Express-ID7

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® 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

Triple channel up to 2933 MT/s ECC/non-ECC DDR4 memory up to 128GB in four SODIMM sockets
two SO-DIMM on top side, two SO-DIMM on bottom side

Xeon® D-1746TER/D-1732TE/D-1715TER: max. 2667MT/s

Xeon® D-1735TE: max. 2933MT/s

Xeon® 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-1746TER/D-1735TR/D-1732TE: 15MB
Xeon® 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

Chipset

Infineon

Type

TPM 2.0 (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

ADLINK
® LEADING EDGE COMPUTING

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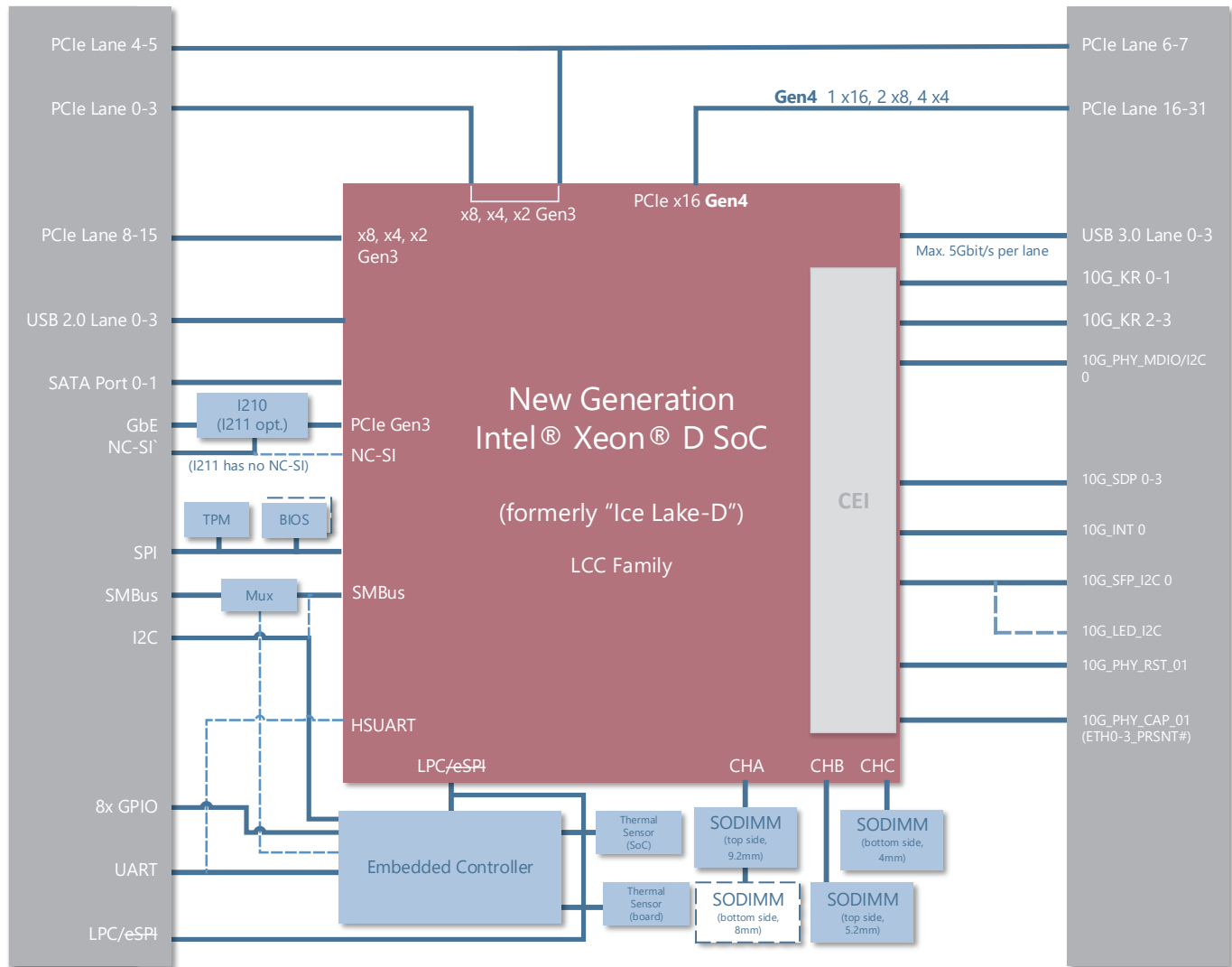Windows Server, Windows® 10 IoT Enterprise LTSC, Yocto Linux, VxWorks (TBC)

Extended Support (BSP)
Yocto project based Linux

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

Functional Diagram

PCIe Lane 4-5	PCIe Lane 6-7
PCIe Lane 0-3	**Gen4** 1 x16, 2 x8, 4 x4
	PCIe Lane 16-31

PCIe x16 **Gen4**

x8, x4, x2 Gen3

PCIe Lane 8-15 — x8, x4, x2 Gen3

Max. 5Gbit/s per lane — USB 3.0 Lane 0-3

10G_KR 0-1

USB 2.0 Lane 0-3

10G_KR 2-3

SATA Port 0-1

10G_PHY_MDIO/I2C 0

GbE — I210 (I211 opt.) — PCIe Gen3

NC-SI` — NC-SI

(I211 has no NC-SI)

10G_SDP 0-3

TPM   BIOS

New Generation Intel® Xeon® D SoC

(formerly "Ice Lake-D")

LCC Family

CEI

10G_INT 0

SPI

SMBus — Mux — SMBus

10G_SFP_I2C 0

I2C

10G_LED_I2C

10G_PHY_RST_01

HSUART

10G_PHY_CAP_01 (ETH0-3_PRSNT#)

LPC/eSPI

CHA   CHB   CHC

8x GPIO

Thermal Sensor (SoC)

SODIMM (top side, 9.2mm)

SODIMM (bottom side, 4mm)

UART

Embedded Controller

Thermal Sensor (board)

SODIMM (bottom side, 8mm)

SODIMM (top side, 5.2mm)

LPC/eSPI

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

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