Nuvo-2000 Series

Intel® Atom™ D525 Fanless Shoe-Box IPC with 3x PCI/PCIe slots

- Intel® Atom™ D525 1.8GHz Dual-core processor
- Rugged, -20 °C to 70 °C fanless operation
- Three PCI slots or one x4 PCIe + two PCI slots
- Two SATA ports to accommodate two 2.5" HDD
- One RS-232/422/485 port and three RS-232 ports
- On-board isolated DIO option
- Wide range 8~25V DC input
- Mini-PCIe expansion with SIM support

- Introduction -

It is an Intel® Atom™ D525 IPC. It is, moreover, a reliable fanless IPC.

Nuvo-2000 accommodates three PCI/PCIe cards and two 2.5" hard drives in its shoe-box size. More than that, it provides versatile I/O interfaces such as COM ports, USB ports, Gigabit Ethernet port, parallel port and mini-PCIe port, not to mention that the isolated DIO channels can be integrated optionally into this compact box.

Leveraging Intel® Atom™ D525 1.8GHz dual-core processor, Nuvo-2000 delivers adequate computing performance for most Industrial applications. We also give Nuvo-2000 ingenious design mechanically and electronically so it can have a reliable, fanless operation in the temperature range of -20 to 70°C.

Nuvo-2000 is designed for general-purpose usage. Its compact size, PCI/PCIe slots and simple yet useful I/O functions fit most applications where wall-mount IPC is currently deployed. And, what is more, the fanless design of Nuvo-2000 gives you much more reliability than an ordinary IPC in all kinds of environments.

- Application -

Tollgate Control

Machine Automation

Factory Plant Monitoring

Automatic Fare Collection
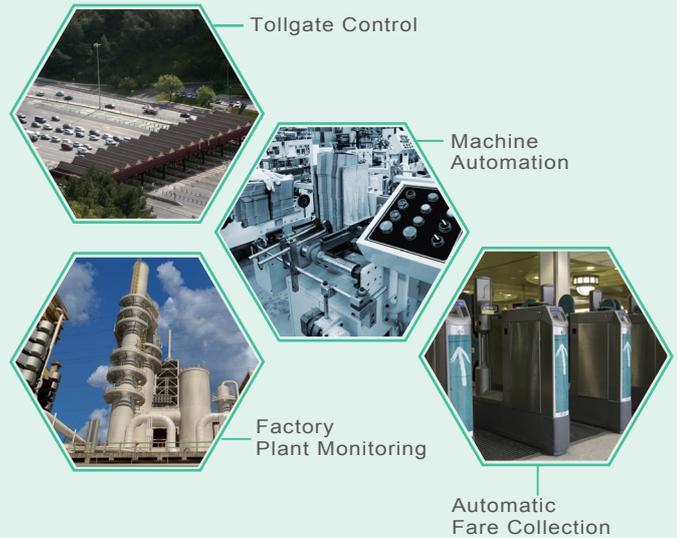
- Product Highlights -

■ Adequate Performance

Nuvo-2000 utilizes the latest Atom D525 processor. It is a 2-cores/4-threads CPU works with DDR3-800 memory. According to benchmarking result, Atom D525 has better performance than previous Pentium M CPU and is very close to entry-level Core 2 Duo CPU. This gives Nuvo-2000 adequate computing power for most industrial control applications.

CPU	Score
Atom N270 1.6GHz	304
Pentium M 2.0GHz	503
Pentium 4 3.8GHz	641
Atom D525 1.8GHz	713
Core2 Duo T5270 1.40GHz	786

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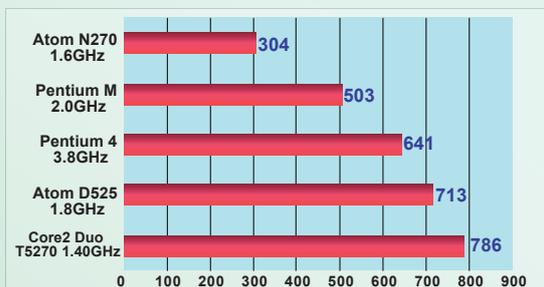
* According to CPU Benchmark by PassMark® (http://www.passmark.com)

■ Small & Smart Chassis Design

Nuvo-2000 has an ingenious mechanical design which gives consideration to small dimension, superior heat dissipation, flexible wall-mounting, and intuitive pattern of use. Like handling a traditional wall-mount IPC, you can remove the top cover and install add-on cards by loosing few screws. And its dual SATA ports and dual HDD brackets provide an easy and flexible way to mount your hard drives.

■ 3x Expansion Slots for Add-on Cards

Nuvo-2000 accommodates 3 PCI/PCIe slots in its compact chassis. Two configurations, three PCI slots, or two PCI slots plus one x4 PCIe slot, can be chose according to your application requirements. With capacity of installing three add-on cards, you can expand a much wider range of applications with Nuvo-2000.

■ Rich I/O Functions

We integrate rich I/O functions, which are useful for industrial applications, into Nuvo-2000. In addition to general computer I/O on the front panel, there are more inside. If necessary, you can have two additional COM ports and one parallel port using a flat cable connection. Or you can have the option of isolated DIO (12DI+12DO) with another flat cable connection.

- Nuvo 2000 Series Specification -

System Core

Processor	Intel® Atom™ D525 1.8GHz dual-core processor
Chipset	Intel® ICH8-M I/O Control Hub
Graphics	Integrated Intel® GMA 3150 graphics
Memory	1x 204-pin SO-DIMM socket, up to 4GB DDR3 800MHz SDRAM

Front-panel I/O Interface

Ethernet	1x Intel® 82574L Gigabit Ethernet port
Video Port	1x DB-15 connector for analog RGB, supporting 2048x1563 resolution
Serial Port	1x software-programmable RS-232/422/485 (COM1) 1x RS-232 (COM2)
USB	4x USB 2.0 ports
KB/MS	1x 6-pin Mini-Din for PS/2 keyboard and mouse
Audio	1x Mic-in and 1x Speaker-out

Internal I/O Interface

Serial Port	2x RS-232 (COM3 & COM4)
Parallel Port	1x Parallel port
Mini-PCIe	1x mini PCI Express slot with SIM socket
Isolated DIO	12-CH isolated DI + 12-CH isolated DO (Optional)

Storage Interface

SATA HDD	2x Internal SATA ports for 2.5" HDD/SSD installation
CompactFlash	1x Type I & II CF socket

Expansion Bus

PCI	3x PCI slots (Nuvo-2030) 2x PCI slots (Nuvo-2021)
PCI Express	1x PCI Express x4 slot (Nuvo-2021 only)

Power Supply

DC Input	Built-in 8~25 VDC DC input
Input Connector	1x 2-pin pluggable terminal block for DC input 1x DC jack (ø2.5) for AC/DC adapter input

Mechanical

Dimension	141 mm (W) x 157mm (H) x 226 mm (D)
Weight	2.9 kg (including one 2.5" HDD and DDR3 SODIMM)
Mounting	Wall-mount by mounting bracket

Environmental

Operating Temperature	Standard model: -10°C~55°C, 100% CPU loading */** Extended temperature model: -20°C~70°C, 100% CPU loading */**
Storage Temperature	-40°C ~ 85°C
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)
Shcok	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 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.

- Ordering Information -

- Nuvo-2021
  Intel® Atom™ D525 fanless IPC with two PCI slots and one PCI Express x4 slot
- Nuvo-2030
  Intel® Atom™ D525 fanless IPC with three PCI slots
- Nuvo-2021W
  Intel® Atom™ D525 wide-temperature fanless IPC with two PCI slots and one PCI Express x4 slot
- Nuvo-2030W
  Intel® Atom™ D525 wide-temperature fanless IPC with three PCI slots
- Option of isolated DIO
  Option of isolated digital input/output (12DI + 12DO) with panel/cable kit
- Panel/cable kit for 2xCOM ports
- Panel/cable kit for 1x COM port + 1x LPT port
- 60W AC/DC power adapter with 12V, 5A DC output

- Package List -

- 1x Nuvo-2021/2030 Unit
- 1x Accessory Box, including
  - 1x PS/2 Y-cable for KB/MS connection
  - 1x SATA cable for 2nd HDD installation
  - 1x HDD bracket
  - 1x Driver CD
  - 2x Wall-mount brackets
  - 1x Screw set