

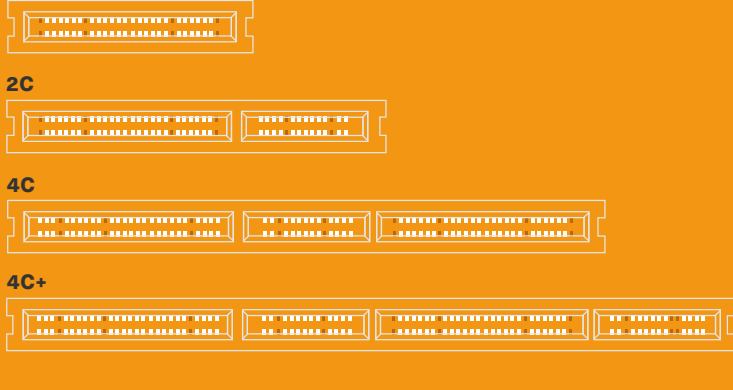
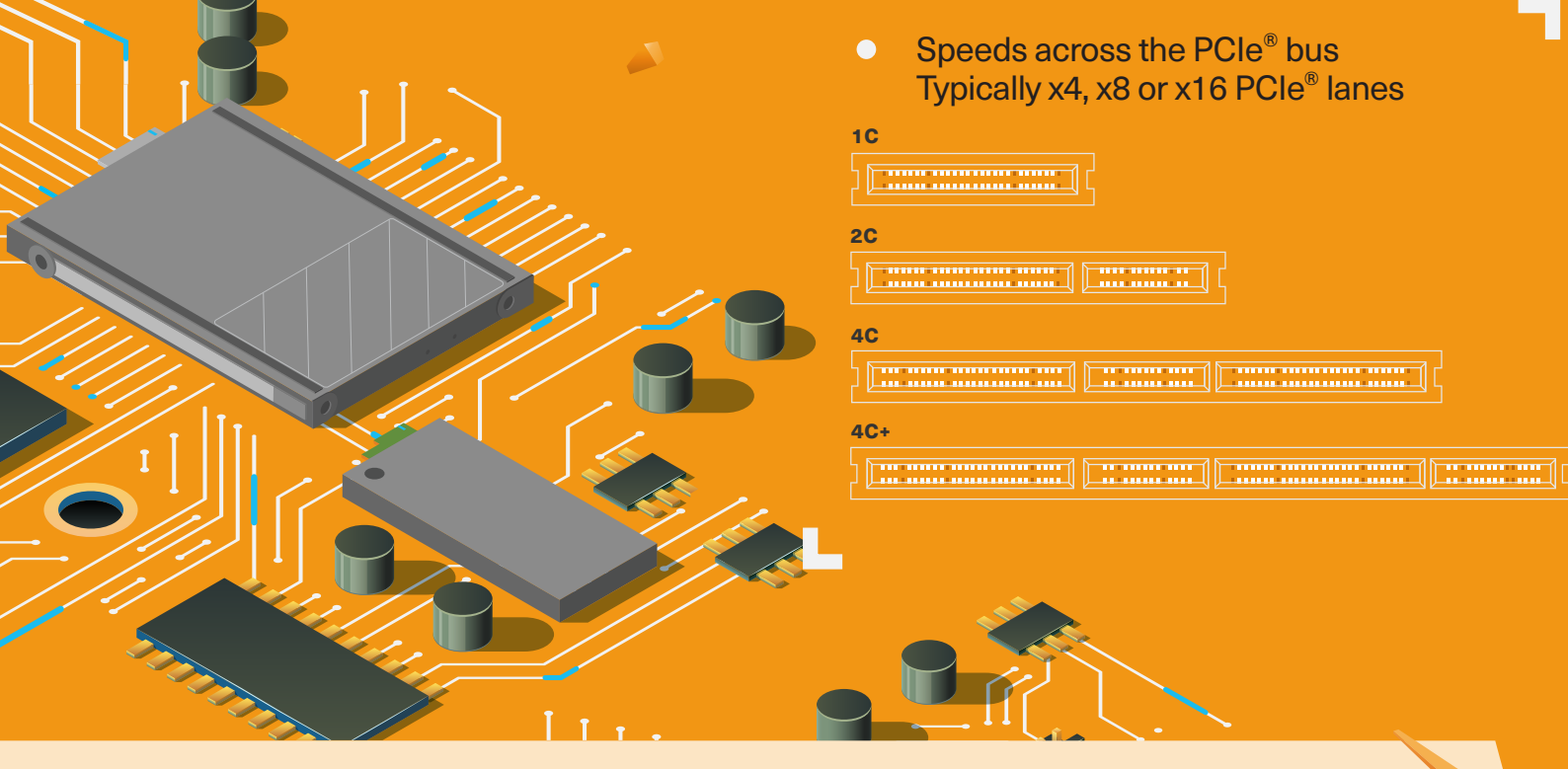
Enterprise and Datacenter Standard Form Factor (EDSFF)

KIOXIA

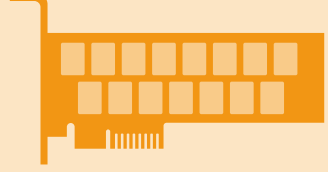
for NVMe Express™ SSDs

What is an NVMe Express™ (NVMe™) SSD?

- Speaks NVMe™ commands
Built on the NVMe Express™ base specification
- Speeds across the PCIe® bus
Typically x4, x8 or x16 PCIe® lanes

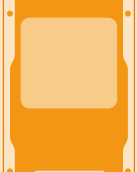


Form Factor Evolution of SSDs



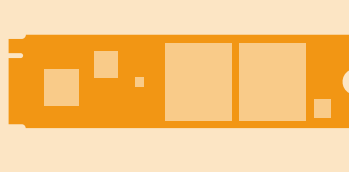
Add-in Card (AIC)

High Performance Storage
Server Accelerator



2.5-inch (U.2/U.3)

Data Storage
Cache
Client, Servers, Storage



M.2 (2242, 2280, 22110)

Data Storage
Boot
Client, Servers



BGA (16x20mm) M.2 (2230)

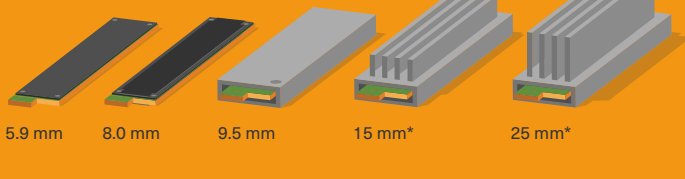
Data Storage
Boot
Laptop, Tablet

EDSFF: Form Factors for the Next Generation Hyperscale and Enterprise Data Centers

E1 – Hyperscale Servers & Storage

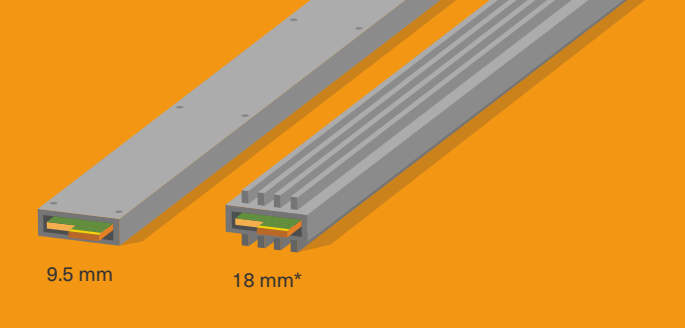
E1.S

111.49 mm & 118.75 mm



E1.L

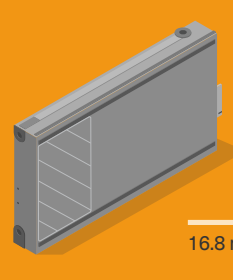
318.75 mm



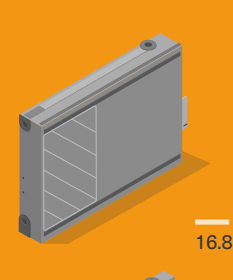
*Heatsink increases thickness.

E3 – Enterprise Servers & Storage

E3.L 142.2 mm

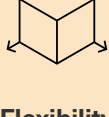


E3.S 112.75 mm



Individual dimensions indicate the device thickness.

Benefits of EDSFF SSDs



Flexibility

EDSFF connector design is compliant to the same connector standard specification across all EDSFF configurations, and it can be used without limitation on the number of lanes and is flexible to chassis and backplane designs.



Powerful

EDSFF is design to support higher power up to 70W*, delivering superior performance, while 2.5-inch SSDs using the SFF-8639 connector typically max out at 25W.

*The design value of maximum power depends on the device.



Higher Performance

EDSFF can support up to 4x higher performance in a 4C configuration with 16 lanes and 2x higher performance in a 2C configuration with 8 lanes than a 4 lane 2.5-inch SSD (U.2 or U.3).*

*The number of lanes depends on the device. As of October 2023, KIOXIA does not support SSDs beyond PCIe® x4 lanes.



Efficient

The EDSFF is designed with efficient use of space and surface area, improving thermal dissipation and allowing for higher density chassis.



Versatile

EDSFF is designed to support other PCIe® devices, such as NICs or accelerators, that can be used in the same chassis not limited to SSDs.

KIOXIA EDSFF E1.S Offerings

KIOXIA XD7P Series Data Center NVMe™ SSD

- PCIe® Gen4 x4 (16 GT/s x4)
- NVMe™ 2.0 specification compliant
- OCP Datacenter NVMe™ SSD 2.0 supported
- 1.92 TB, 3.84 TB and 7.68 TB capacities
- 1 DWPD endurance



9.5 mm



15 mm



25 mm

KIOXIA XD6 Series Data Center NVMe™ SSD

- PCIe® Gen4 x4 (16 GT/s x4)
- NVMe™ 1.3c specification compliant
- OCP NVMe™ Cloud SSD 1.0a supported
- 1.92 TB and 3.84 TB capacities
- 1 DWPD endurance



9.5 mm



15 mm



25 mm

KIOXIA EDSFF E3.S Offerings



KIOXIA CM7 Series Enterprise NVMe™ SSD

- PCIe® Gen5 x4 (32 GT/s x4)
- NVMe™ 2.0 specification compliant
- OCP Datacenter NVMe™ SSD 2.0 supported
- 1.6 TB to 15.36 TB capacities
- 1 and 3 DWPD endurance

KIOXIA CD8P Series Data Center NVMe™ SSD

- PCIe® Gen5 x4 (32 GT/s x4)
- NVMe™ 2.0 specification compliant
- OCP Datacenter NVMe™ SSD 2.0 supported
- 1.6 TB to 15.36 TB capacities
- 1 and 3 DWPD endurance

KIOXIA CD7 Series Data Center NVMe™ SSD

- Designed to PCIe® Gen5 x4 (32 GT/s x4)
- NVMe™ 1.4 specification compliant
- 1.92 TB, 3.84 TB and 7.68 TB capacities
- 1 DWPD endurance



Where to Find More on EDSFF?

SNIA SSD Form Factors Web Page <https://www.snia.org/forums/cmsi/knowledge/formfactors>

E1.S & E1.L SNIA SFF-TA-1002 – Protocol Agnostic Multi-lane High Speed Connector
 SNIA SFF-TA-1006 – Enterprise and Datacenter 1U Short Device Form Factor (E1.S)
 SNIA SFF-TA-1007 – Enterprise and Datacenter 1U Long Device Form Factor (E1.L)
 SNIA SFF-TA-1009 – Enterprise and Datacenter Standard Form Factor Pin and Signal Specification
 SNIA REF-TA-1012 – Pin Assignment Reference for SFF-TA-1002 Connectors
 SNIA SFF-TA-1023 – Thermal Characterization Specification for EDSFF Devices

E3.S & E3.L SNIA SFF-TA-1002 – Protocol Agnostic Multi-Lane High Speed Connector
 SNIA SFF-TA-1008 – Enterprise and Datacenter Device Form Factor (E3)
 SNIA SFF-TA-1009 – Enterprise and Datacenter Standard Form Factor Pin and Signal Specification
 SNIA REF-TA-1012 – Pin Assignment Reference for SFF-TA-1002 Connectors
 SNIA SFF-TA-1023 – Thermal Characterization Specification for EDSFF Devices

KIOXIA

In every mention of a KIOXIA product, Definition of capacity - KIOXIA Corporation defines a megabyte (MB) as 1,000,000 bytes, a gigabyte (GB) as 1,000,000,000 bytes and a terabyte (TB) as 1,000,000,000,000 bytes. A computer operating system, however, reports storage capacity using powers of 2 for the definition of 1GB = 2³⁰ bytes = 1,073,741,824 bytes and 1TB = 2⁴⁰ bytes = 1,099,511,627,776 bytes and therefore shows less storage capacity. Available storage capacity (including examples of various media files) will vary based on file size, formatting, settings, software and operating system, and/or pre-installed software applications, or media content. Actual formatted capacity may vary.

Drive Write(s) Per Day. One full drive write per day means the drive can be written and re-written to full capacity once a day, every day, for the specified lifetime. Actual results may vary due to system configuration, usage and other factors.

Images may differ from the actual products and services.

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