### Features

- 4th Generation Intel® Core™ i7/i5/i3 Processor with Mobile Intel® QM87 Express Chipset
- Up to 16GB Dual Channel DDR3L at 1600MHz
- Three DDI ports support 3 independent displays
- Seven PCIe x1, one PCIe x16
- GbE, four SATA 6 Gb/s, four USB 3.0 and four USB 2.0
- Supports Smart Embedded Management Agent (SEMA) functions
- Extreme Rugged™ operating temperature: -40°C to +85°C (optional)

### Specifications

#### Core System

- **CPU**: 4th Generation Intel® Core™ i7 Processors (Mobile) - 22nm (also known as “Haswell” Platform)
  - i7-4700EQ 2.4 GHz (3.4 GHz Turbo), 47W (4C/GT2)
  - i5-4400E 2.7 GHz (3.3 GHz Turbo), 37W (2C/GT2)
  - i5-4402E 1.6 GHz (2.7 GHz Turbo), 25W (2C/GT2)
  - i7-4860EQ 2.4 GHz (3.2 GHz Turbo), 47W (4C/GT3)
  - Celeron® 2000E 2.2 GHz (no Turbo) 35W (2C/GT1)
  - Celeron® 2002E 1.5 GHz (no Turbo) 25W (2C/GT1)
  - Note: Availability of the features may vary between processor SKUs.
- **Memory**: Dual channel with ECC 1600/1333 MHz DDR3L memory up to 16GB in dual SODIMM socket
- **Embedded BIOS**: AMI EFI with CMOS backup in 8MB SPI BIOS with Intel® AMT 9.0 support
- **L3 Cache**: 6MB for i7-4700EQ, 3MB for i5-4400E, i5-4402E, i3-4100E and i3-4102E
- **Expansion Busses**: PCI Express x16 (Gen3) or PCI Express (2 x8 or 1 x8 with 2 x4)
  - 6 PCI Express x1 (AB): lanes 0/1/2/3/4/5
  - 1 PCI Express x1 (CD): lane 6
  - LPC bus, SMBus (system) , PCI (user)
- **SEMA Board Controller**: Supports: Voltage/Current monitoring, Power sequence debug support, AT/ATX mode control, Logistics and Forensic information, Flat Panel Control, General Purpose I/O, Failsafe BIOS (dual BIOS), Watchdog Timer and Fan Control
- **Debug Headers**: 40-pin multipurpose flat cable connector
  - Use in combination with DB-40 debug module
  - Providing BIOS POST code LED, BMC access, SPI BIOS flashing, Power Testpoints, Debug LEDs
  - 60-pin XDP header for JTAG debug of CPU/chipset

#### Video

- **GPU Feature Support**: Generation 7.5 graphics core architecture, supporting 3 independent and simultaneous display combinations of DisplayPort / HDMI / LVDS monitors
  - Encode/transcode HD content
- **Digital Display Interface**: DD1T supporting DisplayPort / HDMI / DVI
  - DD22 supporting DisplayPort / HDMI / DVI
  - DD13 supporting DisplayPort / HDMI / DVI
- **VGA**: Analog VGA support with 300 MHz DAC
  - Analog monitor support up to QXGA (2048 x 1536)
- **LVDS**: Single/dual channel 18/24-bit LVDS from eDP (two lanes)

#### Audio

- **Chipset**: Intel® HD Audio integrated in SOC
- **Audio Codec**: Located on carrier Express-BASE6 (ALC886 standard supported)

#### Ethernet

- **Intel® MACPHY**: I217LM (Enterprise SKU) with AMT 9.0 support
- **I/O Interfaces**:  
  - USB: 4x USB 3.0 (USB 0,1,2,3) 4x USB 2.0 (USB 4,5,6,7)
  - SATA: Four ports SATA 6Gb/s (SATA0, SATA1, SATA2, SATA3)
  - Serial: 2 UART ports COM/1/2 with console redirection
- **GPIO**: 4 GPO and 4 GPI with interrupt

#### Super I/O

- **Chipset**: Atmel AT97SC3204
- **Type**: TPM 1.2

#### Power

- **Standard Input**: ATX = 12V±5% / 5Vsb ±5% or AT = 12V ±5%
- **Wide Input**: ATX = 8.5–20 V / 5Vsb ±5% or AT = 8.5–20V
- **Management**: ACPI 4.0 compliant, Smart Battery support
- **Power States**: C1-C6, S0, S1, S4, S3, S5. S5 ECO mode (Wake on USB 8/8/4, 10/100/1000 GbE connection)
- **ECO mode**: Supports deep S5 mode for power saving

#### Mechanical and Environmental

- **Form Factor**: PICMG COM.0: Rev 2.1 Type 6
- **Dimension**: Basic size: 125 mm x 95 mm
- **Operating Temperature**: Standard: 0°C to +60°C
  - Extreme Rugged™: -40°C to +85°C (optional)
- **Humidity**: 5-90% RH operating, non-condensing
  - 5-95% RH storage (and operating with conformal coating)
- **Shock and Vibration**: IEC 60068-2-64 and IEC-60068-2-27
  - MIL-STD-202F, Method 213B, Table 213-I, Condition A and Method 214A, Table 214-I, Condition D
- **HALT Tested**: Thermal Stress, Vibration Stress, Thermal Shock and Combined Test

#### Operating Systems

- **Standard Support**: Windows 7/8 32/64-bit, Linux 32/64-bit
- **Extended Support (BSP)**: WES7/8, Linux, VxWorks, QNX

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**Express-HLE**

COM Express® Basic Size Type 6 Module with 4th Generation Intel® Core™ i7/i5/i3 Processor with ECC

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**http://www.adlinktech.com/Computer-on-Module**
### Ordering Information

#### Modules

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Description/Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Express-HLE-i7-4860EQ</td>
<td>COM Express® Basic Size Type 6 Module with Intel® Core™ i7-4860EQ at 2.4 GHz with GT3 level graphics and ECC</td>
</tr>
<tr>
<td>Express-HLE-i7-4700EQ</td>
<td>COM Express® Basic Size Type 6 Module with Intel® Core™ i7-4700EQ at 2.4/1.7 GHz with GT2 level graphics and ECC</td>
</tr>
<tr>
<td>Express-HLE-i5-4400E</td>
<td>COM Express® Basic Size Type 6 Module with Intel® Core™ i5-4400E at 2.7 GHz with GT2 level graphics and ECC</td>
</tr>
<tr>
<td>Express-HLE-i3-4100E</td>
<td>COM Express® Basic Size Type 6 Module with Intel® Core™ i3-4100E at 2.4 GHz with GT2 level graphics and ECC</td>
</tr>
<tr>
<td>Express-HLE-i5-4402E</td>
<td>COM Express® Basic Size Type 6 Module with Intel® Core™ i5-4402E at 1.6 GHz with GT2 level graphics and ECC</td>
</tr>
<tr>
<td>Express-HLE-i3-4102E</td>
<td>COM Express® Basic Size Type 6 Module with Intel® Core™ i3-4102E at 1.6 GHz with GT2 level graphics and ECC</td>
</tr>
<tr>
<td>Express-HLE-2000E</td>
<td>COM Express® Basic Size Type 6 Module with Celeron® 2000E 2.2 GHz (no Turbo) 35W (2C/GT1) with ECC</td>
</tr>
<tr>
<td>Express-HLE-2002E</td>
<td>COM Express® Basic Size Type 6 Module with Celeron® 2002E 1.5 GHz (no Turbo) 25W (2C/GT1) with ECC</td>
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</table>

#### Accessories

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</tr>
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<tbody>
<tr>
<td>Heat Spreaders</td>
<td></td>
</tr>
<tr>
<td>HTS-HL-B</td>
<td>Heatspreader for Express-HL with threaded standoffs for bottom mounting</td>
</tr>
<tr>
<td>HTS-HL-BT</td>
<td>Heatspreader for Express-HL with through hole standoffs for top mounting</td>
</tr>
<tr>
<td>Passive Heatsinks</td>
<td></td>
</tr>
<tr>
<td>THS-HL-BL</td>
<td>Low profile heatsink for Express-HL with threaded standoffs for bottom mounting</td>
</tr>
<tr>
<td>THS-HL-BLT</td>
<td>Low profile heatsink for Express-HL with through hole standoffs for top mounting</td>
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<tr>
<td>Active Heatsink</td>
<td></td>
</tr>
<tr>
<td>THSF-HL-BL</td>
<td>High profile heatsink with Fan for Express-HL with threaded standoffs for bottom mounting</td>
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</tbody>
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Note: All specifications are subject to change without further notice.