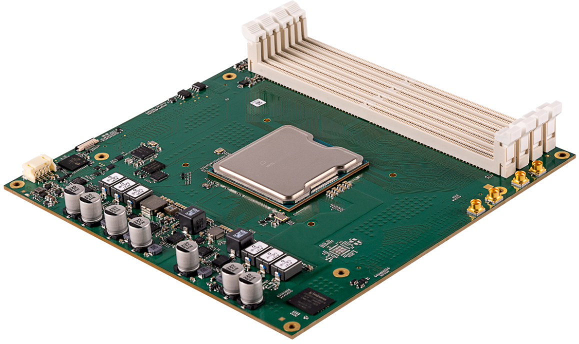
MSC HSD-ILDL

Intel® Xeon® D-1700 Processor



160 x 160

40 / 89 W

-40 +85

IoT Solutions Alliance

COM-HPC

Description

The MSC HSD-ILDL COM-HPC Server module hosts the Intel® Xeon® D-1700 processor and delivers server class performance on embedded form factor. The processor is a fully integrated System on Chip (SoC) combining up to ten Xeon cores, memory controller, high bandwidth network and multiple PCIe root complexes on a single socket.

The on-chip network controller facilitates up to eight Ethernet ports with different configuration options ranging from 1G to 25G per port and an aggregated throughput of up to 100G. An additional Ethernet port based on Intel® i225 provides 1GbE/2.5GbE bandwidth and TSN capability for real-time applications. An extensive set of PCI Express lanes with Gen 4 and Gen 3 support allow for connecting external HW accelerators, FPGAs, storage and IO devices.

The user can scale memory capacity from 8GB to 256GB based on registered DIMMs (RDIMM) or unbuffered DIMMs (UDIMM). Machine robustness can be extended by enabling error correction code (ECC) and utilizing RDIMM or ECC UDIMM. Selected variants of the MSC HSD-ILDL can be operated at extended temperature range with true 24/7 utilization. This supports system designs exposed to harsh environmental conditions that require a reliable compute engine.

System investments are well protected through long-term availability of the module. In addition, the COM-HPC standard enables performance scaling and migrating applications to future technology upgrades when they become available.

Highlights

- COM-HPC Server module
- Ideal for IoT, AI/deep learning, edge computing, HPC, workload consolidation
- Intel® Xeon® D-1700 processor
- Server class multi-core system on chip (SoC)
- Up to 10 cores
- Up to 256GB DDR4 memory, RDIMM/UDIMM
- Optional ECC memory protection
- Extensive I/O including PCI Express® and multiple Ethernet connections
- Sixteen PCIe Gen 4 and sixteen PCIe Gen 3 lanes
- Up to eight integrated Ethernet ports, max. 25G
- Maximum 100G aggregated Ethernet throughput
- Dedicated 1G / 2.5G Gb Ethernet port with TSN capability (Intel® i225)
- Two SATA 6Gb/s mass storage interfaces
- 4x USB 3.2 Gen 1, 4x USB 2.0
- 12x GPIO, 2x serial UART ports
- Trusted Platform Module TPM 2.0
- On-board mass storage (optional eMMC)
- Extended temperature range and 24/7 operation
- Long-term product availability

Technical Data - MSC HSD-ILDL

Technology	x86
Formfactor	COM HPC Size D
CPU	Intel Xeon D-1746TER, ten-core, 2.0GHz, 67W TDP, 8 Eth ports, 100G, DDR4-2667, I-temp Intel Xeon D-1735TR, eight-core, 2.2GHz, 59W TDP, 8 Eth ports, 50G, DDR4-2933, C-temp Intel Xeon D-1732TE, eight-core, 1.9GHz, 52W TDP, 8 Eth ports, 50G, DDR4-2667, I-temp Intel Xeon D-1715TER, four-core, 2.4GHz, 50W TDP, 8 Eth ports, 50G, DDR4-2667, I-temp Intel Xeon D-1712TR, four-core, 2.0GHz, 40W TDP, 8 Eth ports, 50G, DDR4-2400, C-temp Note: 100/50G is the recommended network throughput a device should not exceed. See the product manual for details.
Chipset	SoC
RAM	Up to 256GB DDR4, 4x 288pin DIMM, 2 channels, 2 DIMMs per channel RDIMM population, 1DPC/2DPC, max. DDR4-2933, ECC, max. 64GB per DIMM UDIMM population, 1DPC, max. DDR4-2933, optional ECC, max. 32GB per DIMM UDIMM population, 2DPC, max. DDR4-2666, optional ECC, max. 32GB per DIMM Note: maximum supported speed grades also depending on selected processor variant
Flash	optional eMMC, max. 265GB
Storage Interfaces	2x SATA 6Gb/s
USB	4x USB 3.2 Gen 1 (5Gbps), connected with COM-HPC USB[0:3]_SSTX/RX 4x USB 2.0 connected with USB[0:3]
Serial Interfaces	2x UART
Bus Interfaces	16x PCI Express Gen 4, bifurcation x16, x8, x4, max. 4 root ports, NTB x16, x8, connected with COM-HPC PCIe[16:31] 16x PCI Express Gen 3, bifurcation x8, x4, x2, max. 8 root ports, connected with COM-HPC PCIe[0:15] 1x PCI Express Gen3 for optional BMC on carrier, connected with PCIe_BMC

Network Interface	1x 1000BASE-T / 2.5GBASE-T, TSN, connected with COM-HPC NBASET0 I-Temp variants: Intel® i225-IT C-Temp variants: Intel® i225-LM 8x configurable Ethernet ports (SoC), connected with COM-HPC ETH[0:7] Configuration options (mutually exclusive): 4x 25G 2x 25G 8x 10G 4x 10G 4x 10G & 4x 2.5G Highest possible bandwidths shown, lower speeds are supported. 25G-> 10G/2.5G/1G/100M 10G-> 2.5G/1G/100M Supported configurations, maximum throughput and number of Ethernet interfaces depending on processor variant. The COM-HPC carrier design determines capabilities of the physical interfaces.
Security Device	Infineon Trusted Platform Module 2.0
Miscellaneous	Watchdog Timer: Initiates system reset, programmable Fan Supply: 4-pin header for CPU fan, PWM speed controlled and PWM speed control for system fan supported RTC battery: external System Monitoring: voltage, temperature, CPU fan, system fan
Feature Highlights	PICMG COM-HPC Server interface
Firmware	UEFI Firmware: AMI Aptio® V Security: TPM 2.0 support, TCG compliant Power Management: ACPI Active fan control USB: USB legacy support (keyboard, mouse, storage) Monitoring: System Monitoring Health Monitoring MSC Adv. Boot Device Selection: Boot device priority setting based on physical interfaces
OS Support	Microsoft Windows 10 IoT Enterprise BSP for Linux (Yocto) EAPI (HW Programming Interface)

Power Requirement	Voltage: +12V +/-5% +5V Stby +/-5% (optional) Power Consumption: 40W to 89W (typ.)
Environment	Ambient Temperature; 0° … 60°C (operating) -25° … 85°C (storage) Extended temp. variants: -40 ... +85°C* (operating) *Maximum operating temperatures may be lower depending on product variants, cooling design, operational and environmental conditions. See the product documentation for detailed specification of maximum operating temperatures and conditions. Humidity: 5 … 95% (operating, non-condensing), 5 … 95% (storage, non-condensing)
Dimensions	160mm x 160mm (Height depending on cooling solution)
Certificates	UL / CE
Cooling	Heat sink and heat spreader options

Order Reference - MSC HSD-ILDL

Order Number	Description	Reference	Cat
95091	COM-HPC Server D module (160mm x 160mm); CPU: Xeon D-1746TER, ten-core, 2.0GHz, 67W TDP; Ethernet: 1x 1G/2.5G, 8 Ports, 100G BW; 2x SATA, 4x USB3.0, 4x USB2.0; 16x PCIe Gen 4, 16x PCIe Gen 3; 4x socket for DDR4-2667 RDIMM/UDIMM; TPM 2.0; Extended temperature range	MSC HSD-ILDL-1746TER-NN101I PCBFTX	OR
95089	COM-HPC Server D module (160mm x 160mm); CPU: Xeon D-1746TER, ten-core, 2.0GHz, 67W TDP; Ethernet: 1x 1G/2.5G, 8 Ports, 100G BW; eMMC 64GB; 2x SATA, 4x USB3.0, 4x USB2.0; 16x PCIe Gen 4, 16x PCIe Gen 3; 4x socket for DDR4-2667 RDIMM/UDIMM; TPM 2.0; Extended temperature range	MSC HSD-ILDL-1746TER-N6101I PCBFTX	PV
95087	COM-HPC Server D module (160mm x 160mm); CPU: Xeon D-1735TR, eight-core, 2.2GHz, 59W TDP; Ethernet: 1x 1G/2.5G, 8 Ports, 50G BW; 2x SATA, 4x USB3.0, 4x USB2.0; 16x PCIe Gen 4, 16x PCIe Gen 3; 4x socket for DDR4-2933 RDIMM/UDIMM; TPM 2.0;	MSC HSD-ILDL-1735TR-NN101C PCBFTX	OR
95085	COM-HPC Server D module (160mm x 160mm); CPU: Xeon D-1735TR, eight-core, 2.2GHz, 59W TDP; Ethernet: 1x 1G/2.5G, 8 Ports, 50G BW; eMMC 64GB; 2x SATA, 4x USB3.0, 4x USB2.0; 16x PCIe Gen 4, 16x PCIe Gen 3; 4x socket for DDR4-2933 RDIMM/UDIMM; TPM 2.0;	MSC HSD-ILDL-1735TR-N6101C PCBFTX	PV
95083	COM-HPC Server D module (160mm x 160mm); CPU: Xeon D-1732TE, eight-core, 1.9GHz, 52W TDP; Ethernet: 1x 1G/2.5G, 8 Ports, 50G BW; 2x SATA, 4x USB3.0, 4x USB2.0; 16x PCIe Gen 4, 16x PCIe Gen 3; 4x socket for DDR4-2667 RDIMM/UDIMM; TPM 2.0; Extended temperature range	MSC HSD-ILDL-1732TE-NN101I PCBFTX	PV
95071	COM-HPC Server D module (160mm x 160mm); CPU: Xeon D-1715TER, four-core, 2.4GHz, 50W TDP; Ethernet: 1x 1G/2.5G, 8 Ports, 50G BW; 2x SATA, 4x USB3.0, 4x USB2.0; 16x PCIe Gen 4, 16x PCIe Gen 3; 4x socket for DDR4-2667 RDIMM/UDIMM; TPM 2.0; Extended temperature range	MSC HSD-ILDL-1715TER-NN101I PCBFTX	PV
95069	COM-HPC Server D module (160mm x 160mm); CPU: Xeon D-1712TR, four-core, 2.0GHz, 40W TDP; Ethernet: 1x 1G/2.5G, 8 Ports, 50G BW; 2x SATA, 4x USB3.0, 4x USB2.0; 16x PCIe Gen 4, 16x PCIe Gen 3; 4x socket for DDR4-2400 RDIMM/UDIMM; TPM 2.0;	MSC HSD-ILDL-1712TR-NN101C PCBFTX	PV

Accessories

Order Number	Description	Reference
	Cable Options	
91792	25 Gbit Ethernet SPF28 direct attach copper cable, SFP to SFP, 1m length	CAB ETHERNET SFP-M SFP-M 1m BK SPF28
91793	25 Gbit Ethernet SPF28 direct attach copper cable, SFP to SFP, 2m length	CAB ETHERNET SFP-M SFP-M 2m BK SPF28
91794	25 Gbit Ethernet SPF28 direct attach copper cable, SFP to SFP, 3m length	CAB ETHERNET SFP-M SFP-M 3m BK SPF28
	Carrier Options	
96405	COM-HPC Server Evaluation Carrier Board PCI Express 2x x4, 2x x8 and 1x x16 slots; 2x M.2 PCIe x4, 4x USB 3/2, 2x SATA; 4x 25/10G ETH, 2x 10G ETH, 1x 1/2.5G ETH; POST code display, ATX power connector; Dimensions: 305 x 244 mm (ATX form factor)	MSC HS-MB-EV-001 BRDFTX
97526	Starter kit for COM-HPC Server modules with Intel Xeon D-1700 processor. Consists of the MSC HS-MB-EV ATX platform board, heat sink with fan, two 8GB memory modules, mounting material and power supply with cable kit.	MSC HS-SK-ILDL-EV-KIT001 BRDFTX
	Cooling Options	
97253	Active heatsink for HSD-ILDL with PWM fan, aluminium fins, heat pipe, copper plate, mounting material.	MSC HSD-ILDL-01 HSF-HP-KIT001 SETPAC
96972	Heatspreader / heat pipe for HSD-ILDL. Single-piece aluminum profile, standoffs without thread (2.9 mm inner diameter), screws and thermopad for the thermal contact to SOC.	MSC HSD-ILDL-01 HSP-HP-001
	Memory Options	
92389	32GB RDIMM, DDR4-2933, 2Gx8 based, sorting wide Temp	MOD RDIMM DDR4 32GB PC4-23466 CL21 2B
92390	64GB RDIMM, DDR4-2933, 4Gx8 based	MOD RDIMM DDR4 64GB PC4-23466 CL21 2B
92604	8GB RDIMM, DDR4-2933, 512x8 based, sorting wide Temp	MOD RDIMM DDR4 8GB PC4-23466 CL21 4B