

# Nuvis-5306RT Series

Intel® 6th-Gen Core™ i7/ i5 Vision Controller with Vision-Specific I/O, Real-time Control and GPU Computing



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## 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 USB3.0 ports
- Supports NVIDIA® GPU with up to 75W TDP GPU-accelerated machine vision
- Patented graphics card ventilation\*

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

## Introduction

As one of the most powerful vision controllers 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 machine vision (MV) system requires accurate interaction between light, camera, actuator and sensor devices. Nuvis-5306RT integrates LED controller, camera trigger, encoder input, PWM output and digital I/O to connect and control all vision devices. All vision-specific I/Os are managed by Neosys' patented MCU-based architecture and DTIO V2/ 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 Intel® 6th-Gen Core™ i7/ i5 CPU, Nuvis-5306RT can also accommodate a 75W NVIDIA® GPU to leverage CPU-accelerated vision library or deep-learning vision software. Combining built-in PoE+ and USB3.0 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 SO-DIMM 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 2A per channel, 100 kHz dimming control) - Constant voltage mode (24V DC, 100 kHz dimming control)
Camera Trigger	4-CH camera trigger output (12V DC 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
USB3.0	4x USB3.0 ports via native xHCI controller, 1000 MB/s total bandwidth
USB 2.0	4x USB2.0 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 & COM3) 1x RS-232 port (COM2)
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	1x PCIe x16 slot @ Gen3, 8-lanes PCIe signals in Cassette, supporting - 75W NVIDIA® 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 8–35V 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
Mounting	Wall-mount

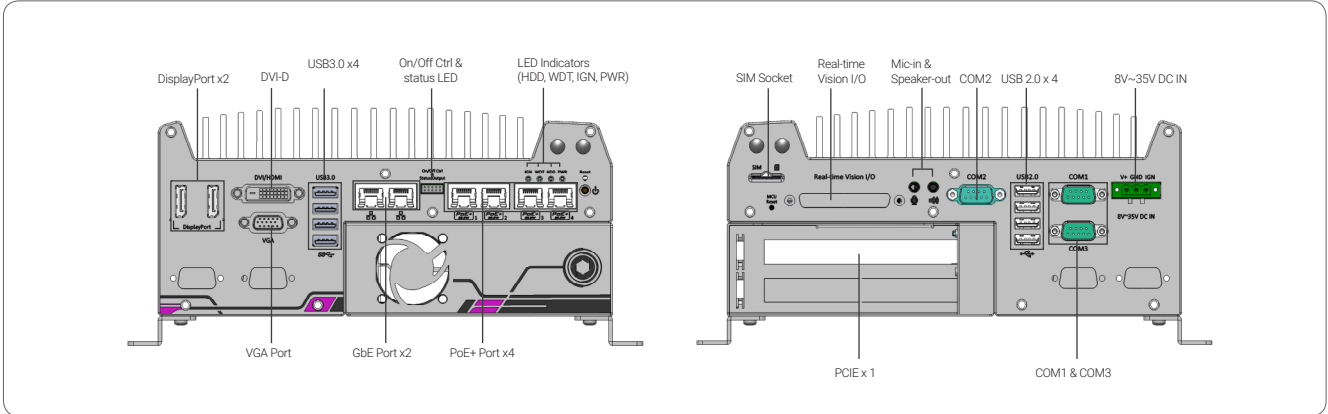
### Environmental

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, EN55032 & EN 55024

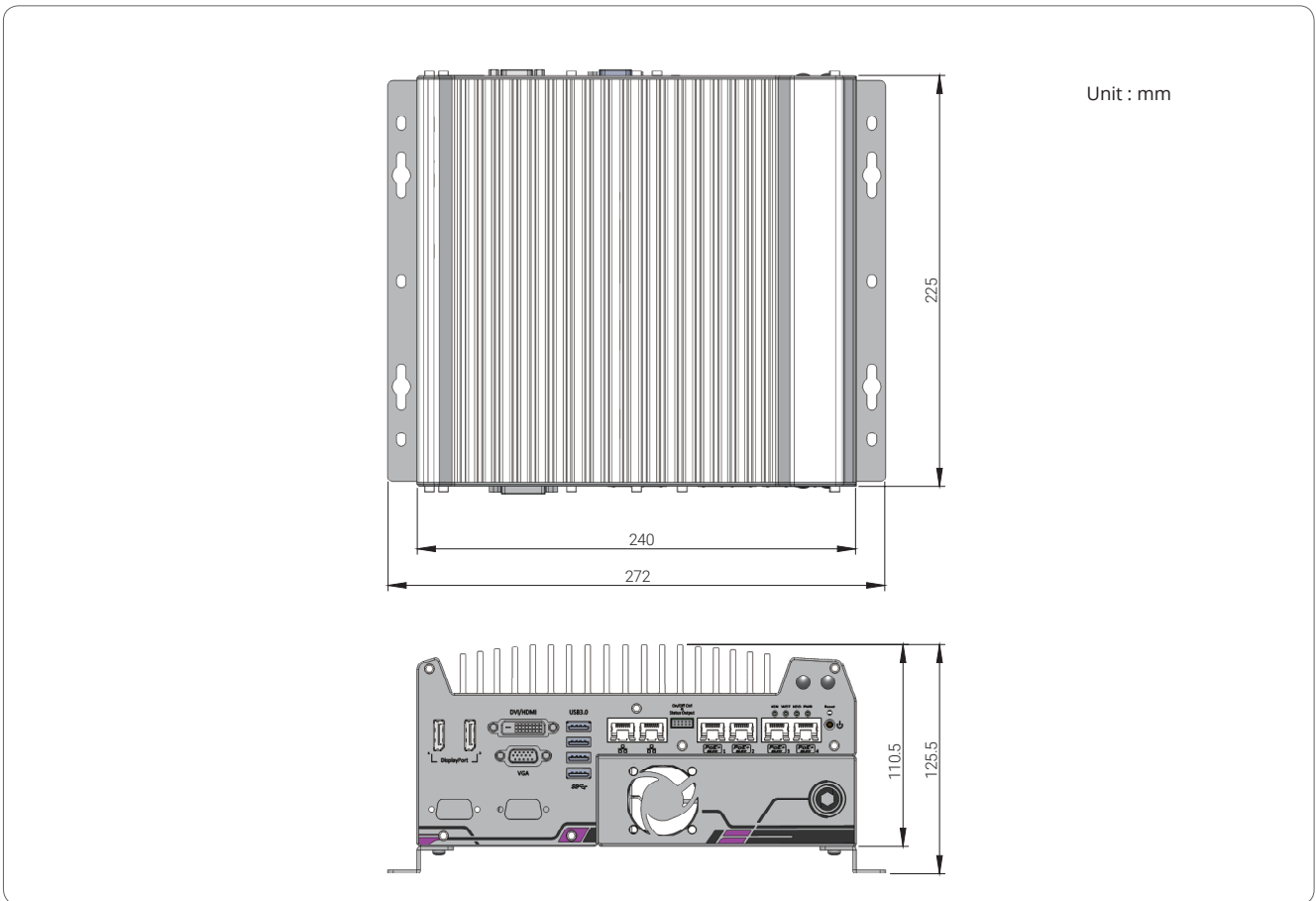
\* For i7-6700 running at 65W mode, the high operating temperature shall be limited to 50°C and thermal throttling may occur when sustained full-loading applied. Users can configure CPU power in BIOS to obtain higher operating temperature.

\*\* For sub-zero operating temperature, a wide temperature HDD drive or Solid State Disk (SSD) is required.

## Appearance



## Dimensions



## Ordering Information

Model No.	Product Description
Nuvis-5306RT-DTIO	Intel® 6th-Gen Core™ vision controller with vision-specific I/O, real-time control by DTIO V2 and GPU-computing
Nuvis-5306RT-NuMCU	Intel® 6th-Gen Core™ vision controller with vision-specific I/O, real-time control by NuMCU and GPU-computing

## Optional Accessories

PA-160W-OW	160W AC/DC power adapter 20V/8A; 18AWGx4C/120cm, cord end terminals for terminal block, operating temperature : -30 to 70 °C.
Fankit-40	Fan assembly for 2-slot Cassette, 40x40x10 mm