

# Nuvo-3120

Intel® 3rd-Gen Core™ i7/i5 Fanless Controller with Compact Size and Configurable CPU Power Mode



- 212 mm x 165 mm x 62 mm very compact size
- Intel® 3rd-Gen i7/i5 PGA-type processor
- User-configurable CPU power mode for adaptation to various environments
- Dual GbE ports and four USB3 ports
- DVI/VGA + DisplayPort triple independent display outputs
- Built-in isolated digital I/O with change-of-state (COS) interrupt
- 8 ~ 35V wide-range DC input

## Introduction

Introducing the most compact fanless controller supporting PGA-type 3rd-Gen i7/i5 processor!

Neosys' Nuvo-3120 features a very compact 212 mm x 165 mm x 62mm footprint. While other compact fanless controllers adopt low-voltage, BGA-type i7 CPU (17W), Nuvo-3120 supports standard voltage, PGA-type i7/i5 CPU (45W/35W) for flexible CPU selection. An unique feature, configurable CPU power mode, is developed to balance the trade-off between heat-sink size and operating temperature. According to ambient condition, you can configure Nuvo-3120 to operate in maximal performance, reduced performance or extended temperature mode.

Plenty of I/O functions, such as Gigabit Ethernet, USB 3.0, SATA, COM ports, mini-PCIe and isolation DIO are provided in Nuvo-3120's compact chassis. It also supports triple independent display outputs to benefit image-related applications. Compact yet powerful, Nuvo-3120 meets all your requirements for a embedded platform.

## Product Highlights

### PGA CPU Support with Configurable CPU Power Mode

Nuvo-3120 supports PGA-type CPU to offer greater flexibility of CPU selection. PGA-type processors are with higher CPU power, and therefore introduce higher performance and more heat. To adapt Nuvo-3120 to various environments, we develop an unique function, configurable CPU power mode, to alter CPU power per user's preference.

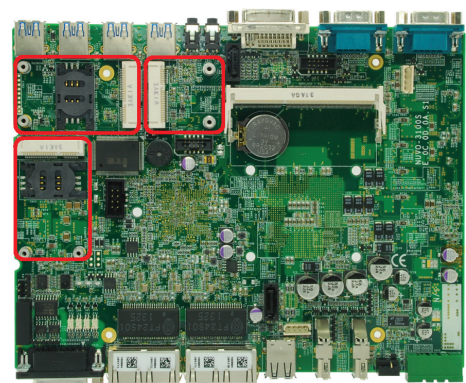
By selecting maximal performance, reduced performance or extended temperature mode, you can get adequate performance/temperature preference according to deployment environment. You can refer to the table of CPU benchmark v.s. operating temperature in different CPU power modes. Compared to other embedded controllers using i7-3517UE CPU, Nuvo-3120 offers better flexibility and more computing power without sacrificing thermal reliability.

	Nuvo-3120 with i7-3610QE (PGA)	Nuvo-3120 with i5-3610ME (PGA)	i7-3517UE (BGA)
Maximal Performance	7407 / 50°C	4388 / 60°C	3449 / 70°C
Reduced Performance	5873 / 60°C	3896 / 70°C	
Extended Temperature	3471 / 70°C	3896 / 70°C	

\* The CPU benchmark score is measured using Passmark® PerformanceTest™ (<http://www.passmark.com>).

### Rich I/O Functions in Compact Chassis

Nuvo-3120 integrates all general I/O functions in its compact chassis. Not only Gigabit Ethernet, USB3/USB2, SATA and COM ports are included, Nuvo-3120 further supports triple independent display outputs via its DVI/VGA + DP connectors. Inside Nuvo-3120, there are three mini-PCIe/mSATA slots with two SIM sockets for WIFI, 3G/4G, GPS and storage expandability.



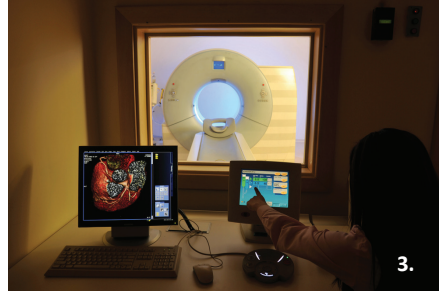
# Applications



1.



2.



3.



4.

1. Fleet Management System
2. Robot Vision
3. Medical Imaging
4. Factory Plant Automation

# Specifications

System Core		Power Supply & Ignition Control				
Processor	Supports the following CPU <ul style="list-style-type: none"> <li>· Intel® Core™ i7-3610QE (2.3/3.3 GHz, 6 MB cache)</li> <li>· Intel® Core™ i5-3610ME (2.7/3.3 GHz, 3 MB cache)</li> <li>· Intel® Celeron™ 1020E (2.2 GHz, 2 MB cache)</li> </ul>	DC Input	8~35V DC input via 3-pin pluggable terminal block			
Chipset	Intel® QM76 Platform Controller Hub	Ignition Control	Ignition power control with user-selectable on/off delay (Optional)			
Graphics	Integrated Intel® HD Graphics 4000 Controller	Mechanical				
Memory	1x 204-pin SO-DIMM sockets, up to 8 GB DDR3 1333/1600 MHz SDRAM	Dimension	212 mm (W) x 165 mm (D) x 62 mm (H)			
I/O Interface		Weight	2.7 Kg (including one 2.5" HDD and DDR3 SODIMM)			
Ethernet	1x Gigabit Ethernet port by Intel® 82579LM, supporting Wake-on-LAN 1x Gigabit Ethernet ports by Intel® i210	Mounting	Wall-mounting (Standard) or DIN-Rail mounting (optional)			
Video Port	1x DVI-I connector for VGA/DVI output, supporting 2048x1536 (VGA) or 1920x1080 (DVI) resolution 2x DisplayPort, supporting 2560x1600 resolution	Environmental				
USB	4x USB 3.0 ports and 2x USB 2.0 ports	Operating Temperature		i7-3610QE, 100% CPU loading*	i5-3610ME, 100% CPU loading*	Celeron 1020E, 100% CPU loading*
Serial Port	2x software-programmable RS-232/422/485 (COM1 & COM2)		Maximal Performance	-25°C ~ 50°C**	-25°C ~ 60°C**	-25°C ~ 70°C**
Isolated DIO	4x isolated DI with COS interrupt and 4x isolated DO		Reduced Performance	-25°C ~ 60°C**	-25°C ~ 70°C**	-25°C ~ 70°C**
Audio	1x mic-in and 1x speaker-out	Extended Temperature	-25°C ~ 70°C**	-25°C ~ 70°C**	-25°C ~ 70°C**	
Storage Interface		Storage Temperature	-40°C ~ 85°C**			
SATA HDD	1x Internal SATA port for 2.5" HDD/SSD	Humidity	10%~90% , non-condensing			
mSATA	1x full-size mSATA (SATA/USB/W_DISABLE#) with USIM socket	Vibration	Operating, 5 Grms, 5-500 Hz, 3 Axes (w/ SSD, according to IEC60068-2-64)			
Expansion Bus		Shock	Operating, 50 Grms, Half-sine 11 ms Duration (w/ SSD, according to IEC60068-2-27)			
Mini PCI-E	1x full-size mini PCI Express socket with USIM socket 1x half-size mini PCI Express socket	Certification	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 Neosys Technology  
 \*\* For sub-zero operating temperature, a wide temperature HDD drive or Solid State Disk (SSD) is required.

## Order Information

### Nuvo-3120-I7QC

Intel® Core™ i7-3610QE fanless controller with compact size and configurable CPU power mode

### Nuvo-3120-I5DC

Intel® Core™ i5-3610ME fanless controller with compact size and configurable CPU power mode

### Nuvo-3120-C1020

Intel® Celeron™ 1020E fanless controller with compact size and configurable CPU power mode

### Option of ignition power control

### Option of DIN-Rail mounting kit

### 90W AC/DC power adapter

## Packing List

- 1x Nuvo-3120 Unit
- 1x Accessory Box
- 1x Driver CD