

Nuvo-5000E/5000P Series

6th-Gen Intel® Skylake Core™ i7/i5/i3 Fanless Controller with 6x GbE, Expansion Cassette and MeziO™ Interface



Features

- Intel® 6th-Gen Core™ i7/i5/i3 LGA1151 35W/65W socket-type CPU
- Patented Cassette* for PCI/PCIe add-on card accommodation
- MeziO™ interface for easy function expansion
- Rugged, -25°C to 70°C fanless operation
- Up to 6x GigE ports, supporting 9.5 KB jumbo frame
- Up to 32 GB, DDR4-2133 SODIMM
- Accommodates two 2.5" SATA HDD/SSD with RAID 0/1 support
- VGA/DVI/DP triple independent display, supporting 4K2K resolution

Introduction

Integrating cutting-edge technologies, Neousys creates the next-generation fanless controller, Nuvo-5000 series, with ruggedness, performance and versatility. It supports socket-type, 6th-Gen Core™ processors for flexible CPU selection from Pentium® to Core™ i7 according to performance consideration, and remains -25°C to 70°C true wide-temperature operating.

It provides plenty of embedded I/O functions for general applications, including Gigabit Ethernet, USB3/USB2, COM and VGA/DVI/DP triple display outputs. If they are not enough, Neousys' patented Cassette offers an easy way for I/O expansion by installing an off-the-shelf PCIe/PCI card.

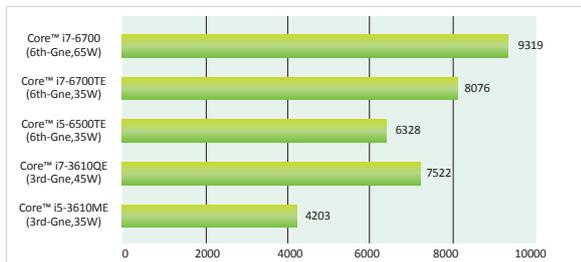
Nuvo-5000 further incorporates Neousys' MeziO™, an interface electronically and mechanically fitted for embedded system, to presents a cost-effective and reliable way for I/O enhancement. By installing optional MeziO™ module, Nuvo-5000 can deliver more application-oriented functions for diversified vertical markets.

Latest Intel® CPU, Cassette and MeziO™ creates a powerful controller with numerous I/O configurations. Nuvo-5000 is the one platform for all!

Product Highlights

Performance Boost by 14 nm Technology

Benefited by 14 nm lithography, the 6th-Gen Core™ platform delivers significant performance boost. Comparing to 3rd-Gen IvyBridge, the new Skylake platform offers 40% increase in terms of performance per watt. Additionally, Nuvo-5000 is the first fanless controller supporting both 35W and 65W CPU. You can configure CPU power via Neousys' unique BIOS feature to obtain a delicate balance between arithmetic-demanding and wide-temperature applications.



*The CPU benchmark is performed using Passmark PerformanceTest 8.0 based on Win7 64bit OS.

Patented Expansion Cassette

Neousys' Patented Cassette innovates a brilliant way for accommodating add-on card, not only because the modularized design makes easy installation/replacement, but also because the possibility of passive cooling for add-on card brings more reliable operation. You can install any PCI or PCIe card in Cassette to expand versatility of Nuvo-5000, or choose Neousys' offer of Cassette module with pre-installed heat-spreader to include PoE+, USB 3.0 or independent graphics card.



The MeziO™ Interface and Modules

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™ is also mechanically reliable benefited from its 3-point mounted mezzanine structure. A MeziO™ module can leverage these signals to implement comprehensive I/O functions.



Neousys provides various MeziO™ modules, such as RS-232/422/485, isolated DIO, LVDS output, CAN bus, ignition power control, and DTIO, as the options for Nuvo-5000. Users can also leverage signals/powers on MeziO™ to create a module with specific domain know-how. MeziO™ presents a cost-effective way to build a tailor-made embedded system for your application.

Applications



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

Specifications

System Core		Expansion Bus	
Processor	Intel® Core™ i7-6700 (8M Cache, 3.4/4.0 GHz, 65W TDP)* Intel® Core™ i5-6500 (6M Cache, 3.2/3.6 GHz, 65W TDP)* Intel® Core™ i3-6100 (3M Cache, 3.7 GHz, 51W TDP)* Intel® Pentium® G4400 (3M Cache, 3.3 GHz, 54W TDP)* Intel® Celeron® G3900 (2M Cache, 2.8 GHz, 51W TDP)* 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® G3900TE (2M Cache, 2.3 GHz, 35W TDP)	PCI/PCI Express	1x PCI slot in Cassette (Nuvo-5002P/5006P) 1x PCIe x16 slot @ Gen3, 8-lanes PCIe signals in Cassette (Nuvo-5002E/5006E)
Chipset	Intel® Q170 Platform Controller Hub	Mini PCI-E	1x internal mini PCI Express socket with front-accessible SIM socket 1x internal mini PCI Express socket with internal SIM socket (mux. with mSATA)
Graphics	Integrated Intel® HD Graphics 530/510	Expandable I/O	1x MeziO™ expansion port for Neosys' MeziO™ modules
Memory	Up to 32 GB DDR4-2133 SDRAM by two SODIMM sockets	Power Supply	
AMT	Supports AMT 11.0	DC Input	1x 3-pin pluggable terminal block for 8~35VDC DC input
TPM	Supports TPM 2.0	Remote Ctrl. & Status Output	1x 10-pin (2x5) wafer connector for remote on/off control and status LED output
I/O Interface		Mechanical	
Ethernet	2x Gigabit Ethernet ports by Intel® I219 and I210 (Nuvo-5002E/P) 6x Gigabit Ethernet ports by Intel® I219 and 5x I210 (Nuvo-5006E/P)	Dimension	240 mm (W) x 225 mm (D) x 90 mm (H)
PoE+	Optional IEEE 802.3at PoE+ PSE for GbE Port 3 ~ Port 6, 80 W total power budget	Weight	4.4 kg
USB	4x USB 3.0 ports via native XHCI controller 4x USB 2.0 ports	Mounting	Wall-mounting (standard) or DIN-Rail mounting (optional)
Video Port	1x stacked VGA + DVI-D connector 2x DisplayPort connectors, supporting 4K2K resolution	Environmental	
Serial Port	2x software-programmable RS-232/422/485 port (COM1 & COM2) 1x RS-232 port (COM3)	Operating Temperature	with i7-6700TE, i5-6500TE, i3-6100TE, Pentium G4400TE (35W TDP) -25°C ~ 70°C ** with i7-6700, i5-6500, i3-6100 (65W/51W TDP) -25°C ~ 70°C */** (configured as 35W CPU mode) -25°C ~ 50°C */** (configured as 65W/51W CPU mode)
Audio	1x Mic-in and 1x Speaker-out	Storage Temperature	-40°C ~ 85°C
Storage Interface		Humidity	10%~90% , non-condensing
SATA HDD	2x Internal SATA port for 2.5" HDD/SSD installation, supporting RAID 0/1	Vibration	Operating, 5 Grms, 5-500 Hz, 3 Axes (w/ SSD, according to IEC60068-2-64)
mSATA	1x full-size mSATA port (mux with mini-PCIe)	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

* For i7-6700 running at 65W mode, the high operating temperature shall be limited to 50°C and thermal throttling may occur when sustained full-loading applied. Users can configure CPU power in BIOS to obtain higher operating temperature.
** For sub-zero operating temperature, a wide temperature HDD drive or Solid State Disk (SSD) is required.

Order 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 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 Cassette and MeziO™

Option of 802.3at PoE+ for GbE port 3 ~ port 6

Accessories

Option of DIN-Rail mounting kit
120W AC/DC power adapter

Cassette and 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

CSM-PoE354

- Cassette module with PCIe-PoE354 and pre-installed passive heat-spreader

CSM-USB380

- Cassette module with PCIe-USB380 and pre-installed passive heat-spreader

CSM-NV750

- Cassette module with nVidia GTX 750 graphics card, pre-installed heat-spreader and fan

CSM-R800

- Cassette module with 4-drives hardware RAID 0/1/10, accommodating four 2.5" HDD/SSD

