Nuvis-3304af Series

Intel® 3rd-Gen Core™ i7/i5 Fanless Vision System with 4x GigE PoE and Deterministic Trigger I/O

Features

- Intel® 3rd-Gen i7 quad-core superb performance
- Integrated camera interfaces
  - 4x 802.3af Gigabit PoE ports via Intel® I210
  - 4x USB 3.0 ports
- Patent-pending Deterministic Trigger I/O technology for accurate trigger/strobe control
- Patented Cassette* design for PCIe/PCI add-on card expansion
- Per-port PoE power on/off control
- Rugged, -25°C to 70°C fanless operation

Introduction

Nuvis-3304af is a vision system dedicatedly designed for machine vision applications. Inheriting Neousys' proven fanless architecture and Power-over-Ethernet technology, Nuvis-3304af combines superb computing performance, integrated camera interfaces and great reliability in its compact chassis.

As accurate trigger/strobe control is crucial for vision applications, Neousys developed a new technology, Deterministic Trigger I/O, or DTIO, on Nuvis-3304af. Unlike legacy isolated DIO, this patent-pending DTIO technology allows users to program a deterministic timing correlation between input and output signals at a resolution of 25 microseconds. With DTIO, your vision system can have extremely precise control for proximity sensor input, strobe output and camera trigger.

Camera connectivity is another key for vision systems. In addition to integrated PoE and USB3 ports, Nuvis-3304af is provided with Neousys' patented Cassette design for PCIe/PCI expansion. By installing dedicated interface card, Nuvis-3304af can work with analog, 1394, Camera Link or CoaXPress camera. Or you can integrate a motion control card to fulfill an all-in-one inspection system.

Combining the quad-core CPU performance, PoE/USB3 camera interface, innovative DTIO and Cassette technology, Nuvis-3304af is the perfect platform for your vision application.
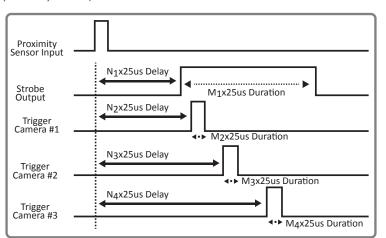
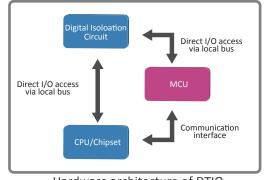## Product Highlights

Deterministic Trigger I/O Technology

DIO cards with change-of-state (COS) interrupt support are generally used for trigger/strobe control in vision systems. The interrupt latency introduced in operating system, however, increases the difficulty of an accurate timing control for strobe/trigger signals.

Neousys' Deterministic Trigger I/O, or DTIO, is a technology to provide a deterministic timing correlation between input and output signals. It utilizes a standalone microprocessor with highly-optimized algorithm to collaborate with platform and DIO circuit.
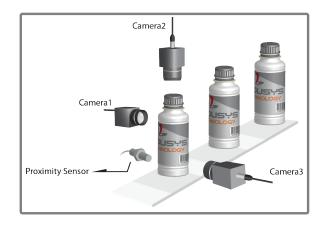
Users can configure output delay/duration for multiple DO channels (e.g. strobe and camera trigger) to respond a trigger signal on specific input channel (e.g. proximity sensor) at a resolution of 25 microseconds.

Hardware architecture of DTIO

User-configurable output delay/duration
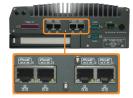
Integrated Gigabit PoE and USB3.0 Camera Interfaces

Nuvis-3304af integrates four GigE PoE ports and four USB 3.0 ports for camera connectivity. Its IEEE 802.3af-compliant PoE port delivers 15.4 W of power and 1000 Mb/s bandwidth. USB 3.0, as an emerging camera interface, supports up to 5 Gbps signaling for high-speed data transmission. In addition, Nuvis-3304af features a unique per-port PoE power on/off control function for fault recovery operations.

4x USB3.0 ports

4x GigE PoE ports

Patented Expansion Cassette

For vision systems require other camera interfaces, Nuvis-3304af incorporates Neousys' patented Cassette to accommodate other interface cards such as Camera Link, CoaXPress and analog frame-grabber. You can also integrate a motion control card into Nuvis-3304af to build up an all-in-one machine vision system.

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)
Chipset	Intel® HM76 Platform Controller Hub
Graphics	Integrated Intel® HD Graphics 4000 Controller
Memory	2x 204-pin SO-DIMM sockets, up to 16 GB DDR3 1333/1600 MHz SDRAM

I/O Interface	
PoE	4x Gigabit IEEE 802.3af (15.4W) PoE ports by Intel® I210
Ethernet	1x Gigabit Ethernet port by Intel® I210

Video Port	1x DB-15 connector for analog RGB,
	  supporting 2048x1536 resolution
	2x DVI-D connectors for DVI/HDMI outputs,
	  supporting 1920x1080 resolution
	(Supporting dual independent display outputs)

USB	4x USB 3.0 ports and 4x USB 2.0 ports
Serial Port	2x software-programmable RS-232/422/485 (COM1 & COM2)
KB/MS	1x 6-pin mini-DIN connector for PS/2 keyboard/mouse
Audio	1x Mic-in and Speaker-out

Deterministic Trigger I/O	
Digital Input	8x isolated digital input channels
Digital Output	8x isolated digital output channels
Operating Mode	DTIO with 25 microseconds resolution, Polling I/O with change-of-state interrupt

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 (Nuvis-3304af-P) 1x PCIe x16 slot @ 8-lanes PCIE signals in Cassette (Nuvis-3304af-E)

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)
Remote Ctrl. & Status Output	1x 10-pin (2x5) wafer connector for remote on/off control and status LED output
Power Consumption	With i7-3610QE : 72.96W (3.84A@19V) With i5-3610ME : 48.83W (2.57A@19V)

Mechanical	
Dimension	240 mm (W) x 225 mm (D) x 89.7 mm (H)
Weight	4.4 Kg (including 2.5" HDD and DDR3 SO-DIMM)
Mounting	Wall-mounting (Standard) or DIN-Rail mounting (Optional)

Environmental	
Operating Temperature	-25°C ~ 70°C **/*** (with i5-3610ME) -25°C ~ 60°C **/*** (with i7-3610QE)
Storage Temperature	-40°C ~ 85°C
Humidity	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

** 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.

www.neousys-tech.com

Order Information

Nuvis-3304af-E-I7QC
  Intel® Core™ i7-3610QE vision system with 5x GigE PoE Ports, DTIO and PCI-E Cassette

Nuvis-3304af-P-I7QC
  Intel® Core™ i7-3610QE vision system with 5x GigE PoE Ports, DTIO and PCI Cassette

Option of DIN-Rail mounting kit

160 W AC/DC power adapter

NEOUSYS TECHNOLOGY