



## THE ASTUFF NEBULA



## FEATURES

- Supports NVIDIA® GeForce® GTX 950 and GTX 1050 GPU
- Patent-pending thermal design to allow -25 °C to 60 °C wide-temperature system operation
- Supports 6th-Gen Intel® Core™ i7/i5 LGA1151 CPU
- 6x GigE ports, supporting 9.5 KB jumbo frame
- Up to 32 GB, DDR4-2133 SODIMM
- 240 mm x 225 mm x 111 mm compact footprint
- Compatible with MezzIO™ interface for function expansion
- Accommodates two 2.5" SATA HDD/SSD with RAID 0/1 support

## INTRODUCTION

The **ASTuff Nebula** opens a new chapter for industrial computers. As the first embedded controller targeting at emerging applications of CUDA computing, autopilot, deep learning and virtual reality, the **ASTuff Nebula** integrates all features required for a compact, reliable and powerful GPU-computing platform.

Supporting NVIDIA® GeForce® GTX 950 and GTX 1050 GPU, the **ASTuff Nebula** possesses 768 CUDA cores to deliver tremendous computing power for arithmetic / graphics operations. Neousys' patented Cassette technology and an innovative thermal design help to effectively dissipate the heat generated by GPU, thus make this compact system capable to operate reliably at 60 °C with 100% GPU loading.

The **ASTuff Nebula** is based on Intel® Skylake platform, and supports 35W/65W 6th-Gen® Core™ processors and up to 32GB DDR4 memory. It offers rich I/O functions, such as GbE, USB 3.0 and COM ports, to connect external devices. All these extraordinary features are integrated into a very compact, 240 x 225 x 110 mm footprint. For fast-growing GPU-computing applications, the **ASTuff Nebula** presents the first industrial-grade, compact and rugged platform incorporating CPU and GPU to offer performance far beyond traditional industrial computers.

## APPLICATIONS



Autopilot



Discrete Graphic Processing



Deep Learning



In-Vehicle Data Storage



## SPECIFICATIONS



### SYSTEM CORE

<b>PROCESSOR</b>	Supports 6th-Gen Intel® 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)
<b>CHIPSET</b>	Intel® Q170 Platform Controller Hub
<b>GRAPHICS</b>	NVIDIA® GeForce® GTX 950 and GTX 1050 GPU (75W TDP), or Integrated Intel® HD 530/510 Controller
<b>MEMORY</b>	Up to 32 GB DDR4-2133 SDRAM by two SODIMM sockets
<b>AMT</b>	Supports AMT 11.0
<b>TPM</b>	Supports TPM 2.0

### I/O INTERFACE

<b>ETHERNET PORT</b>	6x Gigabit Ethernet ports by Intel® I219 and 5x I210
<b>USB</b>	4x USB 3.0 ports via native XHCI controller 4x USB 2.0 ports
<b>VIDEO PORT</b> <small>(INTEGRATED GRAPHICS)</small>	1x stacked VGA + DVI-D connector 2x DisplayPort connectors, supporting 4K2K resolution
<b>SERIAL PORT</b>	2x software-programmable RS-232/422/485 port (COM1 & COM2) 1x RS-232 port (COM3)
<b>AUDIO</b>	1x Mic-in and 1x Speaker-out

### STORAGE INTERFACE

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

### EXPANSION BUS

<b>PCI/PCI EXPRESS</b>	1x PCIe x16 slot @ Gen3, 8-lanes PCIe signals in Cassette for installing nVidia® GeForce® GTX 950
<b>MINI PCI-E</b>	1x internal mini PCI Express socket with front-accessible SIM socket 1x internal mini PCI Express socket with internal SIM socket (mux with mSATA)
<b>EXPANDABLE I/O</b>	1x MezzIO™ expansion port for Neosys' MezzIO™ modules

### POWER SUPPLY

<b>DC INPUT</b>	1x 3-pin pluggable terminal block for 8~35VDC DC input
<b>REMOTE CTRL. &amp; STATUS OUTPUT</b>	1x 10-pin (2x5) wafer connector for remote on/off control and status LED output

### MECHANICAL

<b>DIMENSION</b>	240mm (W) x 225mm (D) x 111mm (H)
<b>WEIGHT</b>	4.8 kg (incl. CPU, GPU, memory and HDD)
<b>MOUNTING</b>	Wall-mount by mounting bracket

### ENVIRONMENTAL

<b>OPERATING TEMPERATURE</b>	with i7-6700TE, i5-6500TE (35W TDP) -25 °C ~ 60 °C with i7-6700, i5-6500, i3-6100 (65W / 51W TDP) -25 °C ~ 60 °C (configured as 35W CPU mode) -25 °C ~ 50 °C (configured as 65W / 51W CPU mode)
<b>STORAGE TEMPERATURE</b>	-40 °C ~ 85 °C
<b>HUMIDITY</b>	10% ~ 90%, non-condensing
<b>VIBRATION</b>	Operating, 5 Grms, 5-500 Hz, 3 Axes (w/ SSD, according to IEC60068-2-64)
<b>SHOCK</b>	Operating, 50 Grms, Half-sine 11ms Duration (w/ SSD, according to IEC60068-2-27)
<b>EMC</b>	CE / FCC Class A, according to EN 55022 & EN 55024

