Express-HRR

Extreme Rugged™ COM Express® Type 6 Module with Intel® Core™ and Celeron® processor

Features



- Quad/dual core Intel® Core™ i7/i5/i3 and Celeron® Processors with Intel® QM67 Chipset
- Up to 16GB ECC 1333Mhz DDR3 memory in two SODIMM sockets
- Three Digital Display Interfaces (DDI) for HDMI/DVI/DisplayPort or SDVO
- Seven PCIe x1, one PCIe x16 (Gen2) for graphics (or general purpose x8/4/1)
- 2x SATA 6 Gb/s, 2x SATA 3 Gb/s, Gigabit Ethernet, 8x USB 2.0
- 50% Thicker PCB for high vibration environments
- Extreme Rugged operating temperature: -40°C to +85°C (build option)

Specifications

Core System

CPU

Intel® Core™ i3/i5/i7, 32 nm process, BGA type
Intel® Core™ i7-2715QE 2.1 GHz (3.0 GHz Turbo), 6MB L3 cache, 45W
Intel® Core™ i7-2655LE 2.2 GHz (2.9 GHz Turbo), 4MB L3 cache, 25W
Intel® Core™ i7-2610UE 1.5 GHz (2.4 GHz Turbo), 4MB L3 cache, 17W
Intel® Core™ i5-2515E 2.5 GHz (3.1 GHz Turbo), 3MB L3 cache, 35W
Intel® Core™ i3-2340UE 1.3 GHz, 3MB L3 cache, 17W
Intel® Celeron® 847E 1.1 GHz, 2MB L3 cache, 17W
Intel® Celeron® 807UE 1.0 GHz, 1MB L3 cache, 10W

Memory

Dual channel ECC 1333 MHz DDR3 memory up to 16 GB in dual SODIMM sockets

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)
8 PCI Express x1: Lanes 0/1/2/3/4/5/6 are free, lane 7 is occupied by GbE
LPC bus, SMBus (system), I2C (user)

Multi I/O and Storage

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

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
Advanced Scheduler 2.0, 1.0, XPDM support
DirectX Video Acceleration (DXVA) support for full AVC/VC1/MPEG2 hardware decode

VGA

Analog VGA support with 300 MHz DAC
Analog monitor support up to QXGA (2048 x 1536) and VGA hot plug

LVDS

Dual channel 18/24-bit LVDS

Digital Display Interface

Three DDI ports supporting HDMI / DVI / DisplayPort or SDVO

Ethernet

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

Super I/O

Connected to LPC bus on carrier if needed

TPM

Chipset: Atmel AT97SC3204
Type: TPM 1.2

Power

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

Note: "Build option" indicates an alternative BOM configuration to support additional or alternative functions that are not available on the standard product. Be aware that part numbers for SKUs with "build options" will need to be created and may cause production lead times.

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Specifications

Mechanical and Environmental

Size: COM Express Basic, 125 mm x 95 mm
Board Thickness: 0.093" (2.3mm)

Operating Temperature

Standard: 0°C to 60°C
Extended: -40°C to 85°C (build option, and not available for Core™ i7-2715QE)
Storage Temperature : -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

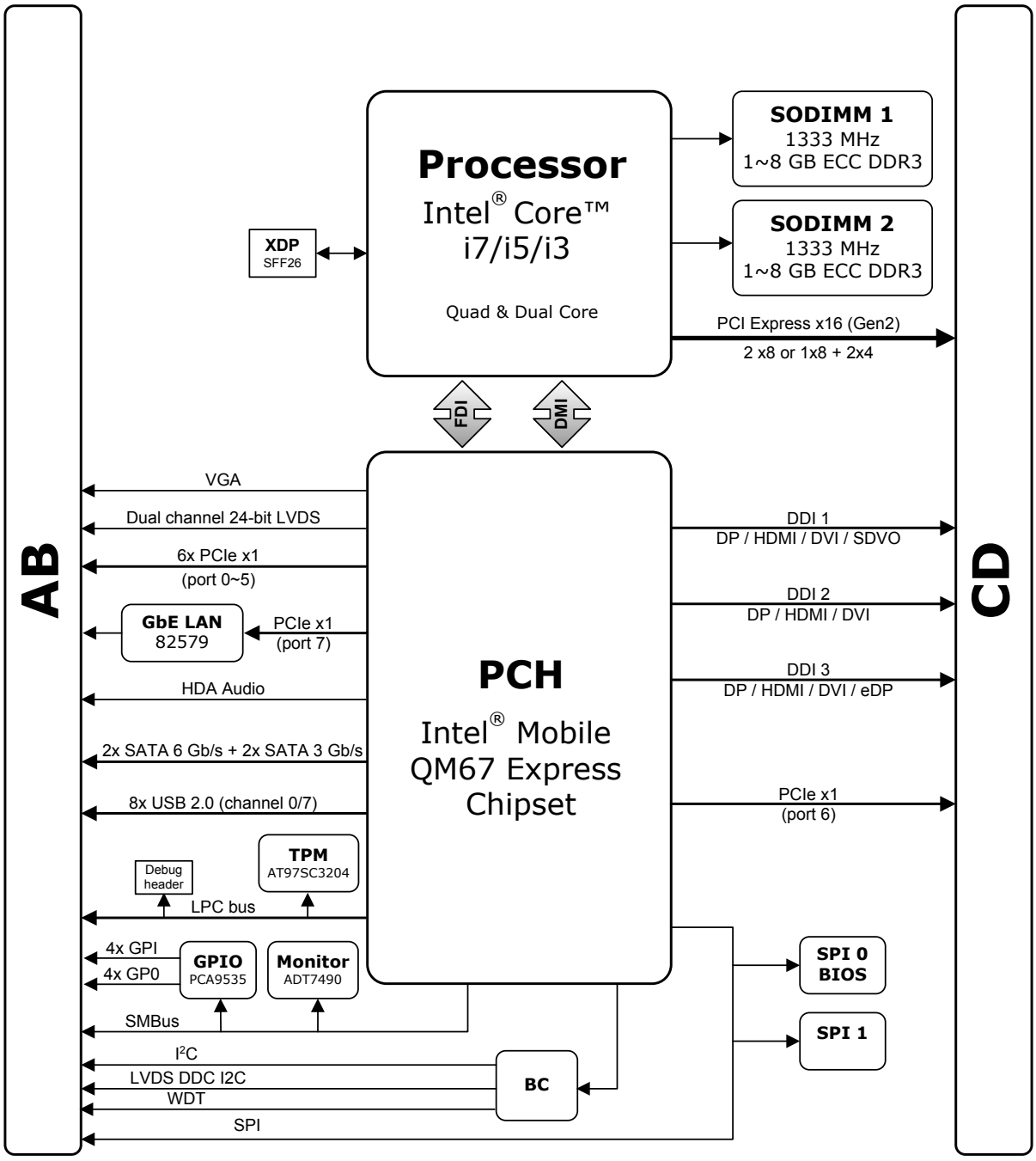
Windows 7, Linux

Extended Support (BSP)

Windows XPe/7, WEC 7, Linux, VxWorks 6.9, QNX 6.5, AIDI Library

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Functional Diagram



Ordering Information

- **Express-HRR-i7-R-2715QE**
  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)
- **Express-HRR-i7-R-2655LE**
  Extreme Rugged COM Express Type 6 module with Intel® Core™ i7-2655LE Dual Core processor 2.2GHz 25W with QM67 chipset
- **Express-HRR-i7-R-2610UE**
  Extreme Rugged COM Express Type 6 module with Intel® Core™ i7-2610UE Dual Core processor 1.5GHz 17W with QM67 chipset
- **Express-HRR-i5-2515E**
  Extreme Rugged COM Express Type 6 module with Intel® Core™ i5-2515E Dual Core processor 2.5GHz 35W with QM67 chipset
- **Express-HRR-i3-R-2340UE**
  Extreme Rugged COM Express Type 6 module with Intel® Core™ i3-2340UE ULV Dual Core processor 1.3GHz 17W with QM67 chipset
- **Express-HRR-R-847E**
  Extreme Rugged COM Express Type 6 module with Intel® Celeron® 847E LV Dual Core processor 1.1GHz 17W with QM67 chipset
- **Express-HRR-R-807UE**
  Extreme Rugged COM Express Type 6 module with Intel® Celeron® 807UE ULV Single Core processor 1.0GHz 10W with QM67 chipset

Accessories

Heat Spreaders

- **HTS-HRR-BTF**
  Heatspreader for Express-HRR with through hole standoffs for top mounting

Passive Heatsinks

- **THSH-HRR-BTL**
  Heatsink for Express-HRR with through hole standoffs for top mounting

Active Heatsink

- **THSF-HRR-BTL-CU**
  Heatsink with FAN for Express-HRR with through hole standoffs for top mounting

Starter Kit

- **COM Express Type 6 Starter Kit Plus**
  COM Express formfactor starter kit with Express-BASE6 board, power supply, and accessory kit

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