

# Nuvo-7501 Series

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



## Key Features

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

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## Introduction

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

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

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

## Specifications

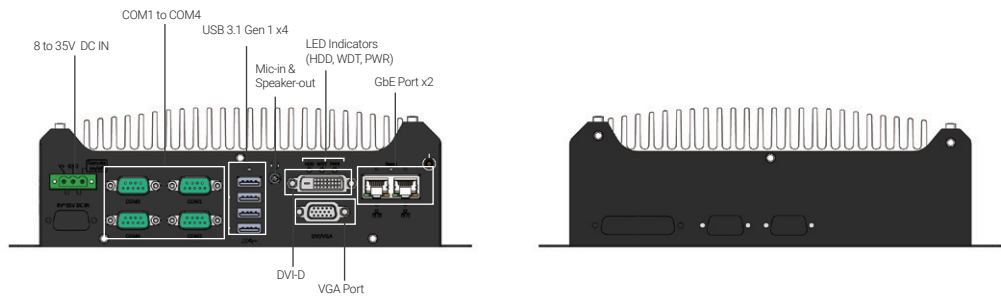
|                   | Nuvo-7501                                                                                                                                                                                                                                  | Nuvo-7505D                                                                                                                                     |                                                                                                                                                                                                                                                                                                                        | Nuvo-7501                                                                  | Nuvo-7505D |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|------------|
| System Core       |                                                                                                                                                                                                                                            |                                                                                                                                                | Internal Expansion Bus                                                                                                                                                                                                                                                                                                 |                                                                            |            |
| Processor         | Supporting Intel® 9th/ 8th-Gen Core™ CPU (LGA1151 socket)<br>- Intel® Core™ i7-9700E*/ i7-9700TE/ i7-8700*/ i7-8700T<br>- Intel® Core™ i5-9500E*/ i5-9500TE/ i5-8500*/ i5-8500T<br>- Intel® Core™ i3-9100E*/ i3-9100TE/ i3-8100*/ i3-8100T |                                                                                                                                                | Mini PCI-E                                                                                                                                                                                                                                                                                                             | 1x full-size mini PCI Express socket                                       |            |
|                   |                                                                                                                                                                                                                                            |                                                                                                                                                | M.2                                                                                                                                                                                                                                                                                                                    | 1x M.2 2242 B key socket with internal SIM socket                          |            |
|                   |                                                                                                                                                                                                                                            |                                                                                                                                                | Power Supply                                                                                                                                                                                                                                                                                                           |                                                                            |            |
|                   |                                                                                                                                                                                                                                            |                                                                                                                                                | DC Input                                                                                                                                                                                                                                                                                                               | 1x 3-pin pluggable terminal block for 8 to 35V DC input                    |            |
| Chipset           | Intel® H310 platform controller hub                                                                                                                                                                                                        |                                                                                                                                                | Remote Ctrl & Status Output                                                                                                                                                                                                                                                                                            | 1x 10-pin (2x5) pin header for remote on/off control and status LED output |            |
| Graphics          | Integrated Intel® UHD graphics 630                                                                                                                                                                                                         |                                                                                                                                                | Mechanical                                                                                                                                                                                                                                                                                                             |                                                                            |            |
| Memory            | Up to 32 GB DDR4 2666/ 2400 SDRAM (one SODIMM slots)                                                                                                                                                                                       |                                                                                                                                                | Dimension                                                                                                                                                                                                                                                                                                              | 255mm (W) x 173 mm (D) x 76 mm (H)                                         |            |
| TPM               | Supports fTPM 2.0                                                                                                                                                                                                                          |                                                                                                                                                | Weight                                                                                                                                                                                                                                                                                                                 | 2.68 kg                                                                    |            |
| I/O Interface     |                                                                                                                                                                                                                                            |                                                                                                                                                | Mounting                                                                                                                                                                                                                                                                                                               | Wall-mount (standard) or DIN-rail mount (optional)                         |            |
| Ethernet port     | 2x Gigabit Ethernet ports by I219 and I210                                                                                                                                                                                                 |                                                                                                                                                | Environmental                                                                                                                                                                                                                                                                                                          |                                                                            |            |
| USB 3.1           | 4x USB 3.1 Gen1 (5 Gbps) ports                                                                                                                                                                                                             |                                                                                                                                                | Operating Temperature                                                                                                                                                                                                                                                                                                  | -25°C to 60°C **/***                                                       |            |
| Video Port        | 1x VGA, supporting 1920 x 1200 resolution<br>1x DVI-D, supporting 1920 x 1200 resolution                                                                                                                                                   |                                                                                                                                                | Storage Temperature                                                                                                                                                                                                                                                                                                    | -40°C to 85°C                                                              |            |
| Serial Port       | 2x software-programmable RS-232/ 422/ 485 ports (COM1/ COM2)<br>2x RS-232 ports (COM3/ COM4)                                                                                                                                               | 2x isolated software-programmable RS-232/ 422/ 485 ports (COM1/ COM2)<br>2x isolated RS-232 ports (COM3/ COM4)<br>2x RS-232 ports (COM5/ COM6) | Humidity                                                                                                                                                                                                                                                                                                               | 10% to 90% , non-condensing                                                |            |
|                   | Audio                                                                                                                                                                                                                                      |                                                                                                                                                | Vibration                                                                                                                                                                                                                                                                                                              | Operating, MIL-STD-810G, Method 514.6, Category 4                          |            |
| Isolated DIO      | N/A                                                                                                                                                                                                                                        | 8-CH isolated DI and 8-CH isolated DO                                                                                                          | Shock                                                                                                                                                                                                                                                                                                                  | Operating, MIL-STD-810G, Method 516.6, Procedure I, Table 516.6-II         |            |
| Storage Interface |                                                                                                                                                                                                                                            |                                                                                                                                                | EMC                                                                                                                                                                                                                                                                                                                    | CE/FCC Class A, according to EN 55032 & EN 55024                           |            |
| SATA HDD          | 1x internal SATA port for 3.5" HDD or 2.5" HDD/ SSD                                                                                                                                                                                        |                                                                                                                                                | * Due to thermal limitations, 65W CPUs will be configured to operate in 35W mode by default.<br>** For sub-zero operating temperature, a wide temperature HDD or Solid State Disk (SSD) is required.<br>*** For i7 CPUs, thermal throttling may occur when sustained full-loading applied at 60°C ambient temperature. |                                                                            |            |
| M.2               | 1x M.2 2280 SATA interface                                                                                                                                                                                                                 |                                                                                                                                                |                                                                                                                                                                                                                                                                                                                        |                                                                            |            |

\* Due to thermal limitations, 65W CPUs will be configured to operate in 35W mode by default.

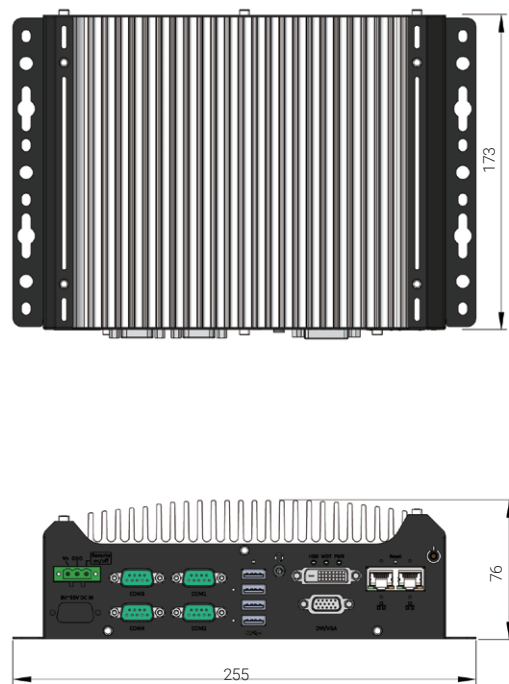
\*\* For sub-zero operating temperature, a wide temperature HDD or Solid State Disk (SSD) is required.

\*\*\* For i7 CPUs, thermal throttling may occur when sustained full-loading applied at 60°C ambient temperature.

## Appearance



## Dimensions



Unit : mm

## Ordering Information

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

## Optional Accessories

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