Nuvis-5306RT Series

Intel® 6th-Gen Skylake Vision Controller with Vision-Specific I/O, Real-time Control and GPU-Computing

Key Features

- Intel® 6th Gen Core™ i7/i5 65W/35W CPU, up to 32 GB DDR4
- Integrated vision-specific I/O
  - 4-CH CC/CV lighting controller
  - 4-CH camera trigger outputs
  - 1-CH quadrature encoder input
  - 8-CH isolated DI and 8-CH isolated DO
- Patented MCU-based, real-time I/O control by DTIO* V2 and NuMCU
- Built-in camera interfaces
  - 4-CH IEEE 802.3at Gigabit PoE+ ports
  - 4-CH USB 3.0 ports
- Supports nVidia GTX 1050 for GPU-accelerated MV
- Patented ventilation hole* for graphic card

*R.O.C Patent No. I526834/ M534371 / M456527

Introduction

Introducing the most powerful vision controller ever created! Nuvis-5306RT integrates every single function you need for machine vision applications in a compact footprint, including exceptional computing power, built-in camera interfaces and real-time vision-specific I/O control.
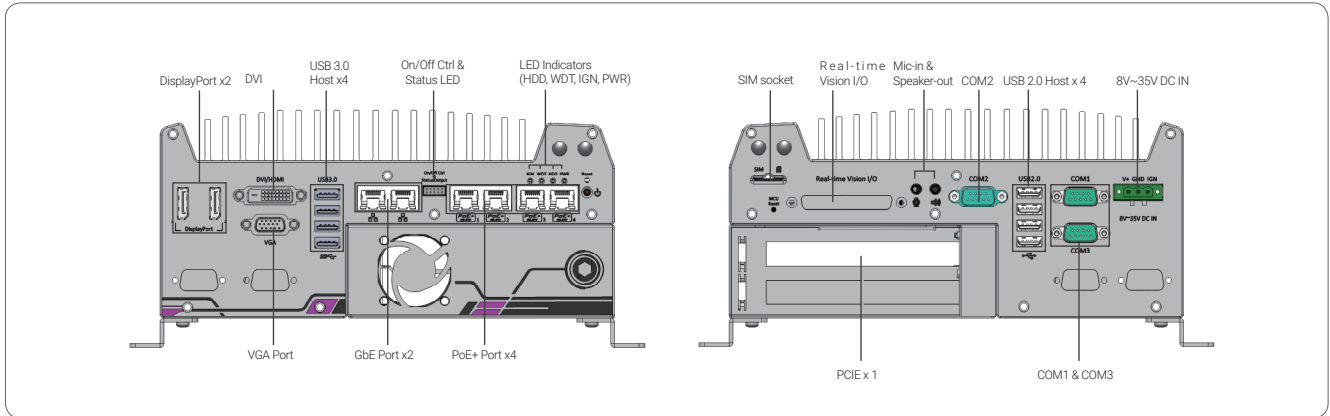
To ensure high quality images, a MV system requires accurate interaction between lighting, camera, actuator and sensor devices. Nuvis-5306RT integrates LED lighting controller, camera trigger, encoder input, PWM output and digital I/O, to connect and control all the vision devices. All the vision-specific I/O are managed by Neousys' patented MCU-based architecture and DTIO/NuMCU firmware to guarantee microsecond-scale real-time I/O control.

Computing power is another crucial requirement for a vision system. In addition to the remarkable performance brought by its Intel® 6th Gen Core™ i7/i5 CPU, Nuvis-5306RT can further accommodate nVidia® GeForce® GTX 1050 GPU to leverage CPU-accelerated vision library or deep-learning vision software. Combining built-in PoE+ and USB 3.0 interfaces and the expandability for CameraLink and CoaXPress, Nuvis-5306RT is the ideal platform for demanding MV applications.
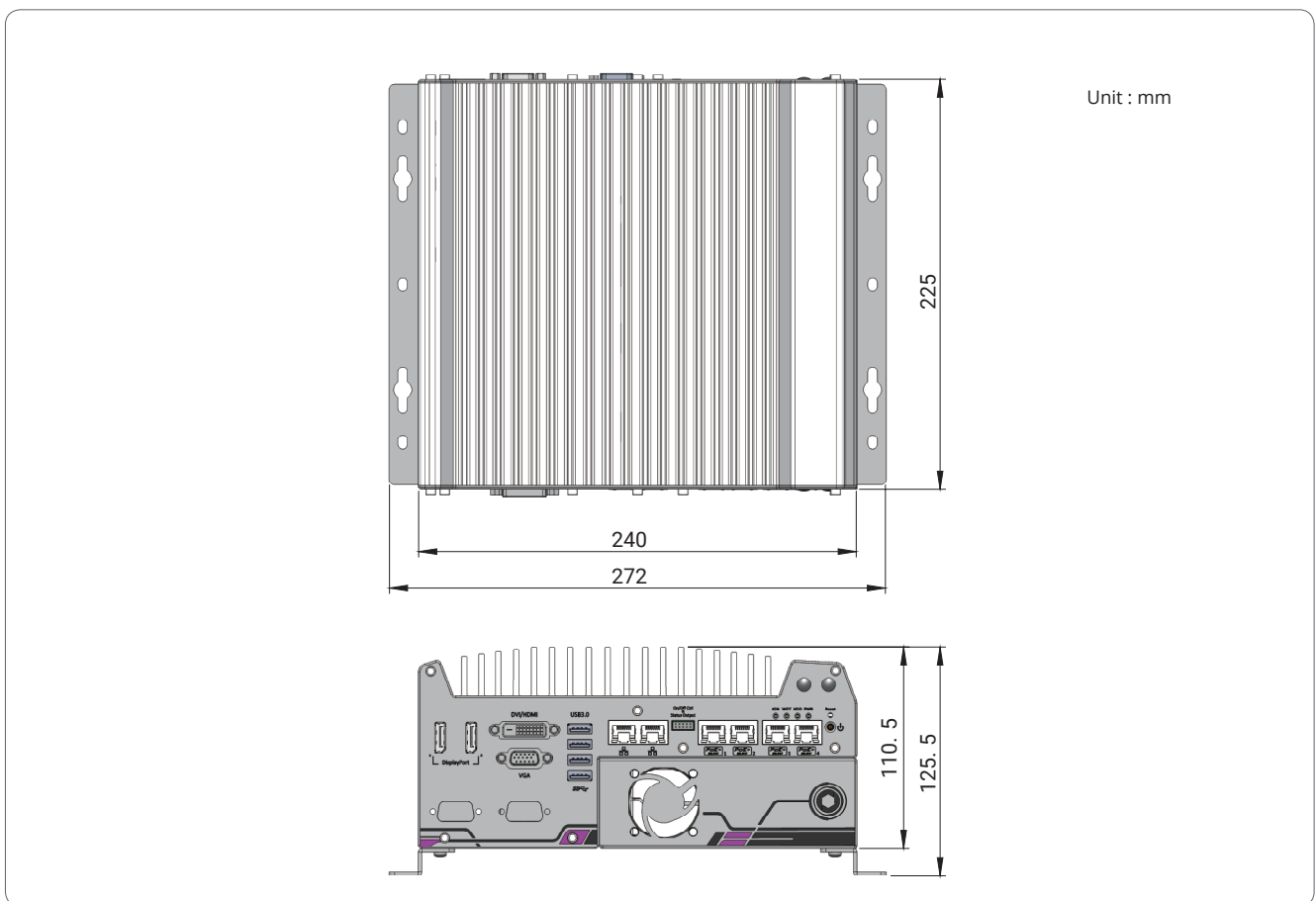
Specifications

System Core

Processor	Supports Intel® 6th-Gen Core™ LGA1151 CPU - 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™ i7-6700TE (8M Cache, 2.4/3.4 GHz, 35W TDP) - Intel® Core™ i5-6500TE (6M Cache, 2.3/3.3 GHz, 35W TDP)
Chipset	Intel® Q170 Platform Controller Hub
Graphics	Integrated Intel® HD Graphics 530
Memory	Up to 32 GB DDR4-2133 SDRAM by two SODIMM sockets
AMT	Supports AMT 11.0
TPM	Supports TPM 2.0

Vision-Specific I/O Interface

LED Lighting Controller	4-CH LED lighting controller output , supporting - Constant current mode (up to 1 A per channel, 100 kHz dimming control) - Constant voltage mode (24 VDC, 100 kHz dimming control)
Camera Trigger	4-CH camera trigger output (12 VDC output)
Encoder Input	1-CH quadrature encoder input (A/B/Z)
Isolated Digital Output	4-CH isolated high-speed DO (<2 us transient time, for strobe/PWM) 4-CH isolated high-current DO (up to 500 mA rated current)
Isolated Digital Input	8-CH isolated high-speed digital input (<2 us transient time)
Real-time I/O Control	Patented MCU-based real-time I/O control with DTIO V2 or NuMCU firmware

General I/O Interface

Ethernet port	6x Gigabit Ethernet ports by Intel® 1x I219 and 5x I210
PoE+	IEEE 802.3at PoE+ PSE on GigE Port 3 ~ Port 6, 80 W total power budget
USB 3.0	4x USB 3.0 ports via native XHCI controller, 1000 MB/s total bandwidth
USB 2.0	4x USB 2.0 ports
Video Port	1x stacked VGA + DVI-D connector 2x DisplayPort connectors, supporting 4K2K resolution
Serial Port	2x software-programmable RS-232/422/485 port (COM1 & COM2) 1x RS-232 port (COM3)
Audio	1x Mic-in and 1x Speaker-out

Storage Interface

SATA HDD	2x Internal SATA port for 2.5" HDD/SSD installation, supporting RAID 0/1
mSATA	1x full-size mSATA port (mux with mini-PCIe)

Expansion Bus

PCI/PCI Express	1x PCIe x16 slot @ Gen3, 8-lanes PCIe signals in Cassette, supporting - 75W nVidia® GeForce® GTX 1050 GPU card - COTS CameraLink and CoaXPress camera interface card
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)

Power Supply

DC Input	1x 3-pin pluggable terminal block for 8~35VDC DC input
Remote Ctrl. & Status Output	1x 10-pin (2x5) wafer connector for remote on/off control and status LED output

Mechanical

Dimension	240 mm (W) x 225 mm (D) x 111 mm (H)
Weight	4.5 kg (incl. CPU, memory and HDD)
Mounting	Wall-mount by mounting bracket

Environmental

Operating Temperature	with i7-6700TE, i5-6500TE (35W TDP) -25°C ~ 60°C ** with i7-6700, i5-6500 (65W TDP) -25°C ~ 60°C **/*** (configured as 35W CPU mode) -25°C ~ 50°C **/*** (configured as 65W CPU mode)
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)
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.

NEOUSYS TECHNOLOGY

Appearance

Dimensions

Unit : mm

240
272

225

110.5
125.5

Ordering Information

Model No.	Product Description
Nuvis-5306RT-DTIO	Intel® 6th-Gen Skylake Vision Controller with Vision-Specific I/O, Real-time Control by DTIO V2 and GPU-Computing
Nuvis-5306RT-NuMCU	Intel® 6th-Gen Skylake Vision Controller with Vision-Specific I/O, Real-time Control by NuMCU and GPU-Computing

Optional Accessories

20V, 160W AC/DC power adapter

Cable-S68MM-100, SCSI-68(M) to SCSI-68(M) cable, 100 cm

TB-10, terminal board with 68-pin SCSI-II female connector and 68-pole terminal block

NEOUSYS
TECHNOLOGY