Wide-Temperature Fanless Embedded System
Established in 2010, Neousys Technology designs and manufactures rugged embedded modules and systems with core expertise ranging from embedded computing to data acquisition and processing. In 2013, Neousys created the patented “Cassette” module that offered never before system flexibility and expansion capabilities for embedded systems. In 2015, Neousys Nuvo-5000 series became the industry’s first embedded fanless system to incorporate Intel 6th-Gen. Skylake processor and won Vision Systems Design 2016 Innovators Award. The following year, Neousys released another industry’s first, an industrial grade GPU-computing embedded system, Nuvo-5095GC, which became a part of Baidu Apollo open autonomous driving platform.

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

Neousys Technology application-oriented systems thrive in the following field:
- Wide-temperature fanless computing
- Rugged embedded fanless computing
- Machine vision platforms
- In-vehicle fanless PC
- Ultra compact fanless controller
- Surveillance/video analytics computing
- GPU computing
Product Highlight

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+, USB3.0 or independent graphics card.

Concept of Cassette

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

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

**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.

**2-16 IEEE 802.3at PoE+ Ports**

Supplying up to 25.5W of power per port, Neousys provides 2-16 IEEE 802.3at PoE+ ports for connecting PoE powered device (PD) such as IP cameras, wireless access points or related applications like machine vision, in-vehicle and surveillance. Neousys provide turnkey platforms that offer cost reductions when deploying embedded vision systems.

**DTIO and NuMCU**

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

Industrial-grade GPU Computing Platform

Featuring Neousys' patented cassette technology and an innovative thermal ventilation design, Neousys products support 75W/ 250W NVIDIA® GPU, it is applicable to CUDA computing, autopilot, deep learning and virtual reality. The system also allows sustained full load operation under -25°C to 60°C wide temperature conditions.

- Designed for 75W/ 250W NVIDIA® GPU
- Ideal for open autonomous driving platform
- A new era for Machine Vision applications
  - GPU-accelerated Machine Vision library
  - Deep-learning Machine Vision software

*Available on Nuvo-5000E/P, Nuvo-5026E, Nuvo-5000LP, Nuvo-5095GC, POC-300, POC-120M2

*Available on Nuvo-5095GC, Nuvis-5306RT and Nuvo-6108GC
### Power Supply
- **Intel® Processor**
  - Pentium G4400TE [35W TDP]
  - i7-6700TE, i5-6500TE, i3-6100TE
- **Chassis**
  - 3.7 kg
  - 2.8 kg
  - 4.4 kg
  - 3.1 kg

### Expansion Bus
- **M.2**: Optional via MezIO
- **Mini PCI-E**: Optional via MezIO

### Storage Interface
- **CFast / MicroSD**: Optional via MezIO
- **SATA HDD**: 1x 3.5" HDD, 2x 2.5" HDD/SSD (5002LP, 5002E/P)
- **2.5" SSD**: Optional via MezIO

### I/O Interface
- **Serial Port**: 1x 33MHz/32-bit PCI slot (3000P), 4-wire RS-232
- **USB 2.0**: 4
- **USB 3.0**: 2
- **Audio**: 1x Mic-in and speaker-out
- **Digital I/O**: Optional 8 DI + 8 DO
- **Ethernet**: Optional 8 DI + 8 DO
- **PoE**: Optional

### Dimensions (W x D x H)
- **Nuvo-3000E/P**: 246 x 225 x 83 mm
- **Nuvo-5000E/P**: 246 x 225 x 88 mm
- **Nuvo-5000LP**: 246 x 225 x 86 mm

### PoE Consumption
- **DC Input**: 2x PCIe x1 + USB 3.0
- **USB 3.0**: DC 2
- **Mini PCI-E**: DC 2
- **M.2**: DC 2
- **M.2 PCIe Express**: 1x PCIe Express x16, 1x PCIe Express x8 (5002LP)

### Operating Temperature
- **Nuvo-3000E/P**: -25°C ~ 60°C (Maximal Perf. 80% CPU loading*)
- **Nuvo-3000LP**: -25°C ~ 60°C (Maximal Perf. 80% CPU loading*)
- **Nuvo-3120**: -25°C ~ 60°C (Maximal Perf. 80% CPU loading*)

### Power Supply
- **Nuvo-5000E/P**: 240~256V DC
- **Nuvo-5000LP**: 240~256V DC
- **Nuvo-3000LP**: 240~256V DC

### Dimensions (W x D x H)
- **Nuvo-3000E/P**: 246 x 225 x 83 mm
- **Nuvo-5000E/P**: 246 x 225 x 88 mm
- **Nuvo-5000LP**: 246 x 225 x 86 mm

### PoE Consumption
- **DC Input**: B-35V DC
- **USB 3.0**: DC 2
- **Mini PCI-E**: DC 2
- **M.2**: DC 2
- **M.2 PCIe Express**: 1x PCIe Express x16, 1x PCIe Express x8 (5002LP)

### Operating Temperature
- **Nuvo-5000E/P**: -25°C ~ 60°C (Maximal Perf. 80% CPU loading*)
- **Nuvo-5000LP**: -25°C ~ 60°C (Maximal Perf. 80% CPU loading*)
- **Nuvo-3120**: -25°C ~ 60°C (Maximal Perf. 80% CPU loading*)

---

**Note:** All specifications and photos are subject to change without prior notice.
### Power Supply

- **Nuvo-2500E/P**: 8~35V DC
- **Nuvo-6000**: 8~35V DC
- **Nuvo-4000**: 8~25V DC
- **Nuvo-2400**: 8~25V DC

### Expansion Bus

- **Mini PCI-E**: 1x 33MHz/32-bit PCI slot
- **PCI/PCI Express**: 1x 33MHz/32-bit PCI slot
- **M.2**: 1x 256GB M.2 SSD
- **SIM**: 1x SIM card

### Mezzanine Interface

- **Nuvo-2500E/P**: 1x DVI-D
- **Nuvo-6000**: 1x DVI-D
- **Nuvo-4000**: 1x DVI-D
- **Nuvo-2400**: 1x DVI-D

### SATA Interface

- **Nuvo-2500E/P**: 2x 2.5” SSD (Nuvo-6032)
- **Nuvo-6000**: 3x 2.5” HDD/SSD (Nuvo-6032)
- **Nuvo-4000**: 2x 2.5” HDD/SSD
- **Nuvo-2400**: 2x 2.5” HDD/SSD

### Digital I/O

- **Nuvo-2500E/P**: 1x Optioional Auxilary I/O (HDI, 8 DI, 8 DO, 1 encoder, 2 ADC)
- **Nuvo-6000**: 1x Optioional Auxilary I/O (HDI, 8 DI, 8 DO)
- **Nuvo-4000**: 1x Optioional Auxilary I/O (HDI, 8 DI, 8 DO)
- **Nuvo-2400**: 1x Optioional Auxilary I/O (HDI, 8 DI, 8 DO)

### DC Input

- **Nuvo-2500E/P**: 8~35V DC
- **Nuvo-6000**: 8~35V DC
- **Nuvo-4000**: 8~35V DC
- **Nuvo-2400**: 8~35V DC

### Power Consumption

- **Nuvo-2500E/P**: 43.13W (2.27A@19V)*
- **Nuvo-6000**: 43.13W (2.27A@19V)*
- **Nuvo-4000**: 43.13W (2.27A@19V)*
- **Nuvo-2400**: 43.13W (2.27A@19V)*

### Ignition Control

- **Nuvo-2500E/P**: Optional via MezIO
- **Nuvo-6000**: Optional via MezIO
- **Nuvo-4000**: Optional via MezIO
- **Nuvo-2400**: Optional via MezIO

### Operating Temperature

- **Nuvo-2500E/P**: -20°C ~ 70°C**
- **Nuvo-6000**: -20°C ~ 70°C**
- **Nuvo-4000**: -20°C ~ 70°C**
- **Nuvo-2400**: -20°C ~ 70°C**

### Certification

- **Nuvo-2500E/P**: CE/ FCC
- **Nuvo-6000**: CE/ FCC
- **Nuvo-4000**: CE/ FCC
- **Nuvo-2400**: CE/ FCC

### Released Date

- **Nuvo-2500E/P**: 2015/2/1
- **Nuvo-6000**: 2016/4/1
- **Nuvo-4000**: 2013/1/1
- **Nuvo-2400**: 2015/9/15

### Page Number

- **Nuvo-2500E/P**: P. 31 - 32
- **Nuvo-6000**: P. 33 - 34
- **Nuvo-4000**: P. 35 - 36
- **Nuvo-2400**: P. 37 - 38
### System
- **Nuvis-5306RT**
- **Nuvis-3304af**
- **Nuvo-6108GC**
- **Nuvo-5095GC**

### Dimensions (W x D x H)
- Nuvis-5306RT: 240 x 225 x 111 mm
- Nuvis-3304af: 240 x 225 x 111 mm
- Nuvo-6108GC: 164 x 380 x 174 mm
- Nuvo-5095GC: 240 x 225 x 111 mm

### Weight
- 4.5 kg
- 6.8 kg
- 4.7 kg
- 4.8 kg

### Chassis Construction
- Aluminum alloy with heavy duty metal
- Aluminum alloy with heavy duty metal
- Aluminum alloy with heavy duty metal
- Aluminum alloy with heavy duty metal

### Processor
- **Intel® Core™ i7-6700/6700TE (35W TDP)**
- **Intel® Core™ i5-6500/6500TE (35W TDP)**
- **Intel® Xeon™ Processor E3-1275v6/E3-1270v6 (3.9 GHz)**
- **Intel® Xeon™ Processor E3-1282v6/E3-1280v6 (2.9 GHz)**

### Chipset
- **Intel® Q170**
- **Intel® Q170**
- **Intel® HD Graphics 5500**
- **Intel® HD Graphics 530**

### Graphics
- **Mini PCI-E 2x2**
- **Mini PCI-E 2x2**
- **Mini PCI-E 2x2**
- **Mini PCI-E 2x2**

### Memory
- **Up to 8GB DDR3L-1866**
- **Up to 32 GB DDR4-2133**
- **Up to 8GB DDR3L-1333**
- **Up to 8GB DDR3-1600**

### Storage Interface
- **2x mSATA / eSATA**
- **1x CFast / MicroSD**
- **1x 2.5" HDD/SSD**
- **1x 2.5" HDD/SSD**

### Expansion Bus
- **USB 3.0**
- **USB 2.0**
- **USB 2.0**
- **USB 2.0**

### Power
- **8~35V DC**
- **8~25V DC**
- **24V DC**
- **8~35V DC**

### Certification
- **CE/CEC**
- **CE/CEC**
- **CE/CEC**
- **CE/CEC**

### Released Date
- 2017/3/1
- 2013/10/1
- 2017/8/1
- 2016/12/1

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### System
- **POC-351VTC**
- **Nuvo-510VTC**
- **Nuvo-2510VTC**
- **Nuvo-310VTC**

### Dimensions (W x D x H)
- 56 x 150 x 153 mm
- 240 x 225 x 79 mm
- 205 x 146 x 44 mm
- 212 x 165 x 62 mm

### Weight
- 0.9 kg
- 3.3 kg
- 1.0 kg
- 2.8 kg

### Chassis Construction
- Aluminum alloy with heavy duty metal
- Aluminum alloy with heavy duty metal
- Aluminum alloy with heavy duty metal
- Aluminum alloy with heavy duty metal

### Processor
- **Intel® Atom™ E3850 quad-core**
- **Intel® Pentium™ N4200 quad-core**
- **Intel® Celeron® N3000 quad-core**
- **Intel® Atom™ E3950 quad-core**

### Chipset
- **Intel® Q170**
- **Intel® Q170**
- **Intel® HD Graphics 520**
- **Intel® HD Graphics 560**

### Graphics
- **Mini PCI-E 2x2**
- **Mini PCI-E 2x2**
- **Mini PCI-E 2x2**
- **Mini PCI-E 2x2**

### Memory
- **Up to 8GB DDR3L-1866**
- **Up to 32 GB DDR4-2133**
- **Up to 8GB DDR3L-1333**
- **Up to 8GB DDR3-1600**

### Storage Interface
- **2x mSATA / eSATA**
- **1x CFast / MicroSD**
- **1x 2.5" HDD/SSD**
- **1x easy swap tray for 2.5" HDD/SSD**

### Expansion Bus
- **USB 2.0**
- **USB 2.0**
- **USB 2.0**
- **USB 2.0**

### Power
- **8~35V DC**
- **8~25V DC**
- **8~35V DC**
- **8~35V DC**

### Certification
- **CE/CEC**
- **CE/CEC**
- **CE/CEC**
- **CE/CEC**

### Released Date
- 2018/1/1
- 2016/9/1
- 2015/2/1
- 2014/5/1
### Neousys Intelligent Embedded Systems

#### Rugged Embedded
- Machine Vision
- In-Vehicle Computing
- Surveillance / Video Analytics
- GPU Computing

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<table>
<thead>
<tr>
<th>Model Name</th>
<th>Nuvo-5608VR</th>
<th>Nuvo-3616VR</th>
<th>iVIS-200</th>
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<tr>
<td><strong>Dimensions</strong> (W x D x H)</td>
<td>240 x 225 x 98 mm</td>
<td>240 x 225 x 90 mm</td>
<td>83 x 153 x 43 mm (ITS) 88 x 74 x 133 mm (MVS)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>3.5 kg</td>
<td>4.4 kg</td>
<td>0.55 kg (iVIS-200ITS) 0.95 kg (iVIS-200MVS)</td>
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<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</td>
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<tr>
<td><strong>Processor</strong></td>
<td>Intel® Core™ i7-6700/6700TE</td>
<td>Intel® Core™ i5-6500/6500TE</td>
<td>Intel® Core™ i3-6100/6100TE</td>
</tr>
<tr>
<td><strong>Chipset</strong></td>
<td>Intel® Q170</td>
<td>Intel® HM76</td>
<td>-</td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>Up to 32 GB DDR4-2133</td>
<td>Up to 16 GB DDR3-1600</td>
<td>Up to 8 GB DDR3L-1333</td>
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<tr>
<td><strong>PoE</strong></td>
<td>8x IEEE 802.3AT PoE+ by Intel® I210</td>
<td>Optional</td>
<td>-</td>
</tr>
<tr>
<td><strong>Ethernet</strong></td>
<td>2x GbE by Intel® Q210 and Q1210</td>
<td>4x GbE by Intel® Q210 (3005P/3003P) 4x GbE by Intel® Q210 (3006P/3004P)</td>
<td>1x GbE by Intel® Q210</td>
</tr>
<tr>
<td><strong>Video Port</strong></td>
<td>1x VGA / DVI-D 2x DisplayPort</td>
<td>1x VGA 2x DisplayPort</td>
<td>-</td>
</tr>
<tr>
<td><strong>Serial Port</strong></td>
<td>2x RS-232/422/485</td>
<td>2x RS-232/422/485</td>
<td>1x RS232</td>
</tr>
<tr>
<td><strong>USB 2.0</strong></td>
<td>4</td>
<td>4</td>
<td>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>-</td>
</tr>
<tr>
<td><strong>Digital I/O</strong></td>
<td>4 DI + 4 DO optional</td>
<td>Optional 8 DI + 8 DO</td>
<td>-</td>
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<tr>
<td><strong>SATA HDD</strong></td>
<td>2x 3.5&quot;/2.5&quot; SSD</td>
<td>1x 3.5&quot;/2.5&quot; SSD</td>
<td>-</td>
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<tr>
<td><strong>mSATA / eSATA</strong></td>
<td>1x mSATA, max. with mini-PCIe</td>
<td>-</td>
<td>1x mSATA</td>
</tr>
<tr>
<td><strong>CFast / MicroSD</strong></td>
<td>-</td>
<td>1x CFast</td>
<td>-</td>
</tr>
<tr>
<td><strong>SIM</strong></td>
<td>4</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td><strong>Mini PCI-E</strong></td>
<td>4</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td><strong>M.2</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Mezz®</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>PCI/PCI Express</strong></td>
<td>1x PCI Express x16 slot (3000X) 1x dual PCI Express x1 slot (3000X)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>DC Input</strong></td>
<td>8~35V DC</td>
<td>8~35V DC</td>
<td>12/35V DC</td>
</tr>
<tr>
<td><strong>Power Consumption</strong></td>
<td>with 17-72W (6.84A 19V) 15-46.8W (2.57A 19V)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Ignition Control</strong></td>
<td>Optional</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Operating Temperature</strong></td>
<td>-20°C to 50°C (with m4040/40G2) -10°C to 60°C (with 3.5&quot; SSD)</td>
<td>-20°C to 70°C 5-30.56kHz &amp; Galerie 10235</td>
<td>-20°C to 90°C 5-30.56kHz &amp; Galerie 10235</td>
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<tr>
<td><strong>Certification</strong></td>
<td>CE/ FCC</td>
<td>CE/ FCC</td>
<td>CE/ FCC</td>
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<td><strong>Released Date</strong></td>
<td>2018/2/1</td>
<td>2013/6/1</td>
<td>2013/10/15</td>
</tr>
</tbody>
</table>

* New!

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**Important Notes:**
- Prices are subject to change without notice.
- Not all models are available in all regions. Please contact your local Neousys representative for availability.

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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 SO-DIMM
- Accommodates two 2.5” SATA HDD/SSD with RAID 0/1 support
- VSA/ DVI/ DP triple independent display, supporting 4K2K resolution

Introduction
Nuvo-5026E is the latest Nuvo-5000 family member 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 USB3.0, 3x COM ports and triple independent display. In addition, Neousys’ MezIO™ interface can also further expand system I/Os offering up to either 11x COM ports, 1x GbE, 8x USB3.0, 32x DIO or ignition power control by installing an optional MezIO™ module.

Nuvo-5026E is an expandable and flexible platform with numerous I/O functions for various industrial applications.

Specifications
System Core
- Processor: Intel® Core™ i7-6700TE (8M Cache, 2.4/3.4 GHz, 35W TDP), Intel® Core™ i5-6500TE (6M Cache, 3.2/3.6 GHz, 65W TDP), 
  Intel® Core™ i3-6100TE (4M Cache, 2.7 GHz, 35W TDP)
- Chipset: Intel® Q170 platform controller hub
- Graphics: Integrated Intel® HD graphics (530 or 510 (CPUs dependent))
- Memory: Up to 32 GB DDR4-2133 SO-DIMM (two SO-DIMM slots)
- Expansion Bus: MezIO™-G4

I/O Interface
- Storage Interface: 2x external SATA ports for 2.5” HDD/SSD (SSD installation, supporting RAID 0/1)
- mSATA: 1x full-size mSATA port (mux with mini-PCIe)
- Video Port: 1x stacked VGA + DVI-D connector
- USB: 2x USB2.0 ports via native eXtender controller 6x USB2.0 ports
- Audio: 1x Mic-in and 1x Speaker-out

Ordering Information
- Model No: Nuvo-5026E
  - Optional 802.3at PoE+ for GbE port 3 – part 6

Optional Accessories
- MezIO™ Modules
  - MezIO™-C180
  - MezIO™-C181
  - MezIO™-D220
  - MezIO™-D230
  - MezIO™-G4

- Dual PCIe Cassette

Note: Please contact Neousys Application Engineer for special customization or extra fee is required.

PA-160W-OW, 160W AC/DC power adapter 20V/8A, 18AWG/4C/120cm, cord end terminals for terminal block, operating temperature: -30 to 70°C.

Power Supply
- DC Input: 1x 3-pin pluggable terminal block for 8-GPOE DC input
- Remote Ctrl. & Status Output: 1x 10-pin (2x5) wafer connector for remote on/off control and status LED output

Mechanical
- Dimension: 240 mm (H) x 225 mm (W) x 111 mm (D)
- Weight: 3.7 kg (incl. CPU, memory and HDD)
- Mounting: Wall mount by mounting bracket (standard), 1x 3-pin pluggable terminal block for 8-GPOE DC input
- Operating Temperature: -30°C to 70°C
- Humidity: 10%~90%, non-condensing
- Vibration: Operating: 5 G RMS, 30-350Hz, 3 Axis (incl. 5% additional for 3.1G, 30% additional for 3.2G), Storage: 15 G RMS, 10-2000Hz
- Shock: Operating: 50 G, half-sine 11 ms duration
- EMC: CE/ FCC Class A, according to EN55022 & EN55032

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

Rugged Embedded

www.neousys-tech.com

Nuvo-5026E Series

www.neousys-tech.com

Appearance

Dimensions

Unit: mm
**Rugged Embedded**

**Nuvo-5501 Series**

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

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**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 USB3.0 ports
- 2x RS-232/ 422/ 485 ports and 2x RS-232 ports
- VGA + DVI dual display outputs
- Accommodates one 3.5” HDD or 2.5” HDD / SSD
- Optional B-C-H isolated DI and B-C-H isolated DO

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**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 allows 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 USB3.0 and 4x COM ports. There is even enough room for a 3.5” HDD, compatible with the latest storage capacities. The compact Nuvo-5501 is a cost-effective solution that does not compromise on performance and reliability, making it the ideal embedded controller for various industrial applications.

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**Specifications**

**System Core**

- Supports following CPUs:
  - Intel® Core™ i7-6700TE (8M Cache, 2.4/ 3.4 GHz, 35W TDP)
  - Intel® Core™ i5-6500TE (6M Cache, 2.3/ 3.3 GHz, 35W TDP)
  - Intel® Core™ i3-6100TE (4M Cache, 2.7 GHz, 35W TDP)
  - Intel® Pentium® G4400TE (3M Cache, 2.4 GHz, 35W TDP)
  - Intel® Celeron® G4900TE (2M Cache, 2.3 GHz, 35W TDP)

**Chipset**

- Intel® H110 platform controller hub

**Memory**

- Integrated Intel® HD Graphics

**Processor**

- Intel® 6th-Gen Core™ i7 / i5 / i3 LGA 1151 socket CPU

**Chipset**

- Intel® H110 platform controller hub

**Graphics**

- Integrated Intel® HD 530/ 510 controller

**Memory**

- Up to 16GB DDR3L-1600 (single 16GB DIMM)

**I/O Interface**

**Ethernet port**

- 1x Gigabit Ethernet port (via Intel® Gigabit Ethernet controller)

**USB**

- 4x USB3.0 ports
- 2x USB2.0 ports

**Video port**

- 1x VGA connector

**Serial Port**

- 4x COM232/ 485 ports
- 2x RS-232 ports

**Isolated DIO**

- 8-CH isolated DI and 8-CH isolated DO (optional)

**Storage Interface**

- mSATA: 1x internal mini mSATA socket for 2.5” mSATA SSD
- 2.5” SATA HDD: 1x internal 2.5” SATA port for 3.5” HDD or 2.5” HDD / SSD

**Expansion Bus/ Internal I/O Interface**

- Mini PCIe: 1x full-size mini PCIe Express socket
- M.2: 1x M.2 key B socket for 32/ 64G options with SM socket
- USB: 1x internal USB2.0 port

**Power Supply**

- DC Input: 1x 3-pin plug-in terminal block for 8-35VDC power input

**Mechanical**

- Dimension: 221 mm (W) x 173 mm (D) x 76.2 mm (H)
- Weight: 2.8 kg (incl. CPU, memory and HDD)
- Mounting: Wall-mount (standard) or DIN-rail mount (optional)

**Environmental**

- Operating Temperature: -10°C ~ 70°C, VDD
- Storage Temperature: -40°C ~ 85°C
- Humidity: 95% non-condensing
- Vibration: Operating: 5G, Non-Operating: 9G (all 5 axes, according to IEC68-2-66)
- Shock: Operating: 55G, Non-Operating: 11G (all 5 axes, according to IEC68-2-27)

**EMC**

- EMI: FCC Class A, according to EN 55022, EN 55024 & EN 55032
- Radiation: FCC, CE, according to EN 55022, EN 55024 & EN 55032

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**Ordering Information**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuvo-5501</td>
<td>Intel® 6th-Gen Core™ i7 / i5 / i3 compact fanless embedded controller with 3x GbE</td>
</tr>
<tr>
<td>Nuvo-5501-DIO</td>
<td>Intel® 6th-Gen Core™ i7 / i5 / i3 compact fanless embedded controller with isolated DIO &amp; 3x GbE</td>
</tr>
</tbody>
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**Optional Accessories**

- DINRAIL-31: DIN-rail mounting assembly for Nuvo-5501 series
- PA-120W-OW: 120W AC/DC power adapter (DINRAIL: 180~95V/120W; cord ends terminals for terminal block, operating temperature: -40 to 70°C)
Integrating cutting-edge technologies, Nuvo-5000 is Neousys’ next-generation 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, USB3.0/USB2.0, COM ports, VGA/DVI/DP triple display outputs and if that’s not enough, Neousys’ patented Cassette offers I/O expansion by installing an off-the-shelf PCIe/PCI card.

On top of all that, Nuvo-5000 also incorporates Neousys MezIO™ interface. The patented design enhances Neousys’ embedded system with a cost-effective and reliable way for I/O expansion. The MezIO™ module can deliver application-oriented functions for diversified vertical markets. Neousys Nuvo-5000 features 6th-Gen Intel® CPU, patented Cassette and MezIO™ to create a powerful and yet diverse controller for all your industrial application needs.

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**Key Features**

- 6th-Gen Core™ i7/ i5/ i3 Fanless Controller with 6x GbE, Expansion Cassette and MezIO™ Interface
- 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 GbE ports, supporting 9.5 KB jumbo frame
- Up to 32 GB, DDR4-2133 SO-DIMM
- Accommodates two 2.5” SATA HDD/ SSD with RAID 0/ 1 support
- VGA/ DVI/ DP triple independent display, supporting 4KX resolution
- MezIO™ expansion port for Neousys MezIO™ modules
- Expansion box: 1x PCIe Express, 1x MezIO™ expansion port

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**Specifications**

<table>
<thead>
<tr>
<th>Processor</th>
<th>6th-Gen Core™ i7/ i5/ i3 35W/65W LGA1151 CPU</th>
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<td>MezIO™ Module</td>
<td>MezIO™ module with 4x IEEE 802.3at PoE ports, supporting 4-Port Gigabit Ethernet</td>
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<tr>
<td>MezIO™ Module</td>
<td>MezIO™ module with 16-CH isolated digital input and output</td>
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<tr>
<td>MezIO™ Module</td>
<td>MezIO™ module with 4x RS-232/422/485 ports</td>
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<td>MezIO™ Module</td>
<td>MezIO™ module with 16x I/O controlled digital input and output</td>
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<tr>
<td>MezIO™ Module</td>
<td>MezIO™ module with 4x GPIO ports</td>
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<tr>
<td>MezIO™ Module</td>
<td>MezIO™ module with 4x PCIe LP port</td>
</tr>
</tbody>
</table>

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**Introduction**

Nuvo-5000 is a rugged embedded system designed to handle demanding industrial applications. It supports Intel® 6th-Gen Core® processors and is built for reliability in harsh environments. The system is equipped with a wide range of connectivity options, including 6 Gigabit Ethernet ports, USB3.0/USB2.0, COM ports, VGA and DVI/DP displays, and is designed to operate from -25°C to 70°C.

---

**Ordering Information**

- NUVO-5002E: Intel® 6th Gen Core™ Fanless controller with 2x GbE, PCI Express Cassette and MezIO™
- NUVO-5002P: Intel® 6th Gen Core™ Fanless controller with 2x GbE, PCI Express Cassette and MezIO™
- NUVO-5006E: Intel® 6th Gen Core™ Fanless controller with 6x GbE, PCI Express Cassette and MezIO™
- NUVO-5006P: Intel® 6th Gen Core™ Fanless controller with 6x GbE, PCI Express Cassette and MezIO™

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**Optional Accessories**

- DINRAIL-O: DIN rail mounting assembly for Nuvo-5000 series
- PA-120W-DW: 120W AC/DC power adapter 250VA, 184W, 210mm cord and terminals for terminal block, operating temperature: -30 to 70°C

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**Cassette Modules**

- CSM-P0134: Cassette module with PCIe-x134 and pre-installed passive heat-sink
- CSM-US830: Cassette module with PCIe-x830 and pre-installed passive heat-sink
- CSM-NU750: Cassette module with NVIDIA® TX2 150 TF, graphics card, pre-installed Passive heatsink and fan
- CSM-M800: Cassette module accommodating four 2.5” HDD/ SSD support RAID 0/ 1/0
### Nuvo-5000LP Series

**Intel 6th-Gen Core™ 7th/i5/i3 Fanless Controller with 6x GbE, MezIO™ Interface and Low-profile Chassis**

#### Key Features
- **Intel 6th-Gen Core™** 7th/i5/i3 35W/ 65W LGA1151 CPU
- **MezIO™ Interface for easy function expansion**
- **Rugged, -25°C to 70°C fanless operation**
- **Up to 6x GbE ports, supporting 9.5 KB jumbo frame**
- **Up to 320W, 804x2133 SO-DIMM**
- **One hot-swappable 2.5” HDD/ SSD and one fixed 2.5” HDD/ SSD, supporting RAID 0/1**
- **VGA/ DVI/ DP triple independent display, supporting 4K2K resolution**
- **77mm low-profile design**

#### Introduction

Nuvo-5002LP/5006LP are low-profile systems in the Nuvo-5000 family. They feature a 77mm low-profile chassis and yet retain extraordinary -25°C to 70°C wide operating temperature capability. Neousys Nuvo-5002LP/5006LP supports LGA1151 socket-type CPUs so one can choose an Intel 6th-Gen Core™/ 7th/i3, from 35W to 65W TDP CPU according to application performance and operation needs.

Nuvo-5002LP/5006LP has plentiful I/Os such as GbE, USB3.0/ USB2.0, COM and VGA/ DVI/ DP. It also incorporates Neousys’ MezIO™ interface for additional or application-oriented I/O expansion. By installing an optional MezIO™ module, Nuvo-5002LP/5006LP transforms from a typical embedded controller to a ruggedized application platform that may include up to 11x COM ports, 32 DIO channels, ignition power control or customized application-specific I/Os.

#### Specifications

**System Core**

- **Processor**: Intel® Core™ i7-6700TE (8M Cache, 2.4/ 3.3 GHz, 35W TDP)
- **Memory**: Up to 32GB DDR4-2133 SDRAM (two SO-DIMM slots)
- **Chipset**: Intel® Integrated Graphics 530/ 510
- **I/O Interface**: TPM supports TPM 2.0, supports AMT 11.0

**Ethernet**

- **GbE Port**: 6x Gigabit Ethernet ports by Intel®
- **Serial Port**: 4x USB2.0 ports
- **Video Port**: 2x DisplayPort connectors, supporting 4K2K resolution
- **Audio**: 4x USB2.0 ports

**Storage**

- **SATA HDD**: 1x Hot-swappable HDD key for 2.5” HDD SSD installation
- **mSATA**: 1x full-size mSATA port (new with mini-PoE)

**Power Supply**

- **DC Input**: 1x 4-pin pluggable terminal block for 8~35VDC DC input
- **Remote Ctrl. & Status Output**: 1x 10-pin (2x5) wafer connector for remote on/ off control and status LED output

**Environmental**

- **Temperature**: -25°C ~ 70°C **
- **Humidity**: 10%~90%, non-condensing
- **Vibration**: Operating, 0.5g rms, 5-500 Hz, 3 axes (per ISO 22008-6:2004)
- **Shock**: Operating, 5g rms, half-sine 11 ms Duration (per ISO 22006-3:2007)

**Ordering Information**

- **Model No.**: Nuvo-5002LP
  - Intel 6th-Gen Core™ low-profile fanless controller with 2x GbE and MezIO™
  
- **Nuvo-5006LP**
  - Intel 6th-Gen Core™ low-profile fanless controller with 4x GbE and MezIO™
  
  **Optional 802.3at PoE+ for GbE ports 3 ~ 6**

**Optional Accessories**

- **DINRAIL-O**: DIN-rail mounting assembly for Nuvo-5000LP series
  - PA-120W-OW: 120W AC/DC power adapter 20V/6A, 18AWG/120cm; cord and terminals for terminal block, operating temperature : -30 to 70 °C.

- **MezIO™ Modules**
  - MezIO™-C180
    - NuVO™ module with 4x RS-232/ 422/ 485 ports and 4x RS-232 ports
  
  - MezIO™-V20EP
    - NuVO™ module with 802.3at PoE+ for in-vehicle application

  - MezIO™-C181
    - NuVO™ module with 4x RS-232/ 422/ 485 ports and 4x RS-422/ 485 ports
  
  - MezIO™-U4
    - NuVO™ module with 4x RS-422/ 485 ports

  - MezIO™-D220
    - NuVO™ module with 8-CH isolated digital input and 8-CH isolated digital output
  
  - MezIO™-G4
    - NuVO™ module with 4x 485 ports

  - MezIO™-D230
    - NuVO™ module with 16-CH isolated digital input and 16-CH isolated digital output
  
  - MezIO™-G4P
    - NuVO™ module with 4x IEEE 802.3at PoE+ ports

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Nuvo-3000E/P Series

- **Intel® 3rd-Gen Core™ i processor** with 5x GbE, 4x USB3.0 and Expansion Cassette

**Key Features**

- Intel® 3rd-Gen Core™ i7 quad-core processor
- Patented Cassette* design for PCI/PCIe add-on card expansion
- Up to 5x GigE ports, supporting 9.5 KB jumbo frame
- Rugged, -25°C to 70°C fanless operation
- Optional intelligent ignition power control for in-vehicle application
- VGA/ DVI dual display outputs
- 4x USB3.0 ports + 4x USB2.0 ports
- Optional isolated DIO with Change-of-State interrupt support

**Innovative Cassette architecture. The 3rd-Gen Core™ i processor delivers tremendous computing power and graphics performance. This platform also natively supports USB3.0, DDR3-1600 and SATA5. Inheriting the heritage of proven Nuvo series, Nuvo-3000E/3000P is extremely reliable mechanically and allows -25°C to 70°C operating temperature. Moreover, it comes with Neousys' patented Cassette design. This unique expansion Cassette offers PCI/PCIe slot with minimal thermal interference between system and add-on card.**

**Introduction**

Nuvo-3000E/3000P series is a reliable and versatile embedded controller that features Intel® 3rd-Gen Core™ i processor technology and Neousys' innovative Cassette architecture. The 3rd-Gen Core™ i processor delivers tremendous computing power and graphics performance. This platform also natively supports USB3.0, DDR3-1600 and SATA5. Inheriting the heritage of proven Nuvo series, Nuvo-3000E/3000P is extremely reliable mechanically and allows -25°C to 70°C operating temperature. Moreover, it comes with Neousys' patented Cassette design. This unique expansion Cassette offers PCI/PCIe slot with minimal thermal interference between system and add-on card.

**I/O functions on Nuvo-3000E/3000P are versatile. Gigabit Ethernet, USB3.0 and dual display outputs are natively supported on Nuvo-3000E/3000P. Its optional isolated digital I/O now supports Change-of-State interrupt for more usability. There is also an option to add-on intelligent ignition control for in-vehicle applications.**

**With Intel 3rd-Gen Core™ i7’s computing performance, innovative Cassette for expandability and ignition control bringing in-vehicle mobility, Nuvo-3000E/3000P is ready for various application requirements.**

**Specifications**

- **System Core**
  - Processor: Intel® Core™ i7-3610QE (3.3 GHz, 6 MB cache)
  - Chipset: Intel® HM76 platform controller hub
  - Graphics: Integrated Intel® HD graphics 4000 controller (32-bit)
  - Memory: Up to 15GB DDR3 1333/ 1600 MHz DDR3/ SO-DIMM slots

- **I/O Interface**
  - Ethernet: 5x Gigabit Ethernet ports by Intel®
  - PoE: Optional PoE capability for 4PoE
  - Video Port: 1x DVI-D connector for DVI-D output, 1x DB-15 connector for analog RGB
  - Audio: 1x Microphone input and 1x speaker output
  - USB: 4x USB3.0 ports and 4x USB2.0 ports
  - Serial Port: 2x software-programmable RS-232/422/485 (COM1 & COM2)
  - Isolated DIO (Optional): 8x isolated DIO with 1x isolated power

- **Expansion Bus**
  - PCI/PCI Express: 1x PCIe x1 slot in Cassette (Nuvo-3003E/3000P)
  - USB: 4x USB3.0 Host x 4, 4x USB2.0 Host x 4

- **Storage Interface**
  - SATA HDD: 1x Internal SATA port for 2.5" HDD/ SSD2 installation
  - CFast: 1x CFast slot

**Power Supply & Ignition Control**

- DC Input: 1x 2-pin power connector for 0-25V DC input (for AC adapter)
  - 1x 2-pin pluggable terminal block for 8-25V DC input (for direct DC wiring)
- Ignition Control: Optional ignition power control with configurable on/off delay
- Remote Ctrl. & Status Output: 1x 10-pin CMS/PCI Express connector for remote on/off control and status LED output
- Power Consumption: 1x 10-pin CMS power connector supporting 48VDC input with 12.5W output
- Mechanical: 1x 10-pin CMS signal connector with 12.5W power output

**Ordering Information**

- Model No.: Nuvo-3003E
  - Processor: Intel® Core™ i7-3610ME (2.7/ 3.3 GHz, 3 MB cache)
  - Chipset: Intel® HM76 platform controller hub
  - Graphics: Integrated Intel® HD graphics 4000 controller (Celeron)
  - Memory: Up to 8GB DDR3 1333 MHz SO-DIMM slots
  - Expansion Bus: 1x PCI/PCI Express in Cassette with USB3.0 port

- Model No.: Nuvo-3003P
  - Processor: Intel® Core™ i5-3610ME (2.7/ 3.3 GHz, 3 MB cache)
  - Chipset: Intel® HM76 platform controller hub
  - Graphics: Integrated Intel® HD graphics 4000 controller (Celeron)
  - Memory: Up to 8GB DDR3 1333 MHz SO-DIMM slots
  - Expansion Bus: 1x PCIe x1 slot in Cassette (Nuvo-3003E/3000P)

**Optional Accessories**

- DINrail-O: DIN-rail mounting assembly for Nuvo-3000 series
- PA-1200-4W: 1200W AC/DC power adapter 20A/RA, 18490x1230cm, cord and terminals for terminal block, operating temperature: -30 to 70°C
- Fan-25: Fan assembly for 1-slot Cassette, 25x25x10 mm

**Cassette Modules**

- CSM-POE354: Cassette module with PCIe-USB3.0 and pre-installed passive heat-spreader
- CSM-USB3B0: Cassette module with PCIe-USB3.0 and pre-installed passive heat-spreader
- CSM-NV730: Cassette module with NVIDIA® 240x30 graphics card, pre-installed heat-spreader and fan

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**Nuvo-3005LP**

Intel® 3rd-Gen Core™ i7/i5 Low Profile Fanless Embedded System with Swappable HDD Tray

### Introduction

The low profile chassis of Nuvo-3005LP is ideal for deployment in confined spaces. The low profile chassis is only 69mm in height and yet remains extremely thermal efficient with extraordinary reliability in a -25°C to 70°C operating temperature range. Nuvo-3005LP incorporates Intel® 3rd-Gen Core™ i7 quad-core processor with versatile I/O functions such as Gigabit Ethernet ports, USB3.0 ports and dual independent display outputs. As options, it offers Power over Ethernet (PoE), isolated DIO and ignition power control for a wider range of applications.

Its newly-designed chassis offers one fixed 2.5” HDD accommodation and one easy-swap 2.5” HDD tray. Users can take advantage of its storage design for applications that require frequent HDD replacement. Combining its low-profile chassis and PoE option, Nuvo-3005LP is a suitable platform for advanced surveillance security systems.

### Specifications

#### System Core

- **Processor**: Intel® Core™ i7-3610QE (2.3/ 3.3 GHz, 6 MB cache)
- **Chipset**: Intel® HM76 Platform Controller Hub
- **Graphics**: Intel® HD Graphics 4000 Controller (i7/i5)
- **Memory**: Up to 16GB DDR3 1333/ 1600 MHz SDRAM (two SO-DIMM slots)
- **Integrated Intel® Graphics**: HD Graphics 4000 Controller (i7/i5)

#### Expansion Bus

- **Mini PCI-E**: 1 x internal mini PCI Express socket with USB3.0 socket and 1 x internal mini PCI Express socket

#### Power Supply & Ignition Control

- **DC Input**: 1 x 4-pin power connector for IR-235 DC input (for AC adapter), 1 x 2-pin power connector for terminal block for 8-24V DC input (for direct DC wiring)
- **Ignition Control**: 1 x 4-pin power connector for ignition signal input (with isolated 60V input)
- **Remote Ctrl. & Status Output**: 1 x 10-pin (2x5) wafer connector for remote control and status LED output
- **Power Consumption**:
  - With i5-3610ME: 48.83W (2.57A@19V)
  - With i7-3610QE: 72.96W (3.84A@19V)

#### Mechanical

- **Dimension**: 240mm x 225mm x 69mm (W x D x H)
- **Weight**: 3.4 kg (incl. CPU, memory and HDD)
- **Mounting**: Wall mounting (standard) or DIN-rail mounting (optional)

#### Environmental

- **Operating Temperature**:
  - -25°C ~ 60°C */** (with i7-3610QE)
  - -25°C ~ 70°C */** (with i5-3610ME & Celeron 1020E)
- **Storage Temperature**: -40°C ~ 85°C
- **Humidity**: 10%~90% , non-condensing

#### Optional Accessories

- **DINRAIL-O**: DIN-rail mounting assembly for Nuvo-3000 series
- **PA-120W-OW**: 120W AC/DC power adapter 20V/6A; 18AWG/120cm; cord end terminals for terminal block, remote on/off control and status LED output

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

*With i5-3610ME: 48.83W (2.57A@19V)

*With i7-3610QE: 72.96W (3.84A@19V)

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**Ordering Information**

**Model No.:** Nuvo-3005LP

**Product Description:** Intel® 3rd-Gen Core™ i fanless embedded controller with 5x GbE, 4x USB3.0, dual SATA ports and low-profile chassis

**Option of Ignition power control**

**Option of Isolated DIO(BDI + BDO)**

**Option of PoE capability for 4x GbE**

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Nuvo-3005TB

Intel® 3rd-Gen Core™ i7 /i5 /i3 Fanless Embedded Controller with 3.5” Storage Capacity

**Key Features**
- Intel® 3rd-Gen Core™ i7 quad-core processor
- Wide temperature -25°C to 70°C operation
- Up to 5x Gigabit ports, supporting 9.5 KB jumbo frame
- Rugged, -25°C to 70°C fanless operation
- Supports one 3.5” HDD and one 2.5” HDD
- 4x USB3.0 ports + 4x USB2.0 ports
- Option of isolated DIO with Change-of-State interrupt support

**Introduction**

Nuvo-3005TB are embedded versions of Nuvo-3000 series. They allow installation of one 3.5” HDD supporting the latest terabyte storage capacity in an embedded platform with superior reliability and durability.

Nuvo-3005TB incorporates Intel® 3rd-Gen Core™ i7 quad-core processor and versatile I/O functions such as Gigabit Ethernet ports, USB3.0 ports and dual display outputs. As options, it offers isolated DIO with CDS (Change-of-State) interrupt support for wider range of applications.

Inside its compact chassis, Nuvo-3005TB/3003TB can accommodate one 2.5” HDD/SSD and one 3.5” HDD supporting the latest terabyte storage capacity. A dedicated shock-absorbing bracket is designed to protect 3.5” HDD from shock/vibration, and a unique isolation/conduction chamber is used to manage heat generated by 3.5” HDD and increase overall system stability.

**Specifications**

**System Core**
- Intel® Core™ i7-3610QE (2.3/ 3.3 GHz, 6 MB cache)
- Intel® Core™ i5-3610ME (2.7/ 3.3 GHz, 3 MB cache)
- Intel® Core™ i3-3610ME (2.2 GHz, 2 MB cache)

**Chipset**
- Intel® HM76 Platform Controller Hub

**Graphics**
- Integrated Intel® HD Graphics 4000 Controller (i7/i5)
- Integrated Intel® HD Graphics Controller (Celeron)

**Memory**
- 2x 204-pin SO-DIMM sockets, up to 16GB DDR3 1333/1600 MHz SDRAM

**I/O Interface**
- 1x internal SATA port for 3.5” HDD installation
- 2x external SATA ports for 2.5” HDD/SSD installation supporting 1920x1080 resolution
- 2x DVI-D connectors for DVI outputs, supporting 2048x1536 resolution
- 2x software-programmable RS-232/422/485 (COM1 & COM2)

**USB**
- 4x USB3.0 ports + 4x USB2.0 ports

**Video Port**
- Option of isolated DIO with Change-of-State interrupt support
- 8x isolated DI with COS interrupt and 8x isolated DO

**Serial Port**
- 2x isolated RS-232 serial ports

**Memory**
- up to 16GB DDR3 1333/1600 MHz SDRAM

**Audio**
- 1x Mic-in and 1x speaker-out

**Expansion Bus**
- 1x internal mini PCI Express socket with USB3 socket

**Power Supply & Ignition Control**
- 1x 4-pin power connector for 12V DC power input (for AC adapter)
- 1x 10-pin G4S(w) power connector for remote on/off, control and status LED output

**Power Consumption**
- With i5-3610ME: 48.83W (2.57A@19V)
- With i7-3610QE: 72.96W (3.84A@19V)

**Mechanical**
- 240mm (W) x 225mm (D) x 86mm (H)
- 3.4 kg (incl. CPU, memory and HDD)

**Mounting**
- Wall-mounting (standard) or DIN-rail mounting (optional)

**Environmental**
- Operating Temperature: -25°C ~ 70°C (with i7-3610QE)
- Operating Temperature: -25°C ~ 60°C (with i5-3610ME & Celeron 1020E)
- Storage Temperature: -40°C ~ 85°C
- Humidity: 10% ~ 90%, non-condensing
- Vibration: Operating: 5G rms, 5-500 Hz, 3 Axes (ISO 22483-2)
- Shock: Operating: 4G rms, 10ms impulse, 3 Axes (ISO 22483-3)

**Weight**
- 3.4 kg (incl. CPU, memory and HDD)

**DC Input**
- 8V-25V DC Input for 8~25V DC input (for AC adapter)

**Ordering Information**

**Model No.**
- Nuvo-3005TB

**Product Description**
- Intel® 3rd-Gen Core™ i fanless embedded controller with 5x GbE, 4x USB3.0, dual SATA ports and 3.5” HDD accommodation

**Optional Accessories**
- DINRAIL-O DIN-rail mounting assembly for Nuvo-3000 series
- PA-120W-O 120W AC/DC power adapter (25W/A), 18485/120V, cord and terminals for terminal block, operating temperature -50 to 70 °C.

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**Key Features**

- 212mm x 165mm x 62mm compact size
- Intel® 3rd-Gen Core™ i7 / i5 PGA-type processor
- User-configurable CPU power mode for adaptation to various environments
- Dual GbE ports and four USB3.0 ports
- DVI/VGA + DisplayPort triple independent display outputs
- Built-in isolated digital I/O with Change-of-State (COS) interrupt
- 8 ~ 35V wide-range DC input

**Introduction**

It is one of the most compact fanless controllers supporting Intel® 3rd-Gen Core™ i7 / i5 PGA-type processor. Neousys Nuvo-3120’s footprint measures just 212 mm x 165 mm x 62mm. While other compact fanless controllers adopt low-voltage BGA-type Core™ i7 CPU (17W), Nuvo-3120 supports standard voltage PGA-type Core™ i7 / i5 CPUs (45W / 39W) for better computation power and flexible CPU selection. A unique feature, configurable CPU power mode, is developed to balance the trade-off between heat-sink size and operating temperature. According to ambient conditions, you can configure Nuvo-3120 to operate in Maximum Performance, reduced performance or extended temperature mode. Regardless of its compact dimensions, the system still has plenty of I/O functions such as Gigabit Ethernet, USB3.0, SATA, COM port, mini-PCIe and isolation DIO. It also supports triple-independent display outputs to benefit image-related applications. Compact yet powerful, Nuvo-3120 meets all your embedded controller needs.

**Specifications**

**System Core**
- Processor: Intel® Core™ i7-3610QE (Intel® HM76 Platform Controller Hub; Celeron® 1020E (2.2 GHz, 2 MB cache), Intel® 3rd-Gen Core™ i7 / i5 PGA-type processor, Neousys Nuvo-3120’s footprint measures just 212 mm x 165 mm x 62mm. While other compact fanless controllers adopt low-voltage BGA-type Core™ i7 CPU (17W), Nuvo-3120 supports standard voltage PGA-type Core™ i7 / i5 CPUs (45W / 39W) for better computation power and flexible CPU selection. A unique feature, configurable CPU power mode, is developed to balance the trade-off between heat-sink size and operating temperature. According to ambient conditions, you can configure Nuvo-3120 to operate in Maximum Performance, reduced performance or extended temperature mode. Regardless of its compact dimensions, the system still has plenty of I/O functions such as Gigabit Ethernet, USB3.0, SATA, COM port, mini-PCIe and isolation DIO. It also supports triple-independent display outputs to benefit image-related applications. Compact yet powerful, Nuvo-3120 meets all your embedded controller needs.

**Power Supply & Ignition Control**
- DC Input: 1x 3-pin plugable terminal block for 8~35V DC input
- Ignition Control (Optional): Ignition power control with user-selectable on/off delay
- Power Consumption: With i5-3610ME : 48.83W (2.57A@19V) 
  With i7-3610QE : 72.96W (3.84A@19V)
- Voltage: wall-mounting (standard) or DIN-rail mounting (optional)

**Environmental**
- **Temperature:**
  - Operating: -25°C ~ 70°C** -25°C ~ 70°C** -25°C ~ 70°C**
  - Extended Performance: -25°C ~ 60°C** -25°C ~ 70°C** -25°C ~ 70°C**
  - Maximum Performance: -25°C ~ 50°C** -25°C ~ 60°C** -25°C ~ 70°C**
- **Humidity:** 10% ~ 90% , non-condensing
- **Vibration:** Operating, 0.5G, 5-500 Hz, 3 Axes
- **Shock:** Operating, 35G, half-sine 11ms Duration
- **EMC:** CE/EMC Class A, according to EN50022 & EN55034

**Ordering Information**

**Model No.** Nuvo-3120
**Product Description** Intel® 3rd-Gen Core™ i fanless embedded controller with 2x GbE, 4x USB3.0, compact size and configurable CPU power mode

**Optional ignition power control**

**Optional Accessories**

**DINRAIL-31** DIN-rail mounting assembly for Nuvo-3120 series
**PA-120W-OW** 120W AC/DC power adapter 20V/6A; 18AWG/120cm; cord end terminals for terminal block, operating temperature : -30 to 70 °C.
Nuvo-2500 series are general purpose fanless computers with Intel® Bay Trail processor. Powered by the quad-core Bay Trail processor, Nuvo-2500 shows outstanding computing power and is more power efficient compared to its predecessors. Nuvo-2500 supports dual independent display, dual storage for isolating system and data, 2x Gigabit Ethernet ports, 4x COM ports and 4x USB ports. With one PCI or PCIe expansion slot, Nuvo-2500 still retains its compact dimensions measuring just 205mm (W) x 146mm (D) x 76mm (H). The PCI or PCIe expansion slot is situated in Neousys Patented expansion Cassette. The patented design significantly reduces thermal impact from the installed add-on card thus making Nuvo-2500 extremely reliable and stable under harsh environments.

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

**Specifications**

**System Core**
- Intel® Celeron® Bay Trail J1900 quad-core processor
- Up to 8GB DDR3L 1333MHz SDRAM (single SO-DIMM slot)

**Memory**
- 1x 3-pin pluggable terminal block for DC input

**Processor**
- Intel® Celeron® Bay Trail J1900 quad-core processor
- 2.42 GHz, Intel® HD graphics

**Graphics**
- Integrated Intel® HD graphics

**Front Panel I/O Interface**
- 1x 3-pin pluggable terminal block for DC input

**Video Port**
- 1x VGA output, supporting resolution up to 2560 x 1600

**Audio**
- 1x Mic-in and 1x speaker-out

**Serial Port**
- 2x RS-232/422/485 (COM1 & COM2)

**Back Panel I/O Interface**
- 2x Gigabit Ethernet by Intel® Ethernet Controller I210
- 1x 10/100/1000Base-T, with auto-detection of 10/100/1000Base-T speeds
- 1x Gigabit Ethernet by Intel® Ethernet Controller I220
- 1x 10/100/1000Base-T, with auto-detection of 10/100/1000Base-T speeds

**Power Supply**
- Dual independent display via VGA and DVI connectors
- Optional MAIO for DI/O, PWM and encoder signals
- 8 to 33V DC wide-range DC input

**Ordering Information**

**Optional Accessories**
- Fan-35: Fan assembly for 1-slot Cassette, 25x25x10 mm
- DINRAIL-25: DIN-rail mounting assembly for Nuvo-2500 series
- PA-60W-OW: 60W AC/DC power adapter with 120, 5A, DC output, cord end terminals for terminal block, operating temperature: -30 to 60 °C.

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

**Nuvo-6000 Series**

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

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**Key Features**

- Supports *Intel* 6th-Gen Core™ i7/i5/i3, Pentium®
- Supports LGA1151 socket-type CPU, you can choose from Core™ i7 to Celeron depending on your budget/ application needs.
- Up to five expansion slots
- x16 PCIe, x8 PCIe and three PCIe slots (Nuvo-6032)
- x16 PCIe and x8 PCIe slots (Nuvo-6002)
- Rugged, -25 °C to 60 °C fanless operation
- 2x GBE, 4x USB3.0 and 5x COM ports
- Dual DVI display outputs
- Up to 3x 2.5" SATA accommodation and 1x mSATA socket
- Wall-mounting, (optional) DIN-rail and wall-mount.
- Optional fan with automatic temperature sensing and fan control

---

**Introduction**

Nuvo-6000 series is the perfect replacement for your bulky rack-mount or wall-mount IPC systems. Leveraging *Intel* 6th-Gen Skylake platform, it delivers the same computing power as traditional IPCs, but in a compact fanless form-factor. Nuvo-6000 series supports LGA1151 socket-type CPU, you can choose from Core™ i7 to Celeron depending on your budget/ application needs. Its 5-slot capacity offer the same level of expandability as most IPCs. The front-accessible I/O design includes 2x GBE, 4x USB3.0 and 5x COM ports, making it easier to access your Nuvo-6000 when it’s placed inside a cabinet or a rack. Neoysus’ proven fanless design on Nuvo-6000 translates to extraordinary reliability in rugged industrial conditions while its versatile mounting options make it fit for desktop, cabinet or a 19" rack. With similar performance, cost, compact form-factor and reliability, Nuvo-6000 series speaks for itself.

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**Specifications**

<table>
<thead>
<tr>
<th>Nuvo-6032</th>
<th>Nuvo-6002</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System Core</strong></td>
<td><strong>System Core</strong></td>
</tr>
<tr>
<td>Processor</td>
<td>Supports <em>Intel</em> 6th-Gen Core™ Pentium® and Celeron® LGA1151. (Nuvo-6002)</td>
</tr>
<tr>
<td>Chipset</td>
<td>Intel® H110 Platform Controller Hub</td>
</tr>
<tr>
<td>Memory</td>
<td>Up to 16 GB DDR4-2133 (single SO-DIMM slot)</td>
</tr>
<tr>
<td>Ethernet</td>
<td>1x Gigabit Ethernet port by Intel®</td>
</tr>
<tr>
<td>Video Port</td>
<td>2x DVI-D connectors for DVI outputs</td>
</tr>
<tr>
<td>Serial Port</td>
<td>2x Software-programmable RS-232/422/485 ports</td>
</tr>
<tr>
<td>USB</td>
<td>4x USB 3.0-ports</td>
</tr>
<tr>
<td>Audio</td>
<td>1x Speaker-out</td>
</tr>
<tr>
<td>Storage Interface</td>
<td></td>
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<tr>
<td>SATA HDD</td>
<td>3x SATA ports for 2.5&quot; HDD/SSD. 1x SATA port for 2.5&quot; HDD/SSD installation</td>
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<tr>
<td>mSATA</td>
<td>1x full-size mSATA socket</td>
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**Expansion Bus/ Internal I/O Interface**

<table>
<thead>
<tr>
<th>Expansion Bus</th>
<th>Internal I/O Interface</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCI Express</td>
<td>1x PCIe x16 slot (Gen 3), 16-lanes PCIe signals</td>
</tr>
<tr>
<td>PCI</td>
<td>3x 32Mb/32-bit PCIe slots</td>
</tr>
<tr>
<td>Remote On/ &amp; Status Output</td>
<td>1x RJ45/2.97mm panel header connector for remote on/off control and status LED output</td>
</tr>
<tr>
<td>Power Supply</td>
<td>DC Input 1x 3-pin plugable terminal block for 8-36V DC DC Input</td>
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</tbody>
</table>

**Mechanical**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Nuvo-6032</th>
<th>Nuvo-6002</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>3.5 kg (incl. CPU, memory and HDD)</td>
<td>2.8 kg (incl. CPU, memory and HDD)</td>
</tr>
<tr>
<td>Dimensions</td>
<td>184mm(W)x225mm(D)x174mm(H)</td>
<td>124mm (W)x225mm(D)x174mm(H)</td>
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<tr>
<td>Power Supply</td>
<td>1x 3-pin plugable terminal block for 8-36V DC DC Input</td>
<td></td>
</tr>
<tr>
<td>Interface</td>
<td>DC Input 1x 3-pin plugable terminal block for 8-36V DC DC Input</td>
<td></td>
</tr>
</tbody>
</table>

**Environmental**

| Operating Temperature | -20°C ~ 60°C |
| Temperature | Storage Temperature | -40°C ~ 85°C |
| Humidity | 10%-90%, non-condensing |
| Vibration | Operating: 5 Grms, 5-50Hz, 2 Axes (w/ SSD), according to IEC60068-2-37 |
| Shock | Operating, 50 Grms, Half-sine 11 ms Duration (w/ SSD), according to IEC60068-2-37 |
| EMI | CE/ VCCI Class A, according to EN55022, EN55024 & EN55032 |

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**Ordering Information**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nu-6032</td>
<td><em>Intel</em> 6th-Gen Core™ i fanless Box-PC with 1x PCIe x16 slot, 1x PCIe x8 (@ x4 signals) slot and 3x PCIe slots</td>
</tr>
<tr>
<td>Nu-6002</td>
<td><em>Intel</em> 6th-Gen Core™ i fanless Box-PC with 1x PCIe x16 slot and 1x PCIe x8 (@ x4 signals) slot</td>
</tr>
</tbody>
</table>

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**Optional Accessories**

- Rackmount-6 Rack mounting assembly for Nuvo-6000 series
- DINRAIL-6 DIN-rail mounting assembly for Nuvo-6000 series
- Fan-80 Fan assembly for Nuvo-6000 series, 80mm/15 mm
- PA-120W-OW 120W AC/DC power adapter 20V/6A; 18AWG/120cm, cord end terminals for terminal block, operating temperature -50 to 70 °C
- PA-160W-OW 160W AC/DC power adapter 20V/8A; 18AWG/47cm, cord end terminals for terminal block, operating temperature -50 to 70 °C
- C-09-309-RS232-10CM 1x DB9 (female) to 3x DB9 (male), for Nuvo-6000 series, length: 10CM
Nuvo-4000 Series

Intel® 3rd-Gen Core™ i7/i5 Fanless Box-PC with 4x PCIe/ PCI Expansion Slots

**Key Features**
- Intel® 3rd-Gen i7 quad-core processor
- Four slots expansion capacity
- x16 and x4 PCIe Express slot
- Up to four PCI slots
- 164 mm x 225 mm x 180 mm small footprint
- Rugged, -25°C to 60°C fanless operation
- DVI+DVI+VGA triple independent display outputs
- One CFast socket and two SATA ports
- Optional smart-fan and on-board isolated DIO

**Introduction**
Nuvo-4000 is a high-performance fanless box-pc with a small footprint. It incorporates Intel® 3rd-Gen i7/i5 processor to offer extraordinary computing power and fanless architecture to offer reliable operation in various environments. The 4-slot expansion makes Nuvo-4000 very versatile. Its two Gen2 PCI Express slots deliver a total of 6 GB/s bandwidth for applications demanding high-speed data transmission. A dedicated 48W power budget is supplied to the x16 PCIe slot for powering a high-watt PCIe card (e.g., a graphics card). Nuvo-4000 also has PCI slots to accommodate up to 4 PCI cards for general industrial automation, test and measurement applications.

Nuvo-4000 features one of the smallest footprints for a fanless box-pc with four expansion slots. It has ample I/O interfaces for communication/control purposes, and supports DVI+DVI+VGA triple independent display outputs for video/image related applications. An optional smart-fan is available for better operating reliability when high-watt cards are installed. The combination of high performance, small footprint and versatility makes Nuvo-4000 not only an ideal application platform, but also a great replacement for traditional rack-mount or wall-mount IPC.

**Specifications**

**System Core**
- Processor: Intel® Core™i7-3610QE (2.3/3.3 GHz, 6 MB cache) / Intel® Core™i5-3610ME (2.7/3.3 GHz, 3 MB cache)
- Chipset: Intel® HM76 Platform Controller Hub
- Graphics: Integrated Intel® HD Graphics 4000 (Core®)
- Memory: Up to 16 GB DDR3 1333/1600 MHz SDRAM (two SO-DIMM slots)

**Expansion Bus**
- PCI: 2x 32MHz/32-bit 4x 5V PCI slots (Nuvo-4022), 1x PCIe slot in slot 8 (0 lanes PCIe signal with dedicated 48W power budget)
- PCI Express: 1x PCIe x16 slot @ 8-lanes PCIe signal

**Power Supply**
- DC input: 1x 3-pin pluggable terminal block for 8~25VDC DC input
- Power Consumption: Nuvo-4022: 66.12W (3.48A@19V), Nuvo-4040: 72.8W (3.8A@19V)

**Front Panel I/O Interface**
- Ethernet: 2x Gigabit Ethernet ports by Intel®
- Video Port: 1x DVI connector for DVI and 2x DVI output, supporting 1920x1080 resolution
- Audio: 1x Speaker-out
- USB: 4x USB3.0 ports
- Audio: 1x Speaker-out
- Internal I/O Interface
- USB: 2x USB 2.0 ports x 2 pin header
- Isolated DIO: Optional 8-Ch isolated DIO

**Storage Interface**
- SATA HDD: 2x internal SATA ports for 2.5” HDD SDD installation
- CFast: 1x CFast socket

**Environmental**
- Operating Temperature: -25°C ~ 60°C, 100% CPU loading
- Storage Temperature: -40°C ~ 60°C
- Humidity: 5%~95%, non-condensing
- Vibration: Operating, 5G rms, 5-500Hz, 3 axes (per 1080G in 0.1g) / Non-operating, 10G rms, according to IEC68-2-27
- Shock: Operating, 50G rms, Half-sine 11 ms Duration (per 1080G in 0.1g) / Non-operating, 50G rms, according to IEC68-2-27

**EMC**
- CE/EN5524, EN55032

**Dimensions**

- Unit: mm
- Dimensions: 164.0 x 225.2 x 180.0

**Ordering Information**

**Model No.**
- Nuvo-4022: Intel® 3rd-Gen Core™ i7/i5 Fanless Box-PC with 2x PCIe and 2x PCI slots
- Nuvo-4040: Intel® 3rd-Gen Core™ i7/i5 Fanless Box-PC, with 4x PCIe slots

**Optional Accessories**
- DINRAIL-E: DIN rail mounting assembly for Nuvo-4000 series
- Fan-80: Fan assembly for Nuvo-4000 series, EN500215 mm
- PA-120W: 120W AC/DC power adapter 12V/8.3A (max. output 120W), 184W/320W; DIN 4PIN connector, operating temperature -30 to 70 °C
- PA-160W: 160W AC/DC power adapter 24V/8A; 184W/240W, DIN 4PIN connector, power cord is not included.

All specifications and photos are subject to change without prior notice.
Nuvo-2400 Series

Intel® Celeron® Bay Trail J1900 quad-core processor (F2400H, 24W)

**Key Features**

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

**Introduction**

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

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

Powered by Intel® Celeron® Bay Trail 1900 series quad-core processor, Nuvo-2400 series show outstanding computing power and is even more power efficient compared to its predecessors. Nuvo-2400 supports dual independent displays, dual 2.5" SATA bays and dual gigabit LAN ports with teaming and PXE. These features, together with 3 expansion slots, maximize the flexibility of Nuvo-2400 for various applications.

**Specifications**

- **Processor**: Intel® Celeron® Bay Trail J1900 quad-core processor (F2400H, 24W)
- **Graphics**: Integrated Intel® HD graphics
- **Memory**: Up to 32GB DDR3L-1333MHz SO-DIMM (single SO-DIMM slot)
- **Video Port**: 1x DVI connector for VGA and DVI dual independent display output
- **Serial Port**: 2x RS232/422/485, 2x COM1 & COM2
- **USB**: 1x USB3.0 and 3x USB2.0
- **Audio**: 1x Mic-in and 1x speaker-out
- **Expansion Bus**: 3x PCI slots with 33MHz, 32-bit PCI signal (Nuovo-2400)
- **Power Supply**: 8-25V DC
- **Power Consumption**: 2x PCI slot with 33MHz, 32-bit PCI signal (Nuovo-2421)

**Environmental**

- **Operating Temperature**: -25°C ~ 70°C, 100% CPU loading */**
- **Storage Temperature**: -40°C ~ 85°C
- **Humidity**: 10%~90%, non-condensing
- **Vibration**: Operating, 5 G-Rms in x-y and z-axis (Nuovo-2430)
- **Shock**: Operating, 5g Rms, half-sine 11ms duration (Nuovo-2421)
- **EMC**: CE/FCC Class A, according to EN 55022, EN 55024

**Dimensions**

- **Operating**: 139 mm (W) x 225 mm (D) x 160 mm (H)
- **Weight**: 2.2 kg (incl. CPU, memory and HDD)

**Weight**

- **Weight**: 2.2 kg (incl. CPU, memory and HDD)

**Rugged Embedded**

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

**Optional Accessories**

- Fan-80: Fan assembly for Nuvo-2400 series, 80x80x15 mm
- DINRAIL-E: DIN-rail mounting assembly for Nuvo-2400 series
- 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

**Ordering Information**

**Model No.**

- Nuvo-2400: Intel® Bay Trail Celeron® J1900 fanless shoe-box IPC with dual display, dual GbE and 3x PCI slots
- Nuvo-2421: Intel® Bay Trail Celeron® J1900 fanless shoe-box IPC with dual display, dual GbE, 2x PCIE slots and one PCIe x4 slot

**Option of Isolated DIO (8 DI + 8 DO)**
PB-2500J Series
Industrial-Grade Intelligent Ultracapacitor-based Power Backup Module

Key Features
- Ultracapacitor-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 ultracapacitor technology, it features -25°C to 65°C operating temperature range and extremely high durability. Compared to traditional battery-based UPS systems, PB-2500J series can sustain superb reliability in extreme temperature environments and eliminates the drawback of battery performance degradation over time.

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

PB-2500J series is available in two form-factors, PB-2500J-PCIe is a plug-and-play PCIe card particularly designed for Neousys’ Nuvo-6000 series, and PB-2500J-CSM is a ready-to-use Cassette module for Neousys’ Nuvo-5000/7000 series. When it comes to industrial embedded controllers, stability and data loss prevention during power outage are just as important. Neousys PB-2500J series aims to do the latter by redefining reliability and taking it to another level. With PB-2500J series, unexpected power loss and unstable power lines are a thing of the past.

Specifications
<table>
<thead>
<tr>
<th>PB-2500J-PCIe</th>
<th>PB-2500J-CSM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ultracapacitor configuration</td>
<td>Bus 100F, 3kWh ultracapacitors</td>
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<tr>
<td>Capacity</td>
<td>2500 watt-second</td>
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<tr>
<td>Expected Lifespan</td>
<td>&gt; 10 years @ 25°C with 2500w capacity*</td>
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<tr>
<td></td>
<td>75,000 hours @ 30°C with 2500w capacity*</td>
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<td></td>
<td>43,000 hours @ 40°C with 2500w capacity*</td>
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<td></td>
<td>12,000 hours @ 50°C with 2500w capacity*</td>
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<td></td>
<td>7,000 hours @ 60°C with 2500w capacity*</td>
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<td>Cycle Life</td>
<td>500,000 charging/discharging cycles*</td>
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<td>Communication Interface</td>
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<td>Mounting</td>
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<td>Operating Temperature</td>
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<td>Storage Temperature</td>
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<td>EMC</td>
<td>CE/EN IEC Class A, according to EN 55022 &amp; EN 55024</td>
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Ordering Information
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<tr>
<th>Model No.</th>
<th>Product Description</th>
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<tbody>
<tr>
<td>PB-2500J-PCIe</td>
<td>Intelligent ultracapacitor-based power backup PCIe card with 2500w energy capacity</td>
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<tr>
<td>PB-2500J-CSM5</td>
<td>Intelligent ultracapacitor-based power backup Cassette module with 2500w energy capacity, for Nuvo-5000 series</td>
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<tr>
<td>PB-2500J-CSM7</td>
<td>Intelligent ultracapacitor-based power backup Cassette module with 2500w energy capacity, for Nuvo-7000 series</td>
</tr>
</tbody>
</table>

Ultracapacitor-based Power Backup Solution vs. UPS
Combining ultracaps and our patented architecture, Neousys introduces a revolutionary ultracapacitor-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.

Neousys’ Patented CAP Energy Management Technology
To design and create a reliable ultracapacitor-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 ultracaps and charge discharger. The proprietary firmware embedded in the MCU not only monitors energy level continuously, it also automatically initiates soft-shutdown to prevent data loss or 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 ultracaps to up to 4.8x via the parameter configuration utility.

Ultracapacitor-based Power Backup Solution
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. Ultracapacitor, also called electric double-layer capacitor (EDLC) or supercapacitor, is an emerging category of capacitor offering 10–100 times more energy density than electrochemical capacitor (>10 Wh/kg). In addition to its impressive energy density, ultracapacitor also has a wide operating temperature range (−40°C–85°C) and long operating life (10 years or 500,000 charge-discharge cycles). These two traits help make a reliable industrial power backup solution come true.

Battery vs. Ultracapacitor
<table>
<thead>
<tr>
<th>Energy Storage Technologies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacitors</td>
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</tbody>
</table>

PB-2500J Series
Industrial-Grade Intelligent Ultracapacitor-based Power Backup Module

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

Neousys Technology, Inc.
www.neousys-tech.com
**POC-300 Series**

Intel® Apollo Lake Pentium® N4200 and Atom™ E3950 Ultra-Compact DIN-rail Controller with GbE, PoE and USB3.0

**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 USB3.0 and two USB2.0 ports
- DVI + VGA dual display outputs
- Front-accessible I/O
- DIN-rail mounting design
- MezIO™ Interface compatible

**Introduction**
Experience the giant leap in performance of Intel® Apollo Lake Pentium® and Atom™ platform! POC-300 series features the latest Pentium® N4200 and Atom™ x7-E3950 quad-core processors, which offers up to 1.5 times of CPU performance and 3 times the GPU performance improvement compared to previous generation Atom™ E3845 CPU. POC-300 series have an ingenious mechanical design that combines DIN-rail mounting chassis with front-accessible I/O in one ultra-compact enclosure. They have rich computer-like I/Os such as GbE, USB3.0/2.0, COM ports and mSATA storage, in a compact footprint that measures just 5.6 x 15 x 11 cm. IEEE 802.3at PoE+ function is also available on 2 of the 3 GbE ports to power cameras for machine vision or surveillance applications. POC-300 series features Neousys’ MezIO™ interface for easy function expansion via versatile MezIO™ modules.

**With Neousys’ proven fanless design heritage, the POC-300 series thrive in harsh environments. Featuring rich I/Os, advanced CPU and compact size, POC-300 series are compelling fanless controllers beneficial for various industrial applications.**

**Specifications**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>System Core</th>
<th>Processor</th>
<th>Graphics</th>
<th>Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>POC-300</td>
<td>Intel® Pentium® N4200 1.10 GHz quad-core processor</td>
<td>Integrated Intel® HD Graphics 610</td>
<td>Up to 16GB DDR4 (single SO-DIMM slot)</td>
<td>2GB DDR4</td>
</tr>
<tr>
<td>POC-310</td>
<td>Intel® Pentium® N4200 1.10 GHz quad-core processor</td>
<td>Integrated Intel® HD Graphics 610</td>
<td>Up to 16GB DDR4 (single SO-DIMM slot)</td>
<td>2GB DDR4</td>
</tr>
<tr>
<td>POC-320</td>
<td>Intel® Pentium® N4200 1.10 GHz quad-core processor</td>
<td>Integrated Intel® HD Graphics 610</td>
<td>Up to 16GB DDR4 (single SO-DIMM slot)</td>
<td>2GB DDR4</td>
</tr>
<tr>
<td>POC-330</td>
<td>Intel® Pentium® N4200 1.10 GHz quad-core processor</td>
<td>Integrated Intel® HD Graphics 610</td>
<td>Up to 16GB DDR4 (single SO-DIMM slot)</td>
<td>2GB DDR4</td>
</tr>
</tbody>
</table>

**Environmental**
- Operating: -35°C ~ 70°C with SSD, 100% CPU loading /**MP**
- Storage: -40°C ~ 85°C

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

**Vibration**
- Operating: 5Grms, 5~500 Hz, 3 Axes (at SSD, according to IEC60068-2-29)
- Shock: 90G rms, Half-sine 11 ms Duration (at SSD, according to IEC60068-2-27)

**EMC**
- FCC Class A, according to EN 55022, EN 55032 & EN 50582
- CE/FCC Class A, according to EN 55022, EN 55032 & EN 55032

**Dimensions**
- 564 mm (W) x 108 mm (H) x 153 mm (D)

**Appearance**
- DIN-rail mount (standard) or wall-mount (optional)
- 0.96 kg (incl. CPU, memory and HDD)

**Optional Accessories**
- FA-69W-DW 50W AC/DC power adapter with 12V, 5A DC output, cord and terminals for terminal block, operating temperature: -30 °C to 60 °C

**Ordering Information**
- *For Windows 10 IoT with other language packages, MOQ is required. Please contact Neousys for further information*

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>POC-300</td>
<td>Intel® Apollo Lake Pentium® E3950 ultra-compact DIN-rail controller with 1xGigE, 2xPoE+ and 2xUSB3.0</td>
</tr>
<tr>
<td>POC-310</td>
<td>Intel® Apollo Lake Pentium® E3950 ultra-compact DIN-rail Controller with 3xGigE and 2xUSB3.0</td>
</tr>
<tr>
<td>POC-320</td>
<td>Intel® Apollo Lake/Pentium® N4200 ultra-compact DIN-rail Controller with 3xGigE and 2xUSB3.0</td>
</tr>
<tr>
<td>POC-330</td>
<td>Intel® Apollo Lake/Pentium® N4300 ultra-compact DIN-rail Controller with 3xGigE and 2xUSB3.0</td>
</tr>
</tbody>
</table>

**MezIO™ Modules**
- MezIO™-U4 module with SATA port for 2.5" SSD
- MezIO™-C180 module with 4x RS-232/422/485 ports and 4x RS-422/485 ports
- MezIO™-C188 module with 4x RS-232/422/485 ports and 4x RS-422/485 ports
- MezIO™-D220 module with 16-CH isolated DI and 16-CH isolated DO
- MezIO™-D221 module with 8-CH isolated DI and 8-CH isolated DO
- MezIO™-V20 module with power control function and 1x mini PCIE slot for in-vehicle usage

**Ordering Model Matrix**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Description</th>
<th>Module-111</th>
<th>Module-112</th>
<th>Module-113</th>
<th>Module-114</th>
</tr>
</thead>
<tbody>
<tr>
<td>POC-300</td>
<td>Intel® Apollo Lake Pentium® E3950 ultra-compact DIN-rail controller with 1xGigE, 2xPoE+ and 2xUSB3.0</td>
<td>MezIO™-U4</td>
<td>MezIO™-C180</td>
<td>MezIO™-C188</td>
<td>MezIO™-D220</td>
</tr>
<tr>
<td>POC-310</td>
<td>Intel® Apollo Lake Pentium® E3950 ultra-compact DIN-rail Controller with 3xGigE and 2xUSB3.0</td>
<td>MezIO™-U4</td>
<td>MezIO™-C180</td>
<td>MezIO™-C188</td>
<td>MezIO™-D220</td>
</tr>
<tr>
<td>POC-320</td>
<td>Intel® Apollo Lake/Pentium® N4200 ultra-compact DIN-rail Controller with 3xGigE and 2xUSB3.0</td>
<td>MezIO™-U4</td>
<td>MezIO™-C180</td>
<td>MezIO™-C188</td>
<td>MezIO™-D220</td>
</tr>
<tr>
<td>POC-330</td>
<td>Intel® Apollo Lake/Pentium® N4300 ultra-compact DIN-rail Controller with 3xGigE and 2xUSB3.0</td>
<td>MezIO™-U4</td>
<td>MezIO™-C180</td>
<td>MezIO™-C188</td>
<td>MezIO™-D220</td>
</tr>
</tbody>
</table>

*For detailed testing criteria, please contact Neousys Technology*

*For AV-cards operating temperature, in a temperature stable HD drive or build-in HD (3500rpm) is required*

*For Windows 10 IoT with other language packages, MOQ is required. Please contact Neousys for further information*
POC-200 Series

Ultra-Compact Atom™ Bay Trail-I Fanless Embedded Controller with PoE and USB3.0

Key Features
- Ultra-compact 15 cm x 10 cm (6" x 4") footprint
- Intel® Atom™ E3845 1.91GHz quad-core processor
- Rugged, -25°C to 70°C fanless operation
- Two 802.3at (25.5W) Gigabit PoE+ ports
- Three USB3.0 ports and one USB2.0 port
- One 2.5" SATA HDD/ SSD accommodation
- Up to two RS-232/ 422/ 485 ports and two RS-232 ports

Introduction

POC-200 is Neousys’ breakthrough ultra-compact controller series. Inheriting the concept of favorable POC-100, POC-200 series features greater computing power and more versatile functions in its 3.5"HDP foot print. The new Intel® Atom™ Bay Trail processor offers dramatic arithmetic and graphics performance improvement. With Atom™ E3845 quad-core processor, POC-200 can deliver more than 100% performance over previous D525/D2550 platforms. It also features up to two COM ports and digital I/O interfaces to make use of the advanced computing power. Two Gigabit Ethernet and three USB3.0 ports are integrated so you can connect GigE/ USB3.0 cameras for vision applications. Its IEEE 802.3at PoE+ option is capable of supplying 25.5W each port to power IP cameras for surveillance applications. POC-200 also features up to four COM ports and digital I/O for general-purpose industrial applications.

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

Specifications

<table>
<thead>
<tr>
<th>System Core</th>
<th>POC-200</th>
<th>POC-210</th>
<th>POC-212</th>
<th>POC-222</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Intel® Atom™ E3825 1.6GHz dual-core processor</td>
<td>Intel® Atom™ E3845 1.91GHz quad-core processor</td>
<td>Intel® Atom™ E3845 1.91GHz quad-core processor</td>
<td>Intel® Atom™ E3845 1.91GHz quad-core processor</td>
</tr>
<tr>
<td>Memory</td>
<td>Up to 8GB DDR3L-1333 (single SO-DIMM slot)</td>
<td>Up to 8GB DDR3L-1333 (single SO-DIMM slot)</td>
<td>4GB DDR3L-1333 (single SO-DIMM slot)</td>
<td>4GB DDR3L-1333 (single SO-DIMM slot)</td>
</tr>
<tr>
<td>Panel I/O Interface</td>
<td>Ethernet: 2x Gigabit Ethernet ports by Intel® GbE GbE port</td>
<td>Ethernet: 2x Gigabit Ethernet ports by Intel® GbE GbE port</td>
<td>Ethernet: 2x Gigabit Ethernet ports by Intel® GbE GbE port</td>
<td>Ethernet: 2x Gigabit Ethernet ports by Intel® GbE GbE port</td>
</tr>
<tr>
<td>PoE</td>
<td>2x Gigabit Ethernet ports</td>
<td>2x Gigabit Ethernet ports</td>
<td>2x Gigabit Ethernet ports</td>
<td>2x Gigabit Ethernet ports</td>
</tr>
<tr>
<td>Video Port</td>
<td>1x HDMI connector for both analog RGB and HDMI outputs</td>
<td>1x HDMI connector for both analog RGB and HDMI outputs</td>
<td>1x HDMI connector for both analog RGB and HDMI outputs</td>
<td>1x HDMI connector for both analog RGB and HDMI outputs</td>
</tr>
<tr>
<td>Serial Port</td>
<td>2x RS-232, 4x RS-232/422/485 (COM1 &amp; COM4)</td>
<td>2x RS-232, 4x RS-232/422/485 (COM1 &amp; COM4)</td>
<td>2x RS-232, 4x RS-232/422/485 (COM1 &amp; COM4)</td>
<td>2x RS-232, 4x RS-232/422/485 (COM1 &amp; COM4)</td>
</tr>
<tr>
<td>Audio</td>
<td>1x Speaker-out</td>
<td>1x Speaker-out</td>
<td>1x Speaker-out</td>
<td>1x Speaker-out</td>
</tr>
<tr>
<td>DIO</td>
<td>4 CH isolated DI + 4 CH isolated DO</td>
<td>4 CH isolated DI + 4 CH isolated DO</td>
<td>4 CH isolated DI + 4 CH isolated DO</td>
<td>4 CH isolated DI + 4 CH isolated DO</td>
</tr>
<tr>
<td>Panel I/O Interface</td>
<td>Mini-PCIe: 1x more POE Express slot with USIM socket</td>
<td>Mini-PCIe: 1x more POE Express slot with USIM socket</td>
<td>Mini-PCIe: 1x more POE Express slot with USIM socket</td>
<td>Mini-PCIe: 1x more POE Express slot with USIM socket</td>
</tr>
</tbody>
</table>

POC-200 POC-210 POC-212 POC-222

Environmental
- Operating Temp. -25°C ~ 70°C with SSD, 100% CPU loading
- Storage Temp. -10°C ~ 85°C
- Humidity 10% ~ 90%, non-condensing
- Shock Operating: 50 G rms, half-sine 11 ms Duration
- Vibration Operating, 5 Grms, 5-500 Hz, 3 Axes
- EMI CE/FCC Class A, according to EN 55022, EN 55024 & EN 55032
- Thermal Analysis Tool. For detail testing criteria, please consult Thermal Analysis Tool.

Ordering Information

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>POC-200</td>
<td>Intel® Atom™ E3845 ultra-compact controller with 2x RS-232, 2x PoE ports, 3x USB3.0 ports and 4x COM ports</td>
</tr>
<tr>
<td>POC-210</td>
<td>Intel® Atom™ E3845 ultra-compact controller with 2x RS-232, 2x PoE ports, 3x USB3.0 ports and 4x COM ports</td>
</tr>
<tr>
<td>POC-212</td>
<td>Intel® Atom™ E3845 ultra-compact controller with 2x RS-232, 2x PoE ports, 3x USB3.0 ports and 2x COM ports</td>
</tr>
<tr>
<td>POC-222</td>
<td>Intel® Atom™ E3845 ultra-compact controller with 2x RS-232, 2x PoE ports, 3x USB3.0 ports and 2x COM ports</td>
</tr>
</tbody>
</table>

Optional Accessories
- DINRAIL-P: DIN-rail mounting assembly for POC-200 series
- PA-60W-OW: 60W AC/DC power adapter with 12V, 5A DC output, cord end terminals for terminal block, operating temperature: -30 to 60°C
POC-120 Series

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

Key Features
- Low-profile, ultra-compact 15 cm x 10 cm x 3.4 cm footprint
- Intel® Atom™ E3826 1.46GHz dual-core processor
- Rugged, -25°C to 70°C fanless operation
- Two GigE ports and three USB2.0 ports
- One RS-232/422/485 port and one RS-232 port
- U/O expansion interface for ODM projects
- MezIO™ interface for easy function expansion

Introduction

Introducing Neousys' ultra-compact POC family! POC-120 is a low-cost, entry-level embedded controller in ultra-compact dimensions. With a height of 3.4 cm, the low-profile chassis is ideal for installation into confined spaces. POC-120 utilizes Intel® Atom™ E3826 dual-core processor and it provides general IOs, such as GigE ports, COM ports and USB3.0/USB2.0 ports. For embedded applications, instead using traditional HDD, POC-120 supports mSATA SSD to ensure reliable disk access in harsh industrial environments.

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

Specifications

System Core
- Processor: Intel® Atom™ E3826
- Memory: Up to 8GB DDR3L-1333 (single SO-DIMM slot)

I/O Interface
- Ethernet: 2x Gigabit Ethernet ports by Intel® I210 GbE controller
- Video Port: 1x VGA connector for both analog RGB output, supporting 2560x1600 resolution
- Serial Port: 1x RS-232/422/485 (COM1) 1x RS-232 (COM2)
- USB: 1x USB3.0 port and 2x USB2.0 ports
- Audio: 1x Speaker-out

Storage Interface
- mSATA: 1x full-size mSATA socket

Expansion Bus
- Expandable I/O: 1x MezIO™ expansion port for Neousys' MezIO™ modules

Power Supply
- DC Input: Built-in 8-35V DC input
- Input Connector: 2-pin spring-clamp terminal block for DC input

Mechanical
- Dimension: 105mm (W) x 149 mm (D) x 34mm (H) (POC-120) 105mm (W) x 149 mm (D) x 46mm (H) (POC-120MZ)
- Weight: 0.9 kg

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

Ordering Information

Model No.  Product Description
POC-120  Intel® Atom™ E3826 ultra-compact controller with 2x GbE ports, 3x USB and 2x COM ports
POC-120MZ  Intel® Atom™ E3826 ultra-compact controller with 2x GbE ports, 3x USB, 2x COM ports and MezIO™ accommodation
DINRAIL-P  DIN-rail mounting assembly for POC-120 series
PA-60W-OW  60W AC/DC power adapter with 12V, 5A DC output, cord end terminals for terminal block. operating temperature : -30 to 60 °C

MezIO™ Modules
- MezIO™-C180: MezIO™ module with 4x RS-232/422/485 ports and 4x RS-232 ports
- MezIO™-C181: MezIO™ module with 4x RS-232/422/485 ports and 4x RS-422/485 ports
- MezIO™-D220: MezIO™ module with 8-CH isolated digital input and 8-CH isolated digital output
- MezIO™-D230: MezIO™ module with 16-CH isolated digital input and 16-CH isolated digital output
- MezIO™-R10: MezIO™ module with 2.5” HDD/SSD accommodation and 1x mini-PCIe socket
IGT-20 / IGT-21

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

Key Features
- Industrial grade ARM-based system with pre-installed Debian
- Compact size, designed for wireless gateway application
- Operating temperature from -25°C to 70°C
- 8 to 25V wide-range DC input
- Rich local I/O, such as USIM slot, USB, 10/100M LAN, and RS-232/422/485

Introduction
IGT-20 is an industrial grade ARM-based gateway. Unlike System on Module (SoM) that’s commonly provided as a barebone component, IGT-20 is based on AM3352 from Texas Instruments’ Sitara AM335x family and will be shipped as a ready system pre-installed with Debian. The industrial nature of IGT-20 means it is in compliance with common industrial certifications such as CE/FCC. Shock and vibration. Another distinction IGT-20 has over SoM is that it accepts a wider range of power inputs ranging from 8 to 25 VDC (SoM usually accepts 5 VDC). IGT-20 has I/Os that are applicable to a range of industrial grade sensors. It features one USB2.0, one 10/100M LAN, two configurable COM ports (RS-232/422/485) and an optional CAN bus port (IGT-21 only). In addition to the ports mentioned, there are 4 built-in isolated digital input channels that accept discrete signals from various sensors or buttons/switches. There are also four built-in isolated digital output channels to control actuators and indicators.

Communication wise, IGT-20 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-20 for users to mount the SMA connector of the wireless module. In terms of storage, IGT-20 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. As a gateway, users can take advantage of six programmable status LED indicators and two control buttons to operate IGT-20 without using a keyboard/mouse.

Specifications

| System Core | Processor | TI Sitara AM3352 1GHz processor |
| DC Input Range | 8-25V DC |
| Front-panel I/O Interface | Ethernet 1x GIGabit Ethernet |
| | SD Card 1x external T-flash socket support SDHC |
| | USB 1x USB2.0 D |
| | Isolated GPIO 4 CH isolated D0 and 4 CH isolated D1 |
| Console | 1x 3-wire RS-232 |
| User LEDs | 4x user programmable LEDs |
| User Buttons | 2x user programmable buttons |
| CAN | 1x CANbus 2.0 A/B (IGT-21 only) |
| Top I/O Interface | DC-in 1x DC-input connector |
| Power Button | 1x power button |
| Reset Button | 1x reset button |
| Serial Port | 2x software configurable RS-232/422/485 |
| Antenna Hole | 1x antenna hole for WiFi and 3G/LTE |

Internal I/O Interface
- mPCIe 1x full-size mPCIe with USB2.0 only
- SD Card 1x internal T-flash socket support SDHC
- Software
  - Operating System Debian 8 pre-installed

Mechanical
- Dimension 41mm(W) x 76mm(D) x 103.7mm(H) |
- Weight 0.4 Kg |
- Mounting DIN-rail mounting |
- Environmental
  - Operating Temperature -25°C ~ 70°C * |
  - Vibration 55gms |
  - Shock 550gms |

Model No. | Product Description |
--- | --- |
IGT-20 | Industrial grade ARM-based IoT gateway |
IGT-21 | Industrial grade ARM-based IoT gateway with CAN bus |

* For sub-zero operating temperature, a wide temperature microSD module is required.
Nuvis-5306RT Series

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

**Introduction**
As one of the most powerful vision controller ever created, Nuvis-5306RT integrates every single function you need for machine vision applications in a compact footprint, excepting exceptional computing power, built-in camera interfaces and real-time vision-specific I/O control.

**Specifications**
- **System Core**
  - Supports Intel® 6th Gen Core™ i7/i5 65W/ 35W CPU, up to 32 GB DDR4
- **Processor**
  - Integrated vision-specific I/O
- **Chipset**
  - Intel® Q170 Platform Controller Hub
- **Graphics**
  - Integrated Intel® HD Graphics 530
- **Memory**
  - Up to 32 GB DDR4-2133 SDRAM by two SO DIMM sockets
- **TFM**
  - Supports TPM 2.0
- **Vision-Specific I/O Interface**
  - 4-CH LED lighting controller output, supporting
    - Constant high-current output (up to 1 A per channel, 12V DC, 100 kHz dimming control)
    - Constant voltage output (24V DC, 100 kHz dimming control)
  - 4-CH camera trigger output (12V DC, 100 kHz dimming control)
  - 4-CH isolated digital I/O (2 A per channel, 500 mA per channel)
- **Camera Trigger**
  - 4-CH camera trigger output (12V DC, 100 kHz dimming control)

**Ordering Information**

**Product Description**
- **Nuvis-5306RT-DTIO**
  - Intel® 6th-Gen Core™ i7/i5 vision controller with vision-specific I/O, real-time control by DTIO V2 and NuMCU firmware
- **Nuvis-5306RT-NuMCU**
  - Intel® 6th-Gen Core™ i7/i5 vision controller with vision-specific I/O, real-time control by NuMCU and GPU-accelerating

**Optional Accessories**
- **PA-160W-DW**
  - 160W AC/DC power adapter 20V/12A, 18AWG×4C/120cm, cord end terminals for terminal block, operating temperature: -30°C to 70°C.

**Specifications (continued)**
- **Storage Interface**
  - SATA HDD
    - 2 internal SATA ports for 2.5" HDD/SSD installation, supporting RAID 0/1
  - mSATA
    - 1 full-size mSATA port (with mini PCIe)
- **Expansion Bus**
  - PCIe x1: 1x PCIe x1 slot @ Gen 3, 8-lanes PCIe signals in Cassette, supporting
    - 75W NVIDIA GPU card
  - PCIe x16: 1x PCIe x16 slot (with mini PCIe)
  - 1 internal mini PCIe Express slot with available AM slot
  - 1 internal mini PCIe Express slot with available SATA slot
- **Power Supply**
  - DC Input
    - 1x 3-pin pluggable terminal block for 8-35V DC input
  - DC Power Status Output
    - 1x 1-pin (24V) power controller for remote off/on control and status LED output
- **Mechanical**
  - Weight: 4.5 kg (4.9 kg incl. CPU, memory and HDD)
- **Environmental**
  - Temperature
    - Operating: with 17°K to 50°C (68°F to 122°F)
    - Storage: with -25°C to 85°C (-13°F to 185°F)
- **Vibration**
  - Operating: 5 g peak, random 3 axes, 10 to 200 Hz (15 g peak, random 3 axes, 5 to 200 Hz (15 g peak, random 3 axes, 5 to 200 Hz)
  - Storage: 10 g peak, random 3 axes, 5 to 300 Hz (10 g peak, random 3 axes, 5 to 300 Hz)
- **Shock**
  - Operating: 50 Gs, half-sine 11 ms duration
  - Storage: 150 Gs, half-sine 11 ms duration

**Ordering Information**

**Product Description**
- **Nuvis-5306RT-DTIO**
  - Intel® 6th-Gen Core™ i7/i5 vision controller with vision-specific I/O, real-time control by DTIO V2 and GPU-Computing
- **Nuvis-5306RT-NuMCU**
  - Intel® 6th-Gen Core™ i7/i5 vision controller with vision-specific I/O, real-time control by NuMCU and GPU-Computing

**Optional Accessories**
- **PA-160W-DW**
  - 160W AC/DC power adapter 20V/1A, 18AWG×4C/120cm, cord end terminals for terminal block, operating temperature: -30°C to 70°C.

**Fan-40**
- Fan assembly for 2-slot Cassette, 40Wx10 mm

**Ordering Information**

**Product Description**
- **Nuvis-5306RT-DTIO**
  - Intel® 6th-Gen Core™ i7/i5 vision controller with vision-specific I/O, real-time control by DTIO V2 and GPU-Computing
- **Nuvis-5306RT-NuMCU**
  - Intel® 6th-Gen Core™ i7/i5 vision controller with vision-specific I/O, real-time control by NuMCU and GPU-Computing

**Optional Accessories**
- **PA-160W-DW**
  - 160W AC/DC power adapter 20V/1A, 18AWG×4C/120cm, cord end terminals for terminal block, operating temperature: -30°C to 70°C.

**Fan-40**
- Fan assembly for 2-slot Cassette, 40Wx10 mm
Nuvis-3304af Series

Key Features
- Intel® 3rd-Gen i7 quad-core processor
- Integrated camera interfaces
- 4x 802.3af Gigabit PoE ports via Intel® I210
- 4x USB3.0 ports
- Patented Deterministic Trigger I/O* technology for accurate trigger/strobe control
- Patented Cassette® design for PCI/PCI add-on card expansion
- Per-port PoE power on/off control
- Rugged, -25°C to 70°C fanless operation

Introduction
Nuvis-3304af is specifically designed for machine vision applications. Inheriting Neousys’ proven fanless architecture and Power-over-Ethernet technology, Nuvis-3304af combines superb computing performance, integrated camera interfaces and great reliability in a compact chassis. As accurate trigger/strobe control is crucial for vision applications, Neousys developed a new technology ‘Deterministic Trigger I/O’ or DTIO* for Nuvis-3304af. Unlike legacy isolated DIO, this patented DTIO technology (R.O.C Patent No. I526834) allows users to program a deterministic timing correlation between input and output signals at a resolution of 25 microseconds. With DTIO, your vision system can have extremely precise control for proximity sensor input, strobe output and camera trigger.

Nuvis-3304af integrates the quad-core CPU performance, PoE/USB3.0 camera interface, innovative DTIO and Cassette technology, making it the perfect platform for your vision application.

Specifications
- 3rd-Gen Core™ i7/i5 Fanless Vision System with 4x GigE PoE and Deterministic Trigger I/O

Ordering Information
- Model No.: Nuvis-3304af-E
  Intel® 3rd-Gen Core™ i5 fanless machine vision controller with 5x Gig. PoE ports, DTIO and x5 PCI Express Cassette (9” vi signals)
- Model No.: Nuvis-3304af-P
  Intel® 3rd-Gen Core™ i7 fanless machine vision controller with 5x Gig. PoE ports, DTIO and PCI Cassette

Optional Accessories
- DINRAIL-O: DIN-rail mounting assembly for Nuvis-3304af series
- PA-160W-0W: 160W AC/DC power adaptor 20V/8A, 18AWG/4C/120cm, cord ends terminal blocks for terminal block. operating temperature: -30 to 70 °C
- Fan-23: Fan assembly for 1-slot Cassette, 25x25x10 mm

Cassette Modules
- CSM-PcE354 (Nuvis-3304af-E Only): Cassette module with PCIe-Pcie354 and pre-installed passive heat-spreaders
- CSM-USB380 (Nuvis-3304af-E Only): Cassette module with PCIe-USB380 and pre-installed passive heat-spreaders

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Key Features
- Intel® Atom™ E3845 quad-core 1.91 GHz
- Built-in GigE/USB3.0/USB2.0 camera interfaces
- Patented DIO technology for accurate trigger/strobe control
- Built-in 500 mA constant current and 24 V constant voltage LED controller
- 802.3at PoE+ PD and auxiliary DC dual power input
- Water-proof M12 connectors

iVIS-200 Series
Intel® Atom™ E3845 Processor Board for x86-based Smart Camera Framework

Introduction
iVIS-200 is an Atom™ E3845 processing unit as part of an innovative smart camera framework that allows you to build up your own x86-based smart camera by integrating an off-the-shelf camera. iVIS-200 features an ultra-compact footprint and it has GigE/USB3.0/USB2.0 camera interfaces. It also incorporates Neousys’ DIO technology for precise trigger/strobe control and built-in constant current/voltage LED controller for driving the LED light. Moreover, iVIS-200 carries 802.3at PoE+ PD (Powered Device) capability, so you can simply access and power your smart camera with just one Ethernet cable.

Targeted at different vertical markets, iVIS-200 series are available in several barbonne configurations. iVIS-210B-MVS and iVIS-211B-MVS are designed for machine vision applications and come with a slim enclosure to accommodate Basler Dart and Point Grey Chameleon3 board camera, respectively. While iVIS-220B-ITS and iVIS-227B-ITS are aimed at intelligent traffic systems. They are equipped with an IP50 and an IP67 enclosure to accommodate a 29mm x 29mm USB3.0/GigE camera. They also feature a mini-PCIe slot with SIM support for installing a 3G/4G/WiFi module. You can utilize iVIS-200 to construct an innovative framework and further expand the possibilities of your smart camera. With iVIS-200, you can quickly build your own smart camera based on Windows/Linux open platform and maximize your vision software.

Specifications

<table>
<thead>
<tr>
<th>iVIS-210B-MVS</th>
<th>iVIS-210B-ITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Intel® Atom™ E3845</td>
</tr>
<tr>
<td>Graphics</td>
<td>Integrated Intel® HD graphics</td>
</tr>
<tr>
<td>System Core</td>
<td>-</td>
</tr>
<tr>
<td>Ethernet</td>
<td>1x GigE interface</td>
</tr>
<tr>
<td>USB</td>
<td>1x USB3.0 interface</td>
</tr>
<tr>
<td>Trigger I/O</td>
<td>1-CH trigger-out (connected to camera) and 1-CH strobe-in (from camera)</td>
</tr>
<tr>
<td>Panel I/O Interface</td>
<td>M12 connectors</td>
</tr>
<tr>
<td>Trigger Input</td>
<td>1x trigger input</td>
</tr>
<tr>
<td>Strobe Output</td>
<td>1-CH isolated strobe output (24 VDC/0.5 A rated)</td>
</tr>
<tr>
<td>LED Illumination Controller</td>
<td>1-CH LED illumination output, supporting 3 mA constant current mode or 500 mA max. adjustable constant current mode with 150 mA, 330 mA steps (PWM driving control)</td>
</tr>
<tr>
<td>COM</td>
<td>1 x RS-232 COM</td>
</tr>
<tr>
<td>Auxiliary I/O Interface (internal/wafer connector)</td>
<td>-</td>
</tr>
<tr>
<td>VGA</td>
<td>1x VGA port</td>
</tr>
<tr>
<td>USB</td>
<td>1x USB 2.0 port</td>
</tr>
<tr>
<td>Storage/Expansion Interface</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>iVIS-211B-MVS</th>
<th>iVIS-211B-ITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Intel® Atom™ E3845</td>
</tr>
<tr>
<td>Graphics</td>
<td>Integrated Intel® HD graphics</td>
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<td>System Core</td>
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</tr>
<tr>
<td>Storage/Expansion Interface</td>
<td>-</td>
</tr>
</tbody>
</table>

Ordering Information

- Model No.: iVIS-210B-MVS
- Product Description: Intel® Atom™ E3845 smart camera framework for MV application, accommodating Basler Dart camera (LS-mount)
- Model No.: iVIS-210B-ITS
- Product Description: Intel® Atom™ E3845 smart camera framework for ITS application, accommodating COTS 19mm x 29mm USB3.0/GigE camera, with IP50 enclosure
- Model No.: iVIS-211B-MVS
- Product Description: Intel® Atom™ E3845 smart camera framework for MV application, accommodating Basler Dart camera (CS-mount)
- Model No.: iVIS-211B-ITS
- Product Description: Intel® Atom™ E3845 smart camera framework for ITS application, accommodating COTS 19mm x 29mm USB3.0/GigE camera, with IP67 enclosure

Optional Accessories

- Cable kit for USB3.0 camera
- Cable kit for GigE camera
PCIe-PoE550X
2-port 10GbE Network Adapter with IEEE 802.3at PoE+ Capability

Key Features
- Two 10 GbE ports; Intel® X550-AT2 10 GigE controller
- Gen3 PCI Express x4 interface
- Supports 10GbE with CAT-6a cable (Max. 100 meters)
- Supports 10GbE 802.3at PoE+ with CAT-6a cable
- Supports NBASE-T and 1000BASE-T with CAT-5e cable
- Compliant with IEEE 802.3at to deliver 25.5 W 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 Wi-Fi 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 combines Gen3 PCI Express x4 interface, X550-AT2 10 GigE controller and 802.3at PoE+ technology to create a versatile NIC card for servers and rugged industrial applications.

Specifications
- Bus Interface: Gen3 PCI Express x4
- # of 10-GbE Port: 2x 10 GbE ports by Intel® X550-AT2 controller, supporting 15.5 KB jumbo frame, teaming and IEEE 1588
- Network Protocol Support: 10GBASE-T Ethernet interface for 10GBASE-T and 1000BASE-T (IEEE 802.3an), NBASE-T, 1000BASE-T (IEEE 802.3ab)
- PoE Capability: Optional IEEE 802.3at-2009 (PoE+) each port delivers up to 25.5 W of power
- Cable Requirement: For 10Gbps NBASE-T: CAT-6a (100 meters), For 5Gbps NBASE-T: CAT-5e (100 meters)
- Power Requirement: Maximum 11.5 W for 2x 10-GbE operation
- EMI: CE Class A, according to EN 55022, 55032
- EMS: IEC-61000-6-2 Class Level 3
- Operating Temperature: 0°C ~ 55°C with air flow
- Dimension: 147.7 mm(W) x 111.3 mm(D)

Ordering Information
- Model No.: PCIe-PoE550X
- Product Description: 2-port 10GbE Network Adapter with IEEE 802.3at PoE+ Capability

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

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

Specifications
- Bus Interface: x4, Gen2 PCI Express
- Gigabit Ethernet Port: 4x GigE ports by Intel® I350-AM4 controller, supporting 15.5 KB jumbo frame, teaming and IEEE 1588
- PoE Capability: In compliance with IEEE 802.3at-2009 (PoE+) each port delivers up to 25.5 W of power
- Cable Requirement: CAT-5e or CAT-6 cable, 100 meters maximal
- Power Requirement: Maximum 1.2 A @ 3.3 V from PCI Express bus
- EMI: CE Class A, according to EN 55022, 55032
- EMS: IEC-61000-6-2 Class Level 2
- Operating Temperature: 0°C ~ 55°C with air flow
- Dimension: 164 mm(W) x 66 mm(D)

Ordering Information
- Model No.: PCIe-PoE334LP
- Product Description: Low-profile 4-port server-grade Gigabit 802.3at PoE+ card with 1kV surge protection
**Key Features**
- x4 Gen2 PCI Express interface (2GB/s total bandwidth)
- Intel® I350 server-grade Gigabit Ethernet controller
- Supports four (354at) or two (352at) independent GigE ports
- Compliant with IEEE 802.3at to deliver 25.5 W each port
- Supports 9.5 kB jumbo frame, teaming and IEEE 1588
- Per-port PoE power on/off control

**Introduction**

PCIe-PoE354at is Neousys’ first PoE frame grabber card combining server-grade GigE controller and 802.3at PoE+ capability. Inheriting Neousys’ expertise on PoE technology, PCIe-PoE354at further incorporates the updated 802.3at-2009 standard and offers up to 25.5W of power each port. PCIe-PoE354at is designed with state-of-the-art Intel® I350 GigE 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>Bus Interface</th>
<th>PCIe-PoE354at</th>
<th>PCIe-PoE352at</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gigabit Ethernet Port</td>
<td>x4 Gen2 PCI Express</td>
<td>x4 Gen2 PCI Express</td>
</tr>
<tr>
<td>PoE Capability</td>
<td>In compliant with IEEE 802.3at-2009 standard, each port delivers up to 25.5 W of power</td>
<td>In compliant with IEEE 802.3at-2009 standard, each port delivers up to 25.5 W of power</td>
</tr>
<tr>
<td>Power Requirement</td>
<td>Maximum 1.2A @ 3.2V from PCI Express bus</td>
<td>Maximum 0.5A @ 3.2V from PCI Express bus</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0°C ~ 55°C with airflow</td>
<td>0°C ~ 55°C with airflow</td>
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<tr>
<td>Dimension</td>
<td>168 mm (W) x 111 mm (H)</td>
<td>168 mm (W) x 111 mm (H)</td>
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**Ordering Information**

<table>
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<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCIe-PoE354at</td>
<td>4-Port/2-Port server-grade Gigabit 802.3at PoE+ Frame Grabber Card</td>
</tr>
<tr>
<td>PCIe-PoE352at</td>
<td>2-Port Intel® I350AM2 server-grade Gigabit 802.3at PoE+ Frame Grabber Card</td>
</tr>
</tbody>
</table>

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**Key Features**
- x4 PCI Express Gen2 interface (2GB/s total bandwidth)
- 8-port/4-port by 4x NEC® Renesas µPD7020202 host controller
- On-board 5V DC regulated power supply, no external power needed
- User-configurable 900mA and 1500mA current limit
- Software-programmable per-port power on/off control
- Supports cable-lock mechanism for reliable cable connection
- Supports Windows XP/7/8 and Linux
- Compliant with
  - Universal Serial Bus 3.0 specification Rev. 1.0
  - Intel® xHCI specification Rev. 1.0

**Introduction**

Neousys’ PCIe-USB380/340 is an 8-port/4-port USB3.0 host adapter specifically designed for industrial and vision applications. USB3.0 or SuperSpeed USB delivers up to ten times the data rate over USB 2.0 and is particularly useful for high-speed data storage and imaging devices. Most off-the-shelf USB3.0 cards implement multiple ports with a single USB3.0 controller which results in significant performance degradation during multi-port operation. To achieve maximum per-port performance, PCIe-USB380 has four independent NEC® Renesas µPD7020202 USB3.0 Host Controllers and x4 PCI Express® Gen2 interface to offer up to 5 Gbps bandwidth for each port when four ports simultaneously. In addition to transfer data bandwidth advantage, PCIe-USB380/340 features on-board regulated 5V DC power supply with a unique design with configurable 900mA/1500mA current limit to supply stable 5V DC power to external USB devices. It also supports software-programmable per-port power on/off control for fault recovery operations. Combining high bandwidth, industrial-grade power design and reliable cable connection, PCIe-USB380/340 brings convenience to interface USB3.0 devices operating under Windows XP, 7, 8 and Linux.

**Specifications**

<table>
<thead>
<tr>
<th>PCIe-USB380</th>
<th>PCIe-USB340</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB Ports</td>
<td>4x USB 3.0 ports, compatible with USB3.0 1.1/1.0</td>
</tr>
<tr>
<td>USB Connectors</td>
<td>4x panel-attachable USB3.0 Type-A connectors with M2 screw threads</td>
</tr>
<tr>
<td>Bus Interface</td>
<td>xHCI specification Rev. 1.0</td>
</tr>
<tr>
<td>USB Controller</td>
<td>4x NEC® Renesas µPD7020202 host controllers</td>
</tr>
<tr>
<td>Power Requirement</td>
<td>Maximum 5.5A @ 12V from PCI Express bus for devices</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>0°C ~ 60°C with ambient air flow</td>
</tr>
<tr>
<td>Dimension</td>
<td>164 mm (W) x 111 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-USB380</td>
<td>8-Port USB3.0 host adapter with 4x independent USB3.0 controllers</td>
</tr>
<tr>
<td>PCIe-USB340</td>
<td>4-Port USB3.0 host adapter with 4x independent USB3.0 controllers</td>
</tr>
</tbody>
</table>

**Optional Accessories**

- USB3-Cable-3M
  - USB3 Type A to Micro-B cable with latch-type connectors, 3-meter length
POC-351VTC Series

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

**Introduction**

POC-351VTC is an ultra-compact, fanless in-vehicle controller powered by Intel® Apollo Lake Atom™ E3950 quad-core processor. It combines 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 for in-vehicle communication and ignition power control. POC-351VTC fits 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-spreader is thoughtfully designed to dissipate heat generated by modules to maintain superior operating stability, for the system and communication modules.

**Specifications**

**System Core**
- Intel® Apollo Lake Atom™ E3950 1.6 GHz quad-core processor

**Graphics**
- Integrated Intel® HD Graphics 505

**Memory**
- Up to 8GB DDR3L-1866 (single SO-DIMM slot)

**Panel I/O Interface**
- 3x full-size mini PCI Express sockets with USIM support
- 1x small-size mSATA port

**Audio**
- 1x Mic-in and 1x speaker-out

**Serial Port**
- 4x isolated DI and 4x isolated DO

**CAN bus**
- 1x isolated CAN 2.0 port

**USB**
- 2x USB 3.0 ports and 2x USB 2.0 ports

**Serial Port**
- 1x software-programmable RS-232/422/485 ports (COM1)
- 3x 3-wire RS-232 ports (COM2/ COM3/ COM4)
- 1x RS-422/485 port (COM5)

**Video Port**
- VGA and DVI dual display outputs via DVI-I connector

**PoE**
- IEEE 802.3at PoE+ on port #2 and #3

**Ethernet**
- 3x Gigabit Ethernet ports by Intel®

**Panel I/O Interface**
- 2x IEEE 802.3at PoE+ ports and one GbE port
- Rugged, optional -40 °C to 70 °C fanless operation
- Intel® System Core Technology

**Power Supply**
- DC input: 8~30 VDC
- Input Connector: 5-pin pluggable terminal block for DC input

**Mechanical**
- Dimension: 154 mm (W) x 158 mm (D) x 56 mm (H)
- Weight: 1.0 kg
- Mounting: Horizontal wall mount (standard) or vertical wall mount (optional)

**Environmental**
- Operating Temperature: -25°C ~ 70°C (optional)*/** -40°C ~ 70°C (standard)*/***
- Storage Temperature: -40°C ~ -40°C/74°F
- Humidity: 10%~90%, non-condensing
- Vibration: Operating: 0.75g, 5-550Hz, 2 Axes (w/ mSATA, according to IEC60068-2-64)
- Shock: Operating: 5g Grms, half-sine 11 ms Duration (w/ mSATA, according to IEC60068-2-27)
- EMC: CE, FCC Class A, according to EN 55032 & EN 55024

**Mounting**
- Horizontal wall-mount (standard) or vertical wall-mount (optional)
- Dimensions: 153 mm (W) x 108 mm (D) x 56 mm (H)

**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

**Optional Accessories**

- 64GB mSATA mini SSD with pre-installed Windows 10 IoT English version*
- 128GB mSATA mini SSD with pre-installed Windows 10 IoT English version*
- PA-460-W3 60W AC/DC power adapter with 12V, 5A DC output, cord end terminals for terminal block, operating temperature -25°C to 60 °C
- WM-300V Wall mounting assembly for POC-351VTC, vertical type

* For Windows 10 IoT with other language packages, M.2 SSD is required. Please contact Neousys Technology for further information.
**In-vehicle Computing**

**Nuvo-5100VTC** is a state-of-the-art in-vehicle controller in compliant with E-Mark and EN 50155 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 RJ45 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**

<table>
<thead>
<tr>
<th>System Care</th>
<th>Processor</th>
<th>Supports Intel® 6th-Gen Core™ i7/i5/i3 LGA1151 CPU</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chipset</td>
<td>Intel® Q170 Platform Controller Hub</td>
</tr>
<tr>
<td></td>
<td>Graphics</td>
<td>Integrated Intel® HD Graphics 530</td>
</tr>
<tr>
<td>Memory</td>
<td>Supports ARMT 11.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TPM</td>
<td>Supports TPM 2.0</td>
</tr>
<tr>
<td></td>
<td>I/O Interface</td>
<td>2x Gigabit Ethernet ports by Intel® i210 &amp; iQ10</td>
</tr>
</tbody>
</table>
|             | PoE+      | 4x IEEE 802.3at (25.5W) Gigabit PoE+ ports by Intel® i210, M12 x-coded connector (Nuvo-5108VTC), RJ45 connector (Nuvo-5104VTC)
|             |           | 8x IEEE 802.3at (25.5W) Gigabit PoE+ ports by Intel® i210, RJ45 connector (Nuvo-5104VTC) |
|             | CAN       | 1x CAN 2.0-pin                                  |
|             | Isoalted DIO | 4x isolated DIO and isolated DO              |
|             | USB       | 4x USB3.0 ports via native eKCI controller       |
| Video Port  |           | 2x DisplayPort connector, supporting 4K2K resolution |
|             | Serial Port | 2x software-programmable RS-232/422/485 port (COM1 & COM3) |
|             | Audio     | 1x Mic-in and 1x speaker-out                    |
| Storage Interface | SATA HDD | 1x hot-swappable HDD tray for 2.5” HDD/SSD installation, supporting RAID 0/1 |
|               | mSATA     | 1x full-size mSATA port (mux with mini-PCIe)   |
|               | Expansion Bus | 1x full-size mini mSATA port with panel socketable SIM socket |
|               | Power Supply | DC Input: 1x 3-pin pluggable terminal block for 9~50V DC input |
|               | Mechanical | 240 mm (W) x 225 mm (D) x 79 mm (H)            |
|               | Weight    | 3.3 kg                                         |
| Environmental | Operating Temperature | -40°C ~ 70°C ** |
|               | Storage Temperature | -40°C ~ 85°C |
|               | Humidity | 95% ~ 95%, non-condensing                      |
|               | Vibration | Operating: G-Force, 5-500Hz, 3 Axes            |
|               | Shock     | Operating: G-Force, Half-sine 7 Ms Duration    |
|               | Certification | EN 50155/ EN 50121-3-2/3/2 / EN 50121-2-2/3/2 / EN 61373 (Reno-5100VTC), E-Mark (Nuovo-5100VTC), CE, FCC, C-Tick (according to IEC62368-2-64), VDE0827, ENEC, EN 60068 & EN 60068-2-27 |

**Key Features**

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

**Ordering Information**

<table>
<thead>
<tr>
<th>Model No</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuvo-5100VTC</td>
<td>Intel® 6th-Gen Core™ i in-vehicle controller with 4x RJ45 PoE+ Ports, DIO, CAN bus and RAID</td>
</tr>
<tr>
<td>Nuvo-5104VTC</td>
<td>Intel® 6th-Gen Core™ i in-vehicle controller with 4x RJ45 PoE+ Ports, DIO, CAN bus and RAID</td>
</tr>
<tr>
<td>Nuvo-5108VTC</td>
<td>Intel® 6th-Gen Core™ i in-vehicle controller with 8x RJ45 PoE+ Ports, DIO, CAN bus and RAID</td>
</tr>
</tbody>
</table>

**Optional Accessories**

- C-M12-RJ45-LAN-SM: M12 & pole-K-coded to RJ45, CAT6, length : 1M
- C-M12-RJ45-LAN-10M: M12 & pole-K-coded to RJ45, CAT6, length : 10M

**Conclusion**

Nuvo-5100VTC is the perfect solution for all your in-vehicle application needs.
Key Features

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

Introduction

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

Nuvo-3100VTC takes into account all demands of in-vehicle applications. It has a very compact footprint to fit into restricted space, allows 8~35V wide-range DC input and enhanced surge protection to make Nuvo-3100VTC highly robust when implemented in an in-vehicle environment. Nuvo-3100VTC takes into account all demands of in-vehicle applications. It has a very compact footprint to fit into restricted space, allows 8~35V wide-range DC input and enhanced surge protection to make Nuvo-3100VTC highly robust when implemented in an in-vehicle environment.

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

Nuvo-3100VTC Series

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

Specifications

<table>
<thead>
<tr>
<th>System Core</th>
<th>Nuvo-3100VTC</th>
<th>Nuvo-3110VTC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>3rd-Gen Core™ i7/ i5/ Celeron 1020E</td>
<td>3rd-Gen Core™ i7/ i5/ Celeron 1020E</td>
</tr>
<tr>
<td>Chipset</td>
<td>Intel® QM77 Platform Controller Hub with XMP &amp; SSO support</td>
<td>Intel® QM77 Platform Controller Hub with XMP &amp; SSO support</td>
</tr>
<tr>
<td>Graphics</td>
<td>Integrated Intel® HD Graphics 4000 Controller</td>
<td>-</td>
</tr>
<tr>
<td>Memory</td>
<td>Up to 8GB DDR3 1333/ 1600 MHz SDRAM</td>
<td>4GB DDR3 1333/ 1600 MHz SDRAM</td>
</tr>
<tr>
<td>Storage Interface</td>
<td>-</td>
<td>2x software-programmable RS-232/422/485 (COM1 &amp; COM2)</td>
</tr>
<tr>
<td>Isolated DIO</td>
<td>4x isolated DI with COS interrupt and 4x isolated DO</td>
<td>1x easy-swap HDD tray for 2.5” HDD/ SSD</td>
</tr>
<tr>
<td>2x software-programmable RS-232/422/485 (COM1 &amp; COM2)</td>
<td>1x easy-swap HDD tray for 2.5” HDD/ SSD</td>
<td>1x easy-swap HDD tray for 2.5” HDD/ SSD</td>
</tr>
<tr>
<td>USB3.0 Host x 4</td>
<td>Easy-Swap HDD Tray</td>
<td>Easy-Swap HDD Tray</td>
</tr>
<tr>
<td>USB2.0 Host x 2</td>
<td>DVI-I</td>
<td>DVI-I</td>
</tr>
<tr>
<td>SATA HDD</td>
<td>Internal SATA port for 2.5” HDD SSD</td>
<td>Internal SATA port for 2.5” HDD SSD</td>
</tr>
<tr>
<td>mSATA</td>
<td>Full-size mSATA SATA II interface w/ USB2.0 extension</td>
<td>Full-size mSATA SATA II interface w/ USB2.0 extension</td>
</tr>
<tr>
<td>Expansion Bus</td>
<td>1x full-size mini PCI-E Express socket with USB2.0 interface</td>
<td>1x full-size mini PCI-E Express socket with USB2.0 interface</td>
</tr>
<tr>
<td>Mini-PCI-E</td>
<td>1x half-size mini PCI-E Express socket</td>
<td>1x half-size mini PCI-E Express socket</td>
</tr>
</tbody>
</table>

Power Supply & Ignition Control

- 4x 802.3at (25.5W) Gigabit PoE+ ports
- 75W total power budget for 4x PoE+ ports
- With per-port power on/ off control
- Compliant to IEEE 802.3at (25.5W)

Environmental

- Maximum Performance: -25°C ~ 50°C**
- Reduced Performance: -25°C ~ 70°C**
- Operating Temperature: -25°C ~ 60°C**
- Storage Temperature: -40°C ~ 85°C**
- Humidity: 10%~90%, non-condensing
- Vibration: Operating: 1 G rms, 5-500 Hz, 3 axes per test condition, according to IEC60068-2-64
- Shock: Operating: 3 G rms, half-sine 11 ms durations per test condition, according to IEC60068-2-27
- Certification: CE, FCC Class A, according to EN 55022 & EN 55024
- E-Mark for vehicle applications

Certification

- EN 50155/EN 50121-3-2
- CE, FCC Class A, according to EN 55022 & EN 55024

Ordering Information

Model No. | Product Description | Product Code
--- | --- | ---
Nuvo-3100VTC | Intel® 3rd-Gen Core™ i7 Fanless in-vehicle controller with 4x IEEE 802.3at PoE+ ports and dual-drives RAID | PA-120W-OW
Nuvo-3110VTC | Intel® 3rd-Gen Core™ i5 Fanless in-vehicle controller with 4x GbE ports and dual-drives RAID | PA-120W-OW

Optional Accessories

- DINRAIL-31: DIN rail mounting assembly for Nuvo-3100VTC series
- PA-120W-OW: 120W AC/DC power adapter 21V/6A, 185V~120V, cord and terminals for terminal block, operating temperature: -30 to 70°C.

* The CPU loading is applied using Passmark® BurnInTest 8.0. For detail testing criteria, please contact Neousys Technology.
** For sub-zero operating temperature, a wide temperature HDD drive or Solid State Disk (SSD) is required.
**Key Features**
- Intel® Atom™ Bay Trail E3845 quad-core processor
- Dual mPCIe and USIM sockets for 3G, LTE, WLAN, BT or GPS module
- Dual storage with 1x mSATA and 1x SATA
- Intelligent ignition power control
- 1x CAN bus port (CAN 2.0A/ CAN 2.0B compliance)
- 8 to 35V DC wide-range DC input
- Operating temperature from -25° to 70°C
- Patented damping bracket increases stability with HDD
- E13 No. 10R-0513905

**Introduction**
Nuvo-2510VTC is an in-vehicle fanless computer with Intel® Atom™ E3845 quad-core processor. Equipped with 2x IEEE 802.3at PoE+ Ethernet ports, Nuvo-2510VTC is capable of driving 25W GigE and PoE IP cameras with a single standard CAT-6e. Along with intelligent ignition power control and built-in CAN bus, Nuvo-2510VTC is ideal for light-weight mobile applications such as mobile DVR and mobile APNR.

Designed for in-vehicle applications, Nuvo-2510VTC supports wide-range DC input and can be powered by 12VDC or 24VDC vehicle battery. It features intelligent ignition power control with selectable on and off delay and battery voltage monitoring. Nuvo-2510VTC also supports one built-in CAN bus, Nuvo-2510VTC is ideal for light-weight mobile applications such as mobile NVR and mobile APNR.

Nuvo-2510VTC is capable of driving 25W GigE and PoE IP cameras with a single standard CAT-5e. Along with intelligent ignition power control and built-in CAN bus, Nuvo-2510VTC is ideal for light-weight mobile applications such as mobile NVR and mobile APNR.

**Specifications**

**System Core**
- Processor: Intel® Atom™ Bay Trail E3845 quad-core processor (1.91 GHz, 2M cache)
- Memory: Up to 8GB DDR3L 1333MHz SDRAM (single SO-DIMM slot)

**Front Panel I/O Interface**
- PoE Port: 2x IEEE 802.3at Gigabit Ethernet ports by Intel® I210
- Video Port: 1x DB-15 connector for analog RGB, supporting 2560x1600 resolution
- Serial Port: 2x software-programmable RS-232/ 422/ 485 (COM1 & COM2)
- USB: 1x USB3.0 port and 3x USB2.0 ports

**Back Panel I/O Interface**
- Video Port: 1x DVI-I connector with DVI-D output, supporting 2560 x 1600 resolution
- Audio: 1x Mic-in and 1x speaker-out
- Series Port: 2x RS-232/USB/COM
- CAN bus: 1x DB-9 connector for CAN bus communications
- SATA/HDD: 1x internal SATA port for 2.5” HDD/ SSD installation
- mSATA: 1x internal half-sized mini SATA (SATA + USB)

**Expansion Bus**
- Mini PCI-E: 1x full-sized mini PCI Express socket with USIM socket (PCIe + USB)
- 1x full-sized mini PCI Express socket with external USIM socket (USB)

**Power Supply**
- DC Input: 1x 2-pin pluggable terminal block for ignition signal and 8~35V DC input

**Mechanical**
- Dimension: 205 mm (W) x 145 mm (D) x 44 mm (H)
- Weight: 1.9 kg (incl. CPU, memory and HDD)

**Environmental**
- Temperature:
  - Operating: -5°C ~ 75°C with SSD, 100% CPU loading
  - Storage: -40°C ~ 85°C
- Humidity:
  - Operating: 10%~90%, non-condensing
  - Storage: 10%~90%, non-condensing

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

- Supports Intel® 6th-Gen Core™ i7/ i5/ i3 LGA1151 socket-type processor
- 8x 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 DI and 4-CH isolated DO
- 1x CAN 2.0 port
- 8~35V wide-range DC Input with built-in ignition power control
- Patented damping brackets\* to withstand 1 Gms Vibration

**Introduction**

Nuvo-5608VR is Neousys’ latest fanless surveillance system designed for real-time video analysis and streaming. It incorporates 6th-Gen Core™ i CPU, IP camera connectivity and massive storage capacity for emerging intelligent surveillance/ security applications. Featuring eight Gigabit PoE+ ports, Nuvo-5608VR provides sufficient bandwidth to collect high-definition video streams from IP cameras, while its advanced storage solution supports more than 24 TB storage capacity for recording 8-CH, 1080p@H.264 video for over 3 months.

Nuvo-5608VR Series

Intel® 6th-Gen Core™ i fanless surveillance system with 8x PoE+ Ports, DIO, CAN bus and 2x 3.5" HDD RAID

**Specifications**

- Supports 6th-Gen Intel® Core™ i7/ i5/ i3 LGA1151 socket-type processor
- Supports RAID 0/1
- 1x CAN 2.0 port
- 4-CH isolated DI and 4-CH isolated DO
- 4x full-size mini-PCIe sockets with SIM support
- 2x 3.5" HDD RAID
- 8x IEEE 802.3at (25.5W) Gigabit PoE+ ports by Intel
- Supports Intel® Q170 Platform Controller Hub
- Supports Intel® 6th-Gen Core™ i3-6100TE (4M Cache, 2.7 GHz, 35W TDP)
- Supports Intel® 6th-Gen Core™ i3-6100 (3M Cache, 3.7 GHz, 51W TDP)
- Supports Intel® 6th-Gen Core™ i5-6500 (6M Cache, 3.2/3.6 GHz, 65W TDP)
- Supports Intel® 6th-Gen Core™ i7-6700 (8M Cache, 3.4/4.0 GHz, 65W TDP)

**Ordering Information**

<table>
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<tr>
<th>Model No.</th>
<th>Product Description</th>
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</thead>
<tbody>
<tr>
<td>Nuvo-5608VR</td>
<td>Intel® 6th-Gen Core™ i fanless surveillance system with 8x PoE+ Ports, DIO, CAN bus and 2x 3.5&quot; HDD RAID</td>
</tr>
</tbody>
</table>

**Optional Accessories**

- PA-160W-0W: 160W AC/DC power adapter 200V/5A: 1800VAC/DC120cm; cord end terminals for terminal block, operating temperature: -30 to 70 °C
- PA-380W-0W: 380W AC/DC power adapter 240V/11.67A: 1540VAC/DC100cm; cord end terminals for terminal block, operating temperature: -30 to 60 °C
Nuvo-3616VR Series

Intel® 3rd Gen Core™ i7/i5 Fanless Surveillance System Featuring 16x 802.3at PoE+ Ports and Four 2.5” Hard Drives with RAD Support

**Key Features**
- Intel® 3rd-Gen i7 quad-core processor
- Up to 16x IEEE 802.3at (25.5W) PoE+ ports
- Rugged, -25°C to 60°C fanless operation
- Four 2.5” SATA HDDs with RAID 0/1/5/10 support
- Patented easy-swap trays* for HDD replacement
- 8~35V wide-range DC input with built-in ignition power control
- Per-port power on/off control for each PoE+ port

**Introduction**

Nuvo-3616VR is a surveillance platform that features 16 PoE+ ports, i7 CPU and RAID in a compact, fanless chassis. It is designed to meet requirements of a stationary or mobile surveillance system and is capable not only for video recording but also high-end video analytic purposes.

A typical surveillance system uses a NVR to connect IP cameras and record video streams on its disk array. Similar to a NVR, Nuvo-3616VR features 16 PoE+ ports and built-in disk array for video recording. Each of its 802.3at PoE+ ports can supply 25.5W to power a bullet, dome or PTZ camera. Nuvo-3616VR can also accommodate 4 hard drives with RAID support. Not your typical off-the-shelf NVR, Nuvo-3616VR comes with a quad-core i7 CPU to offer exceptional computing performance to facilitate advanced video analytics algorithms.

Nuvo-3616VR inherits Neousys’ proven fanless architecture to ensure true wide-temperature operation. Two of its four 2.5” drives come with Intel® 3rd-Gen Core™ processors to offer exceptional computing performance to facilitate advanced video analytics algorithms.

Nuvo-3616VR can also accommodate 4 hard drives with RAID support. Not your typical off-the-shelf NVR, Nuvo-3616VR comes with a quad-core i7 CPU to offer exceptional computing performance to facilitate advanced video analytics algorithms.

**Specifications**

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<thead>
<tr>
<th>Nuvo-3616VR</th>
<th>Nuvo-3608VR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Intel® Core™ i7-3610EQ (2.4 GHz, 6 MB cache)</td>
</tr>
<tr>
<td>Chipset</td>
<td>Intel® QM77 Platform Controller Hub with AMT &amp; RAID support</td>
</tr>
<tr>
<td>Memory</td>
<td>8 GB DDR3 1600 MHz SDRAM (two SO-DIMM slots)</td>
</tr>
<tr>
<td>Storage</td>
<td>2x 2.5” SATA HDDs with RAID 0/1/5/10 support</td>
</tr>
<tr>
<td>PoE+ Ports</td>
<td>16x 802.3at (25.5W) PoE+ Ports</td>
</tr>
<tr>
<td>Power Supply &amp; Ignition Control</td>
<td>DC input: 1x 2-pin plug-acceptable terminal block for 8-35V DC input, ignition power control with configurable on/off delay (1V-10V/100ms)</td>
</tr>
<tr>
<td>I/O Interface</td>
<td>1x 6-pin mini-DIN connector for PS/2 keyboard/mouse</td>
</tr>
<tr>
<td>Expansion Bus</td>
<td>1x internal mini PCI Express x4 slot (w/ SSD), 1x internal mini PCI Express x1 slot (w/o SSD)</td>
</tr>
<tr>
<td>Power Supply</td>
<td>160W total power budget (per-port power on/off control)</td>
</tr>
<tr>
<td>Ethernet</td>
<td>2x 10/100/1000Base-T 802.3at PoE+</td>
</tr>
<tr>
<td>USB</td>
<td>2x USB 2.0 ports</td>
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<tr>
<td>Serial Port</td>
<td>2x RS-232/422/485 (COM1 &amp; COM2)</td>
</tr>
<tr>
<td>Audio</td>
<td>1x Mic-in and 1x speaker-out</td>
</tr>
<tr>
<td>Storage Interface</td>
<td>1x CFast socket</td>
</tr>
<tr>
<td>SATA HDD</td>
<td>4x internal SATA ports for 3.5” HDD/SDD installation with RAID 0/1/5/10</td>
</tr>
<tr>
<td>CFast</td>
<td>1x CFast socket</td>
</tr>
</tbody>
</table>

**Ordering Information**

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<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuvo-3616VR</td>
<td>Intel® 3rd-Gen Core™ i7/i5 fanless surveillance system with 16x GigE PoE+ Ports and Four 2.5” Hard Drives with RAID Support</td>
</tr>
<tr>
<td>Nuvo-3608VR</td>
<td>Intel® 3rd-Gen Core™ i7/i5 fanless surveillance system with 8x GigE PoE+ Ports and Four 2.5” Hard Drives with RAID Support</td>
</tr>
</tbody>
</table>

**Optional Accessories**

- PA-280W-OW: 280W AC/DC power adapter (24V/11.67A/16A/100cm); cord end terminals for terminal block; operating temperature: -30 to 60°C.
**EDX-104 Series**

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

---

### Key Features

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

---

### Introduction

EDX-104 series is the world’s first PoE+ unmanaged switch combining IEEE 802.3at PSE/ PD capability and fanless enclosure for IP protection. It offers five Gigabit Ethernet ports compliant with 802.3 (10BASE-T), 802.3u (100BASE-TX) and 802.3ab (1000BASE-T). Four of its ports support 802.3at PoE+ PSE (Power Sourcing Equipment) capability and can deliver up to 25.5W to PoE PD on each port. The dual power mode feature is what makes EDX-104 unique. It can operate as a PoE+ PD thus you can simply power it using a Ethernet cable from a PSE. Or, when PSE is not available, you can plug in 24-48V DC to power EDX-104. The option of operating in PSE or PD mode offers setup and installation flexibility.

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

---

### Specifications

**PoE Standard**
- IEEE 802.3at PD (port 2~5)
- IEEE 802.3at PSE (port 1)

**Ethernet Standard**
- IEEE 802.3 for 10BASE-T
- IEEE 802.3u for 100BASE-TX
- IEEE 802.3ab for 1000BASE-T
- IEEE 802.3ae for 10Gbase-T

**Switch Features**
- MAX table size: 9128 entries
- Frame buffer memory: 1 MB
- Jumbo frame support: 9,987 Kbytes

**Ethernet Connector**
- RJ45, PSE power out: v+/v+/v-/v- on pin 1/2/3/6

**Power Input (PD Mode)**
- Via Ethernet port 1 (RJ45), total power budget for PSE: 25.5 W

**Power Input (DC Mode)**
- 24-48 VDC, via 3-pin terminal block, total power budget for PSE: 80 W

**IP Rating**
- IP50

**EMC**
- CE/ FCC Class A, according to EN 55022 & EN 55024
- EN 50121-3-2

**EMS**
- EN 61000-4-2 (Level 3), EN 61000-4-3 (Level 3), EN 61000-4-4 (Level 3), EN 61000-4-5 (Level 3), EN 61000-4-8 (Level 3)

**Operating Temperature**
- -25°C to 70°C

**Vibration**
- Operating: 5 Grms, 5-500 Hz, 3 Axes, according to IEC68-2-64

**Shock**
- Operating: 50 Grms, Half-sine 11 ms Duration, according to IEC68-2-27

**Dimension**
- 40.10 x 91.5 x 138.70 mm

**IP Rating**
- 0.5kg

**Mounting**
- DIN-rail mounting

---

### Ordering Information

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

**Optional Accessories**

**PA-280W-OW**
- 280W AC/DC power adapter 24V/11.67A/15AWG/100cm; cord and terminals for terminal block, operating temperature: 0°C to 70°C
Nuvo-6108GC is a versatile industrial-grade GPU computer supporting high-end graphics cards. It’s designed to fuel emerging GPU-accelerated applications, such as artificial intelligence, VR, autonomous driving and CUDA computing by accommodating 250W NVIDIA™ GPU. Leveraging Intel® C236 chipset, Nuvo-6108GC 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, USB3.0 and serial ports. In addition to the x16 PCIe slot for GPU installation, Nuvo-6108GC also has two x8 PCIe slots so you can install additional high performance expansion cards with high bandwidths for data collection/analytics and communication.

Nuvo-6108GC 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 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 extremely reliable for demanding field applications.

### Key Features
- Supports Intel® Xeon® E3 v5 or 6th-Gen Core™ i7/i5 LGA1151 CPU
- Supports NVIDIA® GPU (up to 250W TDP)
- Patented thermal design for -25°C to 60°C rugged operation**
- Two x8, Gen3 PCIe slots for add-on cards
- Dual GbE ports and four USB3.0 ports
- Four 2.5” SATA hard drives with RAID 0/1/5/10 support
- Automatic temperature sensing and fan control
- Patented damping brackets* to withstand 1 Grms vibration

### Introduction
Nuvo-6108GC is the world’s first industrial-grade GPU computer supporting high-end graphics cards. It’s designed to fuel emerging GPU-accelerated applications, such as artificial intelligence, VR, autonomous driving and CUDA computing by accommodating 250W NVIDIA™ GPU.

### Specifications
**System Core**

- **Processor**: Intel® Xeon® E3 v5 or 6th-Gen Core™ LGA1151 CPU
- **Chipset**: Intel® C236 Platform Controller Hub

**I/O Interface**

- **Ethernet**: 1x Gigabit Ethernet port by Intel® C1119M 1x Gigabit Ethernet port by Intel® 82579ET
- **Audio**: 1x Speaker-out

**Storage Interface**

- **SATA**: 4x SATA ports for 2.5” HDD/ SSD installation, supporting RAID 0/1/5/10

**Expansion Bus/ Internal I/O Interface**

- **PCI Express**: 1x PCIe x1 slot @ Gen 3, 1-lane PCIe signals for GPU
- **Mini-PCIe**: 1x M.2 key socket for 3G/4G options

**Power Supply**

- **Input**: 480W AC-DC power adapter DIN-rail mount, 24V 20A, 90~264VAC/127~370VDC, terminal block, -20 to 70°C, Meanwell SDR-480-24

**Environmental**

- **Storage Temperature**: 0°C ~ 60°C
- **Operating Temperature**: -20°C ~ 55°C
- **Humidity**: 10%~80%, non-condensing
- **Vibration**: Operating: 1G, 10-2000Hz, 3-Axis per MIL-Std-810G Method 514.6

**Dimensions**

- **Width**: 164 mm (6.46”)
- **Depth**: 360 mm (14.17”)
- **Height**: 174 mm (6.89”)

**Weight**

- 4.7 kg (incl. CPU, GPU, memory and HDD)

**Ordering Information**

- **Model No.**: Nuvo-6108GC-TI
  - Industrial-grade GPU computing platform supporting 250W NVIDIA® GTX-1080 Ti and Intel® Xeon® E3 v5 and 6th-Gen Core™ processor

**Optional Accessories**

- **PA-280W-DW**: 280W AC-DC power adapter, 200~240VAC, 16AWG/100cm. Gold and terminals for terminal block, operating temperature -30 to 60°C
- **PA-480W-DIN**: 480W AC-DC power adapter DIN-rail mount, 24V 20A, 90~264VAC/127~370VDC, terminal block, -20 to 70°C, Meanwell SDR-480-24
# Nuvo-5095GC

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

## Key Features
- Supports NVIDIA® GPU with up to 75W TDP
- Patented thermal design to allow -25°C to 60°C wide-temperature system operation
- Supports Intel® 6th-Gen Core™ i7/i5 LGA1151 CPU
- Provides GbE, USB 3.0, and COM ports to connect external devices.
- All these extraordinary features are integrated into a very compact, quiet, and wide-temperature system operation.
- Patented ventilation vent for graphic card.

## Introduction

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

Supporting 75W NVIDIA® GPU (e.g. GTX 1050 Ti), Nuvo-5095GC possesses 76 nucleus 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 GPU, thus make this compact system capable of operating reliably at 60°C with 100% GPU loading.

Nuvo-5095GC is based on Intel® Skylake platform, supports 65W65W 6th Gen Core™ processors and up to 32GB DDR4 memory. It offers rich I/O functions, such as GBE, USB 3.0 and COM ports, to connect 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 CPU to offer performance far beyond traditional industrial computers.

## Specifications

### System Core
- **Processor**: Supports Intel® 6th Gen Core™ LGA1151 CPU - **Intel® Core™ i7-6700, 3.4 GHz, 8mb Cache, 2x25W, 65W TDP** - **Intel® Core™ i5-6500, 3.2 GHz, 11mb Cache, 2x25W, 65W TDP** - **Intel® Core™ i5-6500TE, 2.4 GHz, 10mb Cache, 35W TDP**
- **Chipset**: Intel® Q170/270 Platform Controller Hub
- **Graphics**: Independent NVIDIA GPU (75W TDP) or Integrated Intel® HD 530/510 Controller
- **Memory**: Up to 32 GB (8GB x 2 D- SO-DIMM)
- **AMT**: Supports AMT 11.0
- **TPM**: Supports TPM 2.0

### I/O Interface
- **Ethernet**: 6 Gigabit Ethernet ports by Intel® 1x U719 and 5x G210
- **PCI/PCI Express**: MezIO™ expansion slot 1x internal mini PCI Express socket with front-accessible U.2M socket 1x internal mini PCI Express socket with internal U.2M socket 1x internal mini PCI Express socket with internal SIM socket (w/ SSD)
- **USB**: 4x USB3.0 ports via native XHCI controller 4x USB2.0 ports
- **Video Port**: 1x optional VGA 3rd connector 2x DisplayPort connectors, supporting M2X resolution
- **Serial Port**: 1x software-programmable RS-232/422/485 ports 2x GBE (1x external, 1x internal)
- **Audio**: 1x microphone in and 1x speaker out

### Storage Interface
- **SATA HDD**: 2x internal SATA ports for 2.5" HDD/SSD installation, supporting SATA3.0 (6Gb/s)
- **mSATA**: 1x full-size mSATA port (mux with mini-PCIe)

### Expansion Bus
- **PCI/PCI Express**: 1x PCIe x1 slot (Gen 3.0) A few PCIe signals in Cassette for installing 768 NVIDIA® GPU

## Ordering Information

### Model No.
- **Nuvo-5095GC**: Intel® 6th Gen Core™ GPU computing platform with 6x GBE and Mezo™, supporting selected 75W NVIDIA® GPU

### Option of 802.3at PoE+ for GBE ports 3 ~ 6

## MeziO™ Modules

- **MeziO®-C180**: MeziO™ module with 4x RS-232/422/485 ports and 4x RS-422/485 ports
- **MeziO®-C181**: MeziO™ module with 4x RS-232/422/485 ports and 4x RS-422/485 ports
- **MeziO®-D220**: MeziO™ module with 8 CH isolated digital input and 8 CH isolated digital output
- **MeziO®-D230**: MeziO™ module with 16 CH isolated digital input and 16 CH isolated digital output

## MeziO® I/O Modules

- **MeziO®-V20-EP**: MeziO™ module with ignition power control function for in-vehicle application

## Environmental Specifications

### Operating Temperature
- **-25°C ~ 50°C** (**/***) (configured as 65W CPU mode)
- **-25°C ~ 60°C** (**/***) (configured as 35W CPU mode)

### Humidity
- 95% non-condensing

### Vibration
- Operating: 5 Gs, 5-500 Hz, 3 Axes
- Non-operating: 10 Gs, 10-500 Hz, 3 Axes

### Shock
- Operating: 50 Gs, Half-sine 11 ms Duration
- Non-operating: 150 Gs, 11 ms Duration

### EMI
- CE / FCC Class A, according to EN 55022, EN 55024 & EN 55032

### Power Supply
- **DC Input**: 1x 3-pin pluggable terminal block for 8-54VDC DC input
- **Remote Ctrl. & Status Output**: 1x 10-pin IO (wafer connector for remote on/off control and status LED output)

### Mounting
- Wall-mount by mounting bracket

## Mechanical
- **Dimension**: 240 mm (W) x 225 mm (D) x 111 mm (H)
- **Weight**: 4.8 kg (incl. CPU, GPU, memory and HDD)
- **Mechanical**: 240 mm (W) x 225 mm (D) x 111 mm (H)

## Environmental
- **Operating Temperature**: -25°C ~ 60°C **/**** (configured as 35W CPU mode)
- **Humidity**: 5% - 95% non-condensing
- **Vibration**: Operating: 5 Gs, 5-500 Hz, 3 Axes
- **Shock**: Operating: 50 Gs, Half-sine 11 ms Duration, according to IEC60068-2-27
- **EMI**: CE / FCC Class A, according to EN 55022, EN 55024 & EN 55032
- **Power Supply**: Input: 8-54 VDC, 90 W (max) Output: 5 VDC, 5 A

## Dimensions

![Dimensions](image)

## Mezo® I/O Modules

- **Mezo®-C180**: Mezo™ module with 4x RS-232/422/485 ports and 4x RS-422/485 ports
- **Mezo®-C181**: Mezo™ module with 4x RS-232/422/485 ports and 4x RS-422/485 ports
- **Mezo®-D220**: Mezo™ module with 8 CH isolated digital input and 8 CH isolated digital output
- **Mezo®-D230**: Mezo™ module with 16 CH isolated digital input and 16 CH isolated digital output

## Mezo® I/O Modules

- **Mezo®-V20-EP**: Mezo™ module with ignition power control function for in-vehicle application

## Environmental

### Operating Temperature
- **-25°C ~ 50°C** (**/***) (configured as 65W CPU mode)
- **-25°C ~ 60°C** (**/***) (configured as 35W CPU mode)

### Humidity
- 95% non-condensing

### Vibration
- Operating: 5 Gs, 5-500 Hz, 3 Axes
- Non-operating: 10 Gs, 10-500 Hz, 3 Axes

### Shock
- Operating: 50 Gs, Half-sine 11 ms Duration
- Non-operating: 150 Gs, 11 ms Duration

### EMI
- CE / FCC Class A, according to EN 55022, EN 55024 & EN 55032

### Power Supply
- **DC Input**: 1x 3-pin pluggable terminal block for 8-54VDC DC input
- **Remote Ctrl. & Status Output**: 1x 10-pin IO (wafer connector for remote on/off control and status LED output)

### Mounting
- Wall-mount by mounting bracket

## Mechanical
- **Dimension**: 240 mm (W) x 225 mm (D) x 111 mm (H)
- **Weight**: 4.8 kg (incl. CPU, GPU, memory and HDD)
- **Mechanical**: 240 mm (W) x 225 mm (D) x 111 mm (H)

## Environmental
- **Operating Temperature**: -25°C ~ 60°C **/**** (configured as 35W CPU mode)
- **Humidity**: 5% - 95% non-condensing
- **Vibration**: Operating: 5 Gs, 5-500 Hz, 3 Axes
- **Shock**: Operating: 50 Gs, Half-sine 11 ms Duration, according to IEC60068-2-27
- **EMI**: CE / FCC Class A, according to EN 55022, EN 55024 & EN 55032

### Power Supply
- **Input**: 8-54 VDC, 90 W (max) **/**** Output**: 5 VDC, 5 A
MezIO-C180/MezIO-C181 8-port RS-232/422/485 MezIO™ Module

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

**Specifications**

<table>
<thead>
<tr>
<th>MezIO-C180</th>
<th>MezIO-C181</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Port</td>
<td>4x RS-232/422/485</td>
</tr>
<tr>
<td>Baud Rate</td>
<td>50 bps to 921600 bps</td>
</tr>
<tr>
<td>ESD Protection</td>
<td>15 kV</td>
</tr>
<tr>
<td>Interface Signals</td>
<td>RS-232: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND</td>
</tr>
<tr>
<td></td>
<td>RS-422: +TxD, -TxD, +RxD, -RxD, GND</td>
</tr>
<tr>
<td></td>
<td>RS-485: Data+, Data-, GND</td>
</tr>
</tbody>
</table>

**Ordering Information**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MezIO-C180-50</td>
<td>4x RS-232/422/485 and 4x RS-232 ports MezIO™ module, for Nuvo-5000 series and POC-300 Series</td>
</tr>
<tr>
<td>MezIO-C181-50</td>
<td>4x RS-232/422/485 and 4x RS-422/485 ports MezIO™ module, for Nuvo-5000 series and POC-300 Series</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 24V DC operation for DI and DO
- Up to 500 mA sink current on DO channel
- SCSI-II 68-pin connector

**Specifications**

<table>
<thead>
<tr>
<th>MezIO-D230</th>
<th>MezIO-D220</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isolated Digital Input</td>
<td>16</td>
</tr>
<tr>
<td>Logic Level</td>
<td>Logic high: 5 to 24 VDC</td>
</tr>
<tr>
<td>Isolation Voltage</td>
<td>2500 Vrms</td>
</tr>
<tr>
<td>Operation Mode</td>
<td>Polling, COS</td>
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**Ordering Information**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
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<tbody>
<tr>
<td>MezIO-D230-50</td>
<td>16-CH isolated DI and 16-CH isolated DO MezIO™ module, for Nuvo-5000 series and POC-300 Series</td>
</tr>
<tr>
<td>MezIO-D230-12</td>
<td>16-CH isolated DI and 16-CH isolated DO MezIO™ module, for POC-120 series</td>
</tr>
<tr>
<td>MezIO-D220-50</td>
<td>8-CH isolated DI and 8-CH isolated DO MezIO™ module, for Nuvo-5000 series and POC-300 Series</td>
</tr>
<tr>
<td>MezIO-D220-12</td>
<td>8-CH isolated DI and 8-CH isolated DO MezIO™ module, for POC-120 series</td>
</tr>
</tbody>
</table>

MezIO-D230-EP (for POC-120 series only) 32-CH Isolated Digital I/O MezIO™ Module
- Supports 32 CH isolation voltage
- 8 CH isolation voltage
- 32 CH isolation current

MezIO-D220-EP (for POC-120 series only) 16-CH Isolated Digital I/O MezIO™ Module
- Supports 16 CH isolation voltage
- 8 CH isolation voltage
- 16 CH isolation current

MezIO-D220-EP-EP (for POC-120 series only) 8-CH Isolated Digital I/O MezIO™ Module
- Supports 8 CH isolation voltage
- 4 CH isolation voltage
- 8 CH isolation current

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>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MezIO-R10</td>
<td>2.5&quot; SATA HDD/SSD and Mini-PCIe Accommodation MezIO™ Module</td>
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**Ordering Information**

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<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MezIO-R10</td>
<td>2.5&quot; SATA HDD/SSD and Mini-PCIe Accommodation MezIO™ Module</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 features of ignition control
- Low-battery protection
- Guarded power-on/power-off delay duration
- System hard-off
- BIOS POST check
- Supports 12V DC (small vehicle) and 24V DC (bus/truck) vehicles

**Ordering Information**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
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</thead>
<tbody>
<tr>
<td>MezIO-V20</td>
<td>16-mode ignition power control MezIO™ module</td>
</tr>
</tbody>
</table>

MezIO-R10-EP (for POC-120 series only) 2.5" SATA HDD/SSD and Mini-PCIe Accommodation MezIO™ Module
- Supports 2.5" SATA HDD/SSD
- One full-size mini-PCIe port with SIM socket

**Specifications**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
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<tbody>
<tr>
<td>MezIO-R10</td>
<td>2.5&quot; SATA HDD/SSD and Mini-PCIe Accommodation MezIO™ Module</td>
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**Ordering Information**

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<th>Model No.</th>
<th>Product Description</th>
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<tr>
<td>MezIO-R10-EP</td>
<td>2.5&quot; SATA HDD/SSD and Mini-PCIe Accommodation MezIO™ Module</td>
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</tbody>
</table>

MezIO-R10-EF (for POC-120 series only) 2.5" SATA HDD/SSD and Mini-PCIe Accommodation MezIO™ Module
- Supports 2.5" SATA HDD/SSD
- One full-size mini-PCIe port with SIM socket

**Specifications**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MezIO-R10-EF</td>
<td>2.5&quot; SATA HDD/SSD and Mini-PCIe Accommodation MezIO™ Module</td>
</tr>
</tbody>
</table>

**Ordering Information**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MezIO-R10-EF</td>
<td>2.5&quot; SATA HDD/SSD and Mini-PCIe Accommodation MezIO™ Module</td>
</tr>
</tbody>
</table>
MezIO-U4  
4-Port USB3.0 MezIO™ Module

Key Features
- 4 x USB3.0 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>Model No.</th>
<th>Product Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MezIO-U4-30</td>
<td>4-port USB3.0 MezIO™ module for Polo-300 series</td>
</tr>
<tr>
<td>MezIO-U4-50</td>
<td>4-port USB3.0 MezIO™ module for Nuvo-5000 series</td>
</tr>
<tr>
<td>MezIO-G4P</td>
<td>4-port GbE with 802.3at PoE+ MezIO™ Module</td>
</tr>
<tr>
<td>MezIO-G4</td>
<td>4-port GbE MezIO™ Module for Nuvo-5000 series</td>
</tr>
</tbody>
</table>

Accessories

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

Ordering Information

- **USB Ports**
  - 4 x USB3.0 ports, compatible with USB 2.0/1.1/1.0

- **USB Controller**
  - 2 x Renesas μPD720202 Host Controllers

- **USB Connectors**
  - 4 x USB3.0 Type-A connectors

- **Interface Signals**
  - 5 Gbps shared by two ports

- **Cable Requirement**
  - CAT-5e or CAT-6 cable, 100 meters maximal

- **PoE Capability**
  - Compliant with IEEE 802.3at-2009 (PoE+), each port delivers up to 25.5 W of power

- **Ordering No.**
  - MezIO-U4-30
  - MezIO-U4-50

- **Model No.**
  - MezIO - G4P
  - MezIO - G4
### List of Optional Cable

<table>
<thead>
<tr>
<th>Cable Model Name</th>
<th>Description</th>
<th>Applicable Models</th>
</tr>
</thead>
<tbody>
<tr>
<td>C-OW-PH-DIO-3M</td>
<td>DIO Flat Cable, with 2.0mm pitch 2x8 female connector/Open End, length: 3M</td>
<td>POC-200 series</td>
</tr>
<tr>
<td>C-OW-PH-DIO-5M</td>
<td>DIO Flat Cable, with 2.0mm pitch 2x8 female connector/Open End, length: 5M</td>
<td>POC-200 series</td>
</tr>
<tr>
<td>C-W-W-Remote-1M</td>
<td>Remote control cable, 2x5 Pin female-to-2x5 Pin female, length: 1M</td>
<td>Nuvo-3000 series, Nuvo-4000 series, Nuvo-5000 series, Nuvo-5095GC series, Nuvo-5100VTC series, Nuvis-5306RT series</td>
</tr>
<tr>
<td>C-DIN4-2ET-1M</td>
<td>Power Cable, Mini DIN 4 male pin connector to 2 Euro terminal 2Pin, length: 1M</td>
<td>Nuvo-3000 series, Nuvo-4000 series, Nuvo-5000 series</td>
</tr>
<tr>
<td>C-PH-2U-USB-20CM</td>
<td>USB Cable, 2x1-1 Pin header to 2x USB2.0 with bracket. Length: 20CM</td>
<td>Nuvo-3000 series, Nuvo-4000 series, Nuvo-6000 series</td>
</tr>
<tr>
<td>C-DD-VA-15CM</td>
<td>DVI-I to DVI-D+VGA splitter Y cable, length: 15CM</td>
<td>PCIe-USB380/340</td>
</tr>
<tr>
<td>C-4P-W-Power-25CM</td>
<td>Power Cable, 4 Pin power connector to wafer 2.5 4P Female, provide 12V to add-on card, length: 20CM</td>
<td>Nuvo-2500E/P series, Nuvo-3000E/P series, Nuvo-5000E/P series</td>
</tr>
<tr>
<td>C-TA-USB-3M</td>
<td>USB Type-A to Micro-B cable with batched connectors, length: 3M</td>
<td>PCIe-USB380/340</td>
</tr>
<tr>
<td>CB-PH-2U-USB-20CM</td>
<td>USB Cable, 2x1 Pin header to 2x USB2.0 with bracket.</td>
<td>Nuvo-4000 series, Nuvo-6000 series</td>
</tr>
<tr>
<td>CB-2PH-2DS-RG212-30CM</td>
<td>RG212 Cablebraided, 2x10 Pin header (Female) to 2x DB12 (Male), length: 30CM</td>
<td>Nuvo-2400 series, Nuvo-4000 series</td>
</tr>
<tr>
<td>CB-PH-DIO-13.6CM</td>
<td>DIO Cablebraided, 2x10 Pin header/Female to DB21 (Female), length: 13.6CM</td>
<td>Nuvo-2400 series, Nuvo-6000 series</td>
</tr>
</tbody>
</table>

# List of Optional Cable (continued)

<table>
<thead>
<tr>
<th>Cable Model Name</th>
<th>Description</th>
<th>Applicable Models</th>
</tr>
</thead>
<tbody>
<tr>
<td>CM-S68-S68-DIO-1M</td>
<td>SCSI-68 (Male) to SCSI-68M (Male) cable, for MezIO DIO card and TB-10, length: 1M</td>
<td>MezIO-230, MezIO-330, Nuvo-5204ET series</td>
</tr>
<tr>
<td>CM-G69-BD-COM-50CM</td>
<td>SCSI-68 (Male) to RJ45 (Male) Cable, for MezIO COM port card, length: 50CM</td>
<td>MezIO-100, MezIO-190</td>
</tr>
<tr>
<td>C-DS-32B-RS232-1M</td>
<td>1x DB9 (Female) to 2x DB9 (Male), length: 15CM</td>
<td>Nuvo-6000 series, POC-300 series</td>
</tr>
<tr>
<td>C-ED-VA-15CM</td>
<td>DVI-D to VGA Cable, for Nuvo-6000 series, length: 15CM</td>
<td>Nuvo-6000 series</td>
</tr>
<tr>
<td>C-M12-RS232-LAN-5M</td>
<td>1x RS232 (Female) to RJ45, CAT5, length: 5M</td>
<td>Nuvo-5100VC</td>
</tr>
<tr>
<td>C-M4L-GPS/GSM-15CM</td>
<td>GSM Internal Cable, I-PEX MHF4 (Female) to SMA (Female), 1.13 coaxial cable, length: 15CM</td>
<td>Nuvo-2400 series, Nuvo-2500E/P series, Nuvo-5204ET series</td>
</tr>
<tr>
<td>C-M4L-GPS/GSM-30CM</td>
<td>GSM Internal Cable, I-PEX MHF4 (Female) to SMA (Female), 1.13 coaxial cable, length: 30CM</td>
<td>Nuvo-2400 series, Nuvo-2500E/P series, Nuvo-5204ET series</td>
</tr>
<tr>
<td>C-M4L-LTE-30CM</td>
<td>LTE Internal Cable, I-PEX MHF4 (Female) to SMA (Female), 1.13 coaxial cable, length: 30CM</td>
<td>Nuvo-2400 series, Nuvo-2500E/P series, Nuvo-5204ET series</td>
</tr>
<tr>
<td>C-M4L-GPS/GSM-30CM</td>
<td>GSM Internal Cable, I-PEX MHF4 (Female) to SMA (Female), 1.13 coaxial cable, length: 30CM</td>
<td>Nuvo-2400 series, Nuvo-2500E/P series, Nuvo-5204ET series</td>
</tr>
<tr>
<td>C-M4L-RS232-LTE-30CM</td>
<td>LTE Internal Cable, I-PEX MHF4 (Female) to SMA (Female), 1.13 coaxial cable, length: 30CM</td>
<td>Nuvo-2400 series, Nuvo-2500E/P series, Nuvo-5204ET series</td>
</tr>
<tr>
<td>C-M4L-RS232-WIFI-15CM</td>
<td>WiFi Internal Cable, I-PEX MHF4 (Female) to RP SMA (Female), 1.13 coaxial cable, length: 15CM</td>
<td>Nuvo-2400 series, Nuvo-2500E/P series, Nuvo-5204ET series</td>
</tr>
<tr>
<td>C-M4L-RS232-WIFI-30CM</td>
<td>WiFi Internal Cable, I-PEX MHF4 (Female) to RP SMA (Female), 1.13 coaxial cable, length: 30CM</td>
<td>Nuvo-2400 series, Nuvo-2500E/P series, Nuvo-5204ET series</td>
</tr>
<tr>
<td>C-M6-XL-LTE-30CM</td>
<td>LTE Internal Cable, I-PEX MHF4 (Female) to SMA (Female), 1.13 coaxial cable, length: 30CM</td>
<td>Nuvo-2400 series, Nuvo-2500E/P series, Nuvo-5204ET series</td>
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