

# Express-BD7

## COM Express Basic Size Type 7 Module with Intel® Xeon® D and Pentium® D SoC

### Features

- Intel® Xeon® D and Pentium® D SoC (up to 16 cores)
- Up to 32GB dual channel DDR4 at 1867/2133/2400MHz ECC (dependent on SoC SKU)
- Two 10G Ethernet and NC-SI support
- Up to eight PCIe x1 (Gen2), one PCIe x16 (Gen3)
- GbE, two SATA 6 Gb/s, four USB 3.0/2.0
- Supports Smart Embedded Management Agent (SEMA®) functions
- Extreme Rugged operating temperature: -40°C to +85°C (build option)

Preliminary



### Specifications

#### Core System

CPU	Intel® Xeon® D and Pentium® D SoC, 14nm process (formerly "Broadwell-DE") Xeon® D-1559 1.5/TBD GHz (Turbo), 45W (12C, ETEMP) Xeon® D-1577 1.3/2.1 GHz (Turbo), 45W (16C) Xeon® D-1548 2.0/2.3 GHz (Turbo), 45W (8C) Xeon® D-1527 2.2/2.5 GHz (Turbo), 35W (4C) Xeon® D-1517 1.6/1.9 GHz (Turbo), 25W (4C) Pentium® D-1508 2.2/2.5 GHz (Turbo), 25W (2C) Note: SKUs not listed above may be supported on a project basis. Please contact your ADLINK representative. Supports: Intel® VT (including VT-x, VT-d, VT-x with Extended Page Tables), Intel® HT Technology, Intel® SSE4.2, Intel® 64 Architecture, Intel® Turbo Boost Technology 2.0, Intel® AVX2, Intel® TSX-NI, Intel® Platform Protection Technology with Intel® TXT, Execute Disable Bit, Intel® Data Protection Technology with Intel® Secure Key, Intel® AES-NI Note: Availability of features may vary between processor SKUs.
Memory	Dual channel 1867/2133/2400 MHz DDR4 ECC memory up to 32GB in dual SODIMM sockets (dependent on SoC SKU)
Embedded BIOS	AMI EFI with CMOS backup in 16MB SPI BIOS with Intel® AMT 10 support
Cache	24MB for D-1577, 18MB for D-1559, 12MB for D-1548, 6MB for D-1527/D-1517, 3MB for D-1508
Expansion Busses	PCIe x16 or 2 PCIe x8 or 2 PCIe x4 (Gen3) 6 PCI Express x1 (Gen2): AB connector, Lanes 0/1/2/3/4/5 Up 2 PCI Express x1 (Gen2): CD connector, Lanes 6/7 LPC bus, SMBus (system), I2C (user) Note: PCI Express lane 7 support in place of GbE
SEMA Board Controller	Supports: Voltage/current monitoring, power sequence debug support, AT/ATX mode control, logistics and forensic information, flat panel control, general purpose I <sup>2</sup> C, failsafe BIOS (dual BIOS), watchdog timer and fan control
Debug Headers	40-pin multipurpose flat cable connector for use 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

#### 10G Ethernet

Intel® MAC/Controller	Intel® 10G Ethernet Controller integrated in SoC
10G Interface	2x 10GBASE-KR
10G Sideband Signals	10G_INT 10G_PHY_MDC/MDIO 10G_PHY_SEL 10G_PHY_RST 10G_LED_I2C 10G_SFP_I2C 10G_SDP
NC-SI	NC-SI supported on AB connector

#### Ethernet

Intel® MAC/PHY	Intel® Ethernet Connection I218-LM with Intel® AMT 10.0 support
Interface	10/100/1000 GbE connection

#### Multi I/O and Storage

USB	4x USB 3.0/2.0 (USB 0, 1, 2, 3)
SATA	2x SATA 6Gb/s (SATA0,1,2,3)
Serial	2 UART ports 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%; AT: 12V±5%
Wide Input	ATX: 8.5-20V, 5Vsb ±5%; AT: 8.5-20V
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) Note: 10G WOL is TBD
ECO mode	Supports deep S5 mode for power saving

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

## Mechanical and Environmental

Form Factor	PICMG COM.0 Rev 3.0 , Type 7
Dimension	Basic size: 125 mm x 95 mm
Operating Temperature	Standard: 0°C to 60°C Extreme Rugged: -45°C to +85°C (build option, standard voltage only) Note: Extreme Rugged availability dependent on SoC SKU
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

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## Operating Systems

Standard Support	Windows Server 2012 (64-bit), Linux (64-bit)
Extended Support (BSP)	TBD

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## Functional Diagram

