4th Gen Intel® Core™
COM Express® Basic

HM961-HM86

**Features**

**MEMORY**
2 DDR3L ECC SODIMM up to 16GB

**EXPANSION**
1 PCIe x16, 7 PCIe x1
1 LPC, 1 SMBus, 1 I²C, 2 serial
1 VGA, 1 LVDS, 3 DDI (HDMI/DVI/DP)
2 USB 3.0, 8 USB 2.0
4 SATA: 2 SATA 3.0, 2 SATA 2.0
SSD (optional)
4-bit input and 4-bit output GPIO

**LAN**
1 LAN

**DIMENSIONS**
COM Express® R2.1 Basic, Type 6
95mm x 125mm (3.74" x 4.9")

**Mechanical Drawing**

**Block Diagram**
Specifications

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

Please refer to the Ordering Information below

CHIPSET
- Intel® HM86 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: XNPTN3460, 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 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 2 SATA 3.0, and 2 SATA 2.0
- Supports 2 SATA 3.0, 1 SATA 2.0, and 1 SSD (optional)
- Integrated Advanced Host Controller Interface (AHCI) controller

USB INTERFACE
- XHCI Host Controller supports up to 2 super speed USB 3.0 ports
- USB INTERFACE
- XHCI Host Controller supports up to 2 super speed USB 3.0 ports

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

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

Expansion Interfaces
- Supports 2 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 1C interface
- Supports 2 serial interfaces (TX/RX)
- Supports 4-bit input and 4-bit output GPIO

Damage Free Intelligence
- Monitors CPU temperature and overheating alert
- Monitors CPU fan speed and failure alarm
- Monitors Voltage/DDR voltages and failure alarm

BIOS
- AMI BIOS
- 64MB SPI BIOS

Watchdog Timer
- Software programmable from 1 to 255 seconds

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

Power Consumption
- TBD

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

(os based on Intel’s Windows XP support list)

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")
- 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>HM86</td>
<td>B</td>
<td>S</td>
<td>0</td>
<td>4700EQ</td>
</tr>
</tbody>
</table>

B: 0°C to 60°C  S: Socket
0: None
2: 2GB
4: 4GB
8: 8GB
16: 16GB
32: 32GB
64: 64GB

4700EQ: Intel® Core™ i7-4700EQ, 6M Cache, up to 3.4 GHz, 47W
4400E: Intel® Core™ i5-4400E, 3M Cache, up to 3.3 GHz, 37W
4402E: Intel® Core™ i5-4402E, 3M Cache, up to 2.7 GHz, 25W
4100E: Intel® Core™ i3-4100E, 3M Cache, 2.4 GHz, 37W
4102E: Intel® Core™ i3-4102E, 3M Cache, 1.6 GHz, 25W
2000E: Intel® Celeron® 2000E, 2M Cache, 2.2 GHz, 37W
2002E: Intel® Celeron® 2002E, 2M Cache, 1.5 GHz, 25W

Packing List
- 1 HM961 board
- 1 QR (Quick Reference)
- 1 DVD

Optional Items
- COM331-B carrier board kit
- COM101-BAT carrier board kit
- Heat spreader with heat sink and fan: TBD

www.dfi.com

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 PCI Industrial Computer Manufacturers Group © March 21, 2014 DFI Inc.