HM961-QM87

Features

<table>
<thead>
<tr>
<th>MEMORY</th>
<th>2 DDR3L ECC SODIMM up to 16GB</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXPANSION</td>
<td>1 PCIe x16, 7 PCIe x1</td>
</tr>
<tr>
<td></td>
<td>1 LPC, 1 I²C, 1 SMBus, 2 serial</td>
</tr>
<tr>
<td></td>
<td>1 VGA, 1 LVDS, 3 DDI (HDMI/DVI/DP)</td>
</tr>
<tr>
<td></td>
<td>12 USB: 4 USB 3.0, 8 USB 2.0</td>
</tr>
<tr>
<td></td>
<td>4 SATA 3.0</td>
</tr>
<tr>
<td></td>
<td>SSD (optional)</td>
</tr>
<tr>
<td></td>
<td>4-bit input and 4-bit output GPIO</td>
</tr>
<tr>
<td>LAN</td>
<td>1 LAN</td>
</tr>
<tr>
<td>DIMENSIONS</td>
<td>COM Express® R2.1 Basic, Type 6</td>
</tr>
<tr>
<td></td>
<td>95mm x 125mm (3.74” x 4.9”)</td>
</tr>
</tbody>
</table>

Mechanical Drawing

Block Diagram

Coming Soon
Specifications

PROCESSOR
- 4th generation Intel® Core™ processors
- BGA 1364 packaging technology
- 22nm process technology

CHIPSET
- Intel® QM87 Express Chipset

SYSTEM MEMORY
- Two 204-pin DDR3L SODIMM sockets
- Supports DDR3L 1333/1600MHz ECC SODIMM
- Supports up to 16GB system memory
- DRAM device technologies: 1Gb, 2Gb and 4Gb DDR3L DRAM technologies are supported for x8 and x16 devices, ECC DRAM only

ONBOARD GRAPHICS FEATURES
- Intel® HD Graphics 4600
- Supports 1 VGA, 1 LVDS and 3 DDI
- VGA: resolution up to 2048x1536 @ 75Hz
- LVDS: 36-bit P7943G, 24-bit dual channel, resolution up to 1920x1200 @ 60Hz
- Digital Display Interface: HDMI, DVI and DP
- HDMI: resolution up to 4096x2304 @ 24Hz or 2560x1600 @ 60Hz
- DVI: resolution up to 1920x1200 @ 60Hz
- DP: resolution up to 3840x2160 @ 60Hz
- Intel® Clear Video Technology
- Intel® Advanced Vector Extensions (Intel® AVX) Instructions
- Supports DirectX 11.1, OpenGL 3.2, OpenCL 1.2

ONBOARD AUDIO FEATURES
- Supports High Definition Audio interface

ONBOARD LAN FEATURES
- 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
- Supports 4 SATA 3.0 with data transfer rate up to 6Gb/s
- Supports RAID 0/1/5/10
- 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
- Supports 64Mbit SPI BIOS
- AMI BIOS

SSD (optional)
- 2GB/4GB/8GB/16GB/32GB/64GB
- 2GB: Write: 30MB/sec (max), Read: 70MB/sec (max)
- SATA to SSD onboard

INTEL ACTIVE MANAGEMENT TECHNOLOGY (AMT)
- Supports iAMT9.0
- Out-of-band system access
- XHCI Host Controller supports up to 4 super speed USB 3.0 ports
- Supports Intel® Smart Response Technology
- Supports 2 serial interfaces (TX/RX)
- Supports 4-bit input and 4-bit output GPIO

TRUSTED PLATFORM MODULE (TPM) - optional
- Provides a Trusted PC for secure transactions
- Provides software license protection, enforcement and password protection

EXPANSION INTERFACES
- Supports 4 USB 3.0 interfaces
- Supports 8 USB 2.0 interfaces
- Supports 1 PCIe x16 Gen 3 interface
- Supports 7 PCIe x1 interfaces
- Supports LPC interface
- Supports SMBus interface
- Supports I2C interface
- Supports 2 serial interfaces (TX/RX)

BIOS
- AMI BIOS
- 64Mbit SPI BIOS

WATCHDOG TIMER
- Software programmable from 1 to 255 seconds

POWER
- Input: 12V, VCC_RTC, 5VSB (option)

OS SUPPORT
- Windows XP Professional x64 & SP2 (64-bit)
- Windows XP Professional x86 & SP3 (32-bit)
- Windows 7 Ultimate x64 & SP1 (64-bit)
- Windows 8 Enterprise x64 (64-bit)
- Windows 8 Enterprise x86 (32-bit)

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

HUMIDITY
- 5% to 90%

PCB
- Dimensions
  - COM Express® Basic
  - 95mm (3.74”) x 125mm (4.9”)
  - 95mm (3.74”) x 125mm (4.9”)
- Compliance
  - PICMG COM Express R2.1, Type 6

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Model Name</th>
<th>Chipset</th>
<th>Temperature</th>
<th>Memory</th>
<th>SSD</th>
<th>Processors</th>
</tr>
</thead>
<tbody>
<tr>
<td>HM961</td>
<td>QM87</td>
<td>B</td>
<td>S</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B: 0°C to 60°C</td>
<td>S: Socket</td>
<td></td>
<td>47000EQ</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0: None</td>
<td>2: 2GB</td>
<td>8: 8GB</td>
<td>1: 16GB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3: 32GB</td>
<td>6: 64GB</td>
<td></td>
<td>47000EQ: Intel® Core™ i7-4700EQ, 6M Cache, up to 3.4 GHz, 47W</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4400E: Intel® Core™ i5-4400E, 3M Cache, up to 3.3 GHz, 37W</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4402E: Intel® Core™ i5-4403E, 3M Cache, up to 2.7 GHz, 25W</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4100E: Intel® Core™ i3-4100E, 3M Cache, 2.4 GHz, 37W</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4102E: Intel® Core™ i3-4102E, 3M Cache, 1.6 GHz, 25W</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2000E: Intel® Celeron® 2000E, 2M Cache, 2.2 GHz, 37W</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2002E: Intel® Celeron® 2002E, 2M Cache, 1.5 GHz, 25W</td>
</tr>
</tbody>
</table>

PACKING LIST
- 1 HM961 board
- 1 QR (Quick Reference)
- 1 DVD

www.dfi.com

Group © March 21, 2014 DFI Inc.

DFI reserves the right to change the specifications at any time prior to the product’s release. Changes thereafter will be based on the product’s revision. Please contact your sales representative for the exact revision offered in your area. Refer to the website (www.dfi.com) for the most updated information. All product names mentioned are trademarks of their respective companies. COM Express® is a registered trademark of the PIC Industrial Computer Manufacturers Group © March 21, 2014 DFI Inc.