Nuvo-3100 Series

Intel® 3rd-Gen Core™ i7/i5 Fanless in-Vehicle Controller with 4x 802.3at PoE Ports and Configurable CPU Power Mode

Nuvo-3100VTC

Nuvo-3120

Features

- 210 mm x 165 mm x 59 mm very compact size
- Intel® 3rd-Gen i7/i5 PGA-type processor
- User-configurable CPU power mode for adapting to various environments
- 4x IEEE 802.3at (25.5W) Gigabit PoE ports
- DVI/VGA + DisplayPort triple independent display outputs
- Dual 2.5” SATA ports with one hot-swappble HDD tray
- 8 ~ 35V wide-range DC input and built-in ignition power control
- E-Mark certification for in-vehicle applications

Introduction

Introducing the most compact fanless controller supporting PGA-type 3rd-Gen i7/i5 processor!
Neousys’ Nuvo-3100 series features the dimension of only 210 mm x 165 mm x 59 mm. While other compact fanless controllers adopt low-voltage, BGA-type i7 CPU (17W TDP), Nuvo-3100 supports standard voltage, PGA-type i7/i5/i3 CPU for flexible CPU installation. To solve the tradeoff between heat-sink size and operating temperature, an unique feature, configurable CPU power mode, is developed for Nuvo-3100. According to ambient condition, users can configure the system 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-3100’s compact chassis. Nuvo-3100VTS, the designated model for in-vehicle applications, further integrates IEEE 802.3at PoE, ignition control and hot-swappable HDD. It carries E-Mark to meet the requirements of European UN regulations for in-vehicle usage.

Product Highlights

PGA CPU Support with Configurable CPU Power Mode

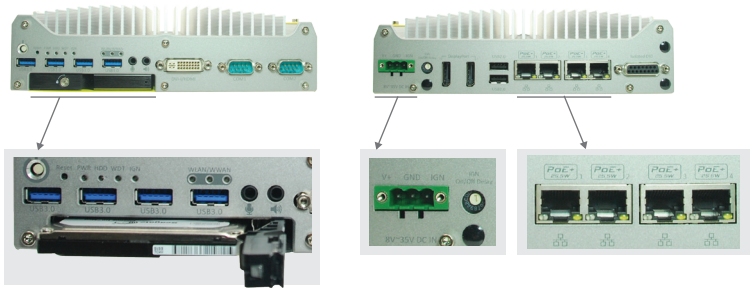
Nuvo-3100 supports PGA-type CPU to offer greater flexibility of CPU selection. PGA-type processors are with higher CPU power, and therefore introduce higher performance and more heat. To adapt Nuvo-3100 to various environments, we develop an unique function, configurable CPU power mode, to alter CPU power per user’s preference.
By selecting maximal performance, reduced performance or extended temperature mode, users can get adequate performance/temperature configuration according to deployment environment. Below is the table of CPU benchmark v.s. operating temperature in different CPU power mode. Compared to other embedded controllers using i7-3517UE CPU, Nuvo-3100 offers better flexibility and more computing power without sacrificing thermal reliability.

	Nuvo-3100 with i7-3610QE (PGA)	Nuvo-3100 with i5-3610ME (PGA)	i7-3517UE (BGA)
Maximal Performance	7407 / 50°C	4388 / 60°C	4388 / 60°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).*

Design Considerations for in-Vehicle Applications

Nuvo-3100VTS is designed with features for in-vehicle applications. It supports 8~35 VDC input and ignition power control to operate with 12V/24V car battery. Four on-board 802.3at PoE ports make Nuvo-3100VTS an ideal platform for mobile NVR. Its dual SATA ports with RAID support and one hot-swappable HDD tray deliver robust data integrity and convenient storage access. Furthermore, Nuvo-3100VTS is certificated with E-Mark for general in-vehicle requirements.



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Application

1. Mobile NVR
2. Fleet management
3. Real-time surveillance/security
4. High-end digital signage

Nuvo-3100VTC Series Specifications

	Nuvo-3100VTC	Nuvo-3120
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® QM77 PCH with AMT & RAID support	Intel® HM76 PCH
Graphics	Integrated Intel® HD Graphics 4000 Controller	
Memory	1x 204-pin SO-DIMM sockets, up to 8 GB DDR3 1333/1600 MHz SDRAM	
I/O Interface		
Ethernet	1x Gigabit Ethernet port by Intel® 82579LM 3x Gigabit Ethernet ports by Intel® i210	1x Gigabit Ethernet port by Intel® 82579LM 1x Gigabit Ethernet port by Intel® i210
PoE	Compliant to IEEE 802.3at (25.5W) with per-port power on/off control	N/A
Video Port	1x DVI-I connector for VGA/DVI output, supporting 2048x1536 (VGA) or 1920x1080 (DVI) resolution 2x DisplayPort, supporting 2560x1600 resolution	
USB	4x USB 3.0 ports and 2x USB 2.0 ports	
Serial Port	2x software-programmable RS-232/422/485 (COM1 & COM2)	
Isolated DIO	4x isolated DI with COS interrupt and 4x isolated DO (Optional)	
Audio	1x mic-in and 1x speaker-out	
Storage Interface		
SATA HDD	1x Internal SATA port for 2.5" HDD/SSD 1x Hot-swapable HDD tray for 2.5" HDD/SSD	1x Internal SATA port for 2.5" HDD/SSD
mSATA	1x full-size mSATA (SATA/USB/W_DISABLE#) with USIM socket	
Expansion Bus		
Mini PCI-E	1x full-size mini PCI Express socket with USIM socket 1x half-size mini PCI Express socket	

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Power Supply & Ignition Control		
DC Input	8~35V DC input via 3-pin pluggable terminal block	
Ignition Control	Ignition control with user-selectable on/off delay	N/A
Mechanical		
Dimension	**210 mm (W) x 165 mm (D) x 59 mm (H)**	
Weight	2.4kg	
Mounting	Wall-mounting (Standard) or DIN-Rail mounting (optional)	
Environmental		

		w/ i7-3610QE, 100% CPU loading	w/ i5-3610ME, 100% CPU loading*	w/ Celeron 1020E, 100% CPU loading*
Operating Temperature	Maximal Performance	-25°C ~ 50°C**	-25°C ~ 60°C**	-25°C ~ 70°C**
	Reduced Performance	-25°C ~ 60°C**	-25°C ~ 70°C**	-25°C ~ 70°C**
	Extended Temperature	-25°C ~ 70°C**	-25°C ~ 70°C**	-25°C ~ 70°C**
Storage Temperature	-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)			
Certification	E-Mark for vehicle applications CE/FCC Class A, according to EN 55022 & EN 55024	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-3100VTC
Intel® 3rd-Gen Core™ i7/i5 fanless in-vehicle controller with 4x 802.3at PoE ports, dual SATA and configurable CPU power mode

Nuvo-3120
Intel® 3rd-Gen Core™ i7/i5 fanless embedded controller with 2x Gigabit Ethernet ports and configurable CPU power mode

Packing List

1x Nuvo-3100VTC Unit
1x Accessory Box
1x Driver CD