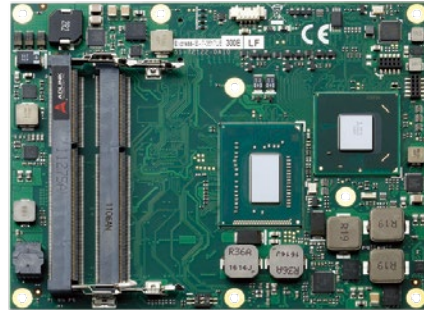


Express-IBR

Extreme Rugged COM Express® Basic Size Type 6 Module with Intel® Core™ Processor with Intel® QM77 Express Chipset

Features

- Intel® qual or dual Core™ i7/i3 Processor with Mobile Intel® QM77 Express Chipset
- Up to 16GB DDR3 with ECC support in two SODIMM sockets at 1600MHz
- Three Digital Display Interfaces (DDI) for HDMI/DVI/DisplayPort or SDVO
- Seven PCIe x1 (Gen 2), one PCIe x16 (Gen 3) for graphics (or general purpose x8/4/1)
- GbE, 2x SATA 6 Gb/s, 2x SATA 3 Gb/s, USB 2.0, 4 USB 3.0
- 50% Thicker PCB for high vibration environments
- Extreme Rugged operating temperature: -40°C to +85°C (build option)



Specifications

• Core System

CPU

Intel® Core™ i7/i3, 22nm process, BGA type
 i7-3615QE 2.3GHz, 6MB L3 cache, 45W, quad core
 i7-3612QE 2.1GHz, 6MB L3 cache, 35W, quad core
 i7-3555LE 2.5GHz, 4MB L3 cache, 25W, dual core
 i7-3517UE 1.7GHz, 4MB L3 cache, 17W, dual core
 i3-3217UE 1.6GHz, 3MB L3 cache, 17W, dual core

Memory

Dual channel ECC 1600 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 (Gen3) bus for discrete graphics solution or general purpose
 PCI Express (2 x8 or 1 x8 with 2 x4)
 7 PCI Express x1: Lanes 0/1/2/3/4/5/6
 LPC bus, SMBus (system), I2C (user)

Technologies

PAVP 3.0, Intel® AMT 8.0, Intel® VT, Intel® AES-NI, Intel® HT, Intel® HD Graphics with Dynamic Frequency, Intel® Turbo Boost, Dynamic Turbo, Intel® AVX 1.0, Intel® Quick Sync Video

• Video

Integrated in Processor

Intel® HD Graphics 4000 at 650-1300 MHz

Integrated Video

DirectX 11.0, OpenGL 3.1, and OCL 1.1

Media Processing

Decode (HW JPEG & MJPEG decode),
 encode (full HW MPEG2 encode), transcode
 Intel® Clear Video HD Technology + enhanced media processing

VGA Interface

Analog VGA support with 300 MHz DAC
 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 in Mobile Intel® QM77 Express chipset

Audio Codec

Implemented on carrier board

• Ethernet

Chipset: Intel® Gigabit LAN PHY WG82579LM

Speed: 10/100/1000 Mbps Ethernet

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 these "build option" part numbers will need to be newly created and this will result in production lead times.

Specifications

• I/O Interfaces

Chipset

Integrated in Mobile Intel® QM77 Express chipset

USB

Supports up to eight ports USB 2.0, 4 USB 3.0

SATA

Two SATA 6 Gb/s, two SATA 3 Gb/s with support for RAID 0,1,5,10

• Super I/O

Connected to LPC bus on carrier if needed (BIOS supports W83627DHG)

• TPM

Chipset: Atmel AT97SC3204-U1A190

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: 12W typical (i7-36xxQE)

8W typical (i7-3555LE/i7-3517UE/i3-3217UE)

S3: 0.85W

S5: 0.55W

Smart Battery Support: Yes (BIOS supports LTC4100 and LTC1760)

• Mechanical and Environmental

Form Factor: PICMG COM.0: Rev 2.1 Type 6

Dimension: Basic size: 125 mm x 95 mm

Board Thickness: 0.093" (2.3mm)

Operating Temperature

Standard: 0°C to +60°C

Extreme Rugged: -40°C to +85°C (build option)

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

Certifications: CE, FCC, HALT

• Operating Systems

Standard Support

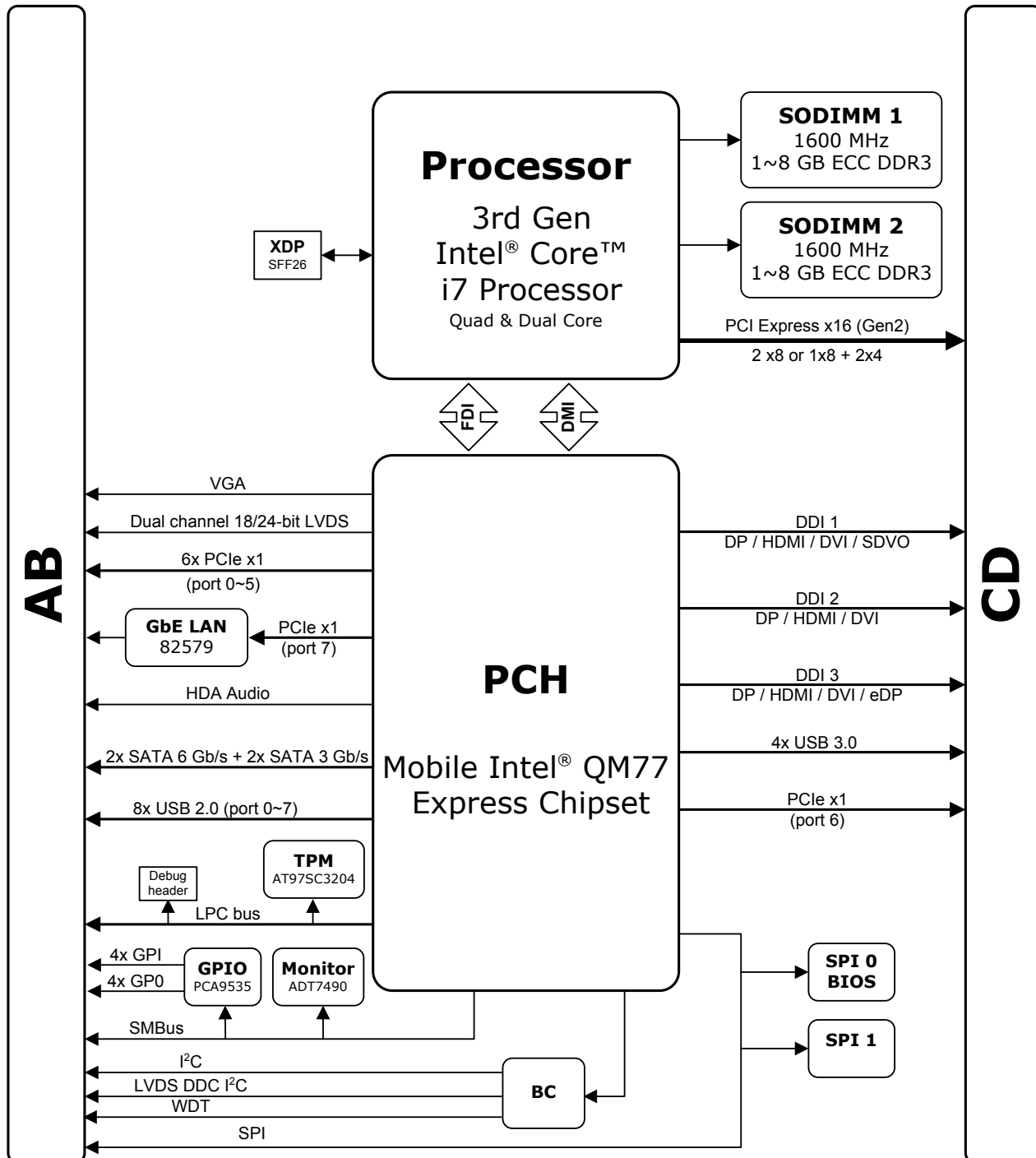
Windows 7, Linux

Extended Support (BSP)

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

Note: "build option" indicates an alternative BOM configuration to support additional or alternative functions that are not available on the standard product.
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Functional Diagram



Ordering Information

- **Express-IBR-i3-R-3217UE**
COM Express® Basic Size Type 6 Module with Intel® Core™ i3-3217UE 1.6GHz 17W Dual Core CPU, two DDR3 ECC SODIMMs supported
- **Express-IBR-i7-R-3517UE**
COM Express® Basic Size Type 6 Module with Intel® Core™ i7-3517UE 1.7GHz 17W Dual Core CPU, two DDR3 ECC SODIMMs supported
- **Express-IBR-i7-R-3555LE**
COM Express® Basic Size Type 6 Module with Intel® Core™ i7-3555LE 2.5GHz 25W Dual Core CPU, two DDR3 ECC SODIMMs supported
- **Express-IBR- i7-R-3612QE**
COM Express® Basic Size Type 6 Module with Intel® Core™ i7-3612QE 2.1GHz 35W Quad Core CPU , two DDR3 ECC SODIMMs supported
- **Express-IBR-i7-R-3615QE**
COM Express® Basic Size Type 6 Module with Intel® Core™ i7-3615QE 2.3GHz 45W Quad Core CPU, two DDR3 ECC SODIMMs supported

Accessories

Heat Spreaders

- **HTS-IBR-B**
Heat-spreader for Express-IBR with threaded standoffs for bottom-mounting
- **HTS-IBR-BTF**
Heat-spreader for Express-IBR with through-hole standoffs for top-mounting

Passive Heatsinks

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

Active Heatsink

- **THSF-IBR-BTL-CU**
Heatsink with FAN for Express-IBR 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