

Rugged Embedded



# Nuvo-9531 Series

Intel® 12th-Gen Core™ i9/ i7/ i5/ i3 Compact Fanless Computer with 4x GbE, 4x USB3.2 and 1x Hot-swappable HDD Tray



CE FC

## Key Features

- 212 x 165 x 63 mm low-profile design
- Intel® 12th-Gen Core™ 35W/ 65W LGA1700 CPU
- Rugged, -25°C to 60°C fanless operation
- 4x GbE and 4x USB3.2 Gen 1 with screw-lock
- 1x hot-swappable HDD tray and 1x M.2 2280 Gen4 x4 NVMe for storage
- 2x full-size mPCIe sockets
- 4-CH isolated DI and 4-CH isolated DO
- VGA + DP dual display outputs

Preliminary

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## Introduction

Nuvo-9531 is one of the most compact fanless embedded computers based on the Intel 12th-Gen Alder Lake platform. Measuring just 212 x 165 x 63 mm, it can fit into restricted spaces, such as in robotic arm and AMR applications. Despite its compact size, Nuvo-9531 does not compromise on performance. Built on Intel's 7nm process, Intel 12th Gen processors have up to 16 cores/ 24 threads to deliver up to 1.8x the performance when compared to previous Intel 10th or 11th Gen platforms. Nuvo-9531 is a compact fanless embedded computer that can provide the ultimate computing for various industrial applications.

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

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

## Specifications

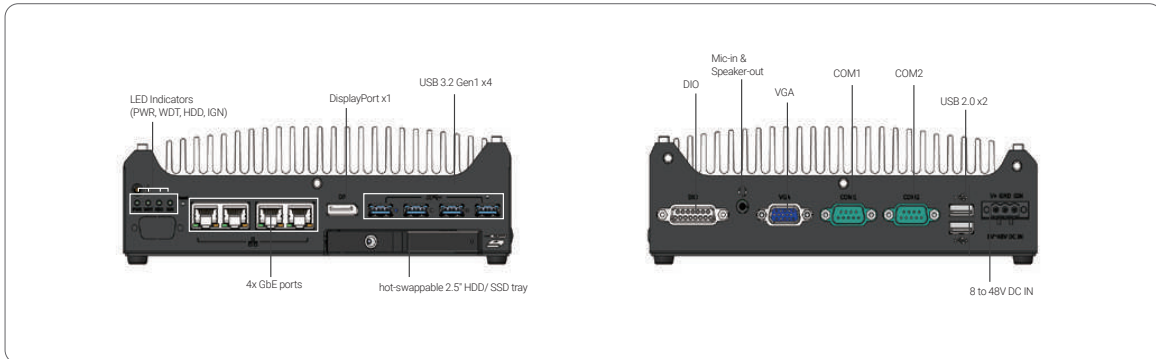
<b>System Core</b>		<b>Expansion Bus</b>	
<b>Processor</b>	Supporting Intel® 12th-Gen Alder Lake Core™ CPU (LGA1700 socket, 35W/ 65W TDP)	<b>Mini PCI Express</b>	2x full-size mini PCI Express sockets with internal SIM sockets
	- Intel® Core™ i9-12900E/ i9-12900TE	<b>M.2 E key</b>	1x M.2 2230 E key socket for WiFi5, WiFi6 or Google edge TPU module
	- Intel® Core™ i7-12700E/ i7-12700TE	<b>Storage Interface</b>	
	- Intel® Core™ i5-12500E/ i5-12500TE	<b>SATA HDD</b>	1x hot-swappable 2.5" HDD/ SSD tray
	- Intel® Core™ i3-12100E/ i3-12100TE	<b>M.2</b>	1x M.2 2280 M key socket (PCIe Gen4 x4) for NVMe SSD
- Intel® Pentium® G7400E/ G7400TE	<b>Power Supply</b>		
- Intel® Celeron® G6900E/ G6900TE	<b>DC Input</b>	1x 3-pin pluggable terminal block for 8 to 48V DC input	
<b>Chipset</b>	Intel® H610E platform controller hub	<b>Mechanical</b>	
<b>Graphics</b>	Integrated Intel® UHD Graphics 770 (32EU)	<b>Dimension</b>	212mm (W) x 165 mm (D) x 63 mm (H)
<b>Memory</b>	Up to 32GB non-ECC DDR4 3200 SDRAM (one SODIMM slot)	<b>Weight</b>	2.5 kg
<b>TPM</b>	Supports dTPM 2.0	<b>Mounting</b>	Wall-mount (standard) or DIN-rail mount (optional)
<b>I/O Interface</b>		<b>Environmental</b>	
<b>Ethernet</b>	4x Gigabit Ethernet ports by 4x I210	<b>Operating Temperature</b>	with 35W CPU -25°C ~ 60°C * with 65W CPU (installation of the optional fan kit is recommended) -25°C ~ 60°C **/**
<b>USB 3.2</b>	4x USB 3.2 Gen1 (5 Gbps) ports	<b>Storage Temperature</b>	-40°C ~ 85°C
<b>USB 2.0</b>	2x USB 2.0 ports	<b>Humidity</b>	10%~90% , non-condensing
<b>Video Port (Integrated Graphics)</b>	1x VGA output, supporting 1920 x 1200 resolution 1x DisplayPort, supporting 4096 x 2304 resolution	<b>Vibration</b>	Operating, MIL-STD-810G, Method 514.6, Category 4
<b>Serial Port</b>	1x software-programmable RS-232/422/485 ports (COM1) 3x 3-wire RS-232 ports (COM2/3/4) or 1x RS-422/485 port (COM2)	<b>Shock</b>	Operating, MIL-STD-810G, Method 516.6, Procedure I, Table 516.6-II
<b>Audio</b>	1x 3.5 mm jack for mic-in and speaker-out	<b>EMC</b>	CE/FCC Class A, according to EN 55032 & EN 55035
<b>Isolated DIO</b>	4-CH isolated DI and 4-CH isolated DO		

\* For sub-zero operating temperature, a wide temperature HDD or Solid State Disk (SSD) is required.  
\*\* For 65W CPUs, the optional fan kit is recommended for operating at ambient temperatures higher than 50°C.

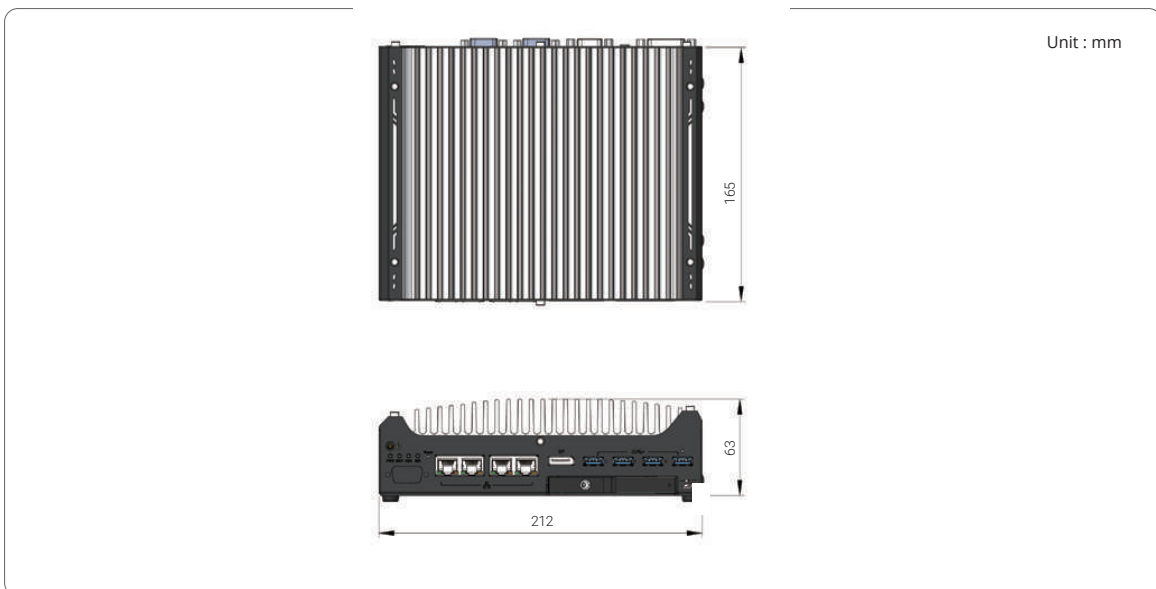
Nuvo-9531



## Appearance



## Dimensions



## Ordering Information

Model No.	Product Description
Nuvo-9531	Intel® 12th-Gen Core™ i9/ i7/ i5/ i3 compact fanless computer with 4x GbE , 4x USB3.2 gen 1 and a hot-swappable HDD tray

## Optional Accessories

PA-120W-OW	120W AC/DC power adapter 20V/6A; 18AWG/ 120cm; cord end terminals for terminal block, operating temperature : -30°C to 70 °C
PA-160W-OW	160W AC-DC power adapter 20V/8A; 18AWG/120cm; cord end terminals for terminal block, operating temperature: -30°C to 70°C.
PA-280W-ET2	280W AC/DC power adapter 24V/ 11.67A ; 16AWG/ 100cm; cord end terminals for terminal block, operating temperature : -30°C to 60°C. (recommended for 65W CPU)
DINRAIL-31	DIN-rail mounting assembly for Nuvo-9531 series
Fan kit	Fan kit with 92mm x 92mm fan for Nuvo-9531 series

## Assured Systems

Assured Systems is a leading technology company with over 1,500 regular clients in 80 countries, deploying over 85,000 systems to a diverse customer base in 12 years of business. We offer high-quality and innovative rugged computing, display, networking and data collection solutions to the embedded, industrial, and digital-out-of-home market sectors.

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