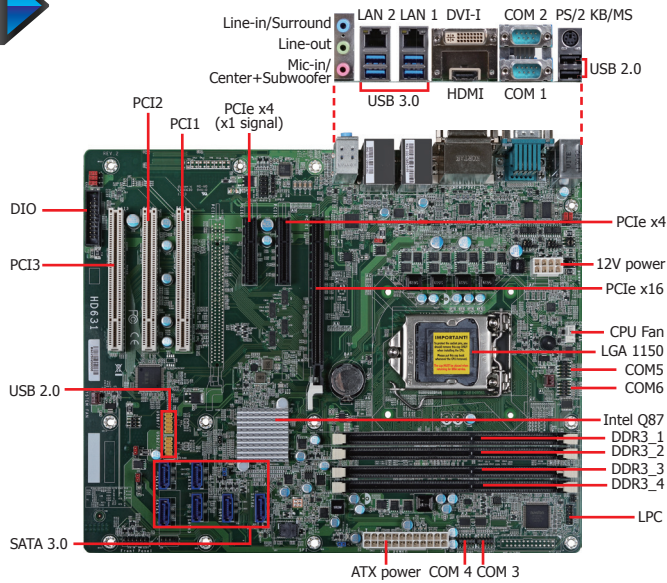




# HD631-Q87

Desktop

Q87



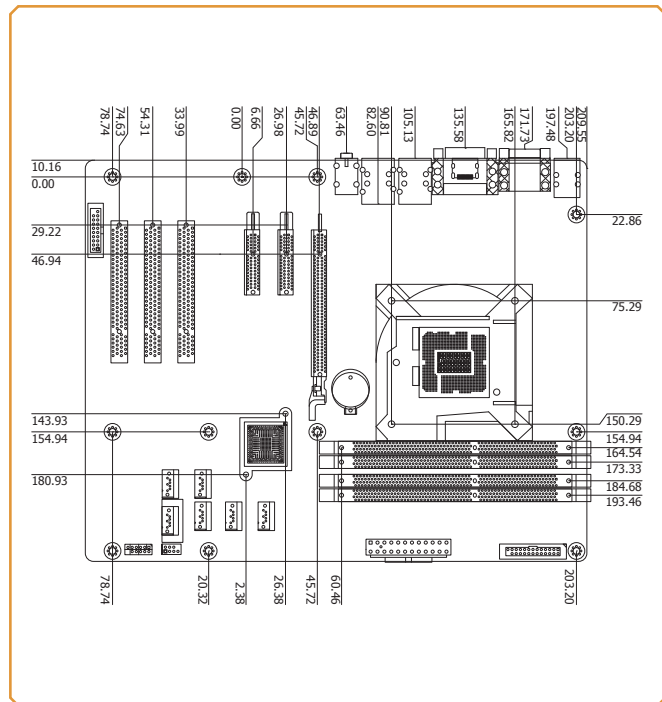
## Features

|                 |   |
|-----------------|---|
| MEMORY          | 4 DDR3 DIMM up to 32GB                                  |
| EXPANSION       | 1 PCIe x16<br>2 PCIe x4 (1 x4 and 1 x1 signal)<br>3 PCI |
| DISPLAY OUTPUTS | 1 HDMI, 1 DVI-I   |
| LAN             | 2 LAN   |
| COM             | 6 COM   |
| USB             | 10 USB: 4 USB 3.0, 6 USB 2.0                            |
| STORAGE         | 6 SATA 3.0  |
| DIO             | 8-bit DIO   |

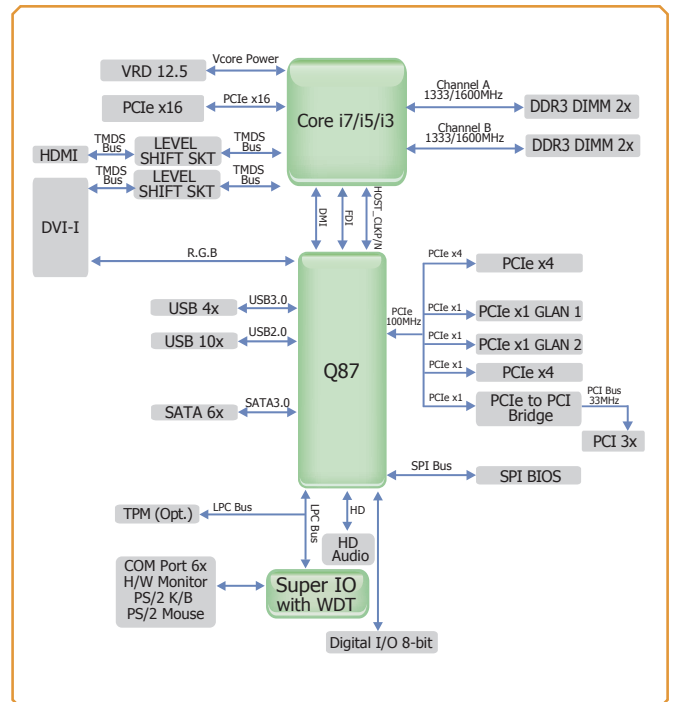


| Model Name   | LAN | COM                      |
|--------------|-----|--------------------------|
| HD631-Q87CRM | 2   | 2 RS232/422/485, 4 RS232 |

## Mechanical Drawing



## Block Diagram



# HD631-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**

- 1 PCIe x16 Gen 3 slot (PCIe 3.0)
  - x16 signal
- 2 PCIe x4 Gen 2 slots (PCIe 2.0)
  - 1 x4 signal and 1 x1 signal
- 3 PCI slots (PCI 2.3)

**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
- DirectX Video Acceleration (DXVA) support for accelerating video processing

**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

**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

**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
- 2 DB-9 serial ports
  - Supports RS232/422/485 (RS232 and/or Power)
- 1 HDMI port
- 1 DVI-I port
- 2 RJ45 LAN ports
- 4 USB 3.0/2.0/1.1 ports
- 2 USB 2.0/1.1 ports
- Line-in/Surround, Line-out, Mic-in/Center+Subwoofer jacks

**I/O CONNECTORS**

- 2 connectors for 4 external USB 2.0/1.1 ports
- 4 connectors for 4 external RS232 serial ports (2.0mm pitch)
- 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 Serial ATA 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
  - 64Mbit 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 VCore/5V/3.3V/1.5V/12V/3VSB/VBAT voltages and failure alarm
- Monitors CPU/system fan speed and failure alarm
- Read back capability that displays temperature, voltage and fan speed

**POWER CONSUMPTION**

- 59.93W 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**

- 5% to 90%

**MTBF**

- 416,787 hrs @ 25°C; 234,346 hrs @ 45°C
- Calculation model: Telcordia Issue 2, Method I Case 3
- Environment: GB, GC – Ground Benign, Controlled

**DIMENSIONS**

- ATX form factor
- 305mm (12") x 244mm (9.6")

**CERTIFICATION**

- CE, FCC Class B, RoHS, UL

**Optional Items**

|   |                 |
|---|-----------------|
| • USB port cable (Length: 350/398mm)            | 332-253010-026G |
| • Serial ATA data cable (W/Lock, Length: 500mm) | 332-553001-005G |
| • COM port cable                                | A81-015004-005G |
| • I/O Shield                                    | A49-HD6310-001G |

**Packing List**

|                           |
|---------------------------|
| • 1 HD631 motherboard     |
| • 1 Serial ATA data cable |
| • 1 I/O shield            |
| • 1 DVD                   |