Nuvo-3000E/3000P Series

Intel® 3rd-Gen Core™ i7/i5/i3 Fanless Controller with 5x GbE, 4x USB 3.0 and Expansion **Cassette**

- Intel® 3rd-Gen i7 Quad-core superb performance
- Patent **Cassette*** design for PCIe/PCI add-on card expansion
- Integrated 5x GigE ports, supporting 9.5 KB jumbo frame
- Rugged, -25 °C to 70 °C fanless operation
- Optional Intelligent ignition power control for vehicle applications
- VGA/DVI/HDMI multiple display outputs
- 4x USB 3.0 ports + 4x USB 2.0 ports
- Optional isolated DIO with Change-of-State interrupt support

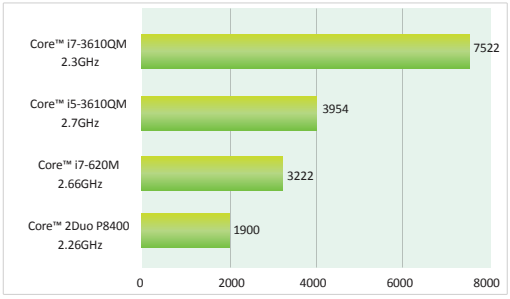
Introduction

Discover a leaping of embedded controller design with Neousys Nuvo-3000E/3000P series!
Nuvo-3000E/3000P incorporates the cutting-edge processor technology and Neousys' innovative Cassette architecture to construct a truly reliable and versatile embedded controller. Its 3rd-Gen i7 Quad-core processor delivers tremendous boost of computing power as well as significant improvement of graphics performance. This platform also natively supports new features such as USB 3.0, DDR3-1600 and SATA3.
Inheriting the heritage of proven Nuvo series, Nuvo-3000E/3000P is extremely reliable mechanically and allows -25 to 70°C operating temperature. Moreover, it comes with Neousys' patent Cassette design. This unique expansion Cassette offers PCI/PCIe slot with minimal thermal interference between system and add-on card, so that your system can always operate in expected thermal condition.
I/O functions on Nuvo-3000E/3000P are versatile. Gigabit Ethernet, USB 3.0 and multiple display outputs are natively supported on Nuvo-3000E/3000P. Its optional isolated digital I/O now supports Change-of-State interrupt to give more usability. We also introduce the function of intelligent ignition control to Nuvo-3000E/3000P to make it suitable for in-vehicle applications.
As the quad-core processor boosting performance, innovative Cassette increasing expandability, and ignition control bringing in-vehicle mobility, Nuvo-3000E/3000P is ready for arbitrary application requirements.

Product Highlights

Quad-core Superb Performance

Nuvo-3000E/3000P 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.*

Intelligent Ignition Control with Adjustable On/off Delay

A common requirement for in-vehicle applications is to correlate system on/off with vehicle ignition signal and predefined delay. Nuvo-3000E/P features a SoC-based implementation that monitors the ignition signal and reacts to turn on/off the system according to predefined on/off delay. Its built-in algorithm supports further features such as ultra-low standby power, battery-low protection, system hard-off and etc. With intelligent ignition control, Nuvo-3000E/3000P can be deployed seamlessly for a diverse range of in-vehicle applications.

Innovative Expansion Cassette

Providing an expansion slot inside a fanless controller is easy, but the real challenge is to deal with the heat generated by add-on card. That's why we invent our patent expansion Cassette for Nuvo-3000E/3000P. By creating an isolated chamber to accommodate add-on card separately, Nuvo-3000E/3000P can effectively minimize the thermal interference and maintain system stability. Additional thermal solution, such as customized heat-spreader, can be applied inside Cassette to realize a truly rugged fanless system with diversified add-on cards.

Versatile I/O functions

Nuvo-3000E/3000P has plenty of I/O functions to meet arbitrary application requirements. Its Gigabit Ethernet ports and USB 3.0 ports provide high-bandwidth data connectivity, while its triple display outputs provide benefits for image-related applications. There are two internal mini-PCIe slots for expanding WIFI/3G capability. We also offer the option of isolated DIO which supports Change-of-State interrupt and is very useful for industrial usage.

* R.O.C Patent No. M456527

Application

1. Machine Vision
2. In-vehicle Monitoring & Management
3. Medical Imaging
4. Surveillance/Security

Nuvo-3000E/3000P Series 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) Intel® Celeron™ 1020E (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 16 GB DDR3 1333/1600 MHz SDRAM
I/O Interface	
Ethernet	Up to 5x Gigabit Ethernet ports by Intel® I210
Video Port	1x DB-15 connector for analog RGB, supporting 2048x1536 resolution 2x DVI-I connectors for DP/HDMI/DVI outputs, supporting 2560x1600 (DP) 1920x1080 (DVI/HDMI) resolution
USB	4x USB 3.0 ports and 4x USB 2.0 ports
Serial Port	2x software-programmable RS-232/422/485 (COM1 & COM2)
Isolated DIO	8x isolated digital input channels with COS interrupt and 8x isolated digital output channels
KB/MS	1x 6-pin mini-DIN connector for PS/2 keyboard/mouse
Audio	1x mic-in and 1x speaker-out
Storage Interface	
SATA HDD	1x Internal SATA port for 2.5” HDD/SSD installation
CFast	1x CFast socket
Expansion Bus	
Mini PCI-E	1x internal mini PCI Express socket with USIM socket 1x internal mini PCI Express socket
PCI/PCI Express	1x PCI slot in **Cassette** (Nuvo-3003P/3005P) 1x PCIe x16 slot @ 8-lanes PCIE signals in **Cassette** (Nuvo-3003E/3005E)
Power Supply & Ignition Control	
DC Input	1x 4-pin power connector for 8~25V DC input (for AC adapter) 1x 3-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 (2x5) wafer connector for remote on/off control and status LED output

Mechanical	
Dimension	240 mm (W) x 225 mm (D) x 88 mm (H)
Weight	4.4 Kg (including 2.5” HDD and DDR3 SODIMM)
Mounting	Wall-mounting (standard) or DIN-Rail mounting (optional)
Environmental	
Operating Temperature	-25°C ~ 70°C */** (with i5-3610ME & Celeron 1020E) -25°C ~ 60°C */** (with i7-3610QE)
Storage	-40°C ~85°C
Humidity	10%~90% , non-condensing
Vibration	Operating, 5 Grms, 5-500 Hz, 3 Axes (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
MTBF	93,732 hours

** 100% CPU loading is applied using Intel® Thermal Analysis Tool. 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-3005P-I7QC
Intel® Core™ i7-3610QE fanless controller with 5x GbE and PCI Cassette
Nuvo-3005E-I7QC
Intel® Core™ i7-3610QE fanless controller with 5x GbE and x16 PCI Express Cassette
Nuvo-3005P-I5DC
Intel® Core™ i5-3610ME fanless controller with 5x GbE and PCI Cassette
Nuvo-3005E-I5DC
Intel® Core™ i5-3610ME fanless controller with 5x GbE and x16 PCI Express Cassette
Nuvo-3003P-C1020
Intel® Celeron™ 1020E fanless controller with 3x GbE and PCI Cassette
Nuvo-3003E-C1020
Intel® Celeron™ 1020E fanless controller with 3x GbE and x16 PCI Express Cassette
Option of isolated digital input/output (8DI + 8DO) with cos support
Option of ignition power control
Option of DIN-Rail mounting kit
120W AC/DC power adapter

Packing list

1x Nuvo-3000E/3000P Unit
1x Accessory Box
1x Driver CD