-POC30** | Wall-mount assembly for POC-351VTC, vertical type
**PA-60W-OP** | 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
NRU-110V Series

**Key Features**

- Powered by NVIDIA® Jetson AGX Xavier™ SOM bundled with JetPack 4.4
- Support 8x GMSL automotive cameras via FAKRA 2 connectors
- 1x 10GBase-T 10G Ethernet port
- 1x M.2 2280 M key socket for NVMe SSD
- 1x mini PCIe socket for WiFi/4G module
- 1x isolated CAN bus port and 1x RS232 port with flow control
- 1x GPS PPS input, 3-CH isolated DI and 4-CH isolated DO
- 8V to 35V wide-range DC input with built-in ignition power control

**Key Features**

- Operating, MIL-STD-810G, Method 516.7, Procedure I
- 10% ~ 90%, non-condensing
- 1x 3-pin pluggable terminal block for 8V to 35V DC input
- 32GB LPDDR4x @ 2133 MHz on SOM
- 230 mm (W) x 173 mm (D) x 66 mm (H)
- -40°C ~ 85°C

**Introduction**

The NRU-110V series is a Jetson AGX Xavier™ computer supporting GMSL cameras that can act as a camera sensor hub for autonomous driving, a control unit for autonomous mobile robots (AMR), or a video transcoding unit for teleoperation of unmanned ground vehicles. It is a turnkey solution with on-board GMSL deserializers for eight synchronized automotive GMSL camera inputs and a pre-installed board support package (BSP) with drivers for selected cameras.

The support of GMSL cameras equips NRU-110V with powerful vision capability. Taking advantage of automotive cameras featuring IP67 waterproof characteristic, high dynamic range (120dB HDR), auto white balance (AWB), and LED flickering mitigation (LMI), NRU-110V can obtain high-quality images regardless of lighting conditions, from bright sunny days to overcast weather and pitch-black nights. More than that, it not only has a unique synchronization mechanism capable of simultaneously acquiring images from eight GMSL cameras within microseconds channel-to-channel skew, but also accepts GPS PPS signal to align image data with other sensors, such as LIDAR or cameras on other systems.

NRU-110V further integrates various I/O interfaces to interact with different sensors on autonomous machines. It has a 10Gb Ethernet to stream raw images in real-time to another powerful GPU computer performing perception, a CAN bus interface for in-vehicle communication, or connect an inertial measurement unit (IMU) to localize and determine orientation and position. Additionally, NRU-110V offers RS-232 plus dedicated GPS PPS input for connecting an external GPS module, M.2 NVMe slot for storage extension, mini-PCIe for WiFi/4G module connectivity, and isolated DIO for generic controls.

Combining eight GMSL automotive camera support, significant TFLOPS inference performance, multiple sensor interfaces, and 10GbE data transmission, the NRU-110V is a rugged edge AI computer connected to a variety of sensors to fulfill perception and planning on the same platform. It is ideal for AI-based vision applications that require continuous interactions with surroundings, such as UGV, AMR, ADAS, intelligent V2X, etc.

**Specifications**

- **System Core**
  - Processor: Supporting NVIDIA Jetson AGX Xavier™ system-on-module, comprising of NVIDIA Volta GPU and Carmel CPU
  - Memory: 32GB LPDDR4x @ 2133 MHz on SOM
  - miniPCIe: 32GB eMMc 5.1 on SOM

- **Interface**
  - GMSL Camera: 8x GMSL FAKRA 2.0 Connector, supporting 8x 1280×720@30fps camera input
  - Ethernet port: 1x 10GBase-T 10G Ethernet port by Xilinx® 5350 AT controller
  - CAN bus: 1x isolated CAN bus 2.0 port
  - Isolated DI/O: 1x GPS PPS input, 3-CH isolated DI and 4-CH isolated DO
  - USB: 3x USB 3.1 Gen 1 (USB Type A) ports
  - Video Port: 2x DisplayPort, supporting 4k1440@120Hz at 60Hz
  - Serial Port: 1x RS-232 port with flow control

- **Memory Interfaces**
  - M.2 NVMe: 1x M.2 2280 M key socket (PCIe Gen3 x2) for NVMe SSD

- **Internal Expansion Bus**
  - MiniPCIe Express: 1x full-size mini-PCIe Express socket with internal SMB socket

**Power Supply**

- DC input: 1x 4-pin pluggable terminal block for 8V to 35V DC input (IGN/GND/V+)

**Mechanical**

- Dimension: 230 mm (W) x 173 mm (D) x 66 mm (H)
- Single: 2.7 kg (including cabling/breaker)
- Mounting: Neousys’ patented cabling/breaker (standard)

**Environmental**

- Operating Temperature: -25°C ~ 70°C with optional fan kit (all modes) *
- Storage Temperature: -25°C ~ 50°C with passive cooling (MAX TDP mode) *
- Humidity: 10% ~ 90%, non-condensing
- Vibration: Operating, MIL-STD-810G, Method 514.5, Category 4
- Shock: Operating, MIL-STD-810F, Method 514.4,3 (Procedure)
- EMI: CE, FCC Class A, according to EN 55022 & EN 55032

**Ordering Information**

- Model No.: NVIDIA Jetson AGX Xavier™ Edge AI platform supporting 8x GMSL automotive cameras and 10GbE Ethernet
- NRU-110V-F: NVIDIA Jetson AGX Xavier™ Edge AI platform supporting 8x GMSL automotive cameras and 10GbE Ethernet with fan kit

**Optional Accessories**

- PA-120W-0W: 120W AC/DC power adapter, 20Pin/TA, 18AWGx120cm, cord end terminals for terminal block, operating temperature: -30 to 70°C.
- Fan Kit: Fan kit with 52mm x 52mm fan for NRU-110V series
- AC-AR0147-H40: On Semi AR0147 CMOS sensor camera; 1280×720 @30fps, LFM; HR90, 1x41; IP67; male FAKRA connector
- AC-AR0147-H50: On Semi AR0147 CMOS sensor camera; 1280×720 @30fps, LFM; HR90, 1x41; IP67; male FAKRA connector
- AC-AR0147-H70: On Semi AR0147 CMOS sensor camera; 1280×720 @30fps, LFM; HR90, 1x41; IP67; male FAKRA connector
- AC-AR0147-H120: On Semi AR0147 CMOS sensor camera; 1280×720 @30fps, LFM; HR90, 1x41, 1x23; IP67; male FAKRA connector
- AC-AR0147-H70: On Semi AR0147 CMOS sensor camera; 1280×720 @30fps, LFM; HR90, 1x41, 1x23; IP67; male FAKRA connector
- FK-FF-CABLE-7M: 7M FAKRA cable for cameras with male FAKRA connector; The waterproof end is black
- FK-FF-CABLE-15M: 15M FAKRA cable for cameras with male FAKRA connector; The waterproof end with heat shrink tube

*Note: Combined use of different FOV with the same CMOS sensor is verified on NRU series. Combined use of different FOV with varying CMOS sensors is not guaranteed. Please consult Neousys for feasibility.

**Dimensions**

- Unit: mm

**Product Description**

- Model No.: NVIDIA Jetson AGX Xavier™ Edge AI platform supporting 8x GMSL automotive cameras and 10GbE Ethernet
- NRU-110V-F: NVIDIA Jetson AGX Xavier™ Edge AI platform supporting 8x GMSL automotive cameras and 10GbE Ethernet with fan kit
NRU-51V Series

Rugged NVIDIA® Jetson Xavier™ NX GMSL2 Camera Sensor Hub for Autonomous Vehicles and Teleoperation

Key Features

- Powered by NVIDIA® Jetson Xavier™ NX SOM bundled with JetPack 4.6.1
- Rugged -25°C to 60°C fanless operation
- Support 4x GMSL2 automotive cameras via FAKRA 2 connectors
- 1x 10GBASE-T 10Gb port and 1x 10BASE-T 10Mb port
- 2x mini-PCIe sockets for WiFi/ GMSL/ NVMe/ CAN modules
- 1x M.2 3042/ 3052 8 pin key socket for 40G 5G mobile communication
- 1x isolated CAN, 1x configurable RS232/ 422/ 485 port, and 1x GPS PPS input
- 8V to 35V wide-range DC input with built-in ignition power control

Introduction

NRU-51V is a rugged Jetson Xavier™ NX computer supporting GMSL2 cameras that can act either as a sensor hub or a perception unit for ADAS, teleoperation, autonomous mobile robots, and autonomous vehicles.

By supporting GMSL2 automotive cameras, they enable NRU-51V with greater vision capability by taking advantage of advanced features such as IP67 waterproofing, high dynamic range (~120dB 100dB HDR), auto white balance (AWB), and LED flicker mitigation (LFM). NRU-51V can obtain high-quality images with minimal latency regardless of lighting conditions, from bright sunny days to pitch-black nights. Moreover, it has a unique synchronization mechanism capable of acquiring images from four GMSL2 cameras simultaneously within microseconds channel-to-channel skew. It can further accept GPS PPS signal to align image data with LiDAR or synchronize cameras on other systems.

Thanks to the great power efficiency of NVIDIA® Jetson Xavier™ NX SOM, NRU-51V delivers 21 TOPS inference performance in its 15W power package. Users can stream raw camera video from its built-in 10GBase-T Ethernet to another GPU server for perception processing but also leverage its significant TOPS for real-time object or ROI detection. For teleoperation applications, users can utilize its hardware H.264/265 codec, to encode video streams from four GMSL2 cameras in real-time and transmit the live video feed to a driver at a remote location via 5G telecommunication with minimum latency.

The combination of GMSL2 interface and Jetson Xavier™ NX makes NRU-51V much more than just a simple edge AI computer. With greater vision platform, brought by automotive cameras plus I/O interfaces such as 10GbE, CAN 2.0, and M.2 for 5G broadband, NRU-51V plays a central role in a moving In-vehicle Computing platform, as a sensor hub for ADAS, a perception unit for AGV/ AMR, or a teleoperation controller for off-highway vehicles.

NRU-51V can be used as a sensor hub to collect data from GMSL2 cameras for tasks like real-time object detection or lane departure warning. It can also serve as a vehicle’s perception system, providing real-time information to autonomous driving systems. The combination of NRU-51V and Jetson Xavier™ NX SOM enables developers to create innovative solutions for various applications in the automotive and transportation sectors.

Specifications

- **Power Supply**
  - DC input: 8V to 35V, adjustable output voltage for flexible DC input and gracen power control
  - 1x power connector (1920x1080 x 4 cameras, each channel for each camera)
- **Mechanical**
  - Dimension: 192mm x 144mm x 60mm (1.4 kg)
  - Weight: 1.4 kg
- **Environmental**
  - Operating Temperature: -25°C to 60°C with passive cooling (15W TDP mode) • -25°C to 70°C with 10W TDP solution (19W TDP mode)
  - Humidity: 10% - 90% non-condensing
- **Video**
  - Resolution: 1920x1080, 30fps; LFM; HFOV 118°; IP67; -40°C to 85°C operating temperature; male FAKRA connector; without lens cap
- **Video-Port**
  - 1x DisplayPort, supporting 3840x2160 at 60Hz
  - 2x USB 3.1 Gen1 ports (total 5 Gbps shared with M.2 B key)
- **Ethernet Port**
  - 1x 10GBASE-T 10Gb port with screw-lock
  - 1x 10BASE-T 10Mb port with screw-lock
- **USB**
  - 2x USB 3.1 Gen1 ports (total 5 Gbps shared with M.2 B key)
  - 1x micro USB (OTG only)
- **CAN Bus**
  - 1x isolated CAN 2.0 port
- **Video-Port**
  - 1x DisplayPort, supporting 3840x2160 at 60Hz
- **Serial Port**
  - 1x hardware configurable RS232/422/485 (4-pin port)
- **I/O Interface**
  - 1x isolated CAN 2.0 port
  - 1x isolated OIS 2.0 port
  - 1x GPS PPS input, 2.0x isolated OIS and 4.0x isolated OIS
  - 1x M.2 NVMe SSD
  - 1x M.2 ground terminal for chassis ESD shielding
  - 1x M.2 ground terminal for chassis ESD shielding

Ordering Information

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRU-51V-8GB</td>
<td>Rugged NVIDIA® Jetson Xavier™ NX (8GB) GMSL2 Camera Sensor Hub</td>
</tr>
<tr>
<td>NRU-51V-16GB</td>
<td>Rugged NVIDIA® Jetson Xavier™ NX (16GB) GMSL2 Camera Sensor Hub</td>
</tr>
</tbody>
</table>

Optional Accessories

- **AC-IMX390-H60**
  - Sony IMX390 CMOS sensor camera, 1920x1080 @ 30fps; LFM; HFOV 186°; -30°C to 85°C operating temperature; male FAKRA connector; without lens cap
  - PA-690-OV
  - 100W DC power adapter 12V/ 10A; cord end terminals for terminal block, operating temperature: -30°C to 60°C
- **AC-IMX390-H120**
  - Sony IMX390 CMOS sensor camera, 1920x1080 @ 30fps; LFM; HFOV 118°; -30°C to 85°C operating temperature; male FAKRA connector; without lens cap
  - PA-120-OV
  - 100W DC power adapter 12V/ 10A; cord end terminals for terminal block, operating temperature: -30°C to 70°C
- **AC-AR0233-H60**
  - Sony AR0233 CMOS sensor camera, 1920x1080 @ 60fps; LFM; HFOV 118°; -40°C to 70°C operating temperature; male FAKRA connector
  - Rv2-M2M-mPCIe
  - M.2 M.2-2242 4G/5G module with the max component height between 0.7 mm and 2.4 mm, and M.2 B key modules with the max component height between 1.3 mm and 2.4 mm
- **AC-AR0233-H120**
  - Sony AR0233 CMOS sensor camera, 1920x1080 @ 60fps; LFM; HFOV 118°; -40°C to 85°C operating temperature; male FAKRA connector
  - TF-FF-CABLE-7M
  - 7M FAKRA cable for cameras with male FAKRA connector; the waterproof end is black
- **AC-AR0233-H60-60FPS**
  - Sony AR0233 CMOS sensor camera, 1920x1080 @ 60fps; LFM; HFOV 118°; -40°C to 70°C operating temperature; male FAKRA connector
  - TF-FF-CABLE-15M
  - 15M FAKRA cable for cameras with male FAKRA connector; the waterproof end has heat shrink tube
PCIe-GL26 is an AI-enabled automotive six-port GMSL2 camera frame grabber card. It is a turnkey industrial-grade frame grabber solution that incorporates devices for selected GMSL2 cameras with video streaming sample codes.

PCIe-GL26 aims to provide superior outdoor vision capability with automotive GMSL2 camera connectivity to advanced x86 autonomous vehicle computing platforms. Automotive GMSL2 cameras are ideal for autonomous vehicle applications due to their advanced features, such as IP67 waterproof, high dynamic range (120dB HDR), auto white balance (AWB), and LED fliker mitigation (LMF). It also benefits computer vision applications in outdoor environments where illumination conditions are constantly changing.

Powerful x86 computers with PCIe-GL26 can obtain high-quality images with minimal latency regardless of lighting conditions, from bright sunny days to pitch-black nights. With a half-length, standard height, and single-slot form factor, PCIe-GL26 can be accommodated in most host computers with a PCIe expansion.

With pre-built sample codes, a host computer can install up to four PCIe-GL26 cards and support up to 24x GMSL2 camera streams. Featuring a unique synchronization mechanism, it is capable of acquiring images from six GMSL2 cameras simultaneously within microseconds of channel-to-channel skew. It can also accept a GPS PPS signal to align image data with LIDAR or PCIe-GL26 in another host machine.

Powered by Jetson Xavier™ NX, PCIe-GL26 is much more than just a GMSL2 frame grabber card. With 21 TOPS AI performance, 6x GMSL2 camera inputs, 1x GPS PPS input, 1x RS232, and 1x isolated CAN 2.0, PCIe-GL26 is an AI camera sensor hub capable of sensor fusion and data pre-processing for ADAS or autonomous vehicles.

### Specifications

**System Core**
- **Processor**: NVIDIA® Jetson Xavier™ NX System-on-Module (SOM), comprising of NVIDIA Volta GPU and Carmel CPU
- **Memory**: 8GB/16GB LPDDR4x (Jetson Xavier NX 8GB/16GB) @ 1600/1866 MHz (15W/20W TDP mode)

**Deployment I/O Interface**
- **Bus interface**: x2 Gen3 PCI Express
- **GMSL2**: 6x GMSL2 ports (2x20Gbps) FAKRA 2 connectors
- **CAN bus**: 1x isolated CAN 2.0 port
- **Serial Port**: 1x RS-232 port
- **Isolated I/O**: 1x GPS PPS input

**Development I/O Interface**
- **Ethernet Port**: 1x Gigabit Ethernet
- **USB**: 2x USB 2.0 ports
- **Video Port**: 1x DisplayPort, supporting 4K60@165Hz at 60Hz
- **DE input**: 12/14V input power (for development only)

**Environmental Interface**
- **M.2 NVMe**: 1x M.2 2280 Key M socket (PCle Gen3 x4) for NVMe SSD
- **Mechanical**: Width 117.7 mm (4.61 inch) / Height 111 mm (4.4)
- **Weight**: 0.43kg

**Environmental**
- **Operating Temperature**: -25°C to 60°C with airflow (50W TDP model) *
- **Storage Temperature**: -40°C to 85°C
- **Humidity**: 10%~90% non-condensing
- **EMC**: CE Class A, according to EN 550022/55024

#### Optional Accessories

- **PA-60W-OWL**: 60W AC/DC power adapter 12V/5A, cord end terminals for terminal block, operating temperature: -30 to 60°C
- **FK-FF-CABLE-7M**: FAKRA cable for cameras with male FAKRA connector; without lens cap
- **AC-4MX90-H60**: Sony IMX377 CMOS sensor camera; 1920x1080 @ 30fps; LFM; HFOV 60°; -40°C to 85°C operating temperature; male FAKRA connector; active alignment; without lens cap
- **AC-4MX90-H120**: Sony IMX377 CMOS sensor camera; 1920x1080 @ 30fps; LFM; HFOV 120°; -40°C to 85°C operating temperature; male FAKRA connector; active alignment; without lens cap
- **AC-4MX90-H190**: Sony IMX377 CMOS sensor camera; 1920x1080 @ 30fps; LFM; HFOV 180°; -40°C to 85°C operating temperature; male FAKRA connector; active alignment; without lens cap
- **AC-AR0233-H60**: Onsemi AR0233 CMOS sensor camera; 1920x1080 @ 30fps; LFM; -40°C to 85°C operating temperature; male FAKRA connector
- **AC-AR0233-H120**: Onsemi AR0233 CMOS sensor camera; 1920x1080 @ 30fps; LFM; -40°C to 85°C operating temperature; male FAKRA connector
- **AC-AR0233-H190**: Onsemi AR0233 CMOS sensor camera; 1920x1080 @ 30fps; LFM; -40°C to 85°C operating temperature; male FAKRA connector
- **AC-AR0233-H60-60FPS**: Onsemi AR0233 CMOS sensor camera; 1920x1080 @ 60fps; LFM; -40°C to 70°C operating temperature; male FAKRA connector
- **AC-AR0233-H120-60FPS**: Onsemi AR0233 CMOS sensor camera; 1920x1080 @ 60fps; LFM; -40°C to 70°C operating temperature; male FAKRA connector
- **AC-AR0233-H190-60FPS**: Onsemi AR0233 CMOS sensor camera; 1920x1080 @ 60fps; LFM; -40°C to 70°C operating temperature; male FAKRA connector

---

*For sub-zero and over 60°C operating temperature, a wide temperature NVMe is required.

**AI-enabled 6-port GMSL2 Camera Frame Grabber Card**

**Key Features**
- 6x GMSL2 FAKRA 2 inputs supporting automotive GMSL2 cameras
- Turnkey solution with pre-installed GMSL2 camera driver for selected cameras
- Powered by NVIDIA® Jetson Xavier™ NX bundled with JetPack 4.6.1
- 21 TOPS AI performance with up to 22 streams simultaneous 1080p@30FPS video encoding capability
- x2 Gen3 PCI Express interface offering 10Gbps total bandwidth
- 1x GPS PPS input for frame sync calibration
- 1x isolated CAN 2.0 and 1x RS232
- -25°C to 60°C operating temperature with airflow

---

**Ordering Information**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCIe-GL26-JXN16</td>
<td>AI-enabled 6-port GMSL2 camera frame grabber card powered by Jetson Xavier NX (9GB)</td>
</tr>
<tr>
<td>PCIe-GL26-JXN16</td>
<td>AI-enabled 6-port GMSL2 camera frame grabber card powered by Jetson Xavier NX (16GB)</td>
</tr>
</tbody>
</table>
PCle-NX154PoE is an intelligent 4-port 2.5G PoE+ frame grabber card. It supports NVidia’s Jetson Orin™ NX. The card provides an industrial-grade vision solution, delivering 100 TOPS AI inference performance for modern vision inspection applications.

### Key Features
- **Powered by NVIDIA® Jetson Orin™ NX**: Bundled with JetPack 5.1
- **Single-slot half-length PCIe card form factor**: 3.5" x 6.7" x 2.8"
- **4x PoE+ 2.5G Ethernet ports with a 50W total power budget**: Each port can supply 24W of power, plus an additional 6W for PoE.
- **1x DisplayPort output**: Supports up to 4K@60Hz resolution.
- **1x M.2 NVMe 2242 M key socket (PCIe Gen4 x2)**: For NVMe SSD storage.
- **Gigabit Ethernet**: For connectivity and network interface.
- **USB 3.2 Gen2 ports** and four USB 3.2 Gen1 ports; each port provides 900mA power output.
- **-25°C to 60°C operating temperature with airflow**: Ensures reliable operation in harsh industrial environments.

### Specifications
- **System Core**
  - Processor: Jetson Orin™ NX system-on-module (SOM), comprising Ampere GPU and ARM Cortex® CPU
  - Memory: 8GB LPDDR5 @ 3200 MHz on SOM
  - Memory Interface: x1 Gen2 PCI Express interface offering 2.5Gb/s total bandwidth

- **Environmental**
  - Temperature: -25°C to 60°C with airflow (20W TDP mode)
  - Humidity: 10%~90%, non-condensing

- **Deployment I/O Interface**
  - 1x DisplayPort
  - 1x M.2 2242 NVMe socket (PCIe Gen4 x2) for NVMe SSD

- **Development I/O Interface**
  - 1x isolated RS-485/RS-232 ports
  - 2x USB 2.0 ports

### Ordering Information
- **Model No.**: PCIe-NX154-JON8
- **Product Description**: 100 TOPS Intelligent Frame Grabber Card with 4x PoE+ GbE ports by Jetson Orin NX (8GB)

### Optional Accessories
- **PA-60W-OW**: 60W AC/DC power adapter 120V/240V, card end terminals for terminal block, operating temperature -30 to 60°C.
PCle-PoE312M

**Key Features**
- Intel® I350 server-grade Gigabit Ethernet controller
- Four M12 x-coded connectors with patent-pending housing design
- 4x 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, it features Gigabit Ethernet and PoE+ functionalities. Thanks to Neousys' patent-pending housing design, PCIe-PoE312M's M12 connectors utilize 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.

PCle-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**

<table>
<thead>
<tr>
<th>Bus Interface</th>
<th>x4, Gen2 PCI Express</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gigabit Ethernet Port</td>
<td>4x ports by Intel® I350-AM4 NIC supporting 9.5 kB jumbo frame, teaming and IEEE 1588</td>
</tr>
<tr>
<td>Port Connector</td>
<td>M12 x-coded connector with Neousys' patent-pending housing</td>
</tr>
<tr>
<td>PoE Capability</td>
<td>In compliant with IEEE 802.3at-2009 (PoE+), each port delivers up to 25.5 W of power</td>
</tr>
<tr>
<td>Cable Requirement</td>
<td>CAT 5e or CAT 6 cable, 100 meters maximum</td>
</tr>
<tr>
<td>Power Requirement</td>
<td>Maximum 1.2 A &amp; 3.2 V from PCIe Express bus, Maximum 5 A &amp; 12 V from PCIe Express bus or on-board 4-pin power connector</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0°C ~ 55°C with air flow</td>
</tr>
<tr>
<td>Dimension</td>
<td>167 mm (L) x 111 mm (H) x 20 mm (W)*</td>
</tr>
</tbody>
</table>

*“R.O.C Patent No. 771236”

**Ordering Information**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCIe-PoE312M</td>
<td>4-port Server-grade Gigabit 802.3at PoE+ card with M12 x-coded connectors</td>
</tr>
</tbody>
</table>

**Optional Accessories**

| CBL-M12X8M-RJ45-500CM | M12 (8-pole-X-coded) to RJ45, CAT5, Length: 500CM |
| CBL-M12X8M-RJ45-1000CM | M12 (8-pole-X-coded) to RJ45, CAT5, Length: 1000CM |
NRU-220S Series

**Key Features**

- **Powered by NVIDIA® Jetson AGX Orin™ SoM**:
  - 32GB/64GB system-on-module (SoM), comprising NVIDIA® Ampere GPU and Arm Cortex-A78/64 CPU
  - NVIDIA® Jetson AGX Orin™ System-on-Module (SOM), it comprises an Ampere GPU with up to 2048 CUDA cores, 64 Tensor cores, 2x NVIDIA 2.0 Engines that offer a total of 275 sparse TOPS (INT8) AI inference and video transcoding capability of up to twenty-two 1080P video streams simultaneously.

- **1x DisplayPort**, supporting 3840x2160 at 60Hz

- **2x CAN 2.0 ports**

- **10% ~ 90%, non-condensing**

- **-40°C ~ 85°C** with passive cooling (30W TDP mode)

- **1x M.2 3042/3052 B key socket (USB 3.1 Gen1 + USB 2.0) for WiFi/4G/5G module with dual micro SIM support**

- **2x front-accessible 2.5" 7mm SSD**

- **Fan kit with 92mm x 92mm fan for NRU-220S series**

NRU-220S offers 802.3at PoE+ ports sharing 1 Gigabit bandwidth; each port can supply up to 25W of power to IP cameras. The additional two 2.5Gig ports is ideal for surveillance applications requiring more IP camera connections, or higher bandwidth connections to the backend. In addition to 64GB eMMC on the Orin module and an M.2 2280 NVMe socket for fast SSD read/write, NRU-220S is equipped with two front-accessible 2.5" SSD trays for storage expansion. It also has two mini PCIe sockets for CAN/COM/WiFi modules and one M.2 B key socket for 4G LTE/5G NR mobile communications.

- **1x full-size mini PCI Express socket (PCIe + USB 2.0) for WiFi 6 or CAN**

- **IEEE 802.3at PoE+ PSE for Port 3 ~ Port 6, 100W total power budget**

- **NVIDIA® 32GB/64GB LPDDR5 (AGX Orin 32GB/64GB) @ 3200 MHz on SOM**

- **1x M.2 2280 M key NVMe socket (PCIe Gen4x2) for NVMe SSD**

- **-40°C ~ 85°C**

- **Preliminary**

**Introduction**

NRU-220S series is a one-stop AI NVR real-time inference and video transcoder powered by NVIDIA Jetson AGX Orin. Its fanless design and wide-temperature operation capability makes it ideal for stationary or mobile deployment applications.

- **For applications in shock and vibration environments that require extreme rugged connections, such as for agriculture, construction, and mining machinery.**

NRU-220S brings real-time video inference to the edge for surveillance, predictive maintenance, and intelligent transportation system (ITS) applications. Furthermore, with Neousys’ unique damping bracket design, ignition power control, and 8-48V wide-range DC power input, NRU-220S is also ideal for in-vehicle deployment. Last but not least, NRU-220S comes with a derivative model, NRU-222S, incorporating M12 connectors for applications in shock and vibration environments that require extreme rugged connections, such as for agriculture, construction, and mining machinery.

**Specifications**

**System Core**

<table>
<thead>
<tr>
<th>NRU-220S</th>
<th>NRU-222S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Supporting NVIDIA® Jetson AGX Orin™ System-on-Module (SoM), comprising NVIDIA® Ampere GPU and Arm Cortex-A78/64 CPU</td>
</tr>
<tr>
<td>Memory</td>
<td>32GB/64GB LPDDR5 (Jetson Orin 32GB/64GB) @ 3200 MHz on SoM</td>
</tr>
<tr>
<td>PCIe</td>
<td>4x PCIe Gen4x4</td>
</tr>
<tr>
<td>CAN bus</td>
<td>1x isolated CAN 2.0 port</td>
</tr>
<tr>
<td>Isolated DIO</td>
<td>1x isolated DI and 4x isolated DO</td>
</tr>
</tbody>
</table>

**EtchPort**

<table>
<thead>
<tr>
<th>NRU-220S</th>
<th>NRU-222S</th>
</tr>
</thead>
<tbody>
<tr>
<td>6x RJ45 with screw-lock</td>
<td>6x M12 8-coded 8 pin</td>
</tr>
</tbody>
</table>

**PoE Capability**

<table>
<thead>
<tr>
<th>NRU-220S</th>
<th>NRU-222S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port 1, Port 2: 2.5 Gigabit Ethernet ports by Intel Ethernet</td>
<td>Port 3, Port 4: 2.5 Gigabit ports, share 1 Gbps total bandwidth</td>
</tr>
</tbody>
</table>

**USB**

<table>
<thead>
<tr>
<th>NRU-220S</th>
<th>NRU-222S</th>
</tr>
</thead>
<tbody>
<tr>
<td>1x USB 2.0 (Type A), 1x USB 3.1 Gen1 (Type C) for Debug Only</td>
<td>1x M.2 2280 M key NVMe socket (PCIe Gen4x2) for NVMe SSD</td>
</tr>
</tbody>
</table>

**Video Port**

<table>
<thead>
<tr>
<th>NRU-220S</th>
<th>NRU-222S</th>
</tr>
</thead>
<tbody>
<tr>
<td>1x DisplayPort, supporting 3840x2160@60Hz</td>
<td>1x M.2 2280 M key NVMe socket (Non-Gen4) for NVMe SSD</td>
</tr>
</tbody>
</table>

**Serial Port**

<table>
<thead>
<tr>
<th>NRU-220S</th>
<th>NRU-222S</th>
</tr>
</thead>
<tbody>
<tr>
<td>1x isolated RS-232 port and 2x RS-485 ports</td>
<td>1x M.2 2280 M key NVMe socket (Non-Gen4) for NVMe SSD</td>
</tr>
</tbody>
</table>

**Power Supply**

<table>
<thead>
<tr>
<th>NRU-220S</th>
<th>NRU-222S</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC Input</td>
<td>1x M.2 2280 M key NVMe socket (Non-Gen4) for NVMe SSD</td>
</tr>
</tbody>
</table>

**Environmental**

<table>
<thead>
<tr>
<th>NRU-220S</th>
<th>NRU-222S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>1x M.2 2280 M key NVMe socket (Gen4) for NVMe SSD</td>
</tr>
</tbody>
</table>

**Dimensions**

**NRU-220S Series**

230 mm (W) x 173 mm (D) x 66 mm (H)

**Ordering Information**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRU-220S</td>
<td>NVIDIA® Jetson AGX Orin™ AI NVR for Intelligent Video Analytics with M12 Ethernet</td>
</tr>
<tr>
<td>NRU-222S</td>
<td>NVIDIA® Jetson AGX Orin™ AI NVR for Intelligent Video Analytics with RJ45 Ethernet</td>
</tr>
</tbody>
</table>

**Optional Accessories**

- **PA-160W-OW**
  - 160W AC-DC power adapter 208V/120V; 180W/210W; cond end terminals for terminal block, operating temperature -30 to 70°C.

- **PA-120W-OW**
  - 120W AC/DC power adapter 208V/120V; 160W/210W; cond end terminals for terminal block, operating temperature -30 to 70°C.

- **AccuBr-A/NRU-100**
  - Fan kit with 52mm x 42mm fan for NRU-220S series
NRU-120S Series

NRU-120S series is a new rugged edge AI-based video analytics solution capable of video recording, transcoding, real-time inference, etc. Powered by NVIDIA® Jetson AGX Xavier™ system-on-module (SOM), it comprises of an 8-core ARM CPU and NVIDIA Volta GPU with 512 CUDA cores and 64 Tensor cores that offer 1 Tflop of power to PD devices such as IP cameras and industrial cameras. In addition to 32GB eMMC on the Xavier module, NRU-120S further incorporates two front-accessible 2.5" HDD/SSD trays for expanding storage capacity and an M.2 2280 NVMe socket for fast SSD read/write performance. It also has one mini-PCIe socket for WIFI and 4G modules, as well as 1 GPS PPS input, 3-CH isolated DI and 4-CH isolated DO for communication with external devices.

By integrating PoE+ connectivity, a wide range of NVIDIA AI tools, and modern deep learning frameworks, NRU-120S pushes real-time image and video inference to the edge. It is a one-stop AI-based video analytics solution that offers 802.3at PoE+ camera connections, video decoding, streaming video, recording, and edge AI inference. With Neousys’ unique damping bracket design, ignition power control, and wide voltage power supply, NRU-120S is an ideal video inference platform for autonomous machines, predictive maintenance, law enforcement, and smart city applications.

**Key Features**

- **Powered by NVIDIA® Jetson AGX Xavier™ SOM bundled with JetPack 4.4**
- **4x IEEE 802.3at Gigabit PoE+ ports with screw-lock**
- **2x front-accessible 2.5" HDD/SSD trays**
- **1x M.2 2280 M key socket for NVMe SSD**
- **1x mini PCIe socket for WIFI/4G module**
- **1x isolated CAN bus port and 1x RS232 port with flow control**
- **1x GPS PPS input, 3-CH isolated DI and 4-CH isolated DO**
- **8 to 35V wide-range DC input with built-in ignition power control**

**Specifications**

- **System Core**
  - Processor: Supporting NVIDIA® Jetson AGX Xavier™ system-on-module, comprising of NVIDIA® Volta GPU and Carmel CPU
  - Memory: 32GB eMMC on SOM
  -铠面: 32GB eMMC 5.1 on SOM
- **PoE Interface**
  - 4x IEEE 802.3at (25.5W) Gigabit PoE+ ports by Intel®
  - CAN: 1x isolated CAN 2.0 port
- **Isolated USB**
  - USB: 3.1x1 (5 Gbps) ports
- **Video Port**
  - 2x DisplayPort, supporting 3840x2160 at 60Hz
- **Serial Port**
  - 1x RS-232 port with flow control
- **Power Supply**
  - DC input: 1x 9-pin (9-pin) plug-in terminal block for 8 to 35V DC input (60W/36V)
- **Mechanical**
  - Dimension: 230 mm (W) x 173 mm (D) x 66 mm (H)
- **Environmental**
  - Temperature: -25°C ~ 70°C with passive cooling (30W TDP mode) *
  - Storage: -25°C ~ 70°C with passive cooling (30W TDP mode) *
- **Storage**
  - HDD: 2x front-accessible 2.5" HDD trays for 500GB/1TB HDD/SSD installation
- **SATA HDD**
  - 1x M.2 2280 M key socket for NVMe SSD
- **M.2 NVMe**
  - 1x M.2 2280 M key socket (PCI-E Gen3 x4) for NVMe SSD
- **Internal Expansion Bus**
  - 1x 144-pin mini PCIe Expander socket with internal SIM socket
- **Power Supply**
  - DC input: 1x 9-pin plug-in terminal block for 8 to 35V DC input (36V/60W)
- **Mechanical**
  - Dimension: 230 mm (W) x 173 mm (D) x 66 mm (H)
- **Environmental**
  - Temperature: -25°C ~ 70°C with passive cooling (30W TDP mode) *
  - Storage: -25°C ~ 70°C with passive cooling (30W TDP mode) *
- **Storage**
  - -40°C ~ 85°C
- **Humidity**
  - 10% ~ 90%, non-condensing
- **Vibration**
  - Operating: M4-STD-B01G, Method 6.7, Category 4
  - Shock: M4-STD-B01G, Method 6.7, Procedure 1

**Ordering Information**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRU-120S</td>
<td>NVIDIA® Jetson AGX Xavier™ AI NVR for Intelligent Video Analytics</td>
</tr>
<tr>
<td>NRU-120S-F</td>
<td>NVIDIA® Jetson AGX Xavier™ AI NVR for Intelligent Video Analytics with Fan Kit</td>
</tr>
</tbody>
</table>

**Optional Accessories**

- **PA-160W-DW**
  - 160W AC-DC power adapter, 20V/8A, 18AWG/120cm, cord end terminals for terminal block, operating temperature: -30 to 70°C
- **PA-210W-DW**
  - 210W AC-DC power adapter, 20V/10A, 18AWG/120cm, cord end terminals for terminal block, operating temperature: -30 to 70°C
- **Fan Kit**
  - Fan kit with 52mm x 52mm fan for NRU-120S series
NRU-52S is a rugged, wide temperature, fanless edge AI computer delivering 21 TOPS for AI-based video analytics applications requiring H.264/H.265 video decoding and real-time inference. Powered by NVIDIA Jetson Xavier™ NX system on module (SOM), it comprises a 6-core ARM CPU and NVIDIA® Volta GPU and Carmel CPU, benefiting from the power-efficiency of NVIDIA® Jetson Xavier™ NX, which consumes only 15W of power. NRU-52S can decode up to 32 streams of 1080p video at 30 FPS, and also offer 21 TOPS inference performance. The low power consumption makes NRU-52S ideal for applications with a limited power source, such as in a robot, vehicle, or rolling stock. Also, with Neousys’ industrial grade thermal design, NRU-52S is ideal for edge deployments that require fanless wide temperature operations, such as at roadside, wayside, construction site, agriculture, or in a dusty factory.

NRU-52S offers four IEEE 802.3bt PoE+ ports, each port can supply up to 90W to IP cameras or PTZ speed dome cameras for AI-based detection, tracking, and recognition applications. NRU-52S also offers flexible expansions with two mPCIe sockets for NVMe storage, WiFi, GMS, or V2X module; one M.2 B key for 4G LTE or 5G NR module with dedicated passive thermal design, and a total of five antenna holes for mobile broadband. It also has one hardware configurable RS232/RS422/RS485 port, 3-Ch isolated DI, and 4-Ch isolated DO for communication with external devices.

By integrating PoE++ connectivity, 21 TOPS inference performance, a vast of NVIDIA® AI JetPack toolkits, NRU-52S can enable more possibilities for real-time video analytics such as autonomous machines, security alerts, law enforcement, and V2X applications. With its -25°C to 70°C fanless operation, wide DC input, g Retina control, and 4G/5G connectivity, NRU-52S is not only for indoor stationary installations but also ideal for harsh edge deployments.
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.

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-spreaders for optimized thermal performance
- 4x full-size mini-PciE sockets with SIM support
- 4-CH isolated DO and 4-CH isolated DO
- 1x CAN 2.0 port
- 8 to 35V wide-range DC input with built-in ignition power control
- Patented damping brackets* to withstand 1 Grms Vibration

Specifications

- Processor: Intel 6th-Gen Core™ i7/ i5/ i3 LGA1151 socket-type processor
- Memory: 4x USB 3.1 ports via native XHCI controller
- Storage: 2x internal SATA port for 3.5” HDD installation, support RAID 0/1
- Power: 240 mm (W) x 225 mm (D) x 98 mm (H)
- Operating: -10°C ~ 70°C (with 35W CPU)
- -25°C ~ 70°C (with 65W CPU)
- -40°C ~ 85°C (with 65W CPU)

Environmental

- Humidity: 10%–90%, non-condensing
- Vibration: Operating: 0.5 Grms, half-sine 11 ms duration (all HDD and damping bracket installed, according to IEC60068-2-27)
- Shock: Operating: 30 Grms, half-sine 11 ms duration (all HDD and damping bracket installed, according to IEC60068-2-27)
- EMC: CE, FCC Class A, according to EN55032 & EN55024

Power Supply

- DC Input: 80 to 35V wide-range DC input with built-in ignition power control
- Remote Ctrl. & Status Output: 1x 10-pin GINA/J1360 connector for remote on/off control and status LED output

Dimensions

- Unit: mm
- 240 x 225 x 98

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-OHV 280W AC/DC power adapter 240V/11.67A;100AWG/100cm; cord end terminals for terminal block, operating temperature : -30 to 60 °C.
Introducing one of the world's first 2.5G Ethernet card featuring IEEE 802.3bt PoE++ PSE capability! The PCIe-PoE425bt is a 4-port 2.5GBASE-T PoE++ card leveraging the cutting-edge Intel® I225-IT controller. It complies with IEEE 802bt standard to provide 2.5 Gbps bandwidth and is backward-compatible with 1000BASE-T, 100BASE-TX, and 10BASE-T Ethernet.

In addition to the increase in bandwidth, the PCIe-PoE425bt also features IEEE 802.3bt PoE capability. IEEE 802.3bt, or PoE++, is the latest addition to Power over Ethernet specifications, allowing a single port to provide up to 90W of power supplied to PD over a standard CAT-5e or CAT-6 Ethernet cable. While COTS high PoE PTZ cameras and outdoor WiFi access points may require higher power than 30W, the PCIe-PoE425bt is particularly useful for directly connecting and powering these devices without an external PoE++ injector.

The PCIe-PoE425bt has four RJ-45 connectors for use with generic Ethernet cables. By incorporating 2.5GBASE-T and PoE++ technologies, the PCIe-PoE425bt is the ideal choice for machine vision and surveillance applications with advanced PoE devices, such as PTZ camera, high-performance WiFi access point and industrial NBASE-T camera.
RGS-8805GC

**Key Features**

- **Powered by AMD EPYC™ 7003 series processors**, supporting up to 64-core/128-thread
- **Supports one NVIDIA RTX A6000/A4500 with proprietary heat dissipation**
- **Rugged -25°C to 60°C operation for edge applications**
- 2x 100 Ethernet by Intel X550-AT2 and 4x GbE by Intel X750-AM4
- Supports 4x D084 R DIMM/LRDIMM up to 512GB of memory
- **Compact 2U 19” rack-mount enclosure with only 350mm depth**
- **Four easy-swappable 2.5” SATA trays for 7mm HDD/SSD**
- **8-48V wide-range DC input with built-in ignition power control**

**Introduction**

Imagine an HPC server unleashed from an air-conditioned data center room, roaming freely in the field. RGS-8805GC is just that, a rugged HPC server powered by the AMD EPYC™ 7003 series “Milan” processor with up to 64-core/128-thread unparalleled computing power and 512GB memory capacity. Utilizing a unique partitioned enclosure design, it provides a highly effective airflow for CPU and other components to guarantee a reliable -25°C to 60°C operation for field deployment.

To fuel versatile advanced edge AI applications, RGS-8805GC can host one high-end NVIDIA RTX A6000 or A4500 GPU which provides up to 38.7 TFLOPS FP32 or 309.7 TFLOPS tensor performance. It comes with a unique enclosure design that creates a sealed tunnel to efficiently dissipate the heat generated from the RTX GPU. RGS-8805GC offers an exceptional balance of CPU and GPU for modern edge AI applications, such as autonomous driving, DL-based vision inspection, and intelligent video analytics.

In terms of I/O connectivity, RGS-8805GC has two 10G Ethernet ports for high-speed data transmission that are backward compatible with 5GBASE-T and 2.5GBASE-T to work with NBASE-T industrial cameras; it has another four Gigabit PoE+ and four USB 3.1 Gen1 ports for connecting additional devices; and four easy-swappable 2.5” HDD trays for data storage. If that’s not enough, RGS-8805G provides two x16 PCIe slots for installing additional I/O cards such as frame grabber or GPU image capture cards. Not to mention that RGS-8805G is one of few HPC servers that accept wide-range DC input, helping it to adapt to versatile deployment environments.

RGS-8805GC addresses the challenge of deploying a CPU GPU server to the field, where installation space, operating temperature, and power supply are some of the most commonly faced issues. A rugged HPC system that can be installed outside of an air-conditioned environment and capable of operating in harsh environments opens the door to new AI-assisted edge computing for more advanced telecom infrastructure, factory automation, ADAS, and V2X applications.

**Specifications**

**System Core**

- **Processor**: AMD EPYC™ 7003 “Milan” series server CPU, up to 64-core/128-thread
- **Graphics**: Integrated graphics in ASPEED AST2500 BMC, supporting 800x600 resolution
- **Memory**: 4x RDIMM/LRDIMM slots, supporting up to 512GB DDR4-3200
- **TPM**: Supports TPM 2.0

**I/O Interface**

- **10G Ethernet**: 2x 10GBASE-T ports by Intel X550-AT2, supporting NBASE-T (5G/2.5G)
- **Gigabit Ethernet**: 4x GbE ports by Intel X750-AM4
- **PoE+**: 10/100/1000 base PoE+ port capability on 4x GbE ports
- **Video Port**: 1x 4K60 via the ASPEED AST2500 BMC
- **USB**: 4x USB 3.1 Gen 1 & 1x Gigabit Ethernet
- **Serial Port**: 2x software-programmable RS-232/422/485 ports

**Storage Interface**

- **ATA**: 8x easy-swappable HDD trays for 3.5” HHD/SDD installation
- **M.2**: 1x M.2 2280 key socket (PCI Gen 4x8) for NVMe SSD

**Expansion Bus**

- **PCI Express**: 16x PCIe x16 (Gen4), 16 lanes for RTX A6000/A4500 installation
- 24x PCIe x4, 6Gbps (Gen3, 8 lanes)

**Ordering Information**

**Model No.**

RGS-8805GC

**Product Description**

AMD EPYC™ 7003 “Milan” series rugged HPC server supporting NVIDIA RTX A6000/A4500 GPU, 2x 10G and 4x 1G Ethernet and 8-48V DC input.

**Optional Accessories**

**PA-600W-ENC**: 600W AC/DC power adapter 240V/50A, cord-end terminals, 4-pin terminal block, operating temperature: -20°C to 70°C.
**Nuvo-10208GC Series**

**Industrial-grade Edge AI Platform Supporting Dual NVIDIA® RTX® series 350W GPU Cards, Intel® 13th/12th-Gen Core® Processor with 3x Additional PCIe Slots and 10/100/1000/10GbE Ethernet Ports**

**Key Features**
- Supports dual NVIDIA RTX™ series 350W GPUs with patent-pending locking mechanism
- Intel® 13th/12th-Gen Core® 35W/65W LGA1700 CPU
- Up to 64GB DDR5 4800 with Intel R680E PCH (2x SODIMM)
- Three x8, Gen3 PCIe slots (x4 signal) for add-on cards
- 2x 2.5Gbe and 1x 1Gbe and 1x optional 10GbEBASE-T Ethernet
- 1x internal M.2 NVMe, 2x 2.5” SATA trays and 1x optional NVMe tray
- Support 8 to 48V wide-range DC input with ignition power control
- Rugged, -25°C to 60°C operation

**Introduction**

Nuvo-10208GC is an Intel® 13th/12th-Gen rugged edge AI platform supporting dual RTX 40 series/RTX A6000/A4500 GPU cards to offer GPU performance up to 97 TLOPS in FP32 for autonomous driving, vision inspection and surveillance applications.

Powered by Intel® 13th-Gen CPU with up to 24 cores and 32 threads, Nuvo-10208GC offers up to twice the performance when compared to previous Intel 10th or 11th Gen platforms. It inherits proven thermal dissipation design for the CPU and two 350W GPUs to optimize overall system performance in harsh temperature conditions. To secure the bigger and heavier NVIDIA® RTX™ 40 series GPUs, Nuvo-10208GC features innovative, patent-pending GPU locking brackets to fasten GPUs to the chassis. It also features Neousys' patented damping bracket to guarantee rock-solid performance in harsh temperature conditions.

**Specifications**

**System Core**
- Processor: Intel 13th/12th-Gen CPU with up to 24 cores and 32 threads
- Memory: Up to 64GB DDR5 4800 with Intel R680E PCH (2x SODIMM)
- AMT: Supports Intel Active Management Technology (AMT)

**Chipset**
- Intel® Mobile Platform Controller Hub

**Graphics**
- Integrated Intel® UHD Graphics 770 (32EU) / 730 (24EU)
- M.2 NVMe 2230/42/60/80 SSD Tray

**Video Port (integrated Graphics)**
- 1x DisplayPort, supporting 4096 x 2304 resolution
- 1x VGA output, supporting 1920 x 1200 resolution

**Audio**
- 1x Line-in, 1x Line-out for mic-in and speaker-out

**SATA HDD**
- 2x NVMe or SAS 2.5” SSDs (1x optional SSD)

**USB 2.0**
- 1x USB 3.2 Gen2c (10 Gbps) ports
- 1x USB 2.0 port

**Serial Port**
- 1x RS-232/422/485 ports (Supporting COM1 & COM2)

**Network Port**
- 2x 2.5GbE and 1x 1GbE and 1x 10GbE port

**Expansion Bus**
- PCI Express: 2x PCIe x16 (Gen4), 8x mPCIe (2x PCIe x4)
- M.2: 1x M.2 2280 M key socket for M.2 NVMe SSD

**Power Supply**
- DC Input: 2-pin / 6-pin pluggable terminal block for 8-48V DC input with ignition control

**Environmental**
- Operating Temperature: -25°C to 60°C (without optional fan kit) / -25°C to 50°C (with optional fan kit)
- Storage Temperature: -40°C to 70°C
- Humidity: 10%~90%, non-condensing
- Vibration: MIL-STD-810H Method 516.6, Category 4
- Shock: MIL-STD-810H Method 516.6 Procedure E
- EMC: CE, FCC, IEC61058, according to EN 55032 & EN 55035

**Ordering Information**

Nuvo-10208GC Series

**Model/Part** | **Product Description**
--- | ---
Nuvo-10208GC | Industrial-grade Edge AI platform supporting dual NVIDIA® RTX series 350W GPU Cards, Intel® 13th/12th-Gen Core® processor with 3x additional PCIe slots

**Optional Accessories**

- **Acceys! Fan** for Nuvo-10208GC: Fan assembly for Nuvo-10208GC with 92x92x25 mm fans and 12VDC input
- **TF-NVMe**: 2x M.2 NVMe 2280/422/60/80/3052 SSD Tray
- **PA-6000-ENC**: 600W AC/DC power adapter 24V/23A, cord end terminals for terminal block, operating temperature -20°C to 70°C

---

**GPU Computing**

All specifications and photos are subject to change without notice.

* CEO: C. E. France

---

* For continuous expansion temperature, extra thermal information and data sheet (see page 158), it is recommended to operate at ambient temperature lower than 60°C.
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/i3 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
- 35 V-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 3g rms vibration
- 10%~90% non-condensing
- CE/ FCC Class A, according to EN 55024 & EN 55032

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™ i7/ i5/ i3-9100E/8100/8500/9500E/8700/9700 running at 65W mode, each CPU coupled with workstation-grade Intel® Xeon® E or 9th/8th-Gen Core™ 8-core/ 16-thread CPU with work-station-grade Intel® C246 chipset to obtain higher operating temperature.

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

For i7-9700E and i7-8700 running at 65W mode, the highest operating temperature shall be limited to 50°C

For i5-9500E and i5-8500 running at 65W mode, the highest operating temperature shall be limited to 45°C

For i3 running at 35W TDP mode, the highest operating temperature shall be limited to 40°C

For i3-9100T running at 15W TDP mode, the highest operating temperature shall be limited to 40°C

For i3-9100E running at 35W TDP mode, the highest operating temperature shall be limited to 40°C

For i3-8100 running at 55W TDP mode, the highest operating temperature shall be limited to 40°C

For i3-8100T running at 35W TDP mode, the highest operating temperature shall be limited to 40°C

To ensure system stability, please refer to the system manual for detailed and accurate information.

Power Supply

- 24-pin plug-in terminal block for 8 to 35V DC input with ignition control

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 to 35V DC input and ignition control

Optional Accessories

Nuvo-8108GC-XL is one of the first rugged edge AI platforms to support an NVIDIA RTX 30 series graphics card up to RTX 3080. Together, the system offers tremendous GPU power up to 29.8 TFLOPS in FP32 to take GPU-accelerated edge computing such as autonomous driving, vision inspection and intelligent video analytics to the next level.

Powered by an Intel® Xeon® E or 9th/8th-Gen Core™ (up to 8-core/16-thread) CPU with workstation-grade Intel® C246 chipset to support up to 128 GB ECC or non-ECC DDR4 memory, the system is a strong foundation to build a powerful AI edge computing platform on. Featuring a brand new mechanical design that is optimized to bring out the best in the latest RTX 30 series GPU cards and its parallel operation of heterogeneous computing architecture. In addition to the x16 PCIe slot (8-lanes) for RTX 30 series GPU installation, Nuvo-8108GC-XL also has other one x8 PCIe slots (4-lanes) and one x16 PCIe slot (8-lanes) for users to add on high performance or bandwidth-hungry expansion cards to extend function sets, such as data collection, analytics and communication.

Nuvo-8108GC-XL incorporates Neousys’ patented heat dissipation design*, damping brackets* and enhanced GPU stabilizing bar, steadying it for reliable and rock-solid operation in shock or vibration conditions. Continuing the heritage of Neousys’ proven power and thermal design, the Nuvo-8108GC-XL accepts 8-48V wide-range DC input to handle heavy power requirements from RTX 30 series GPU under wide temperature operation. Incorporating the built-in ignition control, it can be deployed on a vehicle and directly power it via the car’s power system.

Nuvo-8108GC-XL is Neousys' response to the never-ending demand for TFLOPS performance in industrial GPU platforms. With proven industrial-grade power, guaranteed thermal performance, and new mechanical design, it takes edge AI computing to the next level.

Introduction
Nuvo-8108GC-XL is one of the first rugged edge AI platforms to support an NVIDIA RTX 30 series graphics card up to RTX 3080. Together, the system offers tremendous GPU power up to 29.8 TFLOPS in FP32 to take GPU-accelerated edge computing such as autonomous driving, vision inspection and intelligent video analytics to the next level.

Supported CPUs
• Intel Xeon E or 9th/8th-Gen Core™
• Intel® i3-9100E, i3-9100TE, i3-8100, i3-8100T

Chipset
• Intel® C246 Platform Controller Hub

Memory
Up to 128 GB ECC or non-ECC DDR4 2133 SDRAM

Expansion Bus
• 2x PCIe x16 slot Gen3, 8-lanes
• 2x M.2 B key and 2x full-size mini PCIe sockets

Dimensions
193 mm (W) x 388 mm (D) x 198 mm (H)

Weight
5.2 kg

Ordering Information
Nuvo-8108GC-XL
Industrial-grade edge AI platform supporting NVIDIA RTX 30 series GPU Card, Intel® Xeon® E and 9th/8th-Gen Core™ processor with 8-48V wide-range DC input and built-in ignition control

Model No.
Nuvo-8108GC-XL

Product Description
Industrial-grade edge AI platform supporting NVIDIA RTX 30 series 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 (DIN-rail mount, 24V, 20A, 90~264VAC/127~370VDC, Terminal Block, -20~70°C, Meanwell SDR-480-24)

Supporting Intel® Xeon® E and 9th/8th-Gen Core™ processor with 8-48V wide-range DC input and built-in ignition control
Introduction

Nuvo-8108GC-QD, the latest member of the well-received Nuvo-8108GC series, is a rugged edge AI platform specially designed for NVIDIA® RTX A6000 and RTX A4500 Ampere GPU cards. The GPUs offer tremendous computing power and product longevity, to take GPU-accelerated edge AI applications such as autonomous driving, vision inspection and intelligent video analytics to the next level of reliability and availability. Powerd by an Intel® Xeon® E or 9th/8th Gen Core™ (up to 8-core/16-thread) CPU with workstation-grade Intel® C246 chipset to support up to 2TB ECC or non-ECC DDR4 memory, it has a strong foundation for building a powerful AI edge computing platform. It has a refined thermal dissipation design to optimize GPU performance in high-temperature environments. Additionally, Nuvo-8108GC-QD comes with a dedicated mounting bracket for RTX A6000/ A4500 to keep the GPU card firmly secured in the PCIe slot. Along with Neousys® patented damping brackets*, it ensures rock-solid operation in intensive shock and vibration conditions. The addition of RTX A6000/ A4500 to Neousys’ GPU computing portfolio realizes an edge AI platform with system-level longevity and up to 28 TFLOPS computing power. Combining proven power design, guaranteed thermal performance, and superior mechanical ruggedness, Nuvo-8108GC-QD brings unprecedented longevity, computing power, flexibility and reliability to edge AI computing.

Specifications

- Supports NVIDIA® RTX A6000/ A4500 GPU cards
- Supports Intel® Xeon® E or 9th/8th Gen Core™ / Intel® Atom® / Celeron® Processor
- Up to 128GB ECC/ non-ECC DDR4 2133 (4x SODIMM)
- One x16 (8-lanes), one x8 (4-lanes) Gen3 PCIe slots for add-on cards
- Dedicated GPU card bracket
- 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

Key Features

- -40°C ~ 85°C Operating, MIL-STD-810G, Method 514.6, Category 4
- 1x Gigabit Ethernet port by Intel®
- CE/ FCC Class A, according to EN 55024 & EN 55032
- Up to 128 GB ECC or non-ECC DDR4 memory, it has a strong foundation for building a powerful AI edge computing platform.
- Supports AMT 12.0
- 161.70 mm (W) x 360 mm (D) x 201.8 mm (H)
- Independent NVIDIA® RTX A6000/ A4500 GPU, Intel® Xeon® E and 9th/8th-Gen Core™ processor with 8~48V wide-range DC input and built-in ignition control.

Table 516.6-II

<table>
<thead>
<tr>
<th>Processor</th>
<th>Supporting Intel® Xeon® E and 9th/8th Gen CPU/Atom processor/Intel® Celeron® processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graphics</td>
<td>Independent NVIDIA® RTX A6000/ A4500 GPU on x16 PCIe gen3 or x8 PCIe gen2 LGA1685 socket</td>
</tr>
<tr>
<td>Memory</td>
<td>Up to 2TB ECC/ non-ECC DDR4 2133 (4x SODIMM)</td>
</tr>
<tr>
<td>ATX</td>
<td>Supports X292-E2</td>
</tr>
<tr>
<td>TPM</td>
<td>Supports TPM 2.0</td>
</tr>
<tr>
<td>I/O Interface</td>
<td>1x Gigabit Ethernet port by Intel® 1G-T10, 1x Gigabit Ethernet port by Intel® 1G-T0</td>
</tr>
<tr>
<td>Video Port</td>
<td>1x VGA - supporting 1080 p 1920x1080 resolution</td>
</tr>
<tr>
<td>Storage Interface</td>
<td>1x DisplayPort, supporting 4096 x 2160 resolution</td>
</tr>
<tr>
<td>Expansion Bus</td>
<td>1x DisplayPort, 1x DisplayPort</td>
</tr>
<tr>
<td>DC Input</td>
<td>8~48V wide-range DC input and built-in ignition control</td>
</tr>
<tr>
<td>Mechanical</td>
<td>Dimensions: 170.2 mm (W) x 360 mm (D) x 201.8 mm (H)</td>
</tr>
<tr>
<td>Weight</td>
<td>5.8 kg</td>
</tr>
<tr>
<td>Mounting</td>
<td>Neousys’ patented damping brackets</td>
</tr>
</tbody>
</table>

Optional Accessories

- PA-600W-DIN: 600W AC/DC power adapter (24V/25A); cord end terminals for terminal block, operating temperature: -20°C to 70°C.
- PA-480W-ENC: 480W AC/DC power adapter (24V/20A/12V/5A); terminal block, 24V/20A/12V/5A, 90~264VAC/127~370VDC, terminal block. 24V/20A/12V/5A, 90~264VAC/127~370VDC. Meanwell SDR-480-24
- PA-600W-DIN: 600W AC/DC power adapter (24V/20A/12V/5A); terminal block, operating temperature: -20°C to 70°C.
Nuvo-8108GC is a rugged edge AI platform with industrial-grade design and in-vehicle features. Designed specifically to support a high-end GPU Computing edge, 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 250W GPU power, 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.

### Key Features
- Supports an NVIDIA® RTX 30 Series graphic card
- Supports 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-pluggable 2.5" HDD/ SSD tray for easy replacement. There is also an M.2 2280 M Key/ Gen3/ Gen4 port for feature screw-lock mechanisms for securing cable connections. In addition to the x16 PCIe slot (8-lanes) for GPU installation, Nuvo-8108GC has another 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 to 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 power system. Mechanically wise, Nuvo-8108GC has a brand new power delivery design to accept 8 to 48V wide-range DC input and build-in ignition control power source.
- For i7-9700/ 8700 running at 65W mode, the highest operating temperature shall be limited to 50°C and thermal throttling may occur when sustained full-motion is applied. Users can configure CPU power in the BIOS.
- System load between 100W to 480W (single GPU), the required DC input range is 18V to 48V.
- For sub-zero operating temperature, a wide temperature HDD or Solid State Disk (SSD) is required.

### Specifications

#### System Core
- **Processors**: Supporting Intel® Xeon® E and 8th-Gen GPU (C246/T151 sockert) – i7-9700/ 8700B/C (B151), i5-9400F/ 9400F (B151), i3-9100F/ 9100F (B151), G5420/ G5420F (B151), Xeon® E (T151) or 9th/ 8th-Gen Core™ i5/ i7 LGA1151 CPU
- **Chipset**: Intel® C246/ C246E/ C246T/ C248E/ C248T
- **Graphics**: Independent GPU via PCI-Express port, or integrated Intel® UHD Graphics 630
- **Memory**: Up to 128GB ECC/ non-ECC DDR4 2133 DDR3L SDRAM (Four SODIMM slots)
- **AMT**: Supports AMT 12.0
- **TPM**: Supports TPM 2.0

#### I/O Interface
- **Ethernet**: 1x Gigabit Ethernet port by Intel® C246/ C246E/ C246T
- **Video Port**: 1x VGA, supporting 1920 x 1200 resolution, 1x DVI, supporting 1920 x 1200 resolution, 1x DisplayPort, supporting 4K x 2K resolution
- **Serial Port**: 2x software-programmable RS-232/ 422/ 485 (configured as 65W TDP or 35W TDP)
- **USB 3.1**: 4x USB 3.1 Gen1 (5 Gbps) ports, 4x USB 3.1 Gen2 (10 Gbps) ports
- **USB 2.0**: 2x USB 2.0 ports (internal for design use)
- **Audio**: 1x 3.5mm jack for mic-in and speaker-out

#### Storage Interface
- **SATA**: 1x hot-pluggable HDD/ SSD tray for 3.5" 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 slot (PCI-Express Gen3 x4) for M.2 SSD/ eMMC, 1x M.2 2280 B Key slot (PCI-Express Gen3 x2) for mSATA, 1x M.2 2280 M Key slot (PCI-Express Gen3 x4) for NVMe SSD

#### Expansion Bus
- **PCI Express**: 2x PCIe x16 slot (Gen3/ Gen4), 8 lanes, 1x PCIe x16 slot (Gen3/ Gen4), 4 lanes
- **M.2**: 1x M.2 Key key slot, 1x M.2 B key slot and 2x full-size mini-PCIE socket
- **3.1 Gen1/ Gen2**: 8 to 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 gms vibration

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

### Optional Accessories
- **PA-480W-DIN**: 480W AC/DC power Adapter(24V~28V) DIN rail mount, 24V 20A, 90-250VAC/127-277VDC, Terminal Block, -20~70°C, Measured 50Hz/60Hz 24 V

---

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

**Notes**:
1. System load under 100W, the required DC input range is 8V to 48V.
2. System load under 200W, the required DC input range is 18V to 48V.
3. System load under 300W, the required DC input range is 25V to 48V.
4. The safety operating temperature is a wide temperature range from 0°C to 50°C, with the maximum operating temperature of 70°C in the limited space environment.
5. The specified operating temperature is a wide temperature range from 0°C to 50°C and internal hard drive shall be stored to 70°C and internal hard drive shall be stored to 50°C and non-condensing environment. The internal hard drive shall be stored to 70°C and non-condensing environment.

**Features**:
- Supports an NVIDIA RTX 30 Series graphic card
- Supports Intel® Xeon® E or 9th/ 8th-Gen Core™ (up to 8-core/ 16-thread)
- Supports 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-pluggable 2.5" HDD/ SSD tray for easy replacement. There is also an M.2 2280 M Key/ Gen3/ Gen4 port for feature screw-lock mechanisms for securing cable connections. In addition to the x16 PCIe slot (8-lanes) for GPU installation, Nuvo-8108GC has another 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 to 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 power system. Mechanically 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.

---

**Nuvo-8108GC**

Industrial-grade GPU Computing Edge AI Platform Supporting an NVIDIA® RTX 30 Series Graphics Card, Intel® Xeon® E or 9th/ 8th-Gen Core™ Processor
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 now with double the inference power, Nuvo-8240GC is ready to take it to the next level.

**Key Features**
- Supports dual NVIDIA® Tesla T4 GPU
- Supports Intel® Xeon® E or 9th/8th Gen Core™/i7 /i5 LGA1511 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 32GB M key socket for NVMe SSD or Intel® Optane™ memory installation
- Two x8 (4 lanes), Gen3 PCIe slots for add-on cards
- 8 to 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 Gms vibration

**Introduction**
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. The Nuvo-8240GC is 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

**Specifications**

- **System Core**
  - Processor: Supporting Intel® Xeon® E and 8th/9th Gen CPU (LGA1151 socket)
  - Chipset: Intel® C246 Chipset
- **Graphics**
  - Integrated Intel® UHD Graphics 630
- **Memory**
  - Up to 128GB ECC/non-ECC DDR4 2133 (4x SODIMM)
- **AMT**
  - Supports AMT 2.0
- **TPM**
  - Supports TPM 2.0

**I/O Interface**

- **Ethernet**
  - 1x Gigabit Ethernet port by Intel® 82584
  - 1x Gigabit Ethernet port by Intel® 82585
- **Video Port**
  - 1x VGA, supporting 1920 x 1200 resolution
  - 1x DVI-D, supporting 1920 x 1200 resolution
  - 1x DisplayPort, supporting 4K x 2K 2400 resolution
- **Serial Port**
  - 2x software-programmable RS-232/422/485 ports (COM1/COM2)
  - 4x USB 3.1 Gen1 (5 Gbps) ports
  - 4x USB 3.1 Gen1 (5 Gbps) ports
- **USB 2.0**
  - 1x USB 2.0 port (internal use)

**Audio**

- 1x 3.5mm jack for mic-in and speaker-out

**Storage Interface**

- **SATA**
  - 1x hot-swappable HDD tray for 3.5” HDD/SSD installation
  - 1x internal SATA port for 2.5” HDD/SSD installation, supporting RAID 0, 1, 5, 10
- **M.2**
  - 1x M.2 (2280) key socket (PCIe Gen3 x4) for NVMe SSD or Intel® Optane™ memory installation
- **MSATA**
  - 1x full-size MSATA port (with two mini-PCIe)

**Expansion Bus**

- **PCI Express**
  - 2x PCIe x16 slots (Gen3), 8 lanes
  - 2x PCIe x4 slot (Gen3), 4 lanes
- **M.2**
  - 1x M.2 2280 B key socket supporting dual SIM mode with selected M.2 module

**Power Supply**

- **DC Input**
  - 1x 4-pin plugable terminal block for 8 to 48V DC input with ignition control

**Mechanical**

- Dimension: 198 mm (W) x 271 mm (D) x 198.5 mm (H)
- Weight: 5 kg

**Environmental**

- **Operating Temperature**
  - -25°C ~ 50°C (**/* (configured as 65W TDP mode)
  - -25°C ~ 60°C (configured as 35W 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 warranty policy. An operating temperature of 0°C ~ 50°C is required for systems with Tesla T4 warranty policy.

- **Storage Temperature**
  - -40°C ~ 85°C

- **Humidity**
  - 10%~90%, non-condensing

- **Vibration**
  - Operating: 0.35G 2-50Hz @ 10-150Hz EN60068-2-30
  - Shock: 20G (11ms)

- **Shock Protection**
  - Operating: MIL-STD-810G, Method 514.6, Category 4 and 3Grms
  - Shock: Operating, MIL-STD-810G, Method 516.6, Procedure B, Table 516.6-B

- **EMC**
  - C/CE FCC Class A, according to EN 55022 & EN 55032

- **Certification**
  - CE/FCC Class A, according to EN 55032 & EN 55024

- EN 60950-1:2006+ A11:2009

**Ordering Information**

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

**Optional Accessories**

- PA-280W-F22 280W AC/DC power adapter 24V11.67A, 16AWG/100cm; cord ends terminals for terminal block, operating temperature: -30°C to 60°C

---

*R.O.C Patent No. M491752

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

*** For zero operating temperature, a wide temperature HDD or solid state drive (SSD) is required.

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

---

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

*** For zero operating temperature, a wide temperature HDD or solid state drive (SSD) is required.

---

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

*** For zero operating temperature, a wide temperature HDD or solid state drive (SSD) is required.

---

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

*** For zero operating temperature, a wide temperature HDD or solid state drive (SSD) is required.

---

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

*** For zero operating temperature, a wide temperature HDD or solid state drive (SSD) is required.

---

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

*** For zero operating temperature, a wide temperature HDD or solid state drive (SSD) is required.

---

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

*** For zero operating temperature, a wide temperature HDD or solid state drive (SSD) is required.

---

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

*** For zero operating temperature, a wide temperature HDD or solid state drive (SSD) is required.

---

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

*** For zero operating temperature, a wide temperature HDD or solid state drive (SSD) is required.

---

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

*** For zero operating temperature, a wide temperature HDD or solid state drive (SSD) is required.

---

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

*** For zero operating temperature, a wide temperature HDD or solid state drive (SSD) is required.

---

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

*** For zero operating temperature, a wide temperature HDD or solid state drive (SSD) is required.

---

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

*** For zero operating temperature, a wide temperature HDD or solid state drive (SSD) is required.

---

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

*** For zero operating temperature, a wide temperature HDD or solid state drive (SSD) is required.

---

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

*** For zero operating temperature, a wide temperature HDD or solid state drive (SSD) is required.
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*1
- 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 0/1/5/10 support (Nuvo-6108GC-IGN)
- Patented easy-swap trays*2 for HDD replacement (Nuvo-6108GC-IGN)
- Automatic temperature sensing and fan control
- Patented damping brackets*3 to withstand 1 Gms vibration
- Built-in ignition control (Nuvo-6108GC-IGN)

Nuvo-6108GC series is world’s first industrial-grade GPU computing platform with 250W NVIDIA® GPU and Intel® Xeon® E3 v5 and 6th-Gen Core™ processor. 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

<table>
<thead>
<tr>
<th>System Core</th>
<th>Processor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel® Xeon® E3 v5 or 6th-Gen Core™ (G4A 151) CPU</td>
<td></td>
</tr>
<tr>
<td><strong>Note</strong>: Xeon® Processor 12-2700 (6M Cache, 2.6-4.3 GHz)</td>
<td></td>
</tr>
<tr>
<td><strong>Note</strong>: Xeon® Processor 32-3400, 65W (8M Cache, 2.6-3.6 GHz)</td>
<td></td>
</tr>
<tr>
<td><strong>Note</strong>: Xeon® Processor 56-6000, 65W (8M Cache, 2.1-3.5 GHz)</td>
<td></td>
</tr>
<tr>
<td><strong>Note</strong>: Xeon® Processor 60-6100, 65W (8M Cache, 2.3-3.2 GHz)</td>
<td></td>
</tr>
</tbody>
</table>

| Chipset | Intel® C236 platform controller hub |

| Graphics | Independent GPU via 1x PCIe port, or integrated Intel® HD graphics |

| Memory | Up to 32 GB ECC/ non-ECC DDR4 |

| Ethernet | 1x Gigabit Ethernet port by Intel® D10-LM |
| 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 Gen1/1.1 Gen2 ports |

| Audio | 1x speaker-out |

| Storage Interface | SATA: 1x SATA port 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 CF/SD slot for 2.5” SSD installation, supporting RAID 0/1/5/10 (Nuvo-6108GC-IGN) |

| Input Connector | 3-pin pluggable terminal block for DC input (150V GND V+) |

| Expansion Bus/ Internal I/O Interface | PCI Express |
| | 1x PCIe x16 slot@ Gen3, 16-lanes PCIE signals for GPU |
| | 2x PCIe x8 slots@ Gen3, 4-lanes PCIE signals |

| I/O Interface | M.2 |
| | 1x M.2 2.5 Key socket for 32GB options with SMI socket |

| M.2 PCIe | 1x Full-size M.2 PCIe Express socket |

| Remote Ctrl. & Status Output | 1x 20-pin 2x20-pin header connector for remote on/ off control and status LED output |

| Power Supply | 24V DC Input |

| Mechanical Dimensions | 162 mm (W) x 240 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: -20°C ~ 60°C with 100% GPU loading ** |
| | Storage Temperature: -40°C ~ 85°C |
| | Humidity: 10%~90%, non-condensing |
| | Vibration: Operating: 1 G rms, 3-300 Hz Intensity 3 Axis 5% @ 50/60 Hz, HD 530 controller, or Intel® graphics card, Intel® Xeon® E3 v5 and 6th-Gen Core™ processor with built-in ignition control and 2x easy-swap trays. |

---

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

---

All specifications and photos are subject to change without prior notice.
Introduction

Nuvo-9160GC is a rugged edge AI computer that delivers superior CPU and GPU performance by leveraging Intel’s 13th/12th-Gen platform and NVIDIA’s 130W RTX GPU card. Benefiting from the cutting-edge Intel 13th/12th Gen processors, Intel’s 13th/12th Gen processors can offer up to 24 cores/32 threads with 2x the performance improvement compared to previous Intel 11th/10th Gen platforms. The latest NVIDIA 130W RTX GPU contributes nearly 9 TFLOPS of FP32 performance to fuel real-time AI inference applications involving multiple cameras such as production line vision inspection, intelligent video analytics for surveillance or ITS, or autonomous mobile robot (AMR).

Nuvo-9160GC has a proven thermal design to guarantee reliable system operation from -25°C to 60°C. It features a passive-cooling design for the motherboard and segregated patented ventilation design* for the 130W GPU card within Neousys’ patented expansion Cassette*. The support of six GIGE cameras (or IP cameras) and six USB3 cameras makes Nuvo-9160GC ideal for various vision-based AI application deployments. It also provides flexible data storage options, including one M.2 2280 Gen4 NVMe providing up to 7000 MB/s extreme read/write speeds and two 2.5" SATA HDD/SSD to expand storage capacity.

With performance enhancements and comprehensive IOs, Nuvo-9160GC is the perfect Edge AI inference platform for industrial environments from factory automation, smart agriculture, and autonomous machines.

Specifications

System Core
- Intel® 13th/12th-Gen Core™ up to 24C/32T 35W/65W CPU
- NVIDIA® RTX series GPU card up to 130W TDP
- -25°C to 60°C wide temperature rugged operation

Expansion Bus
- 1x PCIe x16 slot@Gen3, 16-lanes PCIe signals in Cassette for installing graphics card up to 130W TDP (Max. graphics card dimensions: 148 mm x 148 mm, dual slot allocation)
- 1x MezIO® expansion port for Neousys MezIO® modules

IO Interface
- 1x 3-pin pluggable terminal block for 8 to 48V DC input
- 1x 3-pin pluggable terminal block for remote control and PWR LED output
- Supports Intel vPro/AMT 16.0

Environmental
- -25°C to 60°C operation
- Meets MIL-STD-810G
- MIL-STD-461J, Method 2, Procedure 4, Level 3

Dimensions
- 240 mm (W) x 225 mm (D) x 110.5 mm (H)

Ordering Information

Model No. | Product Description
--- | ---
Nuvo-9160GC | Ruggedized AI Inference Platform supporting 130W NVIDIA® RTX GPU and Intel® 13th/12th-Gen Core™ Processor

Optional Accessories

- PA-2800-ET2
- PA-6000-ENC

Nuovo-9160G | Nuousys’ patented bracket assembly for Nuovo-9160G.

Note: For detailed specifications and options, please refer to the product manual. Specifications are subject to change without prior notice.
Nuvo-7168GC Series is a ruggedized AI inference platform supporting NVIDIA® RTX A2000 GPU which offers better longevity for industrial AI inference applications, such as machine vision inspection, machine automation, and intelligent video analytics. Operating with NVIDIA® RTX A2000, Nuvo-7168GC delivers 9 TFLOPS in FP32 GPU computing power for real-time AI inference.

Nuvo-7168GC inherits the market-proven passive cooling design for motherboard components; Neousys' patented module to segregate electrical and heat interferences; the innovative “tunneled” ventilation design for add-on cards that can efficiently dissipate the heat generated by RTX A2000, and together, they sustain optimum performance for both the CPU and GPU in high-temperature environments.

Nuvo-7168GC series offers an abundance of cutting-edge I/O connections. It has six GbE ports and eight USB3.1 ports for connecting to industrial cameras or IP cameras. An M.2 2280 NVMe interface is provided internally for fast storage access supporting over 2000 MB/s read/write speeds. Moreover, Nuvo-7168GC supports Neousys’ proprietary MezIO® interface for further I/O expansions such as isolated COM ports, or more GbE ports.

By supporting RTX A2000, Nuvo-7168GC series provides a great cost/ performance ratio for AI inference computing and superior system longevity so users need not worry about the frequent change of GPU configuration. Nuvo-7168GC is the ideal ruggedized AI inference platform for emerging industrial edge AI applications.

Key Features

- Supports NVIDIA® RTX A2000 GPU
- -25°C to 60°C wide-temperature operation
- Intel® 9th/8th-Gen Core®/hexa-core 35W/65W PGA1151 CPU
- 6x GbE ports, 820.3at 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

All specifications and photos are subject to change without prior notice.

Nuvo-7168GC Series

Ruggedized AI Inference Platform Supporting NVIDIA® RTX A2000 and Intel® 9th/8th-Gen Core® Processor

System Core

- Processor
  - Intel® Core™ i3-9100E/ i3-9100TE/ i3-8100/ i3-8100T
  - Intel® Core™ i5-9500E/ i5-9500TE/ i5-8500/ i5-8500T
  - Intel® Core™ i7-9700E/ i7-9700TE/ i7-8700/ i7-8700T
- Chipset
  - Intel® Q370 platform controller hub
- Graphics
  - Integrated Intel® UHD graphics 630
- Memory
  - Up to 64 GB DDR4 2666/2400 SDRAM (two 32GB DIMMs)
- AMT
  - Supports AMT 1.2
- TPM
  - Supports TPM 2.0

I/O Interface

- Ethernet
  - 6x Gigabit Ethernet ports by I219 and 5x I210
- PoE+
  - Optional IEEE 802.3at PoE+ for GbE ports 3~6
- USB 3.1 Gen1
  - 4x USB 3.1 Gen1 (5 Gbps) ports
- PoE
  - 1x 3-pin pluggable terminal block for PoE+ (ports 3~6)
- Remote Ctrl.
  - 2x software-programmable RS-232/422/485 COM ports (COM1 and COM2)
- LED Output
  - 2x internal SATA ports for 2.5” HDD/ SSD installation,
- 1x 3.5 mm jack for mic-in and speaker-out
- DisplayPort
  - 1x DisplayPort x1
- Audio
  - 1x 3.5 mm jack for mic-in and speaker-out
- Video Port
  - 1x DVI-D, supporting 1920 x 1200 resolution
- Storage Interface
  - SATA HDD
  - 2x internal SATA ports for 2.5”/3.5” 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 (w/ eMMC for BIOS)

CPU/PCI Express

- PICPCI Express
  - 1x PCIe x1 slot
- Mini PCI Express
  - 1x Mini PCI Express slot with dual from-assembly SIM sockets, supporting dual SIM mode with select M2.1E module

Optical Drive

- Optical Drive
  - 1x M.2 2280 SSD with capacitors for longer than 60°C operation

Mechanical

- Dimension
  - 260 mm (D) x 225 mm (S) x 111 mm (H)
- Size
  - 4.5 kg
- Mounting
  - Wall mount brackets mountable
- Environmental

Ordering Information

Model No.

- Nuvo-7168GC

Product Description

Intelligent 9th/8th-Gen Core® AI Inference Platform with 6x GbE and MezIO®, supporting NVIDIA® RTX A2000

Optional Accessories

- Optional IEEE 802.3at PoE+ for GbE ports 3~6
- Optional M.2 2280 NVMe interface
- Optional 1920 x 1200 resolution DVI-D port
- Optional 3.5 mm jack for mic-in and speaker-out
- Optional SIM Socket
- Optional 1x DisplayPort x1

Optical Drive

- Optical Drive
  - 1x M.2 2280 SSD with capacitors for longer than 60°C operation

Dimensions

Unit: mm

Optional PCI Express

- Optional PCIe x1 slot
- Optional PCIe x1 slot

Internal Expansion Bus

- PICPCI Express
  - 1x PCIe x1 slot
- Mini PCI Express
  - 1x Mini PCI Express slot with dual from-assembly SIM sockets, supporting dual SIM mode with select M2.1E module
- M.2
  - 1x M.2 2280 SSD with capacitors for longer than 60°C operation
- Remote Ctrl.
  - 2x software-programmable RS-232/422/485 COM ports (COM1 and COM2)
- LED Output
  - 2x internal SATA ports for 2.5” HDD/ SSD installation,
- 1x 3.5 mm jack for mic-in and speaker-out
- DisplayPort
  - 1x DisplayPort x1
- Audio
  - 1x 3.5 mm jack for mic-in and speaker-out
- Video Port
  - 1x DVI-D, supporting 1920 x 1200 resolution
- Storage Interface
  - SATA HDD
  - 2x internal SATA ports for 2.5”/3.5” 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 (w/ eMMC for BIOS)
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® 6-core/8-core CPU and 64 GB SODIM-2666, offering great balance between CPU, GPU and memory performance.

Thanks to Neousys’ patented Cassette and air tunnel design, which guides the intake air 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 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 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 for easy function expansion.

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 6-core/ 8-core CPU and 64 GB SODIM-2666, offering great balance between CPU, GPU and memory performance.
- Supports NVIDIA Tesla T4 and Tesla T4 GPU
- In compliance with NVIDIA Tesla T4 GPU and one additional PCIe card

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

Nuvo-7164GC/ Nuvo-7166GC Series

Specifications

System Core

Nuovo-7164GC

Nuovo-7166GC

Internal Expansion Bus

PCIE5/PCI Express

1x PCIe x8 slot(Gen3, x4 lanes) PCIe signal in Cassette for installing NVIDIA Tesla T4 GPU

2x PCIe x8 slot(Gen3, x16 lanes) Branes, PCIe signal in Cassette for installing NVIDIA Tesla T4 GPU

Mini PCI Express

1x full-size mini PCI Express socket with internal M.2 socket (mseM.2)

1x M.2 2242 Key E/B key socket with dual front-accessible M.2 sockets, supporting dual M.2 M.2 socket

Expandable I/O

1x MezIO® expansion port for Nuvo-7166GC Modules

Power Supply

DC input

1x 3-pin pluggable terminal block for 8 to 35V DC input

Remote Ctrl. & LED Output

1x 3-pin pluggable terminal block for remote control and PWR LED output

Mechanical

Dimension

240mm (w) x 225mm (d) x 111mm (h)

Weight

4.5 kg incl. CPU, GPU, memory and HDD

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 516.6, Category 4

Shock

Operating, MIL-STD-810G, Method 516.6, Procedure I, Table 516.6A

EMC

CE/ FCC Class A, according to EN 55022 & EN 55024

Optional Accessories

MezIO® Modules

MezIO®-C180

MezIO® module with 4x RS-232/422/485 ports and 4x RS-422/485 ports

MezIO®-E20-EP

MezIO® module with ignition power control function for IrDA wireless 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 8-Ch isolated digital input and 16-Ch isolated digital output

MezIO®-G4P

MezIO® module with 8-Ch isolated digital input and 16-Ch isolated digital output (MezIO-G4P for Nuvo-7166GC-PoE series only)

Ordering Information

Model No.

Product Description

Nuvo-7164GC

Intel 9th/8th-Gen Core®- AI inference platform with DL-Q and Mezi®, supporting NVIDIA Tesla T4 GPU

Nuvo-7166GC

Intel 9th/8th-Gen Core®- AI inference platform with DL-Q and Mezi®, supporting NVIDIA Tesla T4 GPU and one additional PCIe x16 slot

PA-240W-E12

360W AC/DC power adapter, 12V/17.5A, 165W/120W, 10cm card and terminals for terminal block, operating temperature -30°C to 60°C

Damping bracket

Neousys’ patented damping brackets assembly for Nuvo-7164GC/Nuvo-7166GC-Nuvo-7164GC

For more information on Nuovo-7164GC and Nuovo-7166GC please visit our website:

www.neousys-tech.com
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™ 6-core/ 8-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 Gen1/ Gen2, GBE, COM and MezIO® interface in its restricted footprint. It also leverages cutting-edge M.2 NVMe SSD technology for over 200MB/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.

Product Description
- Nuvo-7160GC is an Intel® 8th/9th Gen Core™ 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™ 6-core/8-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 Gen1/Gen2, GBE, COM, and MezIO® interface in its restricted footprint. It also leverages cutting-edge M.2 NVMe SSD technology for over 200MB/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
  - Chipset: Intel® Q370 platform controller hub
  - Graphics: Intel® UHD graphics 630
  - Memory: Up to 64 GB DDR4 2666/2400 SDRAM (two SODIMM slots)
  - Storage: 1x M.2 2280 M key socket (PCIe Gen3 x4) for NVMe SSD (mux with mSATA)
  - Expansion: 1x PCIe x16 slot@Gen3, 16-lanes PCIe signals in Cassette for installing an NVIDIA® graphics card up to 120W TDP
  - Expansion (Cassette): Internal SIM socket, supports dual SIM mode with selected M.2 2280 SIM module
- Internal Expansion Bus
  - PCIe/PCI Express: 1x PCIe x1 (800 MHz, Gen3), 16-lanes PCIe signals in Cassette for installing an NVIDIA® graphics card up to 120W TDP
  - Mini PCI Express: 1x full-size mini PCI Express socket with internal SIM socket (mux with mSATA)
  - M.2: 1x M.2 2282 B key socket with dual front-accessible SIM sockets, supporting dual SIM mode with selected M.2 2280 SIM module
- Power Supply
  - DC Input: 240 mm (W) x 225 mm (D) x 111 mm (H)
  - 1x 3-pin pluggable terminal block for 8 to 35V DC input
  - 1x full-size mini PCI Express socket with dual front-accessible SIM sockets, supporting dual SIM mode with selected M.2 2280 SIM module
- Remote Ctrl. & PWR LED Output
  - Interface: 1x DisplayPort, supporting 4096 x 2304 resolution
  - I/O Interface: 4x USB 3.1 Gen2 ports and 4x USB 3.1 Gen1 ports, 1x 2-pin pluggable terminal block for remote control and PWR LED output
- Environmental
  - Operating: With 35W CPU and 120W GPU
  - Temperature: 0°C ~ 40°C (60°C max. under 100% GPU loading)
  - Humidity: 10%~90%, non-condensing
  - Vibration: Operating, MIL-STD-810G, Method 564.6, Category 4
  - Shock: Operating, MIL-STD-810G, Method 564.6, Procedure L Table 564.6
  - Safety: UL60950.2
  - Declaration: CE/ETL/CB, FCC Class B, BSMI, VCCI Class B, BSMI B+C

Ordering Information
- Model No.: Nuvo-7160GC
- Product Description: motherboard supporting Intel® 9th/8th Gen Core™ GPU-aided edge computer designed for modern machine learning applications such as autonomous driving, facial recognition, and machine vision.
- GPU Computing Specifications
  - GPU: NVIDIA® GeForce® Max-Q 120W TDP
  - Processor: Intel® Core™ i3/i5/i7
  - Memory: Up to 64GB DDR4 2666/2400 SDRAM
  - Storage: 1x M.2 NVMe SSD
  - Expansion: 1x PCIe x16 slot@Gen3
  - Power Supply: 8 to 35V DC input
  - Environmental: Operating temperature: -30°C to 60°C
  - Dimensions: 240 mm (W) x 225 mm (D) x 111 mm (H)

Optional IEEE 802.3at PoE+ for GbE ports
- 3 ~ 6 ports
- 9.5 KB jumbo frame
- 4x IEEE 802.3at PoE+ ports

Optional Accessories
- PA-280W-ET2
  - 280W AC/DC power adapter
  - 24V/11.7A, 16AWG/100cm, cord and terminals for terminal block, terminal temperature: -30°C to 60°C
- MezIO® Modules
  - MezIO-C180: MezIO® module with 4x RS-232/422/485 ports and 4x RS-232 ports
  - MezIO-Y20-E: MezIO® module with ignition power control function for in-vehicle application
  - 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-D230: MezIO® module with 16-CH isolated digital input and 16-CH isolated digital output
  - MezIO® module with 8x IEEE 802.3at PoE ports
**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/ i3 processor
- 6x GigE ports, supporting 9.5 KB jumbo frame
- Up to 32 GB, DDR4-2133 SDDIMM
- 240 x 225 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

---

**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® GPUs (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 to 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 GPU and GPU to offer performance far beyond traditional industrial computers.

---

**Specifications**

**System Core**
- Supports Intel® 6th-Gen Core® i7/ i5/ i3 processors
- Intel® Core™ i5-6500TE (6M Cache, 2.3/3.6 GHz, 65W TDP)
- Intel® Core™ i7-6700TE (8M Cache, 2.4/3.4 GHz, 65W TDP)
- Intel® Core™ i5-6500 (6M Cache, 3.2/3.6 GHz, 65W TDP)
- Intel® Core™ i7-6700 (8M Cache, 3.4/4.0 GHz, 65W TDP)
- Intel® Core™ i5-6500TE (6M Cache, 2.3/3.6 GHz, 65W TDP)
- Intel® Core™ i7-6700TE (8M Cache, 2.4/3.4 GHz, 65W TDP)
- Intel® Core™ i5-6500 (6M Cache, 3.2/3.6 GHz, 65W TDP)
- Supports Intel® 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.

**Chipset**
- Intel® Q170 platform controller hub

**Graphics**
- Independent NVIDIA® GPU (75W TDP)
- or integrated Intel® Skylake controller

**Memory**
- Up to 32 GB DDR4-2133 SDDIMM
- Supports DDR4-2133 SDRAM (two SODIMM slots)

**Expansion Bus**
- 2x internal SATA port for 2.5” HDD/ SSD installation, supporting RAID 0/1
- 1x MezIO® expansion port for Neousys’ MezIO® modules
- 1x PCIe x16 slot @ Gen3, 8-lanes PCIe signals in Cassette for Independent NVIDIA® GPU (75W TDP)
- 1x 3-pin pluggable terminal block for 8 to 35V DC input
- Supports two 2.5” SATA HDD/ SSD with RAID 0/1 support
- 6x Gigabit Ethernet ports by Intel
- 4x USB 3.1 ports via native XHCI controller
- 2x internal SATA port for 2.5” HDD/ SSD installation
- MezIO® expansion port for Neousys’ MezIO® modules
- 1x PCIe x16 slot @ Gen3, 8-lanes PCIe signals in Cassette for Independent NVIDIA® GPU (75W TDP)
- 1x PCIe Express port for providing function expansion
- 1x PCIe Express port

**Operating System**
- Intel® 6th-Gen Core™ Processor

**Environmental**
- -25°C ~ 60°C **/*/** (configured as 35W CPU mode)
- Operating: 50 Grms, Half-sine 11 ms Duration
- Non-operating: 100 Grms, Half-sine 20 ms Duration
- Storage: -25°C ~ 85°C
- Humidity: 10% - 90%, non-condensing
- Vibration: 55-5500 Hz, 2 axes jerk (35G)
- Shock: Operating: 56 Gs, half-sine 11 ms Duration (w/ SSD, according to EN60068-2-27)
- EMI: Class A, according to EN55022, EN55032 & EN61000-6-3

---

**Ordering Information**

**Model No.**
- Nuvo-5095GC

**Product Description**
- Intel® 6th-Gen Core®-GPU computing platform with fix Gen and MezIO® interface, supporting selected 75W NVIDIA® GPU

**Optional Accessories**
- PA-160W-0W
  - 160W AC/DC power adapter 20V/8A; 18AWGx4C/120cm, cord end terminals for terminal block, operating temperature: -30 to 70°C.

---

**Nuvo-5095GC Series**

**Dimensions**

<table>
<thead>
<tr>
<th>Unit: mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width: 240</td>
</tr>
<tr>
<td>Depth: 225</td>
</tr>
<tr>
<td>Height: 111</td>
</tr>
</tbody>
</table>

---

**All specifications and photos are subject to change without prior notice.**
SEMIL-1700GC Series

IP67 Waterproof GPU Computer supporting NVIDIA® RTX A2000/Tesla T4 and Intel® Xeon® E or 9th/8th Gen Core™ CPU with 6 M12 Connectors

Key Features

- IP67 waterproof GPU computer with NVIDIA® RTX A2000/Tesla T4 or Quadro P2000
- Intel® Xeon® E or 9th/8th Gen Core™ 17/11/i3 CPU
- Patented waterproof 2U 19” chassis for rack or wall-mount*
- Guaranteed non-throttling GPU performance up to 62°C ambient
- Up to eight 2x 3.2t Gigabit PoE+ ports via M12 X-coded connectors
- VGA, USB 3.0 and COM ports via M12 A-coded connectors
- 8 to 48V wide-range DC input with built-in ignition power control
- MIL-STD-810G and EN 50155 certified

Introduction

SEMIL-1700GC series is one of the world’s first IP67-rated, waterproof and dustproof inference server with pre-installed NVIDIA® RTX A2000, Tesla T4 or Quadro P2000 for the most demanding environments. It is a brand new page in Neousys’ chapter of innovations as it represents a new level of robustness for rugged edge AI solutions. Coupled with Intel® Xeon® E or 9th/8th Gen Core™ CPU, the system delivers excellent CPU and GPU performances for advanced edge AI applications in various environmental settings. SEMIL-1700GC series features Neousys’ patented system architecture* to guarantee -40°C to 70°C fanless operation in a rack or wall-mountable 2U 19” enclosure.

SEMIL-1700GC series features a sophisticated thermal design to dissipate the heat generated by RTX A2000, Tesla T4 or Quadro P2000 GPU to ensure maximum GPU performance in high-temperature environments. It has a corrosion-proof, stainless-steel aluminum chassis with molded o-rings plus patented fusion mechanism design to offer extraordinary durability and watertight construction. SEMIL-1700GC series offers a variety of I/O connectivities, including 8x 3.2 Gigabit PoE+, VGA, USB, COM ports and optional 10G Ethernet, all using M12 connectors for water-proof and extreme-rugged connectivity in shock and vibration conditions. Additionally, it features M.2 for NVMe SSD, 2.5” SATA storage accommodation, 8 to 48V wide-range DC input with ignition power control and complies with MIL-STD-810G and EN 50155.

The inference acceleration of rugged GPU computers actualized real-time AI inference applications at the edge, where extremely rough conditions are expected. By combining powerful CPU/GPU, robust IP67 protection, true fanless wide-temperature operation, rugged M12 connectors, and standard 2U 19” rack, SEMIL-1700GC series reveals unprecedented possibilities of deploying AI to places that have yet to be seen.

Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>SEMIL-1744GC</th>
<th>SEMIL-1744GC</th>
<th>SEMIL-1744GC</th>
<th>SEMIL-1744GC</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Core</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Processor</td>
<td>Supporting© Intel® 8th and 9th Gen CPU (LGA1151 socket)</td>
<td>Supporting© Intel® 8th and 9th Gen CPU (LGA1151 socket)</td>
<td>Supporting© Intel® 8th and 9th Gen CPU (LGA1151 socket)</td>
<td>Supporting© Intel® 8th and 9th Gen CPU (LGA1151 socket)</td>
</tr>
<tr>
<td>Chipset</td>
<td>Intel® X299 Express Controller Hub</td>
<td>Intel® X299 Express Controller Hub</td>
<td>Intel® X299 Express Controller Hub</td>
<td>Intel® X299 Express Controller Hub</td>
</tr>
<tr>
<td>Acceleration GPU</td>
<td>NVIDIA® Tesla T4</td>
<td>NVIDIA® Quadro P4000</td>
<td>NVIDIA® Quadro P4000</td>
<td>NVIDIA® Quadro P4000</td>
</tr>
<tr>
<td>Memory</td>
<td>Up to 32GB ECC DDR4 memory (2x 16GB DIMM)</td>
<td>Up to 32GB ECC DDR4 memory (2x 16GB DIMM)</td>
<td>Up to 32GB ECC DDR4 memory (2x 16GB DIMM)</td>
<td>Up to 32GB ECC DDR4 memory (2x 16GB DIMM)</td>
</tr>
<tr>
<td>AMT</td>
<td>Supports AIM 2.0</td>
<td>Supports AIM 2.0</td>
<td>Supports AIM 2.0</td>
<td>Supports AIM 2.0</td>
</tr>
<tr>
<td>Input/Output</td>
<td>Supports TRM 2.0</td>
<td>Supports TRM 2.0</td>
<td>Supports TRM 2.0</td>
<td>Supports TRM 2.0</td>
</tr>
<tr>
<td>I/O Interface</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCIe</td>
<td>16x PCIe, 32x PCIe (8x PCIe exclusive to GPU by default)</td>
<td>16x PCIe, 32x PCIe (8x PCIe exclusive to GPU by default)</td>
<td>16x PCIe, 32x PCIe (8x PCIe exclusive to GPU by default)</td>
<td>16x PCIe, 32x PCIe (8x PCIe exclusive to GPU by default)</td>
</tr>
<tr>
<td>PoE</td>
<td>4x PoE+ (Gigabit)</td>
<td>4x PoE+ (Gigabit)</td>
<td>4x PoE+ (Gigabit)</td>
<td>4x PoE+ (Gigabit)</td>
</tr>
<tr>
<td>Power Supply</td>
<td>DC Input: 48V to 480V (S-coded)</td>
<td>DC Input: 48V to 480V (S-coded)</td>
<td>DC Input: 48V to 480V (S-coded)</td>
<td>DC Input: 48V to 480V (S-coded)</td>
</tr>
<tr>
<td>Ignition Control</td>
<td>Built-in ignition power control</td>
<td>Built-in ignition power control</td>
<td>Built-in ignition power control</td>
<td>Built-in ignition power control</td>
</tr>
<tr>
<td>Environmental</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature</td>
<td>Operating with 35W TDP model</td>
<td>Operating with 35W TDP model</td>
<td>Operating with 35W TDP model</td>
<td>Operating with 65W TDP model</td>
</tr>
<tr>
<td></td>
<td>-40°C ~ 70°C</td>
<td>-40°C ~ 70°C</td>
<td>-40°C ~ 70°C</td>
<td>-40°C ~ 70°C</td>
</tr>
<tr>
<td>Rack mounting</td>
<td>Rack mounting</td>
<td>Rack mounting</td>
<td>Rack mounting</td>
<td>Rack mounting</td>
</tr>
<tr>
<td>Wall mounting</td>
<td>Wall mounting</td>
<td>Wall mounting</td>
<td>Wall mounting</td>
<td>Wall mounting</td>
</tr>
</tbody>
</table>

Optional Accessories

- 4PoE+ VGA, 2x USB2.0 (by Y-cable), 2x COM (by Y-cable) and DC power cables
- PA-280W-C12: 280W AC/DC power adapter 24V/11.67A; 16AWG/100cm; cord ends for terminal block, operating temperature: -30°C to 60°C

Ordering Information

- SEMIL-1744GC: IP67 Waterproof GPU Computer supporting NVIDIA® RTX A2000 and Intel® Xeon® E or 9th/8th Gen Core™ CPU with 4x M12 PoE+ ports
- SEMIL-1724GC: IP67 Waterproof Gpu computer supporting NVIDIA® Quadro P2000 and Intel® Xeon® E or 9th/8th Gen Core™ CPU with 4x M12 PoE+ ports
- SEMIL-1724GC-A2K: IP67 Waterproof GPU Computer supporting NVIDIA® Quadro P2000 (2x M12 PoE+) and Intel® Xeon® E or 9th/8th Gen Core™ CPU with 8x M12 PoE+ ports
- SEMIL-1748GC: IP67 Waterproof GPU Computer supporting NVIDIA® Tesla T4 and Intel® Xeon® E or 9th/8th Gen Core™ CPU with 8x M12 PoE+ ports
- SEMIL-1748GC-A2K: IP67 Waterproof GPU Computer supporting NVIDIA® Tesla T4 (2x M12 PoE+) and Intel® Xeon® E or 9th/8th Gen Core™ CPU with 8x M12 PoE+ ports

For more detailed information, please contact Neousys Technology Inc.

* Please refer to B.1520.1008.02.pdf for four MTU data sheet for detailed feature description.
SEMIL-1700 Series

**Key Features**

- Supporting Intel® Xeon® E or 9th/8th Gen CPU and coupled with workstation-grade Intel® C246 chipset, it can support up to 64 GB ECC/ non-ECC DDR4 memory. The 2U half-rack form-factor SEMIL-1700 series incorporates Neousys® best-in-class thermal design and offers mounting flexibility where you can wall or rack-mount up to two SEMILs side by side.
- SEMIL-1700 adopts a corrosion-proof chassis made of stainless steel and aluminum to counteract moisture and salinity. Offering a variety of I/O connectivities that utilize M12 connectors to guarantee extremely rugged connections in shock and vibration environments, it has up to eight 802.3at PoE+ ports to supply 25W of power to connected devices. Internal expansion wise, it has an M.2 Key socket to support NVMe SSD and mini-PCIe sockets for extending feature sets. Additionally, SEMIL-1700 features two 2.5" SATA SDD/HDD accommodation, 8 to 48V wide-range DC input, 8 to 48V wide-range DC input with ignition power control and complies with MIL-STD-810G and EN 50155.
- To top it off, SEMIL-1700 is equipped with Neousys® innovative Super-CAP-based UPS containing 2500 watt-second stored energy to sustain or shut down the system during unforeseen power outages. Protected against water, dust, high low temperature, shock/vibration and power interruption, Neousys® SEMIL-1700 series is set to redefine edge application computing, where ruggedness matters.

**Specifications**

<table>
<thead>
<tr>
<th>SEMIL-1704</th>
<th>SEMIL-1714</th>
<th>SEMIL-1708</th>
<th>SEMIL-1718</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System Core</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Processor</td>
<td>Supporting Intel® Xeon® E, Xeon® E, Xeon® E, or Intel® Core® i7/i5/i3 CPUs, supporting RAID 0/1.**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chipset</td>
<td>Intel® C246 platform controller hub</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graphics</td>
<td>Integrated Intel® UHD Graphics 630</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Memory</td>
<td>Up to 64 GB ECC/ non ECC DDR4 memory (two 2x4GB SODIMM sockets)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.2</td>
<td>Supports M.2 2280 SSD</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Expansion Bus</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mini PCI-E</td>
<td>2x full-size mini PCI Express socket (aux with mSATA)</td>
<td>2x half-size mini PCI Express socket (aux with mSATA)</td>
<td>2x half-size mini PCI Express socket (aux with mSATA)</td>
</tr>
<tr>
<td><strong>Power Supply</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DC Input</td>
<td>80-264 VAC input, 80-36 VDC input, 80-36VDC with Ignition Power Control (IGN/ GND signal via M12 serial port connector)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supercap UPS</td>
<td>Built-in supercap power control</td>
<td>Built-in supercap power control</td>
<td>Built-in supercap power control</td>
</tr>
<tr>
<td><strong>I/O Interface</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PoE+</td>
<td>7x IEEE 802.3at (25.5W) Gigabit PoE+ ports via M12 X-coded connectors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optional Accessories</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PA-120W-OW</td>
<td>160W AC-DC power adapter, 20V/8A; 18AWG/120cm; cord end terminals for terminal block, operating temperature : -30 to 70°C.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Ordering Information**

**Model No.**

- SEMIL-1704: Half-rack IP67 waterproof computer supporting Intel® Xeon® E or 9th/8th Gen CPU with 8x M12 PoE+ ports
- SEMIL-1714: Half-rack IP67 waterproof computer supporting Intel® Xeon® E or 9th/8th Gen CPU with 8x M12 PoE+ ports and SuperCap UPS
- SEMIL-1708: Half-rack IP67 waterproof computer supporting Intel® Xeon® E or 9th/8th Gen CPU with 8x M12 PoE+ ports
- SEMIL-1718: Half-rack IP67 waterproof computer supporting Intel® Xeon® E or 9th/8th Gen CPU with 8x M12 PoE+ ports and SuperCap UPS

**Optional Accessories**

- Dual SEMIL 19" rack-mounted
- Dual SEMIL 19" wall-mounted

**Dimensions**

<table>
<thead>
<tr>
<th>Unit : mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
</tr>
<tr>
<td>210</td>
</tr>
<tr>
<td>220</td>
</tr>
<tr>
<td>250</td>
</tr>
</tbody>
</table>

**Operating Specifications**

- **Operating Temperature:** with 30W CPU: -40°C ~ 70°C; with 60W CPU: -30°C ~ 70°C; with 90W CPU: -20°C ~ 70°C; with 120W CPU: -10°C ~ 70°C
- **Storage Temperature:** -40°C ~ 85°C
- **Humidity:** 10% ~ 80%, non-condensing
- **Vibration:** MIL-STD-810G, Method 516.7, Category 4
- **Shock:** MIL-STD-810G, Method 516.7, Procedure I
- **EMC:** GH-50510, CEMC, Class A, according to EN 55032 & EN 55035

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

**For 9th/8th Gen CPU power in BIOS to obtain higher operating temperature.***

**For optional 10GbE support, please contact Neousys Technology.**

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

**For 9th/8th Gen CPU power in BIOS to obtain higher operating temperature.***

**For optional 10GbE support, please contact Neousys Technology.**
SEMIL-1300GC Series

Wide-temperature Fanless GPU Computer supporting NVIDIA RTX A2000/Tesla T4/GPU Quadro P2200 and Intel® Xeon® E or 9th/8th-Gen Core™ CPU with M12 connectors

Key Features

- Fanless GPU computer with NVIDIA® RTX A2000/Tesla T4/Quadro P2200
- 4x 2.5Gbps Gigabit PoE+, USB 2.0, VGA and COM ports
- Supports Intel® Xeon® E or 9th/8th-Gen Core™/i7/i5/i3 CPU
- PCIe 3.0 x16 slot for add-in graphics cards
- Supports NVIDIA® RTX A2000 GPU, Tesla T4 GPU or Quadro P2200 GPU
- Supports Intel® Optane™ memory installation
- Guaranteed non-throttling GPU performance up to 70°C ambient
- Fanless operation in a rack-mountable or wall-mountable 2U 19" enclosure

SEMIL-1300GC series is the world's first wide-temperature fanless AI computer supporting NVIDIA with Intel® Xeon® E or 9th/8th-Gen Core™ CPU, the system delivers excellent CPU and GPU performances for modern edge AI applications. SEMIL-1300GC series features Neousys' patented thermal system architecture to guarantee -40°C to 70°C fanless operation in a rack-mountable or wall-mountable 2U 19" enclosure.

SEMIL-1300GC series features an advanced passive cooling design to ensure the CPU GPU does not throttle when operating in high-temperature environments. Compatible with a RTX A2000, Tesla T4 or Quadro P2200 GPU, users can utilize the scalable GPU performance that offers up to 8.1 TFLOPS in FP32 or 130 TOPS in INT8. The system leverages M12 connectors for Gigabit PoE+, USB 2.0, VGA and COM ports to offer rugged cable connectivity. Other high-speed computer I/Os include DisplayPort, USB 3.1 Gen1, and optional 10G Ethernet and storage interfaces such as an M.2 for NVMe SSD and SATA ports, making SEMIL-1300GC expandable and versatile.

The GPU-powered deep learning systems actualized real-time AI inference applications at the edge by thriving in rough conditions. Combining a RTX A2000, Tesla T4 or Quadro P2200, wide-temperature fanless design and rugged M12 connectors, the SEMIL-1300GC series reveals unprecedented possibilities of deploying AI to places that have yet to be reached.

Specifications

<table>
<thead>
<tr>
<th>SEMIL-1341GC</th>
<th>SEMIL-1321GC</th>
<th>SEMIL-1342GC</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Core</td>
<td>Supporting Intel® Xeon® E and 9th/8th-Gen Core™ CPU (LGA1151 socket)</td>
<td>Supporting Intel® Xeon® E and 9th/8th-Gen Core™ CPU (LGA1151 socket)</td>
</tr>
<tr>
<td>Processor</td>
<td>- i5-9500E, i5-9500TE, i5-8500, i5-8500T (configured as 65W TDP mode)</td>
<td>- i7-9700E, i7-9700TE, i7-8700, i7-8700T (configured as 35W TDP mode)</td>
</tr>
<tr>
<td>Memory</td>
<td>8GB DDR4 (two SODIMM sockets)</td>
<td>8GB DDR4 (two SODIMM sockets)</td>
</tr>
<tr>
<td>AUII</td>
<td>Supports AMT 12.0</td>
<td>Supports AMT 12.0</td>
</tr>
<tr>
<td>TPM</td>
<td>Supports TPM 2.0</td>
<td>Supports TPM 2.0</td>
</tr>
<tr>
<td>I/O Interface</td>
<td>1x DisplayPort, 3x USB 3.1 Gen1 (A-coded), 2x COM (by Y-cable)</td>
<td>1x DisplayPort, 3x USB 3.1 Gen1 (A-coded), 2x COM (by Y-cable)</td>
</tr>
<tr>
<td>Power Supply</td>
<td>8 to 48V DC input</td>
<td>Ignition Control</td>
</tr>
<tr>
<td>Mechanical</td>
<td>Mechanical dimensions: 185 x 114 x 40 mm (exclude rack mount bracket)</td>
<td>Weight</td>
</tr>
<tr>
<td>Environmental</td>
<td>Fanless design, operation up to 62°C ambient</td>
<td>Mounting</td>
</tr>
</tbody>
</table>

Ordering Information

Model No. | Product Description
---|---
SEMIL-1341GC | Wide-temperature fanless GPU computer with NVIDIA® RTX A2000 GPU and Intel® Xeon® E or 9th/8th-Gen Core™ CPU with M12 connectors
SEMIL-1321GC | Wide-temperature fanless GPU computer with NVIDIA® RTX A2000 GPU and Intel® Xeon® E or 9th/8th-Gen Core™ CPU with M12 connectors
SEMIL-1342GC-A2K | Wide-temperature fanless GPU computer with NVIDIA® RTX A2000 GPU and Intel® Xeon® E or 9th/8th-Gen Core™ CPU with M12 connectors

Optional Accessories

M12-Cable Kit | 4x PoE+, VGA, 2x USB 2.0 (by Y-cable), 2x COM (by Y-cable) and DC power cables
PA-280W-ET2 | 280W AC/DC power adapter 24VDC 11.67A, 16.58A@100cm, cord ends terminals for terminal block, operating temperature: -30°C to 60°C

All specifications and photos are subject to change without prior notice.
SEMIL-1300 Series

**Key Features**

- Intel® Xeon® E or 9th/8th-Gen Core™ CPU and coupled with workstation-grade Intel® C246 chipsets, supporting up to 64 GB DDR4 ECC/non-ECC memory and offers flexible mounting options to wall or rack-mount up to two SEMILs side by side.
- SEMIL-1300 series incorporates Neousys’ best-class passive thermal design for proven -40 °C to 70 °C fanless operation. It offers a variety of I/O connectivities utilizing M12 connectors that are reliably robust, cost-effective and can be obtained off-the-shelf. There are also generic I/Os with screw-lock mechanisms to guarantee an extreme-rugged connection in shock and vibration environments. It has 802.3at PoE+ ports, each supplying 25W of power to the connected device such as an IP or Gig camera. SEMIL-1300 is designed with 4G/5G and Wi-Fi/WiFiS wireless connectivity in mind and it supports 8 to 48V wide-range DC input with ignition power control for in-vehicle use while complying with EN 50155.

**Specifications**

- **System Core**
  - Supporting Intel® Xeon® E or 9th/8th Gen CPU (LGA151 socket)
  - Xeon® E 2278GE (8C/16T) / 2278GEL (8C/16T) / 2176G (6C/12T)

- **Chipset**
  - Intel® C246 platform controller hub

- **Memory**
  - Up to 64 GB ECC/non ECC DDR4 2666/3200 DDR4 (two SO-DIMM sockets)

- **Power Supply**
  - DC Input
  - 8 to 48V wide-range DC input

- **Environmental**
  - Operating Temperature
  - SEMIL-1301: -40°C to 50°C ***/**** (configured as 65W TDP mode)
  - SEMIL-1311: -40°C to 70°C ***/**** (configured as 35W TDP mode)

**Ordering Information**

- **Model No.**
  - SEMIL-1301: Half-Rack Rugged Fanless Computer supporting Intel® Xeon® E or 9th/8th-Gen Core™ processor with M12 I/Os and SuperCap UPS
  - SEMIL-1311: Half-Rack Rugged Fanless Computer supporting Intel® Xeon® E or 9th/8th-Gen Core™ processor with M12 I/Os and SuperCap UPS

**Optional Accessories**

- Joint-plate for dual SEMIL assembly
- M12-Cable-Kit: 4x PoE+ VGA 2x USB2.0 (By Y-cable) 2x COM (By Y-cable) and DC power cables
- PA-160W-OW: 160W AC-DC power adapter, 20V/8A; 18AWG/120cm; cord end terminals for terminal block, operating temperature: -30 to 70°C
- PA-120W-OW: 120W AC-DC power adapter, 20V/6A; 18AWG/120cm; cord end terminals for terminal block, operating temperature: -30 to 70°C

**Dimensions**

- **Dimensions**
  - SEMIL-1301: 220mm (W) x 310mm (D) x 90.5mm (H) (excluding rack-mount bracket)
  - SEMIL-1311: 220mm (W) x 310mm (D) x 90.5mm (H) (excluding rack-mount bracket)

- **Weight**
  - 5kg

- **Environmental**
  - Mounting: Rack-mouned and Wall-mounted

**SEMIL-1300 Series**

Half-Rack Rugged Fanless Computer Supporting Intel® Xeon® E or 9th/8th-Gen Core™ Processor with M12 connectors

**Introduction**

SEMIL-1300 series is a rugged fanless computer with robust M12 I/O connectors in a standard 2U 19” half-rack form factor enclosure. Powered by Intel® Xeon® E or 9th/8th-Gen Core™ CPU and coupled with workstation-grade Intel® C246 chipsets, it supports up to 64 GB DDR4 ECC/non-ECC memory and offers flexible mounting options to wall or rack-mount up to two SEMILs side by side.

SEMIL-1300 series incorporates Neousys’ best-class passive thermal design for proven -40 °C to 70 °C fanless operation. It offers a variety of I/O connectivities utilizing M12 connectors that are reliably robust, cost-effective and can be obtained off-the-shelf. There are also generic I/Os with screw-lock mechanisms to guarantee an extreme-rugged connection in shock and vibration environments. It has 802.3at PoE+ ports, each supplying 25W of power to the connected device such as an IP or Gig camera. SEMIL-1300 is designed with 4G/5G and Wi-Fi/WifiS wireless connectivity in mind and it supports 8 to 48V wide-range DC input with ignition power control for in-vehicle use while complying with EN 50155.

In addition, SEMIL-1311 is equipped with Neousys’ patented SuperCap-based UPS containing 2500 watt-second stored energy to sustain and safely shut down the system during unforeseen power outages. It is the perfect solution for data protection and applications in unstable power environments. With a standard half-rack design, proven wide temperature operation capability, protected against shock/vibration and power interruption, Neousys’ SEMIL-1300 series is the ideal robust solution for extreme-rugged deployments.

**Specifications**

- **SEMIL-1301**
  - Processor: Supporting Intel® Xeon® E or 9th/8th Gen CPU (LGA151 socket)
  - Chipset: Intel® C246 platform controller hub
  - Memory: Up to 64 GB ECC/non ECC DDR4 2666/3200 DDR4 (two SO-DIMM sockets)
  - System Core: Supporting Intel® Xeon® E or 9th/8th Gen CPU (LGA151 socket)

- **SEMIL-1311**
  - Processor: Supporting Intel® Xeon® E or 9th/8th Gen CPU (LGA151 socket)
  - Chipset: Intel® C246 platform controller hub
  - Memory: Up to 64 GB ECC/non ECC DDR4 2666/3200 DDR4 (two SO-DIMM sockets)

**Power Supply**

- **DC Input**
  - 8 to 48V wide-range DC input

- **Environmental**
  - Operating Temperature
    - SEMIL-1301: -40°C to 50°C ***/**** (configured as 65W TDP mode)
    - SEMIL-1311: -40°C to 70°C ***/**** (configured as 35W TDP mode)

**Dimensions**

- **Dimensions**
  - SEMIL-1301: 220mm (W) x 310mm (D) x 90.5mm (H) (excluding rack-mount bracket)
  - SEMIL-1311: 220mm (W) x 310mm (D) x 90.5mm (H) (excluding rack-mount bracket)

- **Weight**
  - 5kg

- **Environmental**
  - Mounting: Rack-mounted and Wall-mounted
Neousys
Mezo™ 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
- SC5I-8 68-pin connector

<table>
<thead>
<tr>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>MezIO®-C180</td>
</tr>
<tr>
<td>MezIO®-C181</td>
</tr>
<tr>
<td><strong># of Port</strong></td>
</tr>
<tr>
<td>4x RS-232/422/485 or 4x RS-232</td>
</tr>
<tr>
<td>4x RS-422/485</td>
</tr>
<tr>
<td><strong>Baud Rate</strong></td>
</tr>
<tr>
<td>50 bps to 921600 bps</td>
</tr>
<tr>
<td><strong>FIFO</strong></td>
</tr>
<tr>
<td>256-byte TX and RX FIFOs</td>
</tr>
<tr>
<td><strong>ESD Protection</strong></td>
</tr>
<tr>
<td>8 kV</td>
</tr>
</tbody>
</table>

**Interface Signals**

- RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND
- RS-422: TxD+, TxD-, RxD+, RxD-, GND
- RS-485: Data+, Data-, GND

<table>
<thead>
<tr>
<th>Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>68-pin SC5I-8 female connector</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OS Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows 7/8/8.1/10 and Linux kernel 2.6.32 or later</td>
</tr>
</tbody>
</table>

**Model No.**

<table>
<thead>
<tr>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MezIO®-C180-50</td>
</tr>
<tr>
<td>4x RS-232/422/485 and 4x RS-232 ports MezIO® module, for Nuvo-9000/ Nuvo-7000/ Nuvo-5000/ POC-500/ POC-400/ POC-300 Series</td>
</tr>
<tr>
<td>MezIO®-C181-50</td>
</tr>
<tr>
<td>4x RS-232/422/485 and 4x RS-422/485 ports MezIO® module, for Nuvo-9000/ Nuvo-7000/ Nuvo-5000/ POC-500/ POC-400/ POC-300 Series</td>
</tr>
<tr>
<td>Cbl-S68M-8DB9M-50CM</td>
</tr>
<tr>
<td>SCSI-68(M) to 8x DB-9(M) cable, 50 cm</td>
</tr>
</tbody>
</table>

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

**Specifications**

<table>
<thead>
<tr>
<th>MezIO®-V20-EP</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-mode ignition power control MezIO® module, for Nuvo-9000/ Nuvo-7000/ Nuvo-5000/ POC-500/ POC-400/ POC-300 Series</td>
</tr>
<tr>
<td>MezIO®-V20-25D</td>
</tr>
<tr>
<td>16-mode ignition power control and 1x mini-PCIe socket MezIO® module for in-vehicle usage</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MezIO®-V20-EP</td>
<td>MezIO® module for Nuvo-9000/ Nuvo-7000/ Nuvo-5000/ POC-500/ POC-400/ POC-300 Series</td>
</tr>
<tr>
<td>MezIO®-V20-25D</td>
<td>MezIO® module with 1x mini-PCIe slot</td>
</tr>
</tbody>
</table>

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

**Specifications**

<table>
<thead>
<tr>
<th>MezIO®-R10-EP</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5” SATA HDD/ SSD and mini-PCIe Accommodation</td>
</tr>
<tr>
<td>MezIO®-R10-101</td>
</tr>
<tr>
<td>Terminal board with 56-pin SC5I/8 female connector and 68-pin terminal block</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MezIO®-R10-EP</td>
<td>MezIO® module with 2.5” SATA HDD/ SSD</td>
</tr>
<tr>
<td>MezIO®-R10-101</td>
<td>Terminal board with 56-pin SC5I/8 female connector and 68-pin terminal block</td>
</tr>
</tbody>
</table>

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 24 DC operation for DI and DO
- Up to 500 mA sink current on DO channel
- SC5I-II 68-pin connector

<table>
<thead>
<tr>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>MezIO®-D230</td>
</tr>
<tr>
<td>MezIO®-D220</td>
</tr>
<tr>
<td><strong>Isolated Digital Input</strong></td>
</tr>
<tr>
<td>16 CH DO</td>
</tr>
<tr>
<td>8 CH DO</td>
</tr>
<tr>
<td><strong>Logic Level</strong></td>
</tr>
<tr>
<td>Logic high: 5 to 24 VDC; Logic low: 0 to 1.5 VDC</td>
</tr>
<tr>
<td><strong>Isolation Voltage</strong></td>
</tr>
<tr>
<td>2500 Vrms</td>
</tr>
<tr>
<td><strong>Operation Mode</strong></td>
</tr>
<tr>
<td>Pulling, CSG</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Isolated Digital Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 CH DI</td>
</tr>
<tr>
<td>8 CH DI</td>
</tr>
<tr>
<td><strong>Sink Current</strong></td>
</tr>
<tr>
<td>Up to 24 VDC</td>
</tr>
<tr>
<td><strong>Operation Voltage</strong></td>
</tr>
<tr>
<td>3.3 V</td>
</tr>
<tr>
<td><strong>Operation Mode</strong></td>
</tr>
<tr>
<td>Pulling, CSG</td>
</tr>
</tbody>
</table>

**Ordering Information**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MezIO®-D230-50</td>
<td>16-CH isolated DI and 8-CH isolated DO MezIO® module, for Nuvo-9000/ Nuvo-7000/ Nuvo-5000/ POC-500/ POC-400/ POC-300 Series</td>
</tr>
<tr>
<td>MezIO®-D220-50</td>
<td>8-CH isolated DI and 8-CH isolated DO MezIO® module, for Nuvo-9000/ Nuvo-7000/ Nuvo-5000/ POC-500/ POC-400/ POC-300 Series</td>
</tr>
<tr>
<td>Cbl-S68M-8DB9M-100CM</td>
<td>SCSI-68(M) to SCSI-68(M) cable, 100 cm</td>
</tr>
<tr>
<td>TB-10</td>
<td>Terminal board with 56-pin SC5I/8 female connector and 68-pin terminal block</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MezIO®-D230-50</td>
<td>MezIO® module with 16-CH isolated DI and 8-CH isolated DO</td>
</tr>
<tr>
<td>MezIO®-D220-50</td>
<td>MezIO® module with 8-CH isolated DI and 8-CH isolated DO</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MezIO®-D230-50</td>
<td>MezIO® module with 32/16-CH isolated DI/O for in-vehicle usage</td>
</tr>
<tr>
<td>MezIO®-D220-50</td>
<td>MezIO® module with 16/8-CH isolated DI/O for in-vehicle usage</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MezIO®-R11</td>
<td>MezIO® module with 16-CH isolated DI and 16-CH isolated DO</td>
</tr>
<tr>
<td>MezIO®-R12</td>
<td>MezIO® module with 8-CH isolated DI and 8-CH isolated DO</td>
</tr>
</tbody>
</table>

All specifications and photos are subject to change without prior notice.
**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**

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

**Ordering Information**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MezIO®-U4-30</td>
<td>4-port USB 3.1 MezIO® module for POC-400/POC-300 series</td>
</tr>
<tr>
<td>MezIO®-U4-50</td>
<td>4-port USB 3.1 MezIO® module for POC-500 series, Nuvo-9000 Series, Nuvo-7000 series and Nuvo-5000 series</td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>MezIO®-G4P</th>
<th>MezIO®-G4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gigabit Ethernet Port</td>
<td>4x GbE ports by 4x Intel® I210 controllers, supporting 9.5 KB jumbo frame</td>
</tr>
<tr>
<td>PoE Capability</td>
<td>Compliant with IEEE 802.3at-2009 (PoE+) each port delivers up to 25.5 W of power</td>
</tr>
<tr>
<td>Cable Requirement</td>
<td>CAT-5e or CAT-6 cable, 100 meters maximum</td>
</tr>
</tbody>
</table>

**Ordering Information**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MezIO®-G4P</td>
<td>4-Port GbE with 802.3at PoE+ MezIO® module for Nuvo-9000/ Nuvo-7000/ Nuvo-5000 series</td>
</tr>
<tr>
<td>MezIO®-G4</td>
<td>4-Port GbE “MezIO®” module for Nuvo-9000/ Nuvo-7000/ Nuvo-5000 series</td>
</tr>
</tbody>
</table>

*All rights reserved. Copyright © 2023 Neousys Technology Inc.*
### List of Optional Cable

<table>
<thead>
<tr>
<th>Cable</th>
<th>Model Name</th>
<th>Description</th>
<th>Applicable Models</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cbl-M12S4F-OW4-180CM1</td>
<td>M12 8-pole to 4x M12 female, Length: 180CM</td>
<td>- M12-8G cable, M12 Female to M12 Male, Length: 180CM</td>
<td>- M12-8G series</td>
</tr>
<tr>
<td>Cbl-M12A5F-OW3-180CM</td>
<td>M12 (17-pole-A-coded) to 2xDB9 (male) cable, Length: 180CM</td>
<td>- M12-17A cable, M12 Type A (female) to 2x DB9 (male)</td>
<td>- M12-17A series</td>
</tr>
<tr>
<td>Cbl-M12A8M-2DB9M-180CM</td>
<td>M12 (8-pole-X-coded) to 2x DB9 (male), Length: 180CM</td>
<td>- M12-8X cable, M12 Male to 2x DB9 (male)</td>
<td>- M12-8X series</td>
</tr>
<tr>
<td>Cbl-M12A17M-VGA-180CM2</td>
<td>M12 (17-pole-A-coded) to VGA, Length: 180CM</td>
<td>- M12-17A cable, M12 Type A (female) to VGA (Male)</td>
<td>- M12-17A series</td>
</tr>
</tbody>
</table>

### Cable

<table>
<thead>
<tr>
<th>Cable</th>
<th>Model Name</th>
<th>Description</th>
<th>Applicable Models</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12-8P cable (Male) to RJ45 (Female), Length: 180CM</td>
<td>M12-8P cable, M12 Male to RJ45 Female</td>
<td>- M12-8P series</td>
<td></td>
</tr>
<tr>
<td>M12-17A cable, M12 Type A (Female) to 2x DB9 (Male)</td>
<td>M12-17A cable, M12 Type A (female) to 2x DB9 (male)</td>
<td>- M12-17A series</td>
<td></td>
</tr>
<tr>
<td>M12-8X cable, M12 Male to RJ45 male, CAT6A</td>
<td>M12-8X cable, M12 Male to RJ45 Male, CAT6A</td>
<td>- M12-8X series</td>
<td></td>
</tr>
<tr>
<td>M12-17A cable, M12 Type A (female) to VGA (Male)</td>
<td>M12-17A cable, M12 Type A (female) to VGA (Male)</td>
<td>- M12-17A series</td>
<td></td>
</tr>
</tbody>
</table>

---

*All specifications and photos are subject to change without notice.*
Index

A
Accessories ....................................................................... 194

I
IGT-33W/ IGT-34C .......................................................... 92
IGT-30D/ IGT-31D .......................................................... 94
IGT-20/ IGT-21/ IGT-22 ..................................................... 96

L
LTN-450 ........................................................................ 106

M
MezIO ............................................................................ 190

N
NRU-110V ..................................................................... 132
NRU-51V ..................................................................... 134
NRU-120S .................................................................. 144
NRU-220S .................................................................. 142
NRU-52S ..................................................................... 146
Nuvis-5306RT ................................................................. 102
Nuvis-534RT .................................................................. 104
Nuvis-7306RT ................................................................. 100
Nuvo-10208GC .............................................................. 154
Nuvo-2600 .................................................................. 60
Nuvo-2610VTC ............................................................... 122
Nuvo-2615RL ................................................................. 124
Nuvo-2700DS ................................................................. 70
Nuvo-5000E/ P/ DE ......................................................... 52
Nuvo-5000LP ................................................................. 54
Nuvo-5026E ................................................................. 56
Nuvo-5095GC ................................................................ 176
Nuvo-5100VTC ............................................................... 120
Nuvo-5501 .................................................................... 58
Nuvo-5608VR ................................................................ 148
Nuvo-6000 .................................................................... 68
Nuvo-6108GC/ Nuvo-6108GC-IGN .................................. 166
Nuvo-7000E/P/DE .......................................................... 44
Nuvo-7000LP ................................................................. 46
Nuvo-7100VTC ............................................................... 118
Nuvo-7200VTC ............................................................... 114
Nuvo-7250VTC ............................................................... 116
Nuvo-7501 ................................................................. 48
Nuvo-7531 .................................................................... 50
Nuvo-7160GC ............................................................... 174
Nuvo-7164GC/ Nuvo-7166GC ....................................... 172
Nuvo-7168GC ............................................................... 170
Nuvo-8000 .................................................................... 64
Nuvo-8108GC .............................................................. 162
Nuvo-8108GC-XL .......................................................... 158
Nuvo-8108GC-QD .......................................................... 160
Nuvo-8111 ..................................................................... 66
Nuvo-8208GC .............................................................. 156
Nuvo-8240GC .............................................................. 164
Nuvo-8034 ..................................................................... 62
Nuvo-9000 ..................................................................... 36
Nuvo-9160GC .............................................................. 168
Nuvo-9531 ..................................................................... 40
Nuvo-9501 ..................................................................... 42

P
PB-2500J ..................................................................... 90
PB-9250J/ PB-4600J ........................................................ 88
PB-9250J-110V .............................................................. 86
PCle-GL26 .................................................................... 136
PCle-NX154PoE ............................................................ 138
PCle-NX156J3 ............................................................... 139
PCle-PoE312M .............................................................. 140
PCle-PoE334LP ............................................................ 110
PCle-PoE354at/ 352at ...................................................... 111
PCle-PoE425bt .............................................................. 150
PCle-PoE454 ................................................................. 108
PCle-PoE550X .............................................................. 109
PCle-USB381F .............................................................. 112
POC-300 ..................................................................... 80
POC-351VTC ................................................................. 130
POC-40 ...................................................................... 78
POC-400 ..................................................................... 76
POC-451VTC ................................................................. 128
POC-465AWP ............................................................... 82
POC-500 ..................................................................... 74
POC-551VTC ................................................................. 126
POC-700 ..................................................................... 72

R
RGS-8805GC ................................................................. 152

S
SEMIL-1300 ................................................................. 186
SEMIL-1300GC ............................................................. 184
SEMIL-1700 ................................................................. 182
SEMIL-1700GC ............................................................. 180