

Nuvo-4000 Series

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



Features

- Intel® 3rd-Gen i7 quad-core superb performance
- Four slots expansion capacity
 - x16 and x4 PCI Express slot
 - Up to four PCI slots
- 164 mm x 225 mm x 180 mm small foot-print
- Rugged, -25°C to 60°C fanless operation
- DVI+DVI+VGA triple independent display outputs
- One CFast socket and two SATA ports
- Smart-fan option and on-board isolated DIO option available

Introduction

Nuvo-4000 is a high-performance box-pc with fanless design and 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 expandability makes Nuvo-4000 very versatile. Its two Gen2 PCI Express slots delivers a total of 6 GB/s bandwidth for applications demanding high-speed data transmission. A notable 48W power budget is dedicatedly 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 and test & measurement applications.

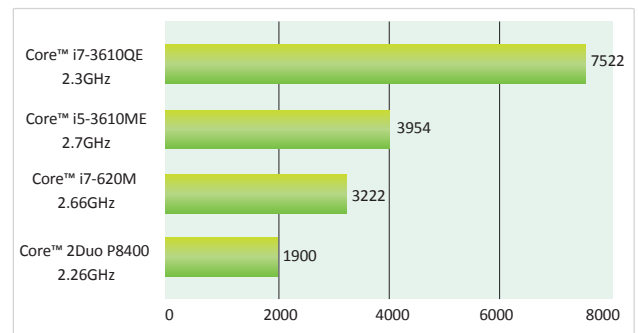
Nuvo-4000 features the smallest foot-print for a fanless box-pc with four expansion slots. It supports ample I/O interfaces for communication/control purpose, and implements DVI+DVI+VGA triple independent display outputs for video/image related applications. An option of smart fan is available for better operating reliability when high-watt cards installed.

The combination of high performance, small foot-print and versatility makes Nuvo-4000 not only an ideal application platform, but also a great replacement of traditional rack-mount or wall-mount IPC.

Product Highlights

Quad-core Superb Performance

Nuvo-4000 supports Intel® 3rd-Gen i7 processor to offer superb computing power. Its 4-cores/8-threads architecture has 233% performance increase compared to previous i7-620M processor. In addition, the integrated Intel® HD 4000 Graphics engine also significantly advances the graphics performance.



* The CPU benchmark is performed using Passmark PerformanceTest 7 based on Win7 64bit OS.

Four PCIe/PCI Expansion Slots for Add-on Cards

To make full use of i7 performance, Nuvo-4000 comes with 4 PCI/PCIe expansion slots. There are two configurations, x16/x4 PCIe slots + 2 PCI slots (Nuvo-4022), and 4 PCI slots (Nuvo-4040) can be chosen according to your application requirements. Considering the power consumption of high-performance PCIe card, a 48W (4A@12V) power is dedicatedly supplied to the x16 slot, and another 48W is shared by the x4 slot and peripheral devices. You can integrate all kinds of PCIe/PCI cards to create a comprehensive application platform.



Small & Smart Chassis Design

Nuvo-4000 features a very promising mechanical design. Not only because it has the smallest foot-print among 4-slot Box PCs in the market, but also it can operate 24/7 within -25°C/60°C temperature range. For the system contains high-watt PCIe cards (e.g. a graphics card or a PoE card), Nuvo-4000 offers the fan option to create active air flow and maintain proper system temperature. A smart mechanism is implemented to activate the fan only when needed and thus a longer life of fan can be expected.



Applications



1. Machine Automation
2. Factory Plant Monitoring

Specifications

System Core		Internal I/O Interface	
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) Intel® Celeron™ 1020E (2.2 GHz, 2 MB cache)	Isolated DIO	Optional 8-CH isolated DI + 8-CH isolated DO
Chipset	Intel® HM76 Platform Controller Hub	Storage Interface	
Graphics	Integrated Intel® HD Graphics 4000 Controller (i7/i5) Integrated Intel® HD Graphics Controller (Celeron)	SATA HDD	2x Internal SATA ports for 2.5" HDD/SSD installation
Memory	2x 204-pin SO-DIMM sockets, up to 16 GB DDR3 1333/1600 MHz SDRAM	CFast	1x CFast socket
Front-panel I/O Interface		Power Supply	
Ethernet	2x Gigabit Ethernet ports by Intel® I210	DC Input	1x 4-pin power connector for 8~25V DC input
Video Port	1x DVI-I connector for VGA and DVI/HDMI outputs, supporting 1920x1080 resolution 1x DVI-D connectors for DVI/HDMI output, supporting 1920x1080 resolution (Supporting triple independent display outputs)	Power Consumption	Intel® Core™ i7-3610QE : 66.12W (3.48A@19V) Intel® Core™ i5-3610ME : 43.13W (2.27A@19V)
Serial Port	2x software-programmable RS-232/422/485 (COM1 & COM2) 1x RS-232 (COM3)	Mechanical	
USB	4x USB 3.0 ports	Dimension	164 mm (W) x 225 mm (D) x 180 mm (H)
Audio	1x Speaker-out	Weight	4.0 kg (including one 2.5" HDD and DDR3 SO-DIMM)
Expansion Bus		Mounting	Wall-mounting (Standard) or DIN-Rail mounting (optional)
PCI Express (Nuvo-4022 only)	1x PCIe x16 slot @ 8-lanes PCIe signal with dedicated 48W power budget 1x PCIe x4 slot	Environmental	
PCI	2x 33MHz/32-bit 5V PCI slots (Nuvo-4022) 4x 33MHz/32-bit 5V PCI slots (Nuvo-4040)	Operating Temperature	-25°C ~ 60°C, 100% CPU loading */**
Internal I/O Interface		Storage Temperature	-40°C ~ 85°C
USB	2x USB 2.0 ports via 10-pin box-header	Humidity	10%~90% , non-condensing
		Vibration	Operating, 5 Grms, 5-500 Hz, 3 Axes (w/ SSD, w/o add-on card, according to IEC60068-2-64)
		Shock	Operating, 50 Grms, Half-sine 11 ms Duration (w/ SSD, w/o add-on card, according to IEC60068-2-27)
		EMC	CE/FCC Class A, according to EN 55022 & EN 55024

* The 100% CPU loading is applied using Passmark® BurnInTest™ v7.0. For detail testing criteria, please contact Neousys Technology
 ** For sub-zero operating temperature, a wide temperature HDD drive or Solid State Disk (SSD) is required.

Order Information

Nuvo-4022-I7QC

Intel® Core™ i7-3610QE fanless box-pc with 2x PCIe and 2x PCI slots

Nuvo-4022-I5DC

Intel® Core™ i5-3610ME fanless box-pc with 2x PCIe and 2x PCI slots

Nuvo-4040-I7QC

Intel® Core™ i7-3610QE fanless box-pc with 4x PCI slots

Nuvo-4040-I5DC

Intel® Core™ i5-3610ME fanless box-pc with 4x PCI slots

Option of isolated DIO (8 DI + 8 DO) with panel/cable kit

Option of an 80mm x 80mm fan for dissipating heat of add-on cards

Option for DIN-Rail mounting clip for Nuvo-4000

120W AC/DC power adapter

160W AC/DC power adapter