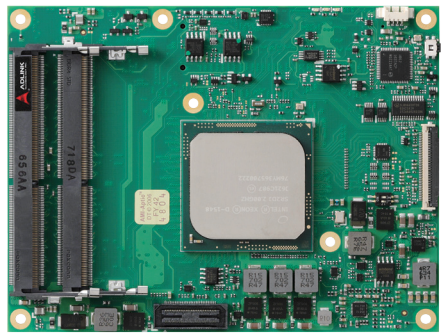
Express-BD7

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 1866/2133/2400MHz ECC (dependent on SoC SKU)
- Two 10G Ethernet and NC-SI support
- Up to 32 PCIe lanes (24x Gen3, 8x Gen2)
- 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 with selected SoC SKU)

Specifications

Core System

CPU

Intel® Xeon® D and Pentium® D SoC, 14nm process (formerly"Broadwell-DE")

Xeon® D1559 1.6/2.1GHz 18MB, 45W (12C) (eTEMP)
Xeon® D1539 1.6/2.2GHz 12MB, 35W (8C) (eTEMP)
Xeon® D1577 1.3/2.1GHz 24MB, 45W (16C)
Xeon® D1548 2.0/2.6GHz 12MB, 45W (8C)
Xeon® D1527 2.2/2.7GHz 6MB, 35W (4C)
Pentium® D1508 2.2/2.6GHz 3MB, 25W (2C)
Pentium® D1519 1.5/2.1GHz 6MB, 25W (4C) (eTEMP)

Note: SKUs not listed above and D1577/D1559 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)

Note: Only D1548 support up to 2400 MHz
Only D1548 support up to 1866 MHz

Embedded BIOS

AMI EFI with CMOS backup in 16MB SPI BIOS

Cache

24MB for D1577
18MB for D1559
12MB for D1548/D1539
6MB for D1527/D1519
3MB for D1508

Expansion Busses

PCIe x16 or 2 PCIe x8 or 4 PCIe x4 (Gen3)
8 PCIe lanes (Gen3): AB connector, Lanes 8-15
6 PCIe lanes (Gen2): AB connector, Lanes 0/1/2/3/4/5
Up 2 PCIe lanes (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 I²C, 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_MDIO/MDC & SDA/SCL
10G_PHY_CAP
10G_PHY_RST
10G_LED_I2C
10G_SFP_I2C
10G_SDP

NC-SI

NC-SI supported on AB connector,
connect to GbE controller

Ethernet

Intel® MAC/PHY: Intel® Ethernet Connection i210-LM
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)

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

TPM (option)

Chipset: Infineon
Type: TPM 2.0

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)
ECO mode: Supports deep S5 mode for power saving

Operating Systems

Standard Support

Windows 10 (64-bit)
Windows Server 2012 (64-bit)
Windows 7 (64-bit)
Linux (64-bit)

Extended Support (BSP)

Linux (64-bit)

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

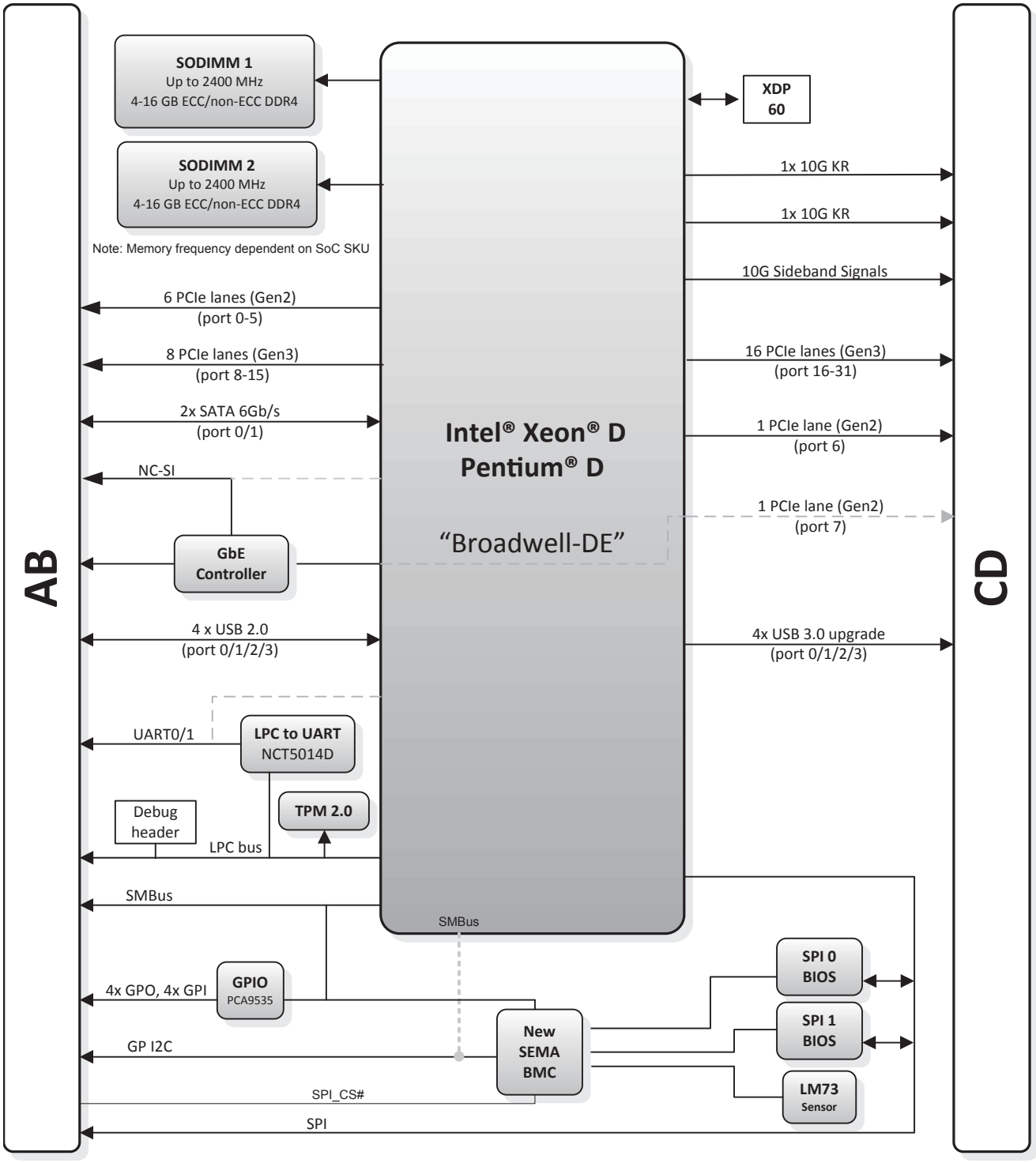
IEC 60068-2-64 and IEC-60068-2-27
MIL-STD-202F, Method 213B, Table 213-I, Condition A and Method 214A, Table 214-I, Condition D

HALT

Thermal Stress, Vibration Stress, Thermal Shock and Combined Test

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-BD7-D1559**
  Basic COM Express Type7 module with Intel Broadwell-DE D1559, 12C (eTEMP)
- **Express-BD7-D1539**
  Basic COM Express Type7 module with Intel Broadwell-DE D1539, 8C (eTEMP)
- **Express-BD7-D1519**
  Basic COM Express Type7 module with Intel Broadwell-DE D1519, 4C (eTEMP)
- **Express-BD7-D1577**
  Basic COM Express Type7 module with Intel Broadwell-DE D1577, 16C
- **Express-BD7-D1548**
  Basic COM Express Type7 module with Intel Broadwell-DE D1548, 8C
- **Express-BD7-D1527**
  Basic COM Express Type7 module with Intel Broadwell-DE D1527, 4C
- **Express-BD7-D1508**
  Basic COM Express Type7 module with Intel Broadwell-DE D1508, 2C

Note: All modules above support SFP+ 10GbE. Supports for 10GBASE-T (Copper) is by project basis.

Starter Kit

- **COM Express Type 7 Starter Kit Plus**
  Starter kit for COM Express Type 7

Note: Two starter kits are available: one supporting SFP+ and one supporting 10GBASE-T.

Accessories

Heat Spreaders

- **HTS-BD7-BL**
  Heatspreader for Express-BD7 with threaded standoffs for bottom mounting
- **HTS-BD7-BTL**
  Heatspreader for Express-BD7 with through hole standoffs for top mounting

Passive Heatsinks

- **THS-BD7-BL**
  Low profile heatsink for Express-BD7 with threaded standoffs for bottom mounting
- **THS-BD7-BTL**
  Low profile heatsink for Express-BD7 with through hole standoffs for top mounting
- **THSH-BD7-BL**
  High profile heatsink for Express-BD7 with threaded standoffs for bottom mounting

Active Heatsink

- **THSF-BD7-BL**
  High profile heatsink with fan for Express-BD7 with threaded standoffs for bottom mounting

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