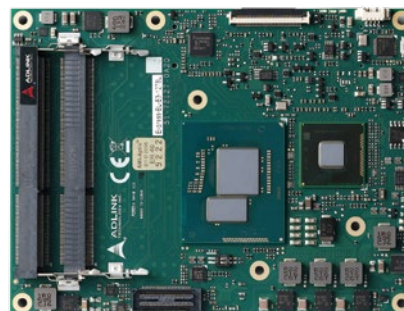


Express-BL

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

Features

- 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), I ² C (user)
SEMA Board Controller	Voltage/current monitoring, power sequence debug support, AT/ATX mode control, logistics and forensic information, flat panel control, general purpose I ² C, 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 Interface	I218LM with Intel® AMT 10.0 support 10/100/1000 GbE connection
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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)

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.

Specifications

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

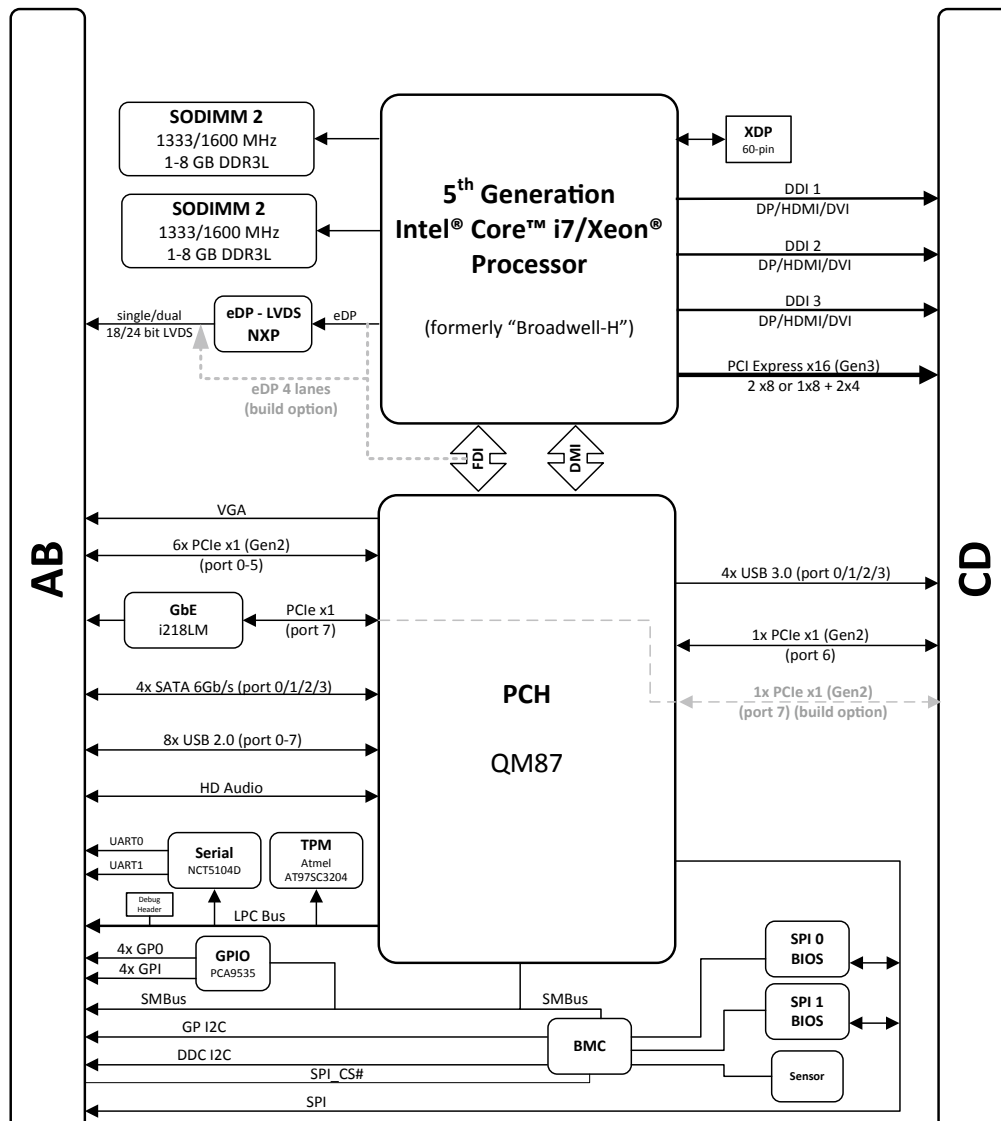
Form Factor	PICMG COM.0: Rev 2.1 Type 6
Dimension	Basic size: 125 mm x 95 mm
Operating Temperature	Standard: 0°C to 60°C Extreme Rugged: -40°C to +85°C (build option)
Humidity	5-90% RH operating, non-condensing 5-95% RH storage (and operating with conformal coating)
Shock and Vibration	IEC 60068-2-64 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

Modules

Model Number	Description/Configuration
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

Starter Kit

Model Number	Description/Configuration
COM Express Type 7 Starter Kit Plus	COM Express formfactor starter kit with Express-BASE6 board, power supply, and accessory kit

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

Accessories

Model Number	Description/Configuration
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