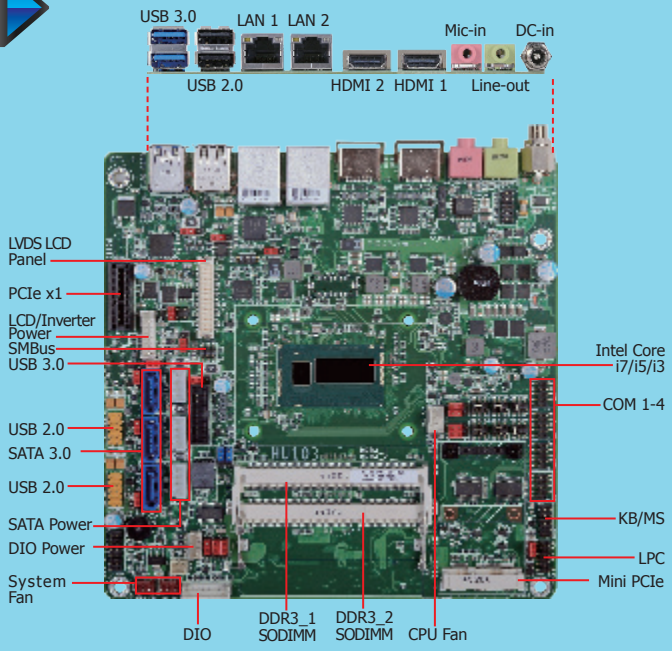
HU101/HU103

ULT



* The photos above refer to HU103.

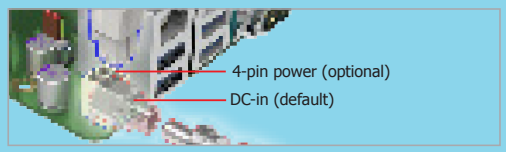
Model Name	Power
HU101	12V DC-in
HU103	19~24V DC-in

Features

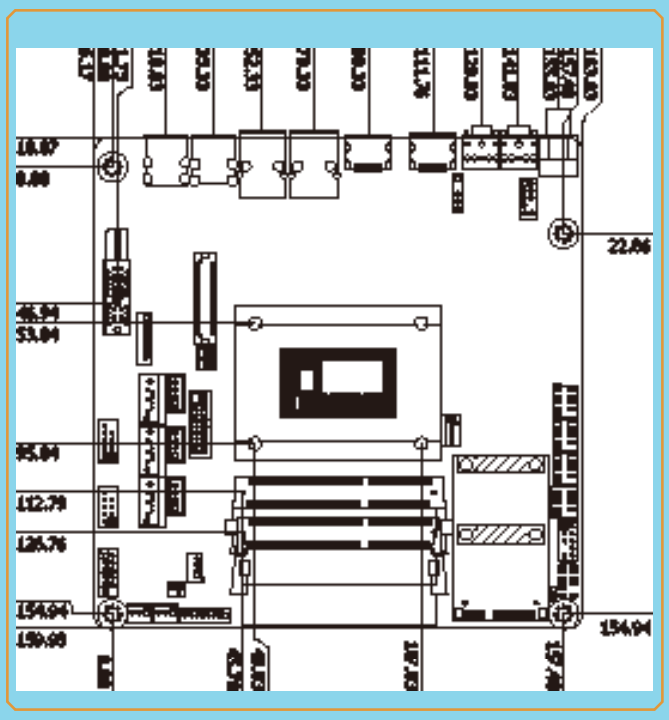
MEMORY	2 DDR3L SODIMM up to 16GB
EXPANSION	1 PCIe x1
	1 Mini PCIe
DISPLAY OUTPUTS	2 HDMI, 1 LVDS or 1 eDP
LAN	2 LAN
COM	4 COM
USB	10 USB: 4 USB 3.0, 6 USB 2.0
STORAGE	3 SATA 3.0
DIO	8-bit DIO



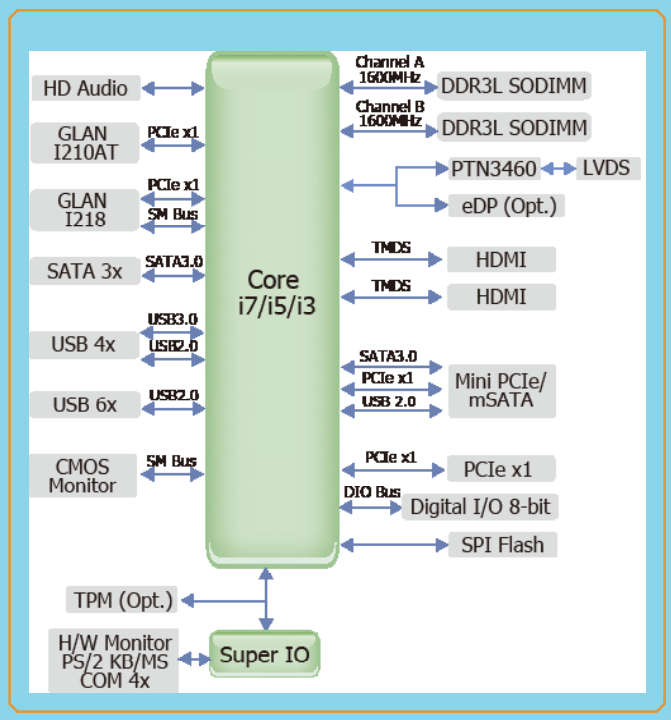
Power Connector



Mechanical Drawing



Block Diagram



HU101/HU103

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
- Two 204-pin SODIMM sockets
- Supports DDR3L 1333/1600MHz
- Supports up to 16GB system memory
- Supports dual 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
- 1 PCIe x1 slot
- 1 Mini PCIe slot
  - Supports USB and PCIe signals
  - Supports mSATA
  - Supports full size Mini PCIe card

ONBOARD GRAPHICS FEATURES
- Intel® HD Graphics GT series
- Display ports: 2 HDMI, 1 LVDS (default) or 1 eDP*
- HDMI: resolution up to 4096x2304 @ 24Hz or 2560x1600 @ 60Hz
- LVDS: NXP PTN3460, 24-bit, dual channel, resolution up to 1920x1200 @ 60Hz
- eDP: resolution up to 3200 x 2000 @ 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
- S/PDIF audio interface

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
- 3 SATA 3.0 ports with data transfer rate up to 6Gb/s
  - SATA port 0 provides adequate space for SATA DOM
- Integrated Advanced Host Controller Interface (AHCI) controller
- Supports RAID 0/1/5
- 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

WATCHDOG TIMER
- Watchdog timeout programmable via software from 1 to 255 seconds

REAR PANEL I/O PORTS
- 1 12V (HU101) or 19~24V (HU103) DC-in jack or 4-pin power connector*
- 2 HDMI ports
- 2 RJ45 LAN ports
- 2 USB 2.0 ports
- 2 USB 3.0 ports
- Line-out and mic-in jacks

I/O CONNECTORS
- 2 connectors for 4 external USB 2.0 ports; or 3 connectors for 6 external USB 2.0 ports*
- 1 connector for 2 external USB 3.0 ports
- 1 vertical USB 2.0/1.1 port*
- 4 connectors for 4 external serial ports (2.0mm pitch)
  - 2 RS232/422/485 (RS232 and/or power)
  - 2 RS232
- 1 LVDS LCD panel connector
- 1 LCD/inverter power connector
- 1 eDP connector*
  - EXT-DP riser card supports 1 external DP port*
- 1 8-bit DIO connector
- 1 DIO power connector
- 1 front audio connector for line-out and mic-in jacks
- 1 S/PDIF connector
- 1 PS/2 connector for keyboard/mouse port
- 1 LPC connector
- 1 SMBus connector
- 3 Serial ATA connectors
- 3 Serial ATA power connectors
- 1 front panel connector
- 1 chassis intrusion connector
- 3 fan connectors

BIOS
- AMI BIOS
  - 64Mbit SPI BIOS

ENERGY EFFICIENT DESIGN
- Supports ErP Lot6 power saving*
- Supports ACPI
- System Power Management
- Wake-On-Events include:
  - Wake-On-PS/2 KB/Mouse*
  - 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
- HU101-N4650U: 35.42W with i7-4650U at 1.7GHz and 2x 2GB 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 Enterprise x86 (32-bit)
- Windows 8.1 Enterprise x64 (64-bit)

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

HUMIDITY
- 5% to 90%

DIMENSIONS
- Mini-ITX form factor
- 170mm (6.7") x 170mm (6.7")

CERTIFICATION
- CE, FCC Class B, RoHS, UL

Ordering Information

Model Name	Processor	SODIMM	RS232	RS232/422/485	Power	Thermal	Temperature
HU101-N4650U	Intel® Core™ i7-4650U, 4M Cache, 1.7GHz (3.3GHz), 15W	2 (16GB)	2	2	12V DC-in	Cooler	0°C to 60°C
HU101-N4300U	Intel® Core™ i5-4300U, 3M Cache, 1.9GHz (2.9GHz), 15W	2 (16GB)	2	2	12V DC-in	Cooler	0°C to 60°C
HU101-N4010U	Intel® Core™ i3-4010U, 3M Cache, 1.7GHz, 15W	2 (16GB)	2	2	12V DC-in	Cooler	0°C to 60°C
HU101-N2980U	Intel® Celeron® 2980U, 2M Cache, 1.6GHz, 15W	2 (16GB)	2	2	12V DC-in	Cooler	0°C to 60°C
HU103-N4650U	Intel® Core™ i7-4650U, 4M Cache, 1.7GHz (3.3GHz), 15W	2 (16GB)	2	2	19~24V DC-in	Cooler	0°C to 60°C
HU103-N4300U	Intel® Core™ i5-4300U, 3M Cache, 1.9GHz (2.9GHz), 15W	2 (16GB)	2	2	19~24V DC-in	Cooler	0°C to 60°C
HU103-N4010U	Intel® Core™ i3-4010U, 3M Cache, 1.7GHz, 15W	2 (16GB)	2	2	19~24V DC-in	Cooler	0°C to 60°C
HU103-N2980U	Intel® Celeron® 2980U, 2M Cache, 1.6GHz, 15W	2 (16GB)	2	2	19~24V DC-in	Cooler	0°C to 60°C

Packing List

- 1 HU101/HU103 motherboard
- 1 Serial ATA data with power cable: A81-002013-000G
- 1 DVD
- 1 QR (Quick Reference)
- 1 Heat sink with fan: A71-114001-000G

Optional Items

- USB port cable: 332-253010-026G
- COM port cable: A81-015001-000G
- Serial ATA data with power cable: A81-002013-000G
- Power adapter (100W, 12V) : 671-110001-100G
- Power adapter (120W, 19V) : 671-112004-100G
- EXT-DP riser card: 770-EXTDP1-000G