Express-BL

COM Express Basic Size Type 6 Module with 5th Generation Intel® Core™ processor and Intel® Xeon® E3-12xx processor

Features

New



- 5th Generation Intel® Core™ i7 and Xeon® E3-12xx processor with Intel® QM87 Chipset
- Up to 32GB Dual Channel DDR3L at 1600MHz
- Three DDI channels, LVDS/eDP and VGA, supports up to 3 independent displays
- Up to Eight PCIe x1 (build option), 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 (build option)

Specifications

Core System

CPU

5th Generation Intel® Core™ and Xeon® Processors (Mobile) - 14nm
Xeon® E3-1278L v4 2.0/3.3GHz (Turbo), 0.8/1.0GHz (Turbo), 47W (4C/GT3e)
Xeon® E3-1258L v4 1.8/3.2GHz (Turbo), 0.7/1.0GHz (Turbo), 47W (4C/GT2)
Core™ i7-5850EQ 2.7/3.4GHz (Turbo), 0.3/1.0GHz (Turbo), 47W (4C/GT3e)
Core™ i7-5700EQ 2.6/3.4GHz (Turbo), 0.3/1.0GHz (Turbo), 47W (4C/GT2)
Supports: Intel® VT, Intel® TXT, Intel® SSE4.2, Intel® HT Technology, Intel® 64 Architecture, Execute Disable Bit, Intel® Turbo Boost Technology 2.0, Intel® AVX2, Intel® AES-NI, PCLMULQDQ Instruction, Intel® Secure Key and Intel® TSX.
Note: Availability of features may vary between processor SKUs.

Memory

Dual channel non-ECC 1600/1333 MHz DDR3L memory up to 32GB in dual SODIMM socket

Embedded BIOS

AMI EFI with CMOS backup in 8MB SPI BIOS with Intel® AMT 10 support

Cache

6MB for Xeon E3-1278L v4, E3-1258L v4 and Core™ i7-5850EQ, i7-5700EQ

Expansion Busses

1 PCIe x16 (Gen3), or 2 PCIe x8, or 1 PCIe x8 and 2 PCIe x4
6 PCIe x1 (AB): Lanes 0/1/2/3/4/5
2 PCIe x1 (CD): Lanes 6/7 (Lane 7 by build option)
LPC bus, SMBus (system) , I2C (user)

SEMA Board Controller

Voltage/current monitoring, power sequence debug support, AT/ATX mode control, logistics and forensic information, flat panel control, general purpose I2C, failsafe BIOS (dual BIOS), watchdog timer and fan control

Debug Headers

40-pin multipurpose flat cable connector for 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 ICE debug of CPU/chipset

Video

GPU Feature Support

Generation 8 Intel® Graphics architecture, supporting 3 independent and simultaneous display combinations of DisplayPort, HDMI, LVDS, VGA or eDP (build option)
Encode/transcode HD content
Playback of high definition content including Blu-ray Disc
Advanced Scheduler 2.0, 1.0 XPDM support
DirectX 11.1, DirectX 11.1+, DirectX 11, DirectX 10.1, DirectX 10, DirectX 9 support
OpenGL 4.0, OpenGL 4.2 support
Digital Display Interface

Digital Display Interface

DDI1/2/3 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)

eDP

By build option, in place of LVDS and VGA

Audio

Chipset

Intel® HD Audio integrated in chipset

Audio Codec

Located on carrier Express-BASE6 (ALC886 standard support)

Ethernet

Intel® MAC/PHY: I218LM with Intel® AMT 10.0 support
Interface: 10/100/1000 GbE connection

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

USB: 4x USB 1.1/2.0/3.0 (USB 0,1,2,3) and 4x USB 1.1/2.0 (USB 4,5,6,7)
SATA: Four ports SATA 6Gb/s (SATA0, SATA1, SATA2, SATA3)
Serial: 2 UART ports COM1/2 with console redirection
GPIO: 4 GPO and 4 GPI

Super I/O

Supported on carrier if needed (standard support for W83627DHG-P)

TPM

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 (standard temp. only)
Management: ACPI 5.0 compliant, Smart Battery support
Power States: C1-C6, S0, S1, S3, S4, S5 , S5 ECO mode (Wake on USB S3/S4, WOL S3/S4/S5)
ECO Mode: Support 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 (build option)

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

Thermal Stress, Vibration Stress, Thermal Shock and Combined Test

Operating Systems

Standard Support

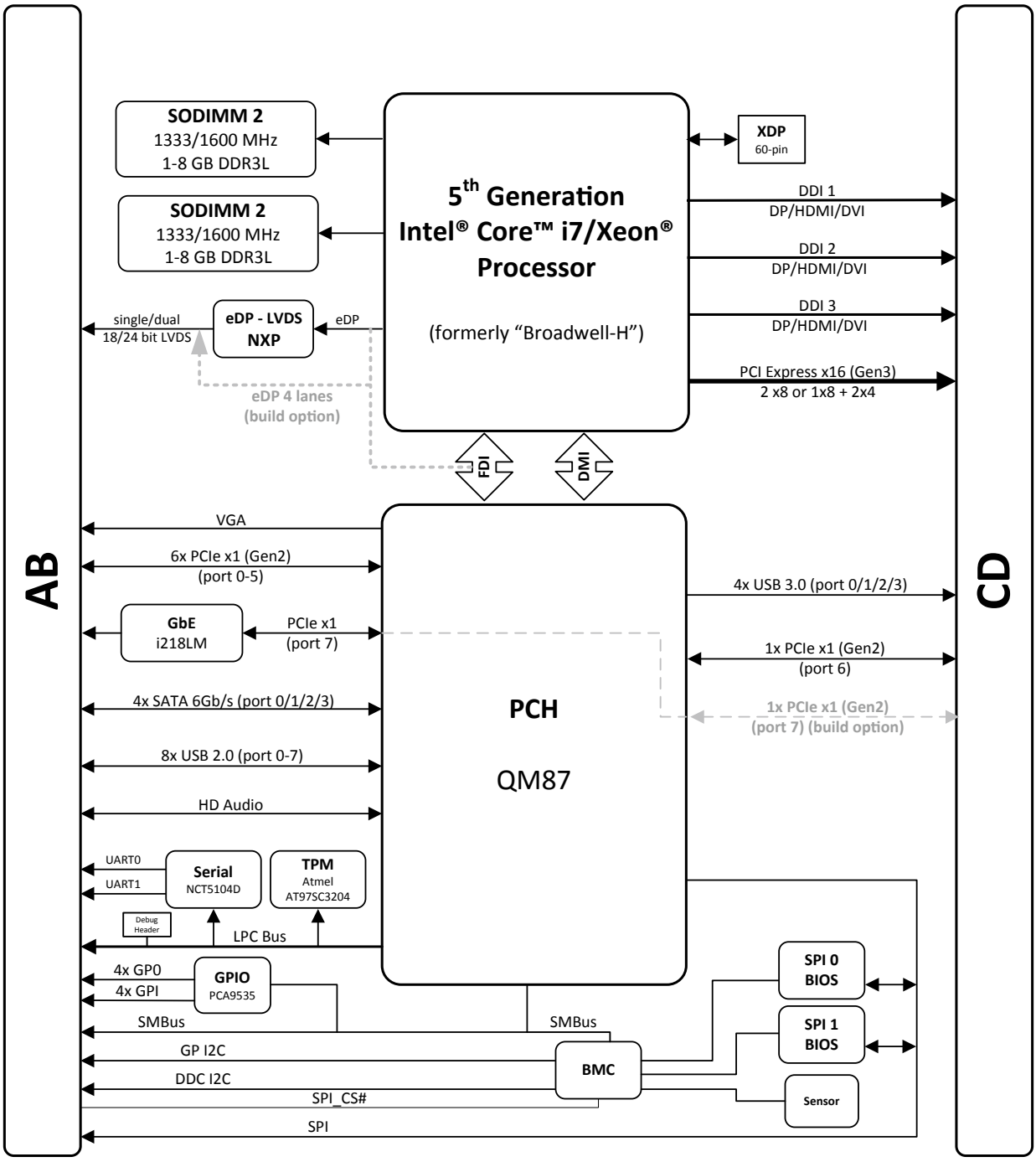
Windows 7 32/64-bit, Windows 8.1 64-bit, Linux 64-bit

Extended Support (BSP)

WES7 32/64-bit, Windows Embedded 8 Std., Linux 64-bit, VxWorks 64-bit

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.

Functional Diagram



Ordering Information

- **Express-BL-i7-5850EQ**
  Basic COM Express® Type 6 module with Intel® i7-5850EQ at 2.7/3.4GHz with GT3 level graphics with eDRAM
- **Express-BL-i7-5700EQ**
  Basic COM Express® Type 6 module with Intel® i7-5700EQ at 2.7/3.4GHz with GT2 level graphics
- **Express-BL-E3-1278**
  Basic COM Express Type6 module with Intel® Xeon® E3-1278L v4 at 2.0/3.3GHz with GT3 level graphics with eDRAM
- **Express-BL-E3-1258**
  Basic COM Express Type6 module with Intel® Xeon® E3-1258L v4 at 1.8/3.2GHz with GT2 level graphics

Note: Express-BL and Express-HL share the same thermal solution design

Starter Kit

- **COM Express Type 7 Starter Kit Plus**
  COM Express formfactor starter kit with Express-BASE6 board, power supply, and accessory kit

Accessories

Heat Spreaders

- **HTS-HL-B**
  Heatspreader for Express-HL with threaded standoffs for bottom mounting
- **HTS-HL-BT**
  Heatspreader for Express-HL with through hole standoffs for top mounting

Passive Heatsinks

- **THS-HL-BL**
  Low profile heatsink for Express-HL with threaded standoffs for bottom mounting
- **THS-HL-BT**
  Low profile heatsink for Express-HL with through hole standoffs for top mounting
- **THSH-HL-BL**
  High profile heatsink for Express-HL with threaded standoffs for bottom mounting

Active Heatsink

- **THSF-HL-BL**
  High profile heatsink with Fan for Express-HL with threaded standoffs for bottom mounting

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