

# Express-HRR

Extreme Rugged™ COM Express® Type 6 Computer-on-Module with Intel® Core™ i7/i5/i3 processor and QM67 Chipset



**EXTREME  
RUGGED**

## Features

- Quad/dual core Intel® Core™ i7/i5/i3 Processor
- Intel® QM67 Chipset
- Up to 16GB ECC 1333MHz DDR3 memory in two SODIMM sockets
- Three Digital Display Interfaces (DDI) for DisplayPort /HDMI/DVI/SDVO
- Seven PCIe x1, one PCIe x16 (Gen2) for graphics (or general purpose x8/4/1)
- Two SATA 6 Gb/s, two SATA 3 Gb/s, Gigabit Ethernet, eight USB 2.0
- COM Express® COM.0 R2.1 Type 6 Pinout
- Extended Temperature: -40°C to +85°C
- 50% Thicker PCB for high vibration environments

## Choose Ampro by ADLINK™ Express-HRR for...

A modular and power efficient solution for extreme rugged and mobile environments.

### Description

The Ampro by ADLINK™ Express-HRR is a COM Express® Type 6 module with quad/dual-core 2nd Generation Intel® Core™ i7/i5/i3 Processor. The Express-HRR is designed Extreme Rugged to support the extremes of shock, vibration, humidity, and temperature.

## Specifications

### Core System

|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CPU              | 2nd Generation Intel® Core™ i7, 32 nm process, BGA type<br>Intel® Core™ i7-2715QE 2.1 GHz (3.0 GHz Turbo), 6MB L3 cache, 45W<br>Intel® Core™ i7-2655LE 2.2 GHz (2.9 GHz Turbo), 4MB L3 cache, 25W<br>Intel® Core™ i7-2610UE 1.5 GHz (2.4 GHz Turbo), 4MB L3 cache, 17W<br>Intel® Core™ i5-2515E 2.5 GHz (3.1 GHz Turbo), 3MB L3 cache, 35W<br>Intel® Core™ i3-2340UE 1.3 GHz, 3MB L3 cache, 17W<br>Intel® Celeron® 847E 1.1 GHz, 2MB L3 cache, 17W<br>Intel® Celeron® 807UE 1.0 GHz, 1MB L3 cache, 10W<br>Dual channel ECC 1333 MHz DDR3 memory up to 16 GB in dual SODIMM sockets |
| Memory           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| BIOS             | AMI EFI with CMOS backup in 16 Mb SPI flash                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Hardware Monitor | Supply voltages and CPU temperature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Debug Interface  | XDP SFF-26 extension for ICE debug                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Watchdog Timer   | Programmable timer range to generate RESET                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Expansion Busses | PCI Express x16 (Gen2) bus for discrete graphics solution or general purpose PCI Express (2 x8 or 1 x8 with 2 x4)<br>8 PCI Express x1: Lanes 0/1/2/3/4/5/6 are free, lane 7 is occupied by GbE<br>LPC bus, SMBus (system), I2C (user)                                                                                                                                                                                                                                                                                                                                              |

### Multi I/O

|         |                                                                    |
|---------|--------------------------------------------------------------------|
| Chipset | Integrated on QM67                                                 |
| USB     | Supports up to eight ports USB 2.0                                 |
| SATA    | Two SATA 6 Gb/s, two SATA 3 Gb/s with support for RAID 0, 1, 5, 10 |

### LAN

|         |                                  |
|---------|----------------------------------|
| Chipset | Intel® Gigabit LAN PHY WG82579LM |
| Speed   | 10/100/1000 Mbps Ethernet        |

### Video

|                           |                                                                                                                                                                   |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Integrated in Processor   | HD Graphics 3000 at 650-1300 MHz                                                                                                                                  |
| Integrated Video          | DirectX 10.1 and OpenGL 3.0                                                                                                                                       |
| Feature Support           | Intel® Clear Video HD Technology<br>Advanced Scheduler 2.0, 1.0, XPDM support<br>DirectX Video Acceleration (DXVA) support for full AVC/VC1/MPEG2 hardware decode |
| VGA Interface             | Analog VGA support with 300 MHz DAC<br>Analog monitor support up to QXGA (2048 x 1536) and VGA hot plug                                                           |
| LVDS Interface            | Dual channel 18/24-bit LVDS                                                                                                                                       |
| Digital Display Interface | Three DDI ports supporting HDMI / DVI / DisplayPort or SDVO                                                                                                       |

### Audio

|             |                               |
|-------------|-------------------------------|
| Chipset     | Integrated on Intel® PCH QM67 |
| Audio Codec | Implemented on carrier board  |

### Super I/O

Connected to LPC bus on carrier if needed

### TPM

|         |                  |
|---------|------------------|
| Chipset | Atmel AT97SC3204 |
| Type    | TPM 1.2          |

### Power Specifications

|                       |                                                            |
|-----------------------|------------------------------------------------------------|
| Input Power           | AT mode (12 V +/- 5%) and ATX mode (12 V and 5 Vsb +/- 5%) |
| Power States          | Supports S0, S1, S3, S4, S5                                |
| Power Consumption     | TBD                                                        |
| Smart Battery Support | Yes                                                        |

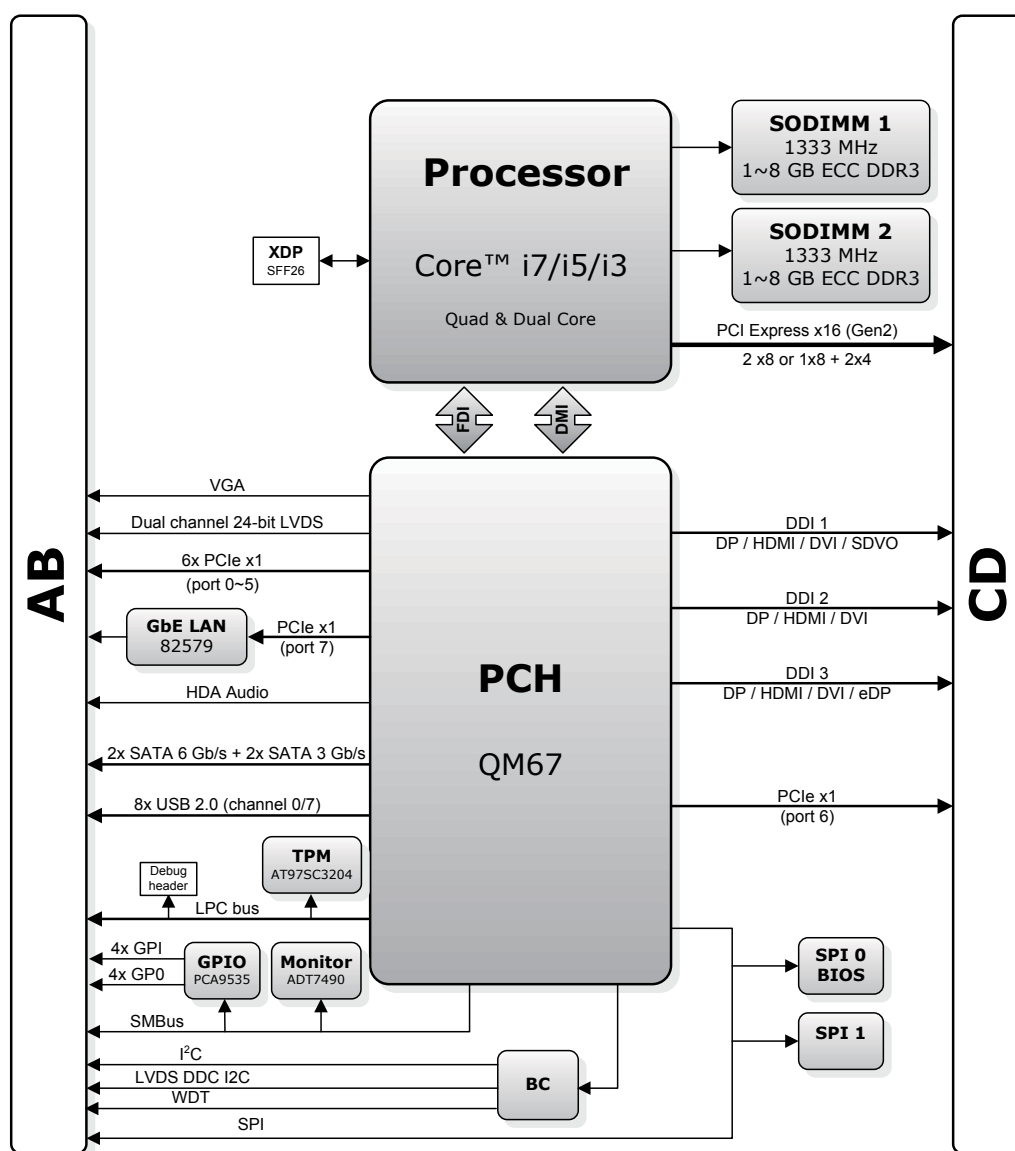
### Mechanical and Environmental

|                          |                                                                          |
|--------------------------|--------------------------------------------------------------------------|
| Size                     | COM Express Basic, 125 mm x 95 mm                                        |
| Board Thickness          | 0.093" (2.3mm)                                                           |
| Operating Temp. Standard | -20°C to 70°C                                                            |
| Operating Temp. Extended | -40°C to 85°C (not available for Core™ i7-2715QE)                        |
| Storage Temp.            | -55°C to 85°C                                                            |
| Humidity                 | 90% at 60°C non-condensing                                               |
| Shock                    | 50G peak-to-peak, 11ms duration, MIL-STD-202G Method 213B                |
| Vibration                | Operating: 11.96 Grms, 50-20,000 Hz, each axis, MIL-STD-202G Method 214A |
| Compatibility            | PICMG COM Express COM.0 R2.1 Type 6                                      |
| Certifications           | CE, FCC, HALT                                                            |

### Operating Systems

|                        |                                                              |
|------------------------|--------------------------------------------------------------|
| Standard Support       | Windows 7, Linux                                             |
| Extended Support (BSP) | WES 2009/7, WEC 7, Linux, VxWorks 6.9, QNX 6.5, AIDI Library |

## Functional Diagram



## Ordering Information

### Modules

| Model Number                   | Description/Configuration                                                                                                                        |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Express-HRR-i7-R-2715QE</b> | Extreme Rugged COM Express Type 6 module with Intel® Core™ i7-2715QE Quad Core processor 2.1GHz 45W with QM67 chipset (Ext. Temp. not available) |
| <b>Express-HRR-i7-R-2655LE</b> | Extreme Rugged COM Express Type 6 module with Intel® Core™ i7-2655LE Dual Core processor 2.2GHz 25W with QM67 chipset                            |
| <b>Express-HRR-i7-R-2610UE</b> | Extreme Rugged COM Express Type 6 module with Intel® Core™ i7-2610UE Dual Core processor 1.5GHz 17W with QM67 chipset                            |
| <b>Express-HRR-i5-2515E</b>    | Extreme Rugged COM Express Type 6 module with Intel® Core™ i5-2515E Dual Core processor 2.5GHz 35W with QM67 chipset                             |
| <b>Express-HRR-i3-R-2340UE</b> | Extreme Rugged COM Express Type 6 module with Intel® Core™ i3-2340UE ULV Dual Core processor 1.3GHz 17W with QM67 chipset                        |
| <b>Express-HRR-R-847E</b>      | Extreme Rugged COM Express Type 6 module with Intel® Celeron® 847E LV Dual Core processor 1.1GHz 17W with QM67 chipset                           |

| Model Number                | Description/Configuration                                                                                                  |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------|
| <b>Express-HRR-R-807UE</b>  | Extreme Rugged COM Express Type 6 module with Intel® Celeron® 807UE ULV Single Core processor 1.0GHz 10W with QM67 chipset |
| <b>Express-HRR-i7-L-M8G</b> | Starterkit with 2x 4GB DDR3 ECC RAM, non-ETT, cable kit, Software (no CPU module and heatsink included)                    |
| <b>Express-HRR-i7-L-M4G</b> | Starterkit with 2x 2GB DDR3 ECC RAM, non-ETT, cable kit, software (no CPU module and heatsink included)                    |

### Accessories

#### Heat Spreaders

|                    |                                                                           |
|--------------------|---------------------------------------------------------------------------|
| <b>HTS-HRR-BTF</b> | Heatspreader for Express-HRR with through hole standoffs for top mounting |
|--------------------|---------------------------------------------------------------------------|

#### Passive Heatsinks

|                     |                                                                       |
|---------------------|-----------------------------------------------------------------------|
| <b>THSH-HRR-BTL</b> | Heatsink for Express-HRR with through hole standoffs for top mounting |
|---------------------|-----------------------------------------------------------------------|

#### Active Heatsinks

|                        |                                                                                |
|------------------------|--------------------------------------------------------------------------------|
| <b>THSF-HRR-BTL-CU</b> | Heatsink with FAN for Express-HRR with through hole standoffs for top mounting |
|------------------------|--------------------------------------------------------------------------------|



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- Поставка более 17-ти миллионов наименований электронных компонентов;
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- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

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- Защита от снятия компонента с производства.



#### Как с нами связаться

**Телефон:** 8 (812) 309 58 32 (многоканальный)

**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.