Express-ID7/R

COM Express Basic Size Type 7 Module with New Gen Intel® Xeon® D SoC

Features

- AVX-512 VNNI for AI inference, data analysis
- Up to 128GB DDR4 SO-DIMM, 2933MT/s, ECC
- 4x 10G Ethernet and NC-SI support
- 16 PCIe Gen4 lanes and 16 PCIe Gen3 lanes
- 10+ year product availibility
- Extreme Rugged operating temperature: -40°C to 85°C (build option, selected SKUs)

Specifications

Core System

CPU

New Gen Intel® Xeon® D-1700 processor (formerly "Ice Lake-D LCC")
Xeon(R) D-1848TER 2.0/3.1GHz 15MB, 57W (10C, eTEMP)
Xeon(R) D-1813NT 2.2/2.4GHz 10MB, 42W (4C)
Xeon® D-1746TER 2.0/3.1GHz 15MB, 67W (10C, eTEMP)
Xeon® D-1735TR 2.2/3.4GHz 15MB, 59W (8C)
Xeon® D-1732TE 1.9/3.0GHz 15MB, 52W (8C, eTEMP)
Xeon® D-1715TER 2.4/3.5GHz 10MB, 45W (4C, eTEMP)
Xeon® D-1712TR 2.0/3.1GHz 18MB, 40W (4C)
Supports: Intel® VT, Intel® VT-d, Intel® TXT, Intel® SSE4.2, Intel® HT Technology, Intel® 64 Architecture, Execute Disable Bit, Intel® Turbo Boost Technology 2.0, Intel® AVX-512, Intel® AVX2, Intel® AES-NI, PCLMULQDQ Instruction, Intel® Secure Key and Intel TSX-NI.
Note: Availability of features may vary between processor SKUs.
Note: Additional 7 year availibility SKUs with QAT feature are supported by project basis. Please contact your ADLINK representative

Memory

3-channel up to 2933 MT/s ECC/non-ECC DDR4 memory, up to 128GB in four SODIMM sockets **(Xeon® D-1800)**
2-channel up to 2933 MT/s ECC/non-ECC DDR4 memory, up to 96GB in three SO-DIMM **sockets (Xeon® D-1800)**
Xeon® **D-1848TER**/D-1746TER/D-1732TE/D-1715TER: max. 2667MT/s Xeon® D-1735TE: max. 2933MT/s
Xeon® **D-1813NT**/D-1712TR: max. 2400MT/s
Note: It is recommended to check that the bottom side specifications are suitable for your application purposes.

Embedded BIOS

AMI UEFI with CMOS backup in 32MB SPI BIOS (dual BIOS by build option)

Cache

Xeon® **D-1848TER**/D-1746TER/D-1735TR/D-1732TE: 15MB
Xeon® **D-1813NT**/D-1715TER/D-1712TR: 10MB

Expansion Busses

- 16 PCI Express Gen4: Lanes 16-31 (configurable to one x16, two x8, four x4)
- 8 PCI Express Gen3: Lanes 0-7 (configurable to one x8, two x4, four x2)
- 8 PCI Express Gen3: Lanes 8-15 (configurable to one x8, two x4, four x2)
- LPC bus (through an ESPI to LPC bridge IC), SMBus (system) , I²C (user)

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, watchdog timer, fan control and failsafe BIOS (dual BIOS by build option)

Debug Headers

30-pin multipurpose flat cable connector for use with DB-30 x86 debug module providing BIOS POST code LED, EC access, SPI BIOS flashing, power testpoints, debug LEDs

10G Ethernet

Intel® MAC/Controller

Intel®10G Ethernet controller integrated in SoC

Interface

4x 10GBASE-KR and its sideband signals

Ethernet

Intel® MAC/Controller

Intel Ethernet controller I210 series

Interface

1000/100/10 GbE connection

NC-SI

connect to GbE controller

Multi I/O and Storage

USB

4x USB 3.x/2.0/1.1 (USB 0,1,2,3)

SATA

2x SATA 6Gb/s (SATA 0,1)

Serial

2x UART ports with console redirection

GPIO/SD

4x GPO and 4x GPI from EC (GPI with interrupt TBC)

Super I/O

Supported on carrier if needed (standard support for W83627DHG-P, other Super I/O supported by project basis)

TPM (2.0)

Chipset

Infineon
SPI based

Note: "build option" indicates an alternative BOM configuration to support additional or alternative functions that are supported by project bassis. Be aware that these "build option" part numbers will need to be newly created and this will result in production lead times

Express-ID7/R

Specifications

- **Power**

  Standard Input
  ATX: 12V+/-5% / 5Vsb +/-5% (TBC); or AT: 12V±5%

  Management
  ACPI 5.0 compliant

  Power States
  C1-C6, S0, S5 , S5 ECO mode

  ECO mode
  support deep S5 mode for power saving

- **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 (Storage: -20°C to 80°C)
  Extreme Rugged: -40°C to 85°C (build option, selected SKUs) (Storage: -40°C to 85°C) (TBC)

  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 Server, Windows® 10 IoT Enterprise LTSC, Yocto Linux, VxWorks (TBC)

  Extended Support (BSP)
  Yocto project based Linux

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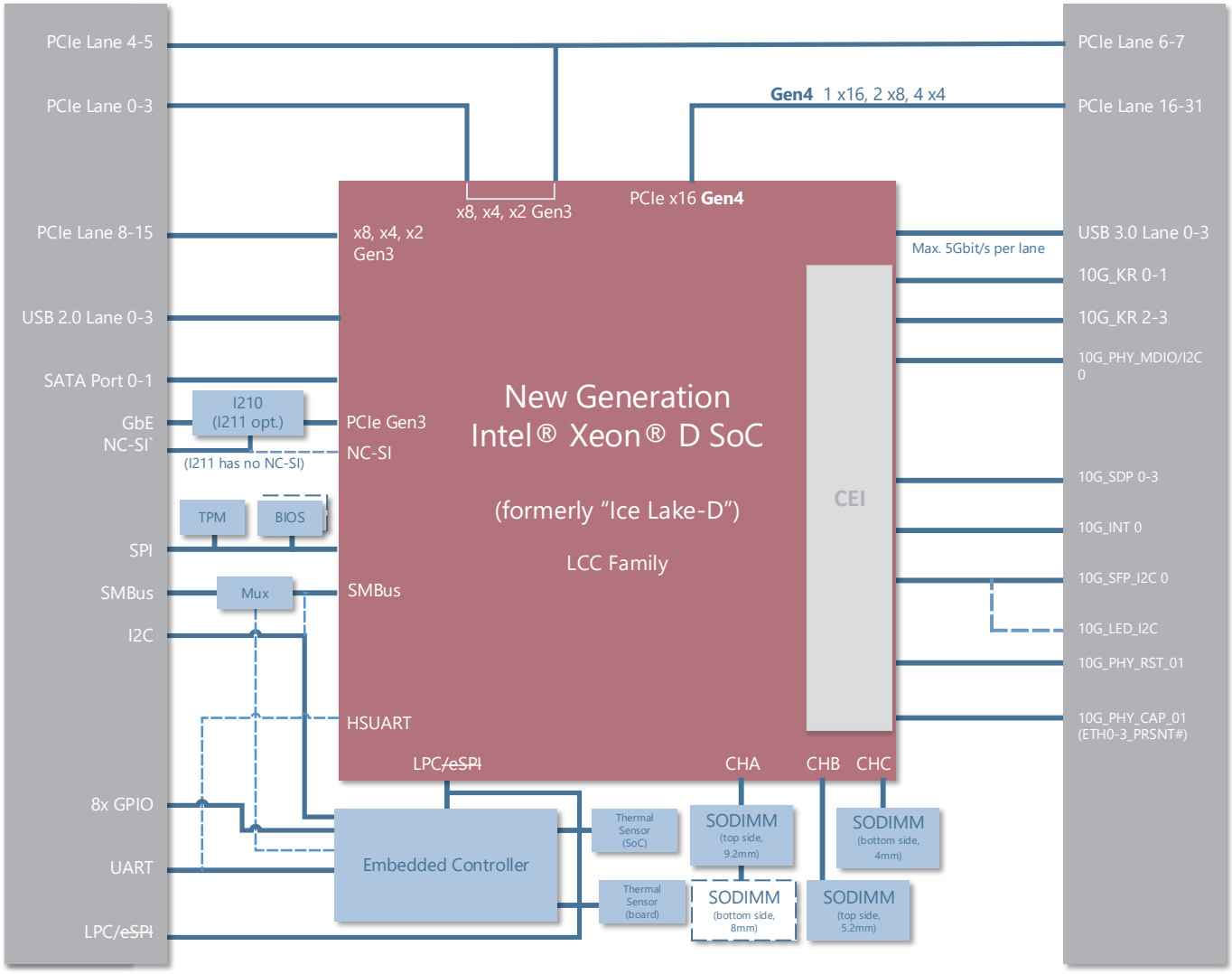
Functional Diagram



Additional PCIe x1 at Lane 1, Lane 5 is supported by project basis

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Ordering Information

- **Express-ID7-D-1848TER**
  Basic size COM Express Type7 module with Intel® Xeon® D-1848TER, 10C, 3 SO-DIMMs
- **Express-ID7-D-1746TER**
  Basic size COM Express Type7 module with Intel® Xeon® D-1746TER, 10C, 3 SO-DIMMs
- **Express-ID7-D-1735TR**
  Basic size COM Express Type7 module with Intel® Xeon® D-1735TR, 8C, 3 SO-DIMMs
- **Express-ID7-D-1732TE**
  Basic size COM Express Type7 module with Intel® Xeon® D-1732TE, 8C, 3 SO-DIMMs
- **Express-ID7-D-1715TER**
  Basic size COM Express Type7 module with Intel® Xeon® D-1715TER, 4C, 3 SO-DIMMs
- **Express-ID7-D-1712TR**
  Basic size COM Express Type7 module with Intel® Xeon® D-1712TR, 4C, 3 SO-DIMMs

For processor SKUs not listed, please contact your ADLINK representative for availability.

Starter Kit

- **COM Express Type 7 Starter Kit Plus Specific**
  Starter kit for COM Express Type 7
  For PCIe Gen4 specific version, please contact your local ADLINK representative.

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Accessories

Heat Spreaders

- **HTS-ID7-B**
  Heatspreader for Express-ID7 with threaded standoffs for bottom mounting
- **HTS-ID7-BT**
  Heatspreader for Express-ID7 with through hole standoffs for top mounting

Passive Heatsinks

- **THS-ID7-B**
  Low profile heatsink for Express-ID7 with threaded standoffs for bottom mounting
- **THS-ID7-BT**
  Low profile heatsink for Express-ID7 with through hole standoffs for top mounting
- **THSH-ID7-B**
  High profile heatsink for Express-ID7 with threaded standoffs for bottom mounting

Active Heatsink

- **THSF-ID7-B**
  High profile heatsink with Fan for Express-ID7 with threaded standoffs for bottom mounting