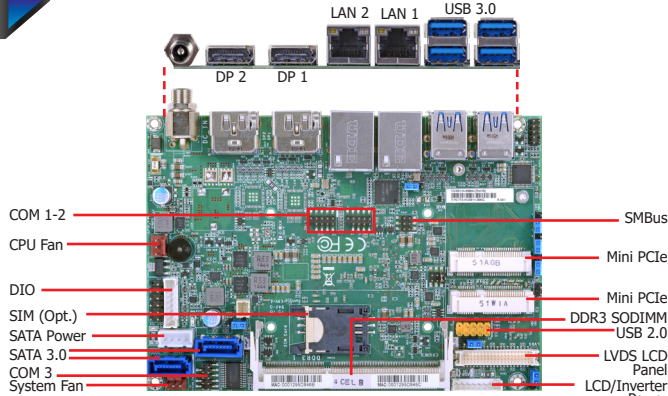
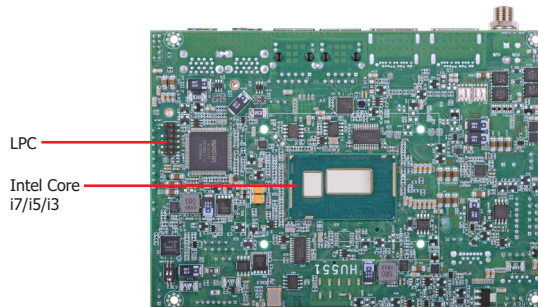


# HU551/HU553

ULT



Top View



Bottom View

\* The photos above refer to HU551.



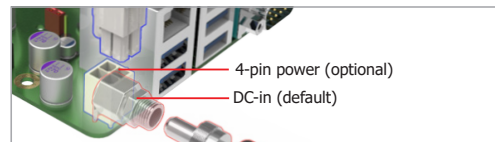
Model Name	Power
HU551	12V DC-in
HU553	15~36V DC-in

## Features

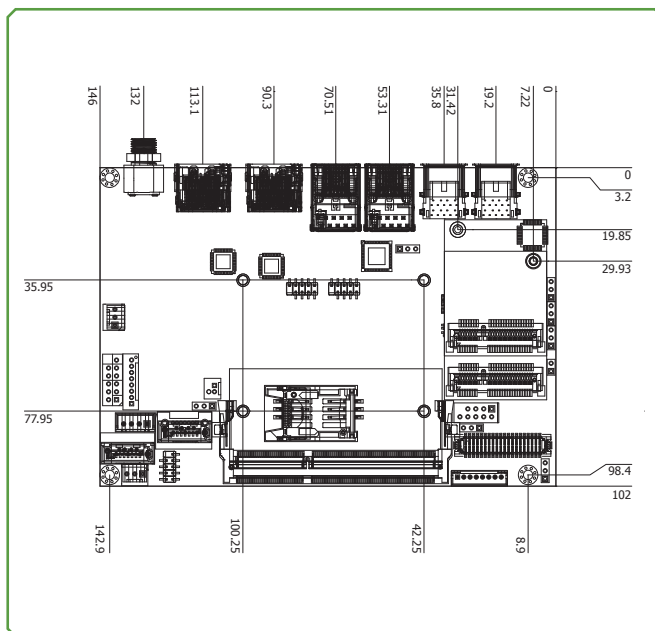
MEMORY	1 DDR3L SODIMM up to 8GB
EXPANSION	2 Mini PCIe
DISPLAY OUTPUTS	1 LVDS, 2 DP or 2 HDMI
LAN	2 LAN
COM	3 COM
USB	6 USB: 4 USB 3.0, 2 USB 2.0
STORAGE	2 SATA 3.0
DIO	8-bit DIO
DIMENSIONS	146mm x 102mm (5.75" x 4.02")



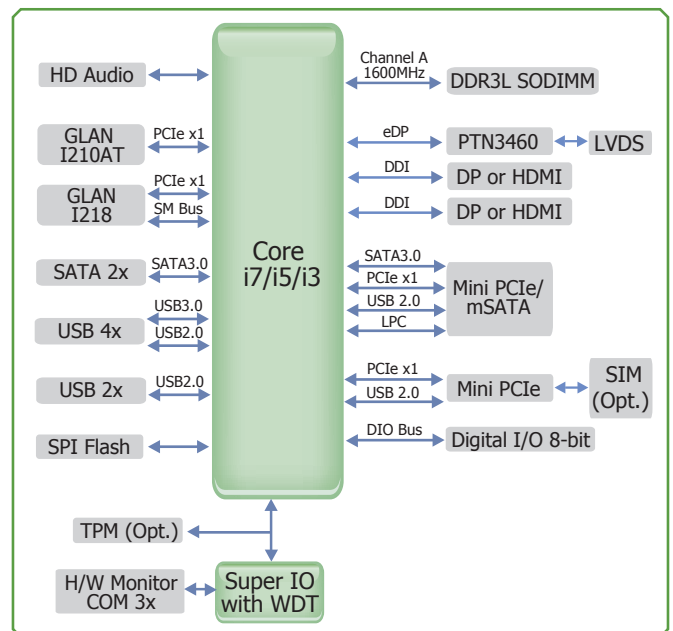
## Power Connector



## Mechanical Drawing



## Block Diagram



# HU551/HU553

## Specifications \* Optional and is not supported in standard model. Please contact your sales representative for more information.

### PROCESSOR

- 4th generation Intel® Core™ processors
- BGA 1168 packaging technology
- 22nm process technology
- Please refer to the Ordering Information below*

### SYSTEM MEMORY

- One 204-pin SODIMM socket
- Supports DDR3L 1333/1600MHz
- Supports up to 8GB system memory
- Supports single channel memory interface
- DRAM device technologies: 1Gb, 2Gb and 4Gb DDR3L DRAM technologies are supported for x8 and x16 devices, unbuffered, non-ECC

### EXPANSION SLOTS

- 2 Mini PCIe slots
  - 1 full size supports USB, PCIe, mSATA and LPC signals
  - 1 half size supports USB, PCIe and 3G signals
- 1 SIM card socket (available upon request)

### ONBOARD GRAPHICS FEATURES

- Intel® HD Graphics GT series
- Display ports: 1 LVDS, 2 DP (default) or 2 HDMI\*
- LVDS: NXP PTN3460, 48-bit, dual channel, resolution up to 1920x1200 @ 60Hz
- DP: resolution up to 3200 x 2000 @ 60Hz
- HDMI: resolution up to 4096x2304 @ 24Hz or 2560x1600 @ 60Hz
- Intel® Clear Video Technology
- Intel® Advanced Vector Extensions 2.0 (Intel® AVX 2.0) Instructions
- Supports DirectX 11.1, OpenGL 4.0, OpenCL 1.2

### ONBOARD AUDIO FEATURES

- Realtek ALC888 5.1-channel High Definition Audio

### ONBOARD LAN FEATURES

- Intel® I210 PCI Express Gigabit Ethernet controller
- Intel® I218 with iAMT9.5 Gigabit Ethernet Phy
- Integrated 10/100/1000 transceiver
- Fully compliant with IEEE 802.3, IEEE 802.3u, IEEE 802.3ab

### SERIAL ATA INTERFACE

- 2 SATA 3.0 ports with data transfer rate up to 6Gb/s
- Integrated Advanced Host Controller Interface (AHCI) controller
- Supports RAID 0/1
- Supports Intel® Smart Response Technology

### INTEL ACTIVE MANAGEMENT TECHNOLOGY (AMT)

- Supports iAMT9.5
- Out-of-band system access
- Remote troubleshooting and recovery
- Hardware-based agent presence checking
- Proactive alerting
- Remote hardware and software asset tracking

### TRUSTED PLATFORM MODULE (TPM)\*

- Provides a Trusted PC for secure transactions
- Provides software license protection, enforcement and password protection

### REAR PANEL I/O PORTS

- 1 12V (HU551) or 15~36V (HU553) DC-in jack or 4-pin power connector\*
- 2 DP (default) or 2 HDMI ports\*
- 2 RJ45 LAN ports
- 4 USB 3.0 ports

## Ordering Information

Model Name	Processor	Memory	DP	LVDS	RS232	RS485	Power	Thermal	Temperature
HU551-N-4650U	Intel® Core™ i7-4650U, 4M Cache, 1.7GHz (3.3GHz), 15W	1 SODIMM	2	1	2	1	12V DC-in	Cooler	0°C to 60°C
HU551-N-4300U	Intel® Core™ i5-4300U, 3M Cache, 1.9GHz (2.9GHz), 15W	1 SODIMM	2	1	2	1	12V DC-in	Cooler	0°C to 60°C
HU551-N-4010U	Intel® Core™ i3-4010U, 3M Cache, 1.7GHz, 15W	1 SODIMM	2	1	2	1	12V DC-in	Cooler	0°C to 60°C
HU551-N-2980U	Intel® Celeron® 2980U, 2M Cache, 1.6GHz, 15W	1 SODIMM	2	1	2	1	12V DC-in	Cooler	0°C to 60°C
HU553-N-4650U	Intel® Core™ i7-4650U, 4M Cache, 1.7GHz (3.3GHz), 15W	1 SODIMM	2	1	2	1	15~36V DC-in	Cooler	0°C to 60°C
HU553-N-4300U	Intel® Core™ i5-4300U, 3M Cache, 1.9GHz (2.9GHz), 15W	1 SODIMM	2	1	2	1	15~36V DC-in	Cooler	0°C to 60°C
HU553-N-4010U	Intel® Core™ i3-4010U, 3M Cache, 1.7GHz, 15W	1 SODIMM	2	1	2	1	15~36V DC-in	Cooler	0°C to 60°C
HU553-N-2980U	Intel® Celeron® 2980U, 2M Cache, 1.6GHz, 15W	1 SODIMM	2	1	2	1	15~36V DC-in	Cooler	0°C to 60°C

## Packing List

- 1 HU551/HU553 board
- 1 Serial ATA data cable: 332-553001-005G
- 1 Serial ATA power Y cable: A81-004041-016G
- 1 Heat sink with fan: A71-110021-000G

### I/O CONNECTORS

- 1 connector for 2 external USB 2.0 ports
- 3 connectors for 3 external serial ports (2.0mm pitch)
  - 1 RS485
  - 2 RS232
- 1 LVDS LCD panel connector
- 1 LCD/inverter power connector
- 1 8-bit Digital I/O and/or power connector
- 1 front audio connector for line-out and mic-in jacks
- 1 LPC connector
- 1 SMBus connector
- 2 Serial ATA connectors
- 1 Serial ATA power connector
- 1 front panel connector
- 1 chassis intrusion connector
- 2 fan connectors

### BIOS

- AMI BIOS
  - 64Mbit SPI BIOS

### WATCHDOG TIMER

- Watchdog timeout programmable via software from 1 to 255 seconds

### ENERGY EFFICIENT DESIGN

- Supports ErP Lot6 power saving\*
- Supports ACPI
- System Power Management
- Wake-On-Events include:
  - Wake-On-USB KB/Mouse
  - Wake-On-LAN
  - RTC timer to power-on the system
- AC power failure recovery

### DAMAGE FREE INTELLIGENCE

- Monitors CPU/system temperature and overheat alarm
- Monitors VCore/12V/5V/DDR voltages and failure alarm
- Monitors CPU/system fan speed and failure alarm
- Read back capability that displays temperature, voltage and fan speed

### POWER CONSUMPTION

- HU553-N-4650U: 19.68W with i7-4650U at 1.7GHz and 2x 4GB DDR3L SODIMM

### OS SUPPORT

- Windows 7 Ultimate x86 & SP1 (32-bit)
- Windows 7 Ultimate x64 & SP1 (64-bit)
- Windows 8 Enterprise x86 (32-bit)
- Windows 8 Enterprise x64 (64-bit)
- Windows 8.1 Embedded Pro x86 (32-bit)
- Windows 8.1 Embedded Pro x64 (64-bit)

### TEMPERATURE

- Operating: 0°C to 60°C
- Storage: -20°C to 85°C

### HUMIDITY

- 5% to 90%

### MTBF

- HU551 : 309,931 hrs @ 25°C; 152,236 hrs @ 45°C;
- HU553 : 305,338 hrs @ 25°C; 149,213 hrs @ 45°C
- Calculation model: Telcordia Issue 2, Method I Case 3
- Environment: GB, GC – Ground Benign, Controlled

### DIMENSIONS

- 3.5" board
- 146mm (5.75") x 102mm (4.02")

### CERTIFICATION

- CE, FCC Class B, RoHS