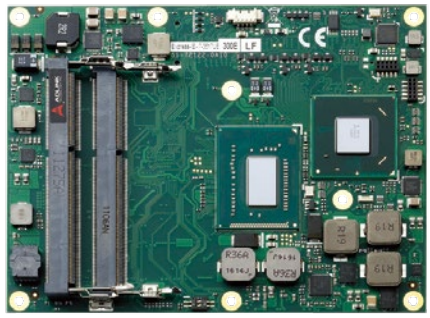
Express-IBR

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.

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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

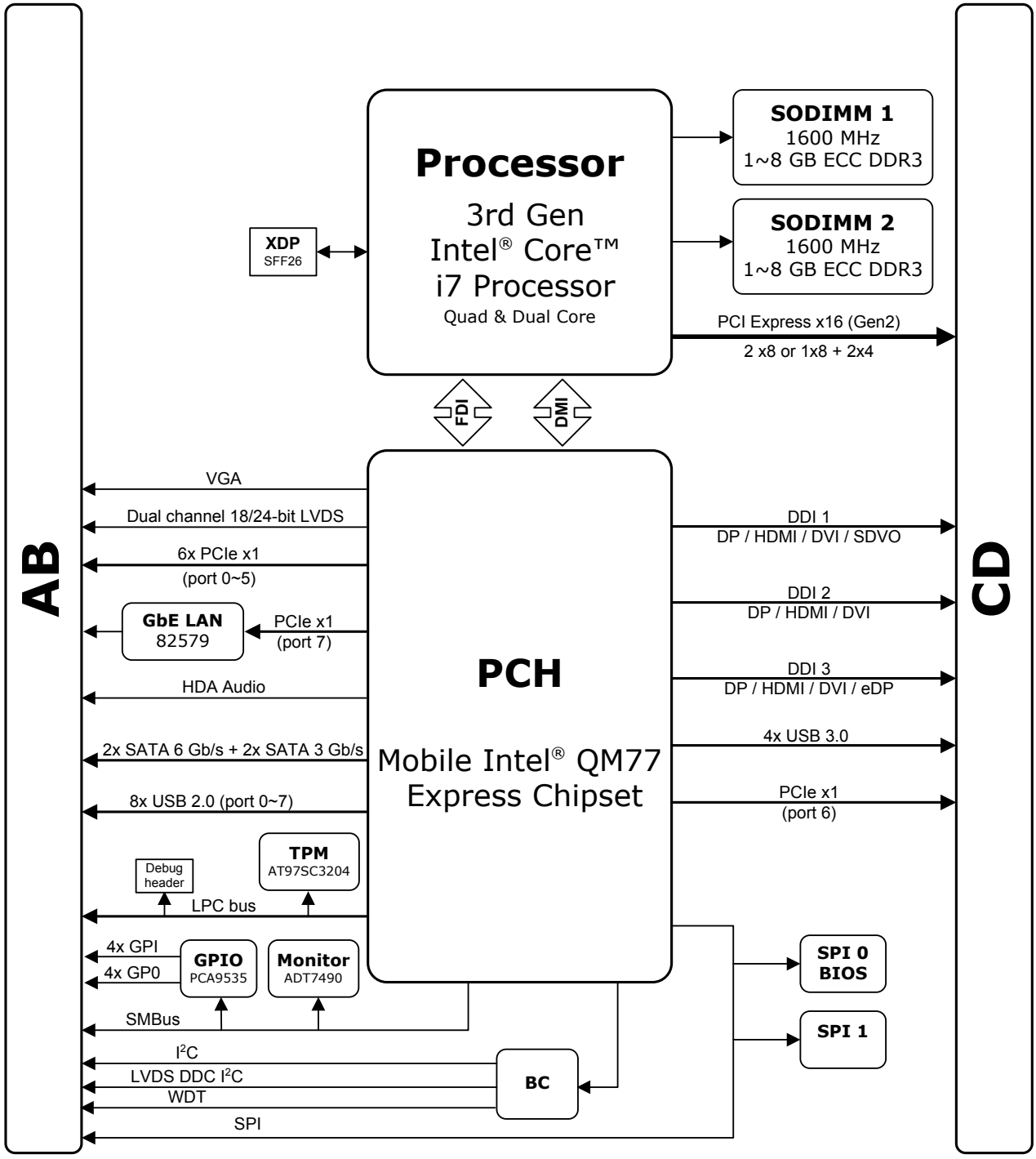
Operating Systems

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

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

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