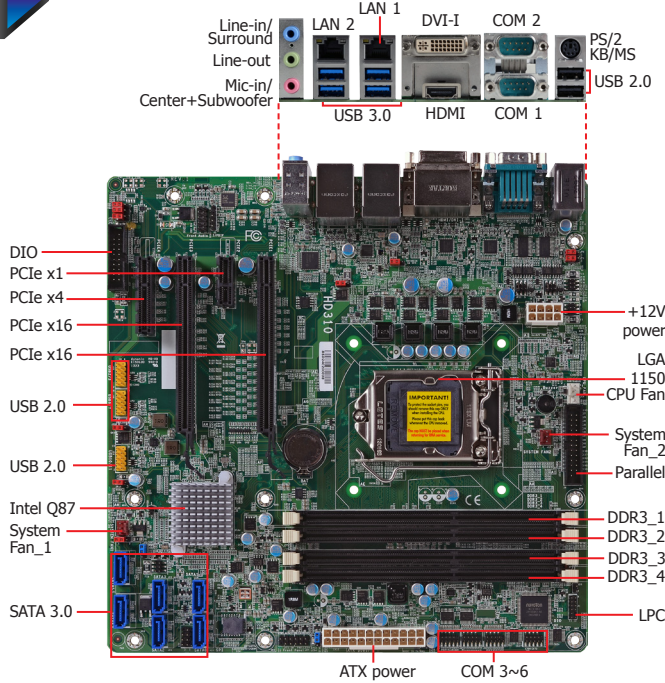




# HD310-Q87

Desktop

Q87



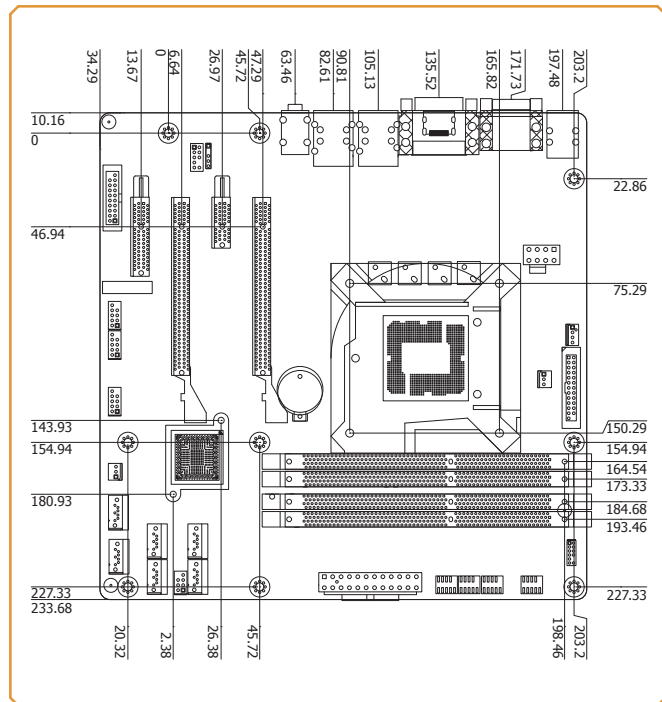
## Features

MEMORY	4 DDR3 DIMM up to 32GB
EXPANSION	2 PCIe x16 (1 x16 and 1 x1 signal) 1 PCIe x4 1 PCIe x1
DISPLAY OUTPUTS	1 HDMI, 1 DVI-I
LAN	2 LAN
COM	6 COM
USB	12 USB: 4 USB 3.0, 8 USB 2.0
PARALLEL	1 Parallel
STORAGE	6 SATA 3.0
DIO	8-bit DIO

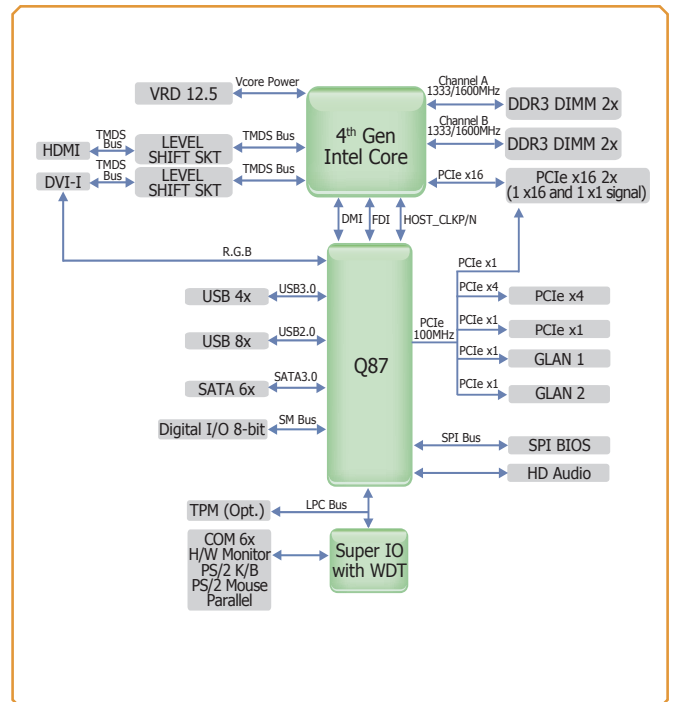


Model Name	LAN	COM
HD310-Q87CRM	2	2 RS232/422/485, 4 RS232

## Mechanical Drawing



## Block Diagram



## HD310-Q87

### Specifications

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

#### PROCESSOR

- LGA 1150 socket for:
  - 4th Generation Intel® Core™ processors (22nm process technology)
    - : Intel® Core™ i7-4790S (8M Cache, up to 4.0 GHz); 65W
    - : Intel® Core™ i7-4770S (8M Cache, up to 3.9 GHz); 65W
    - : Intel® Core™ i7-4770TE (8M Cache, up to 3.3 GHz); 45W
    - : Intel® Core™ i5-4590S (6M Cache, up to 3.7 GHz); 65W
    - : Intel® Core™ i5-4590T (6M Cache, up to 3.0 GHz); 35W
    - : Intel® Core™ i5-4570S (6M Cache, up to 3.6 GHz); 65W
    - : Intel® Core™ i5-4570TE (4M Cache, up to 3.3 GHz); 35W
    - : Intel® Core™ i3-4360 (4M Cache, 3.7 GHz); 54W
    - : Intel® Core™ i3-4350T (4M Cache, 3.1 GHz); 35W
    - : Intel® Core™ i3-4340TE (4M Cache, 2.6 GHz); 35W
    - : Intel® Core™ i3-4330 (4M Cache, 3.5 GHz); 54W
    - : Intel® Core™ i3-4330TE (4M Cache, 2.4 GHz); 35W
    - : Intel® Pentium® G3420 (3M Cache, 3.2 GHz); 53W
    - : Intel® Pentium® G3320TE (3M Cache, 2.3 GHz); 35W
    - : Intel® Celeron® G1820 (2M Cache, 2.7 GHz); 53W
    - : Intel® Celeron® G1820TE (2M Cache, 2.2 GHz); 35W

#### CHIPSET

- Intel® Q87 Express chipset

#### SYSTEM MEMORY

- Four 240-pin DDR3 DIMM sockets
- Supports DDR3 1333/1600MHz
- Supports dual channel memory interface
- Supports up to 32GB system memory
- DRAM device technologies: 1Gb, 2Gb and 4Gb DDR3 DRAM technologies are supported for x8 and x16 devices, unbuffered, non-ECC

#### EXPANSION SLOTS

- 2 PCIe x16 slots
  - 1 x16 signal (Gen 3) and 1 x1 signal (Gen 2)
- 1 PCIe x4 Gen 2 slot (PCIe 2.0)
- 1 PCIe x1 Gen 2 slot (PCIe 2.0)

#### ONBOARD GRAPHICS FEATURES

- Intel® HD Graphics
- Display ports: 1 HDMI, 1 DVI-I
- DVI-I: resolution up to 1920x1200 @ 60Hz
- HDMI: resolution up to 4096x2304 @ 24Hz or 2560x1600 @ 60Hz
- VGA: 24-bit, resolution up to 1920x1200 @ 60Hz
- Supports 20 Graphics Execution Units (EUs)
- Intel® Clear Video Technology
- Intel® Advanced Vector Extensions (Intel® AVX) Instructions
- DirectX Video Acceleration (DXVA) support for accelerating video processing
- Supports DirectX 11.1 and OpenGL 4.0

#### ONBOARD AUDIO FEATURES

- Realtek ALC886 5.1-channel High Definition Audio
- Audio outputs: Mic-in/Center+Subwoofer, line-in/surround and line out
- S/PDIF audio interface

#### ONBOARD LAN FEATURES

- Intel® I210 PCI Express Gigabit Ethernet controller
- Intel® I217LM with iAMT9.0 Gigabit Ethernet Phy
- Integrated 10/100/1000 transceiver
- Fully compliant with IEEE 802.3, IEEE 802.3u, IEEE 802.3ab

#### SERIAL ATA (SATA) INTERFACE

- 6 SATA 3.0 ports with data transfer rate up to 6Gb/s
  - SATA port 5 provides adequate space for SATA DOM
- Integrated Advanced Host Controller Interface (AHCI) controller
- Supports RAID 0/1/5/10
- Supports Intel® Smart Response Technology

#### USB INTERFACE

- XHCI Host Controller supports up to 4 super speed USB 3.0 ports

#### INTEL ACTIVE MANAGEMENT TECHNOLOGY (AMT)

- Supports iAMT9.0
- Out-of-band system access
- Remote troubleshooting and recovery
- Hardware-based agent presence checking
- Proactive alerting
- Remote hardware and software asset tracking

### Packing List

- 1 HD310 motherboard
- 1 Serial ATA data cable
- 1 I/O shield
- 1 DVD

#### TRUSTED PLATFORM MODULE (TPM)\*

- Provides a Trusted PC for secure transactions
- Provides software license protection, enforcement and password protection
- Infineon TPM1.2 (optional)

#### REAR PANEL I/O PORTS

- 1 mini-DIN-6 port for PS/2 mouse/keyboard
- 4 USB 3.0/2.0/1.1 ports
- 2 USB 2.0/1.1 ports
- 2 DB-9 RS232/422/485 serial ports (RS232 and/or power)
- 1 HDMI port
- 1 DVI-I port
- 2 RJ45 LAN ports
- Line-in/surround, Line-out, and Mic-in/Center+Subwoofer jacks

#### I/O CONNECTORS

- 3 connectors for 6 external USB 2.0/1.1 ports
- 4 connectors for 4 external RS232 serial ports (2.0mm pitch)
- 1 parallel connector
- 1 8-bit Digital I/O connector
- 1 front audio connector for line-out and mic-in jacks
- 1 S/PDIF connector
- 1 LPC connector
- 6 SATA 3.0 ports
- 1 24-pin ATX power connector
- 1 8-pin 12V power connector
- 1 chassis intrusion connector
- 1 front panel connector
- 3 fan connectors

#### BIOS

- AMI BIOS
- 64Mbits SPI BIOS

#### WATCHDOG TIMER

- Software programmable from 1 to 255 seconds

#### 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
- CPU stopped clock control
- AC power failure recovery

#### DAMAGE FREE INTELLIGENCE

- Monitors CPU/system temperature and overheat alarm
- Monitors V<sub>CORE</sub>/5V/3.3V/V<sub>DIMM</sub>/12V/3VSB/V<sub>BAT</sub> voltages and failure alarm
- Monitors CPU/system fan speed and failure alarm
- Read back capability that displays temperature, voltage and fan speed

#### POWER CONSUMPTION

- 59.15W with i7-4770S at 3.10GHz and 4x 2GB DDR3 DIMM

#### OS SUPPORT

- Windows XP Professional x86 & SP3 (32-bit) (limited function)
- 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 10 IoT Enterprise

#### TEMPERATURE

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

#### HUMIDITY

- 10% to 90%

#### MTBF

- 429,985 hrs @ 25°C; 242,576 hrs @ 45°C
- Calculation model: Telcordia Issue 2, Method I Case 3
- Environment: GB, GC – Ground Benign, Controlled

#### DIMENSIONS

- microATX form factor
- 244mm (9.6") x 244mm (9.6")

#### CERTIFICATION

- CE, FCC Class B, RoHS, UL

### Optional Items

- USB port cable
- Serial ATA data cable
- I/O shield