Intel® Server M50FCP Family

Configuration Guide

A reference document used to identify available server building blocks, integrated server systems, accessories, and spare parts associated with the Intel® Server M50FCP Family.

Rev. 1.5

June 2024

M50FCP

Delivering Breakthrough Data Center System Innovation – Experience What's Inside!

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Document Revision History

Date	Revision	Changes
December 2022	1.0 - NDA	Production release - NDA
January 2023	1.0.1	Production release - Public
February 2023	1.1	Updates to Intel® VROC information Remove Intel® Optane™ PMem 300 Series support Update Table 1. 4th Gen Intel® Xeon® Scalable Processor Family Feature Comparison Update Table 20. Data Cable Guide for Intel® Server System M50FCP1UR204 Update Table 21. Data Cable Guide for Intel® Server System M50FCP1UR212 Minor changes for clarity
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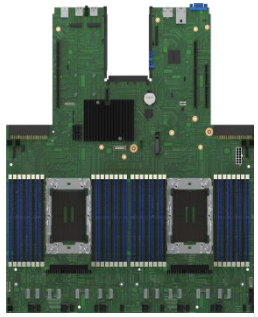
1. Product Overview

This document provides a catalog of available Intel server products, accessories, and spares for the Intel® Server M50FCP Family.

Intel® Server M50FCP Family

Server Board



Intel® Server Board M50FCP2SBSTD

Server Systems

Intel® Server System M50FCP1UR options

Intel® Server System M50FCP2UR options

Figure 1. Intel® Server M50FCP Family Overview

The Intel® Server M50FCP Family includes:

- Server board only option:
  - Intel® Server Board M50FCP2SBSTD
- L6[1] Integrated server system options:
  - Intel® Server System M50FCP1UR – A family of 1U rack mount server systems integrated with an Intel® Server Board M50FCP2SBSTD.
  - Intel® Server System M50FCP2UR – A family of 2U rack mount server systems integrated with an Intel® Server Board M50FCP2SBSTD.

Refer to the following Intel documentation for additional information:

- Intel® Server Board M50FCP2SBSTD Technical Product Specification (TPS).
- Intel® Server System M50FCP1UR Technical Product Specification
- Intel® Server System M50FCP2UR Technical Product Specification

[1] An L6 integrated system requires installation of additional components to make the system power-on ready

1.1 Processor Support

The Intel® Server M50FCP Family includes two Socket E LGA4677 processor sockets on the server board that provide support for the 4th & 5th Gen Intel® Xeon® Scalable processor family. Supported processor SKUs for this Intel server product family can be identified as follows:

- Intel® Xeon® Platinum 84xxx/**85**xxxx
- Intel® Xeon® Gold 64xxx/**65**xxxx
- Intel® Xeon® Gold 54xxx/**55**xxxx
- Intel® Xeon® Silver 44xxx/**45**xxxx
- Intel® Xeon® Bronze 34xxx/**35**xxxx

The following figure illustrates how to identify supported processor SKUs.

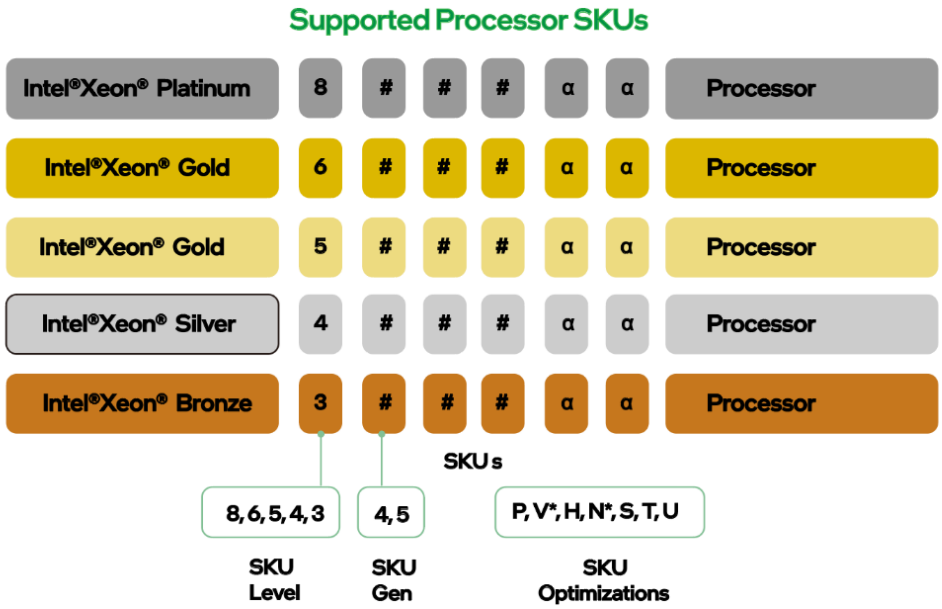


Figure 2. 4th & 5th Gen Intel® Xeon® Scalable Processor Identification

Notes:

- 4th & 5th Gen Intel® Xeon® Scalable processor SKU model numbers that end in (Q) are NOT supported. All other processor SKUs are supported.
- Intel® Xeon® Bronze processors are supported in single processor configurations only.
- Previous generation Intel® Xeon® processor families and Intel® Xeon® Scalable processor families are not supported.

Table 1. 4th & 5th Gen Intel® Xeon® Scalable Processor Family Feature Comparison

Feature[1]	Platinum 84xxx Processors	Gold 64xxx Processors	Gold 54xxx Processors	Silver 44xxx Processors	Bronze 34xxx Processor
# Of Intel® Ultra Path Interconnect (Intel® UPI) Links	3-4[2]	3-4[2]	3	2	0
Intel® UPI Speed	16 GT/s	16 GT/s	16 GT/s	16 GT/s	N/A
Supported Topologies	2S-2UPI 2S-3UPI	2S-2UPI 2S-3UPI	2S-2UPI 2S-3UPI	2S-2UPI	1S-0UPI
Node Controller Support	No	No	No	No	No
RAS Capability	Advanced	Advanced	Advanced	Standard	Standard
Intel® Turbo Boost Technology	Yes	Yes	Yes	Yes	Yes
Intel® Hyper-Threading Technology (Intel® HT Technology)	Yes	Yes	Yes	Yes	No
Intel® Advanced Vector Extensions 512 (Intel® AVX-512) ISA Support	Yes	Yes	Yes	Yes	Yes
Intel® AVX-512 – # of 512b FMA Units	2	2	2	2	1
# Of PCIe* Lanes/CXL 1.1	80	80	80	80	80[3]
Intel® Volume Management Device (Intel® VMD)	Yes	Yes	Yes	Yes	Yes

Note: (1) Features may vary between processor SKUs. **(2)** Intel® Server Board M50FCP2SBSTD can only support up to 3 Intel® UPI 2.0 links. **(3)** Intel® Xeon® Bronze supports PCIe* Gen 4.0 and does no support CXL. For more CXL information refer to 4th and 5th Gen Intel® Xeon® Scalable processors family BIOS Firmware External Product Specification (EPS).

Feature[1]	Platinum 85xxx Processors	Gold 65xxx Processors	Gold 55xxx Processors	Silver 45xxx Processors	Bronze 35xxx Processor
# Of Intel® Ultra Path Interconnect (Intel® UPI) Links	3-4[2]	3-4[2]	3	2	0
Intel® UPI Speed	20 GT/s	20 GT/s	20 GT/s	16 GT/s	N/A
Supported Topologies	2S-2UPI 2S-3UPI	2S-2UPI 2S-3UPI	2S-2UPI 2S-3UPI	2S-2UPI	1S-0UPI
Node Controller Support	No	No	No	No	No
RAS Capability	Advanced	Advanced	Advanced	Standard	Standard
Intel® Turbo Boost Technology	Yes	Yes	Yes	Yes	Yes
Intel® Hyper-Threading Technology (Intel® HT Technology)	Yes	Yes	Yes	Yes	No
Intel® Advanced Vector Extensions 512 (Intel® AVX-512) ISA Support	Yes	Yes	Yes	Yes	Yes
Intel® AVX-512 – # of 512b FMA Units	2	2	2	2	1
# Of PCIe* Lanes/CXL 1.1	80	80	80	80	80[3]
Intel® Volume Management Device (Intel® VMD)	Yes	Yes	Yes	Yes	Yes

Note: (1) Features may vary between processor SKUs. **(2)** Intel® Server Board M50FCP2SBSTD can only support up to 3 Intel® UPI 2.0 links. **(3)** Intel® Xeon® Bronze supports PCIe* Gen 4.0 and does no support CXL. For more CXL information refer to 4th and 5th Gen Intel® Xeon® Scalable processors family BIOS Firmware External Product Specification (EPS).

See the 4th & 5th Gen Intel® Xeon® Scalable processor specifications and product briefs for additional information.

1.2 Memory Support

The Intel® Server M50FCP Family supports the following memory features:

- 32 memory slots
  - 16 memory slots per processor, 8 memory channels per processor
  - 2 memory modules per channel
- Memory capacity
  - Up to 4 TB per processor (processor SKU dependent)
- Memory data transfer rates
  - Up to 5600 MT/s at one RDIMM per channel (5th Gen Intel® Xeon® Scalable processor SKU dependent)
  - Up to 4400 MT/s at two RDIMMs per channel (processor SKU dependent)
- Registered DDR5 DIMM
- Standard RDIMM
- 3DS-RDIMM –Note: 3DS = 3-dimensional stacking.
- 9x4 RDIMM
- All DDR5 RDIMMs must support ECC
- DDR5 standard voltage of 1.1 V

Notes:
- For memory support details, see the *Intel® Server Board M50FCP2SBSTD Technical Product Specification*.
- Pending validation results for DDR5 DIMM Size 256 GB.

Intel DDR5 DIMM Support Disclaimer

Intel validates and only supports system configurations where all installed DDR5 DIMMs have matching ”Identical” or ”Like” attributes (see the following table). A system configured with DDR5 DIMMs from different vendors is supported by Intel if all other DDR5 ”Like” DIMM attributes match.

Intel does not perform system validation testing nor will it support system configurations where all populated DDR5 DIMMs do not have matching ”Like” DIMM attributes as listed in the following table.

Intel only supports Intel server systems configured with DDR5 DIMMs that have been validated by Intel and are listed on Intel’s Tested Memory list for the given Intel server product family.

Intel may offer and ship pre-integrated fully configured server systems. All DDR5 DIMMs within a given server system as shipped by Intel are identical. All installed DIMMs have matching attributes as listed in the *”Identical” DDR5 DIMM Attributes* column in the following table.

When purchasing multiple fully integrated server systems with the same configuration from Intel, Intel reserves the right to use ”Like” DIMMs between server systems. At a minimum, ”Like” DIMMS will have matching DIMM attributes as listed in the following table. However, the DIMM model #, revision #, or vendor may be different.

For warranty replacement, Intel will make every effort to ship back an exact match to the one returned. However, Intel may ship back a validated ”Like” DIMM. A ”Like” DIMM may be from the same vendor but may not be the same revision # or model #, or it may be an Intel-validated DIMM from a different vendor. At a minimum, all ”Like” DIMMs shipped from Intel will match attributes of the original part according to the definition of ”Like” DIMMs in the following table.

Table 2. DDR5 DIMM Attributes Table for ”Identical” and ”Like” DIMMs

- DDR5 DIMMs are considered ”Identical” when ALL listed attributes between the DIMMs match
- Two or more DDR5 DIMMs are considered ”Like” DIMMs when all attributes minus the Vendor, and/or DIMM Part # and/or DIMM Revision#, are the same.

Attribute	”Identical” DDR5 DIMM Attributes	”Like” DDR5 DIMM Attributes	Possible DDR5 Attribute Values
Vendor	**Match**	**May be Different**	Memory Vendor Name
DIMM Part #	**Match**	**May be Different**	Memory Vendor Part #
DIMM Revision #	**Match**	**May be Different**	Memory Vendor Part Revision #
SDRAM Type	**Match**	**Match**	DDR5
DIMM Type	**Match**	**Match**	RDIMM, 9x4 RDIMM
Speed (MT/s)	**Match**	**Match**	4000, 4400, 4800,5600
Voltage	**Match**	**Match**	1.1 V
DIMM Size (GB)	**Match**	**Match**	16 GB, 32 GB, 64 GB, 128 GB, 256 GB
Organization	**Match**	**Match**	2Gx80; 4Gx80; 8Gx80; 16Gx80; 32Gx80
DIMM Rank	**Match**	**Match**	1R, 2R, 4R, 8R
DIMM Raw Card (RC)	**Match**	**Match**	RC A, RC B, RC C, RC D, RC E, RC F
DRAM Width	**Match**	**Match**	x4, x8
DRAM Density	**Match**	**Match**	16 Gb

Note :Memory Speed 5600 MT/s is supported on 5th Gen Intel® Xeon® Scalable Processor

1.3 System Configuration Notes

- The Intel® Server M50FCP family supports the 4th & 5th Gen Intel® Xeon® Scalable processor family.
- Previous generations of the Intel® Xeon® processors and Intel® Xeon® Scalable processor families are not supported.

Caution: Installing processors onto the server board should be done with great care. Pins within the processor sockets are easily damaged. Follow the detailed processor installation procedures documented in the following Intel documents: *Intel® Server Board M50FCP2SBSTD TPS, Intel® Server System M50FCP1UR Integration and Service Guide, Intel® Server System M50FCP2UR Integration and Service Guide*.

- The server board supports two processor sockets, identified as CPU 0 and CPU 1. CPU 0 must be populated for the system to boot.
- Riser Slot #2 and Riser Slot #3 are only supported in dual processor configurations.
- Do not install a processor heat sink on to an unpopulated processor socket.
- For best performance, memory should be populated evenly across channels starting with the blue DIMM slot on each channel. For additional details, see the *Intel® Server System M50FCP1UR TPS* or *Intel® Server System M50FCP2UR TPS*.

Caution: Update the server platform to the latest system software posted to Intel's online Resource & Documentation Center (RDC) before attempting any validation testing. Intel highly recommends that you read the complete update instructions and release notes for each software component before updating the system.

- In a 1U system, all cables routed to the front drive bay from the PCIe riser area of the system, must be routed along the right chassis sidewall. No cables should be routed between the processors and DIMM slot areas of the server board.
- In a 2U system, cables routed to the front of the server system from the PCIe riser area of the system can be routed along either chassis sidewall. No cables should be routed within the processor or DIMM slot areas of the server board. The fan assembly must be removed when routing cables. Avoid pinching cables when reinstalling the fan assembly
- The back edge of the server board has a bank of eight diagnostic LEDs that display a sequence of power-on self-test (POST) codes during the boot process. Should the system hang during POST, the LEDs display the last POST event run before the hang. The decoder for these POST code LED sequences can be found in the *Intel® Server Board M50FCP2SBSTD TPS*.

1.4 Reference Documents and Support Collaterals

For additional information, see the product support collaterals specified in the following table.

Table 3. Product Family Reference Collaterals

Topic	Document Title or Support Collateral	Document Classification
System integration instructions and service guidance for 2U	*Intel® Server System M50FCP2UR System Integration and Service Guide*	Public
System integration instructions and service guidance for 1U	*Intel® Server System M50FCP1UR System Integration and Service Guide*	Public
Technical system-level description for 2U	*Intel® Server System M50FCP2UR Technical Product Specification*	Public
Technical system-level description for 1U	*Intel® Server System M50FCP1UR Technical Product Specification*	Public
Technical board-level description	*Intel® Server Board M50FCP2SBSTD Technical Product Specification*	Public
Server configuration guidance and compatibility	*Intel® Server M50FCP Family Configuration Guide*	Public
Information on the Integrated BMC Web Console	*Integrated Baseboard Management Controller Web Console (Integrated BMC Web Console) User Guide*	Public
BIOS technical information on product family	*BIOS Firmware External Product Specification (EPS)*	Intel Confidential
BIOS setup information on product family	*BIOS Setup Utility User Guide*	Public
BMC technical information on product family	*Integrated Baseboard Management Controller Firmware External Product Specification (EPS)*	Intel Confidential
Base specifications for the IPMI architecture and interfaces	*Intelligent Platform Management Interface Specification Second Generation v2.0*	Intel Confidential
Specifications for the PCIe* 3.0 architecture and interfaces	*PCIe Base Specification, Revision 3.0* http://www.pcisig.com/specifications	Public
Specifications for the PCIe* 4.0 architecture and interfaces	*PCIe Base Specification, Revision 4.0* http://www.pcisig.com/specifications	Public
Specifications for the PCIe* 5.0 architecture and interfaces	*PCIe Base Specification, Revision 5.0* http://www.pcisig.com/specifications	Public
Specification for OCP*	Open Compute Project* (OCP*) Specification	Intel Confidential

Topic	Document Title or Support Collateral	Document Classification
Specifications of Trust Domain Extensions (Depends on 5th Gen processor)	*Intel® Trust Domain Extension (Intel® TDX) White Paper*	Public
TPM for PC client specifications	*TPM PC Client Specifications, Revision 2.0*	Intel Confidential
Functional specifications of the 4th Gen Intel® Xeon® Scalable processor family	*Sapphire Rapids External Design Specification (EDS)* Document IDs: 630161, 612246, 612172, 633350, 611488	Intel Confidential
Specifications of 5th Gen Intel® Xeon® Scalable processor family	*Emerald Rapids External Design Specification (EDS):* Document IDs:721175,723370	Intel Confidential
Processor thermal design specifications and recommendations	*Sapphire Rapids Thermal and Mechanical Specifications and Design Guide (TMSDG)* Document ID 609847	Intel Confidential
BIOS and BMC security best practices	*Intel® Server Systems Baseboard Management Controller (BMC) and BIOS Security Best Practices White Paper* https://www.intel.com/content/www/us/en/support/articles/000055785/server-products.html	Public
Managing an Intel server overview	*Managing an Intel Server System 2020* https://www.intel.com/content/www/us/en/support/articles/000057741/server-products.html	Public
Latest system software updates: BIOS and firmware	*Intel® System Update Package (SUP) for Intel® Server M50FCP Family*	Public
	Intel® Server Firmware Update Utility - Various operating system support	
	Intel® Server Firmware Update Utility User Guide	
To obtain full system information	*Intel® Server Information Retrieval Utility - Various operating system support*	Public
	Intel® Server Information Retrieval Utility User Guide	
To configure, save, and restore various system options	*Intel® Server Configuration Utility - Various operating system support*	Public
	Intel® Server Configuration Utility User Guide	
Product Warranty Information	*Warranty Terms and Conditions* https://www.intel.com/content/www/us/en/support/services/000005886.html	Public
Intel® Data Center Manager (Intel® DCM) information	*Intel® Data Center Manager (Intel® DCM) Product Brief* https://software.intel.com/content/www/us/en/develop/download/dcm-product-brief.html	Public
	Intel® Data Center Manager (Intel® DCM) Console User Guide https://software.intel.com/content/www/us/en/develop/download/dcm-user-guide.html	Public

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1.5 Intel® Server Board M50FCP2SBSTD

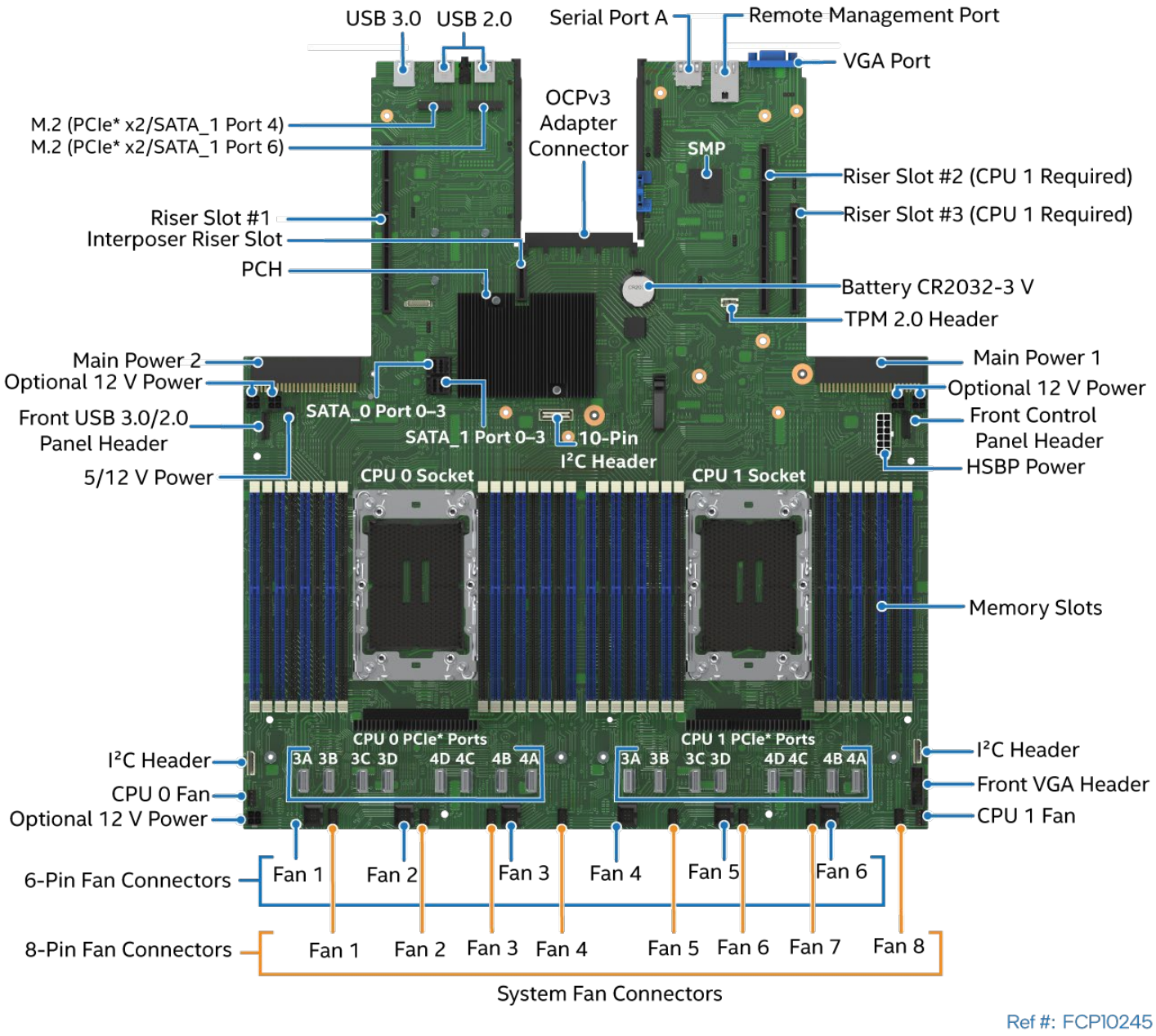


Figure 3. Intel® Server Board M50FCP2SBSTD Component / Feature Identification

Table 4 provides general information and lists the features supported by the Intel® Server Board M50FCP2SBSTD.

Table 4. Intel® Server Board M50FCP2SBSTD Features

Feature	Details
Server Board	Intel® Server Board M50FCP2SBSTD
Server Board Dimensions	18.9″ (480 mm) length x 16.9″ (428 mm) width

Processor Support	• Dual Socket E LGA4677
	• Supported 4th & 5th Gen Intel® Xeon® Scalable processor family SKUs:
	  ○ Intel® Xeon® Platinum 84xxxx processor
	  ○ Intel® Xeon® Gold 64xxx/65xxxx processor
	  ○ Intel® Xeon® Gold 54xxx/55xxxx processor
	  ○ Intel® Xeon® Silver 44xxx/45xxxx processor
	  ○ Intel® Xeon® Bronze 34xxx/35xxxx processor
	• Intel® UPI links: 3 at 16 GT/s (4th Gen Intel® Xeon® Platinum and Gold families) or 2 @ 16 GT/s (Silver family)
	• Intel® UPI links: 3 at 20 GT/s (5th Gen Intel® Xeon® Platinum and Gold families) or 2 @ 16 GT/s (Silver family)
	• Intel® Xeon® Bronze processors are used in single processor configurations only.
	Note: Previous generations of Intel® Xeon® processors are not supported.

Maximum Supported Processor Thermal Design Power (TDP)	350 W **Note:** The maximum supported processor TDP at the system level may be lower than what the server board can support. Supported power, thermal, and configuration limits of the chosen server chassis need to be considered to determine if the system can support the maximum processor TDP limit of the server board. Refer to the server chassis/system documentation for additional guidance.

Chipset PCH	• Intel® C741 chipset platform controller hub (PCH)
	• Embedded features enabled on this server board:
	  ○ SATA 3.0 support
	  ○ USB 3.0 support
	  ○ PCIe 3.0 support

Server Management Processor (SMP	• Aspeed* AST2600 Advanced PCIe Graphics and Remote Management Processor
	• Embedded features enabled on this server board:
	  ○ Baseboard Management Controller (BMC)
	  ○ 2D Video Graphics Adapter

Memory Support	• 32 memory slots total
	  ○ 8 memory channels per processor
	  ○ 2 memory slots per channel
	• Registered SDRAM DDR5 DIMMs (RDIMM, 3DS-RDIMM, and 9x4 RDIMM)
	Note: 3DS = 3-dimensional stacking.
	• All DIMMs must support ECC
	• Memory capacity: Up to 4 TB per processor (processor SKU dependent) using DDR5 DIMMs
	• Up to 5600 MT/s at one RDIMM per channel (Supported on 5th Gen Intel® Xeon® processor)
	• Up to 4400 MT/s at two RDIMMs per channel (processor SKU dependent)
	• DDR5 standard voltage of 1.1 V
	Note: Pending validation results for DDR5 DIMM size 256GB.

Feature	Details
System Fan Support	• Six 6-pin managed fan connectors • Eight 8-pin managed fan connectors • CPU fan headers (one for each CPU)
Onboard Network Support	Provided by optional Open Compute Project (OCP*) module support.
Open Compute Project (OCP*) Module Support	Server board x16 PCIe 5.0 OCP 3.0 connector (Small Form-Factor) slot. See section 5.3 for available options.

Riser Card Support	Concurrent support for up to three riser cards with support for up to eight PCIe add-in cards.
	In the following description FH = Full Height, FL = Full Length, HL =Half Length, LP = Low Profile.
	Riser Slot #1
	• Riser Slot #1 supports x32 PCIe lanes, routed from CPU 0
	• PCIe 5.0 support for up to 64 GB/s
	Riser Slot #1 supports the following Intel riser card options:
	• Two PCIe slot riser card (iPC **FCP2URISER1DW**), which supports:
	  ○ One FH/FL double-width slot (x16 electrical, x16 mechanical)
	  ○ One FH/HL single-width slot (x16 electrical, x16 mechanical
	• Two PCIe slot riser card (iPC **FCP2URISER1SW**), which supports:
	  ○ Two FH/FL single-width slot (x16 electrical, x16 mechanical)
	• Three PCIe slot riser card (iPC **FCP2URISER1STD**), which supports:
	  ○ One FH/FL single-width slot (x16 electrical, x16 mechanical)
	  ○ One FH/FL single-width slot (x8 electrical, x16 mechanical)
	  ○ One FH/HL single-width slot (x8 electrical, x8 mechanical)
	• NVMe riser card (iPC **FCP2URISER1RTM**), which supports:
	  ○ One FH/FL single-width slot (x16 electrical, x16 mechanical)
	  ○ Two x8 PCIe NVMe MCIO connectors, each with a retimer
	• One PCIe slot riser card (iPC **FCP1URISER1**), which supports:
	  ○ One LP/HL, single-width slot (x16 electrical, x16 mechanical)
	Riser Slot #2
	• Riser Slot #2 supports x32 PCIe lanes, routed from CPU 1
	• PCIe 5.0 support for up to 64 GB/s
	Riser Slot #2 supports the following Intel riser card options:
	• Two PCIe slot riser card (iPC FCP2URISER2DW), which supports:
	  ○ One FH/FL double-width slot (x16 electrical, x16 mechanical)
	  ○ One FH/HL single-width slot (x16 electrical, x16 mechanical)
	• Two PCIe slot riser card (iPC **FCP2URISER2SW**), which supports:
	  ○ Two FH/FL single-width slot (x16 electrical, x16 mechanical)
	• Three PCIe slot riser card (iPC **FCP2URISER2STD**), which supports:
	  ○ One FH/FL single-width slot (x16 electrical, x16 mechanical)
	  ○ One FH/FL single-width slot (x8 electrical, x16 mechanical)

Feature	Details
Riser Card Support (Cont.)	○ One FH/HL single-width slot (x8 electrical, x8 mechanical) • One PCIe slot riser card (iPC **FCP1URISER2**), which supports: ○ One LP/HL, single-width slot (x16 electrical, x16 mechanical) • Riser card (iPC **FCP1URISER2KIT**), which supports: ○ One LP/HL, single-width slot (x16 electrical, x16 mechanical) ○ One x8 PCIe MCIO connector with retimer **PCIe* Interposer Riser Slot** • Interposer riser card supports x8 PCIe lanes, routed from CPU 1 via Riser Slot #2 • PCIe 5.0 support for 64 GB/s • PCIe Interposer Riser Slot supports the PCIe interposer riser card as an accessory option. This card supports one PCIe add-in card (x8 electrical, x8 mechanical). The PCIe interposer riser card can be used only when it is connected to the PCIe riser card in Riser Slot #2. The interposer riser card uses x8 PCIe data lanes routed from the PCIe MCIO connector on the PCIe riser card. The Intel accessory kit (iPC FCP1URISER2KIT) includes the PCIe interposer riser card, PCIe riser card, and PCIe interposer cable. **Riser Slot #3** • Riser Slot #3 supports x16 PCIe lanes, routed from CPU 1 • PCIe 5.0 support for up to 64 GB/s **Riser Slot #3 supports the following Intel riser card options:** • Two PCIe slot riser card (iPC **FCP2URISER3STD**), which supports: ○ Two LP/HL single-width slots (x16 mechanical, x8 electrical) • NVMe riser card (iPC **CYPRISER3RTM**), which supports: ○ Two PCIe NVMe* SlimSAS* connectors with retimers
PCIe* NVMe* Support	• Support for up to 18 PCIe NVMe Interconnects ○ 16 onboard MCIO connectors, eight per processor ○ Two M.2 NVMe/SATA connectors • Additional NVMe support through select riser card options (See Riser Card Support) • Intel® Volume Management Device (Intel® VMD) 3.0 support • Intel® Virtual RAID on CPU for NVMe 8.0 (Intel® VROC for NVMe 8.0). ○ Requires an Intel® VROC License Activation Key accessory option to enable embedded NVMe RAID support
Video Support	• Integrated 2D video controller • 128 MB of DDR4 video memory • One DB-15 VGA Port in the back of the server board • One 2x7 VGA header on the front right side of the server board
Onboard SATA Support	• 10 x SATA III ports (6 Gb/s, 3 Gb/s, and 1.5 Gb/s transfer rates supported) ○ Two M.2 connectors: SATA / PCIe ○ Two 4-port Mini-SAS HD (SFF-8643) connectors • Intel® VROC for SATA 8.0 supporting RAID Levels: 0,1, 5, 10 (Standard feature, no additional upgrade key required)
USB Support	• One USB 3.0 and two USB 2.0 connectors on the back edge of the board • Internal 26-pin connector for optional one USB 3.0 port and one USB 2.0 port front panel support
Serial Support	• One external RJ-45 Serial Port A connector on the back edge of the server board
Server Management	• Integrated Baseboard Management Controller (BMC) with support for OpenBMC • 1000BASE-T Ethernet port (RJ45) dedicated to server management

Feature	Details
Server Management (Cont.)	• Integrated BMC Web Console • Intelligent Platform Management Interface (IPMI) 2.0 compliant • Support for Intel® Data Center Manager (Intel® DCM) • Support for Intel® Server Debug and Provisioning Tool (Intel® SDP Tool) • Redfish* compliant • Light Guided Diagnostics • Optional Advanced Server Management features (Purchased separately)
System Configuration and Recovery Jumpers	• BIOS load defaults • BIOS password clear • Intel® Management Engine firmware force update Jumper • BIOS_SVN downgrade • BMC_SVN downgrade
Security Support	• Intel® Platform Firmware Resilience (Intel® PFR) technology with an I2C interface • Intel® Software Guard Extensions (Intel® SGX) • Converged Intel® Boot Guard and Trusted Execution Technology (Intel® TXT) • Intel® Total Memory Encryption – Multi-Key (Intel® TME-MK) • Trusted platform module 2.0 (China version) – iPC AXXTPMCHNE8 (accessory option) • Trusted platform module 2.0 (rest of the world) – iPC AXXTPMENC9 (accessory option) • Intel® Trust Domain Extension (Intel® TDX) (Supported on 5th Gen Intel® Xeon® Scalable processor)
BIOS	• Unified Extensible Firmware Interface (UEFI)-based BIOS (legacy boot not supported)

1.6 Intel® Server System M50FCP1UR

This section provides an overview of the features and available system options for the 1U rack mount Intel® Server System M50FCP1UR.

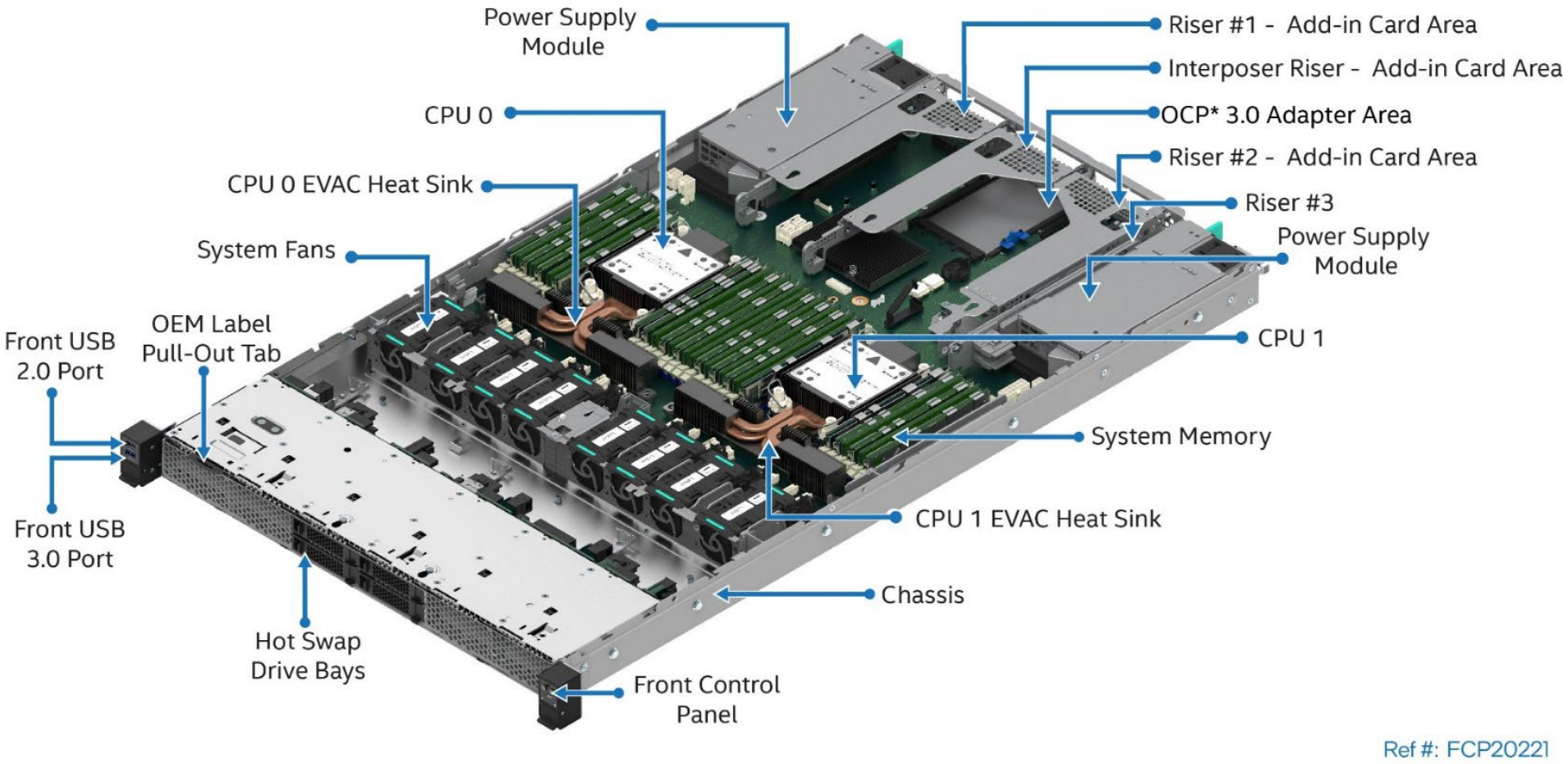


Figure 4. Intel® Server System M50FCP1UR Components Overview

Figure 5. 4 x 2.5” Front Drive Bay Configuration – iPC M50FCP1UR204

Figure 6. 12 x 2.5” Front Drive Bay Configuration – iPC M50FCP1UR212

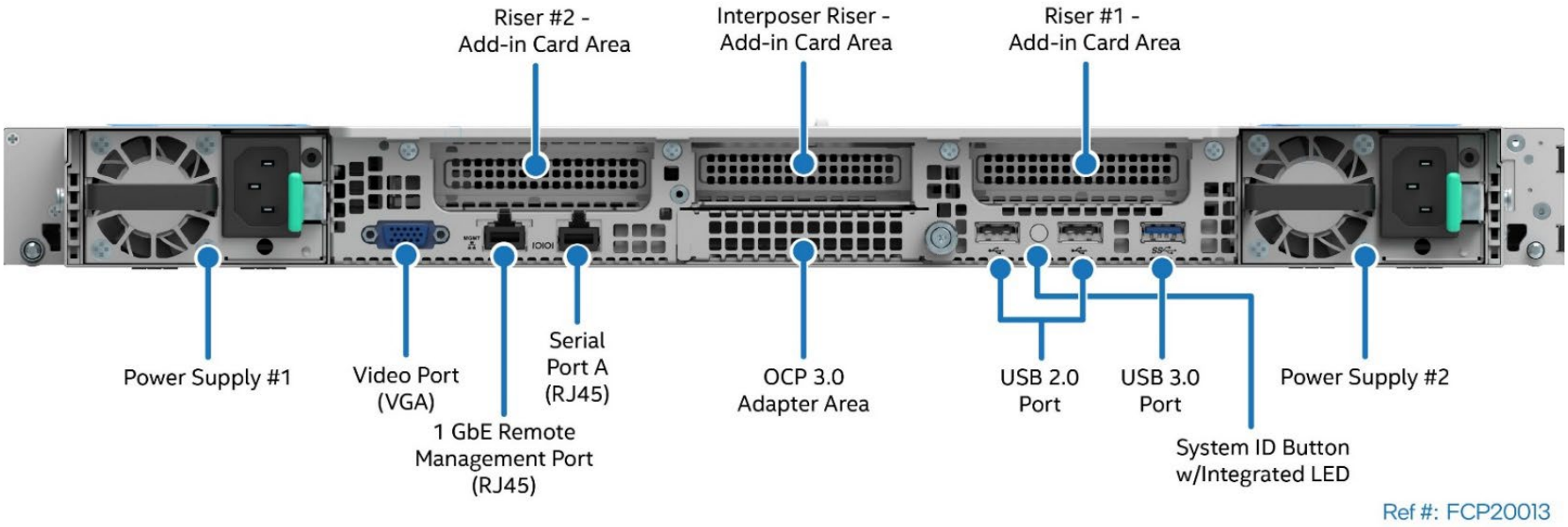


Figure 7. Back Panel Feature Identification

The following table provides general information and lists the features and configuration options of the Intel® Server System M50FCP1UR.

Table 5. Intel® Server System M50FCP1UR Features

Feature	Details
Chassis Type	1U rack mount chassis
Chassis Dimensions	767x 438.5 x 43 mm (L x W x H)
Server Board	Intel® Server Board M50FCP2SBSTD

Processor Support	• Dual Socket-E LGA4677
	• Supported 4th & 5th Gen Intel® Xeon® Scalable processor family SKUs:
	  ○ Intel® Xeon® Platinum84xxx/85xxxx processor
	  ○ Intel® Xeon® Gold 64xxx/65xxxx processor
	  ○ Intel® Xeon® Gold 54xxx/55xxxx processor
	  ○ Intel® Xeon® Silver 44xxx/45xxxx processor
	  ○ Intel® Xeon® Bronze 33xxx/35xxxx processor
	• Intel® UPI links: 3 at 16 GT/s (4th Gen Intel® Xeon® Platinum and Gold) or 2 at 16 GT/s (Silver)
	• Intel® UPI links: 3 at 20 GT/s (5th Gen Intel® Xeon® Platinum and Gold) or 2 at 16 GT/s (Silver)
	• Intel® Xeon® Bronze processors are used in single processor configurations only.
	Note: Previous generation Intel® Xeon® processor and Intel® Xeon® Scalable processor families are not supported.
	Note: For processor support details, see the *Intel® Server Board M50FCP2SBSTD Technical Product Specification*.

Maximum Supported Processor Thermal Design Power (TDP)	• Up to 350W – Intel® Server System M50FCP1UR204 – 4x2.5" Drive Configurations • Up to 205W – Intel® Server System M50FCP1UR212 – 12x2.5" Drive Configurations **Note:** The maximum supported processor TDP is dependent on the specific system configuration. Refer to the Intel® Server System M50FCP1UR Technical Product Specification (TPS) for more information.

Chipset	• Intel® C741 chipset platform controller hub (PCH)
	• Embedded features enabled on this server board:
	  ○ SATA 3.0 support
	  ○ USB 3.0 support
	  ○ PCIe 3.0 support

Memory Support	• 32 memory slots:
	  ○ 16 memory slots per processor, eight memory channels per processor
	  ○ Two memory modules per channel
	• Registered DDR5 DIMM (standard RDIMM, 3DS-RDIMM, and 9x4 RDIMM)
	Note: 3DS = 3-dimensional stacking.
	• All DDR5 DIMMs must support ECC
	• Memory capacity: Up to 4 TB per processor (processor SKU dependent) using DDR5 DIMMs
	• Memory data transfer rates
	  ○ Up to 5600 MT/s at one DIMM per channel (Supported on 5th Gen Intel® Xeon® Scalable processor)
	  ○ Up to 4400 MT/s at two DIMMs per channel (processor SKU dependent)
	• DDR5 standard voltage of 1.1 V
	Note: For memory support details, see the *Intel® Server Board M50FCP2SBSTD Technical Product Specification*. Pending validation results for DDR5 DIMM size 256GB.

Feature	Details
System Fan Support	• Eight managed 40-mm hot swap capable system fans • Integrated fans included with each installed power supply module **Note:** System fan redundancy may only be supported on specific system configurations. See the Intel® Server System M50FCP1UR Technical Product Specification (TPS) for more information.

Power Supply Options	• The server system can support one or two power supply modules configurations.
	• Depending on the power supply configuration, the system will support the following power operating modes:
	  ○ 1+0 – Single functional power supply
	  ○ 1+1 – redundant power
	  ○ 2+0 – combined power, no redundancy
	• Power supply options:
	  ○ AC 1300 W Titanium
	  ○ AC 1600 W Titanium

Server Board Network Support	See optional Open Compute Project (OCP) adapter support.
Open Compute Project* (OCP*) Adapter Support	Server board x16 PCIe 5.0 OCP 3.0 connector (Small Form-Factor) slot. See section 5.3 for available options.

Riser Card Support	Concurrent support for up to four riser cards, including one PCIe Interposer riser card, with support for up to three PCIe add-in cards. In the following description HL = Half Length, LP = Low Profile.
	Riser Slot #1
	• Riser Slot #1 supports x16 PCIe lanes routed from CPU 0
	• PCIe 5.0 support for up to 32 GB/s
	Riser Slot #1 supports the following Intel riser card option:
	• PCIe slot riser card (iPC **FCP1URISER1**), which supports:
	  ○ One single-width slot (x16 electrical, x16 mechanical)
	Riser Slot #2
	• Riser Slot #2 supports X24 PCIe lanes routed from CPU 1
	• PCIe 5.0 support for up to 32 GB/s
	Riser Slot #2 supports the following Intel riser card options:
	• PCIe slot riser card (iPC **FCP1URISER2**), which supports:
	  ○ One LP/HL, single-width slot (x16 electrical, x16 mechanical)
	• Riser card (iPC **FCP1URISER2KIT**), which supports:
	  ○ One LP/HL, single-width slot (x16 electrical, x16 mechanical)
	  ○ One x8 PCIe MCIO connector with retimer
	PCIe* Interposer Riser Slot (requires PCIe* Riser Card in Riser Slot #2)
	• PCIe interposer riser slot, which supports the PCIe interposer riser card as an accessory option.
	• This card supports one PCIe add-in card (x8 electrical, x8 mechanical).
	• The PCIe interposer riser card can be used only when it is connected to the PCIe riser card in Riser Slot #2. The interposer riser card uses x8 PCIe data lanes routed from the PCIe MCIO connector on the PCIe riser card.
	• The Intel accessory kit (iPC FCP1URISER2KIT) includes the PCIe interposer riser card, PCIe riser card, and PCIe interposer cable.

Feature	Details
Riser Card Support (Cont.)	**Riser Slot #3** • Not supported in 1U System.
PCIe* NVMe* Support	• 16 server board mounted PCIe MCIO connectors, eight per processor (up to 12 used in 1U) • Additional NVMe support through select riser card options (See Riser Card Support) • Two M.2 NVMe/SATA connectors • Intel® Volume Management Device (Intel® VMD) 3.0 support • Intel® Virtual RAID on CPU for NVMe 8.0 (Intel® VROC for NVMe 8.0). ○ Requires an Intel® VROC License Activation Key accessory option to enable embedded NVMe RAID support.
Video Support	• Integrated 2D video controller • 128 MB of DDR4 video memory • One VGA connector on the rear of the chassis.

Server Board SATA Support	• 10 x SATA III ports (6 Gb/s, 3 Gb/s, and 1.5 Gb/s transfer rates supported)
	  ○ Two M.2 connectors: SATA / PCIe
	  ○ Two 4-port Mini-SAS HD (SFF-8643) connectors
	• Intel® VROC for SATA 8.0 supporting RAID Levels: 0,1, 5, 10 (Standard feature, no additional upgrade key required)

USB Support	• One USB 3.0 and two USB 2.0 connectors on the rear of the chassis • One USB 3.0 and one USB 2.0 connector on the front panel
Serial Support	• One external RJ-45 Serial Port A connector on the rear of the chassis
Front Drive Bay Options	• 4 x 2.5” SAS/SATA/NVMe hot swap drive bays (iPC – M50FCP1UR204) • 12 x 2.5” SAS/SATA/NVMe hot swap drive bays (iPC M50FCP1UR212)
Server Management	• Integrated Baseboard Management Controller (BMC) • One dedicated RJ45 1 GbE server management port • Intelligent Platform Management Interface (IPMI) 2.0 compliant • Redfish* compliant • Support for Intel® Data Center Manager (Intel® DCM) • Support for Intel® Server Debug and Provisioning Tool (Intel® SDP Tool) • Integrated BMC Web Console • Intel® Light-Guided Diagnostics • Optional Advanced Server Management features (Purchased separately)
Server Management Processor (SMP)	• Aspeed AST2600* Advanced PCIe Graphics and Remote Management Processor • Embedded features enabled on this server board: • Baseboard management controller (BMC) • 2D video graphics adapter
System Configuration and Recovery Jumpers	• BIOS load defaults • BIOS password clear • Intel® Management Engine (Intel® ME) firmware force update • BIOS_SVN downgrade • BMC_SVN downgrade
Security Support	• Intel® Platform Firmware Resilience (Intel® PFR) technology with an I2C interface • Intel® Software Guard Extensions (Intel® SGX)

Feature	Details
	• Converged Intel® Boot Guard and Intel® Trusted Execution Technology (Intel® TXT) • Intel® Total Memory Encryption – Multi-Key (Intel® TME-MK) • Trusted platform module 2.0 (China version): iPC AXXTPMCHNE8 (accessory option) • Trusted platform module 2.0 (rest of the world): iPC AXXTPMENC9 (accessory option) • Intel® Trust Domain Extension (Intel® TDX) (Supported on 5th Gen Intel® Xeon® Scalable processor)
Supported Rack Mount Kit Accessory Options (Purchased Separately)	• CYPHALFEXTRAIL – Value rack mount rail kit • CYPFULLEXTRAIL – Premium rail kit with cable management arm (CMA) support • AXXCMA2 – Cable management arm (supports CYPFULLEXTRAIL only)
BIOS	• Unified Extensible Firmware Interface (UEFI)-based BIOS (legacy boot not supported)

1.7 Intel® Server System M50FCP2UR

This section provides an overview of the system options available with the Intel® Server System M50FCP2UR.

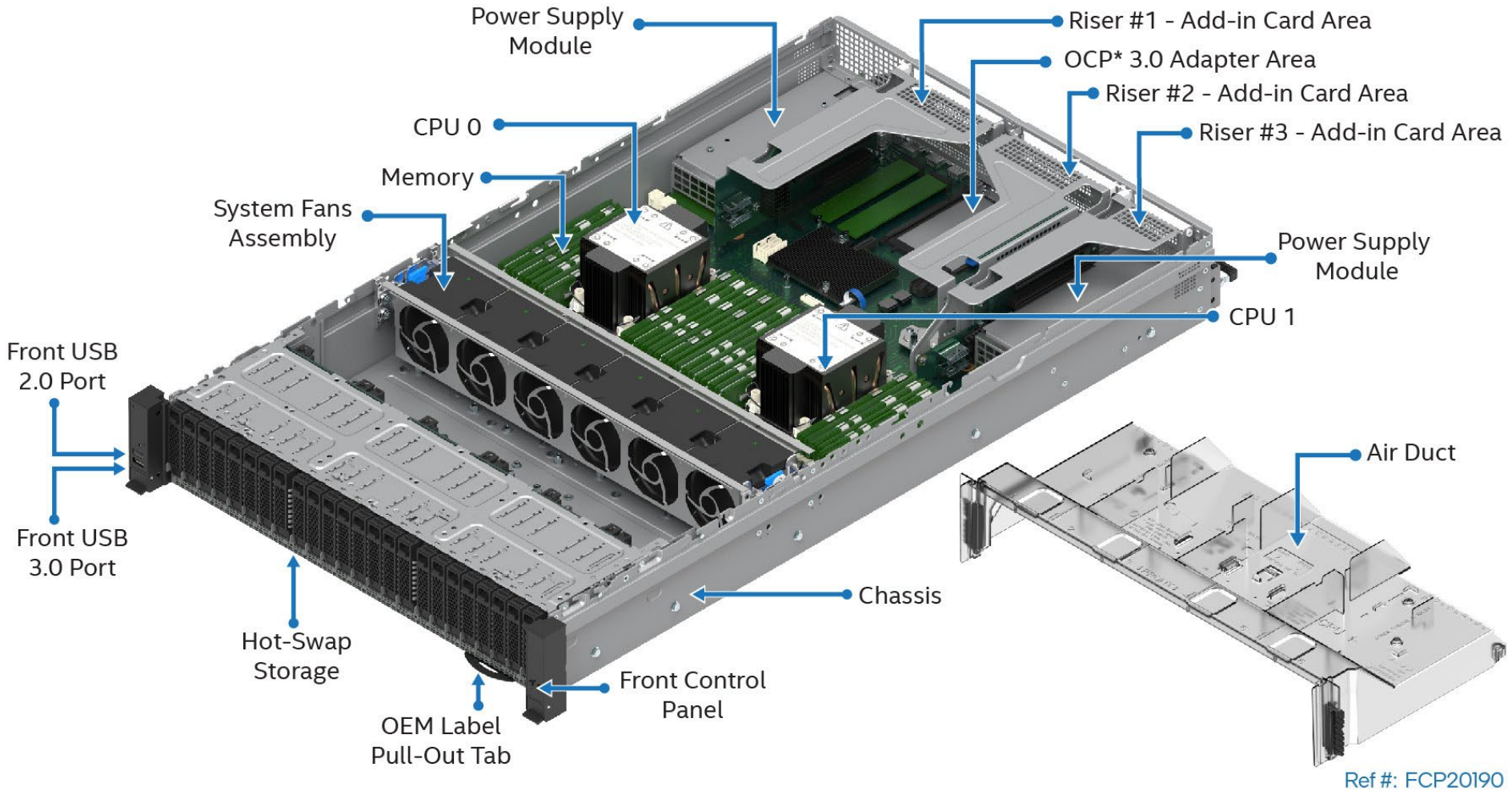


Figure 8. Intel® Server System M50FCP2UR Feature Set Identification

Figure 9. 2U 8 x 2.5” Front Drive Bay Configuration – iPC M50FCP2UR208

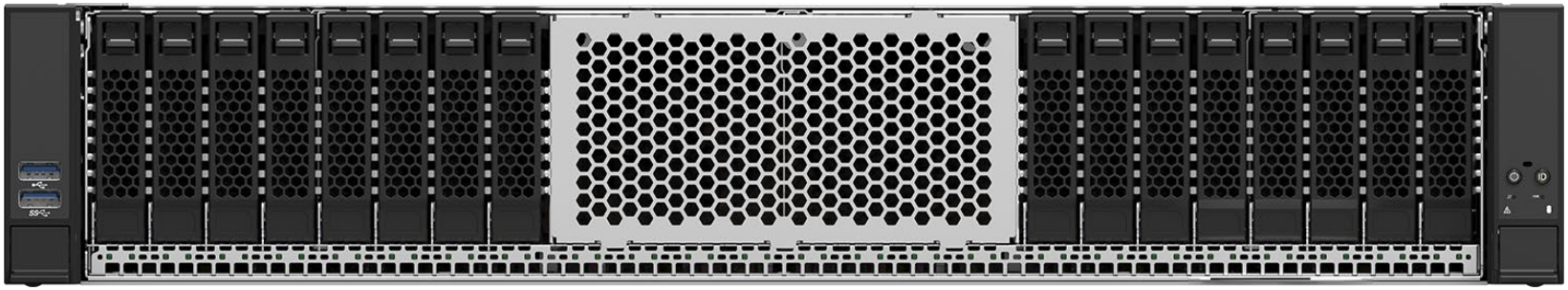


Figure 10. 2U 16 x 2.5” Front Drive Bay Configuration (based on M50FCP2UR208 with accessory options)

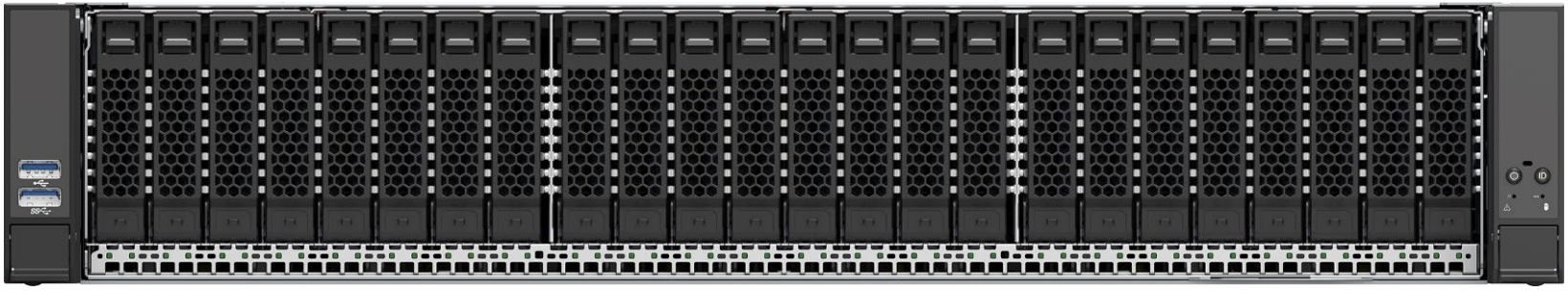


Figure 11. 2U 24 x 2.5” Front Drive Bay Configuration (based on M50FCP2UR208 with accessory options)

Figure 12. 2U 12 x 3.5” Front Drive Bay Configuration – iPC M50FCP2UR312

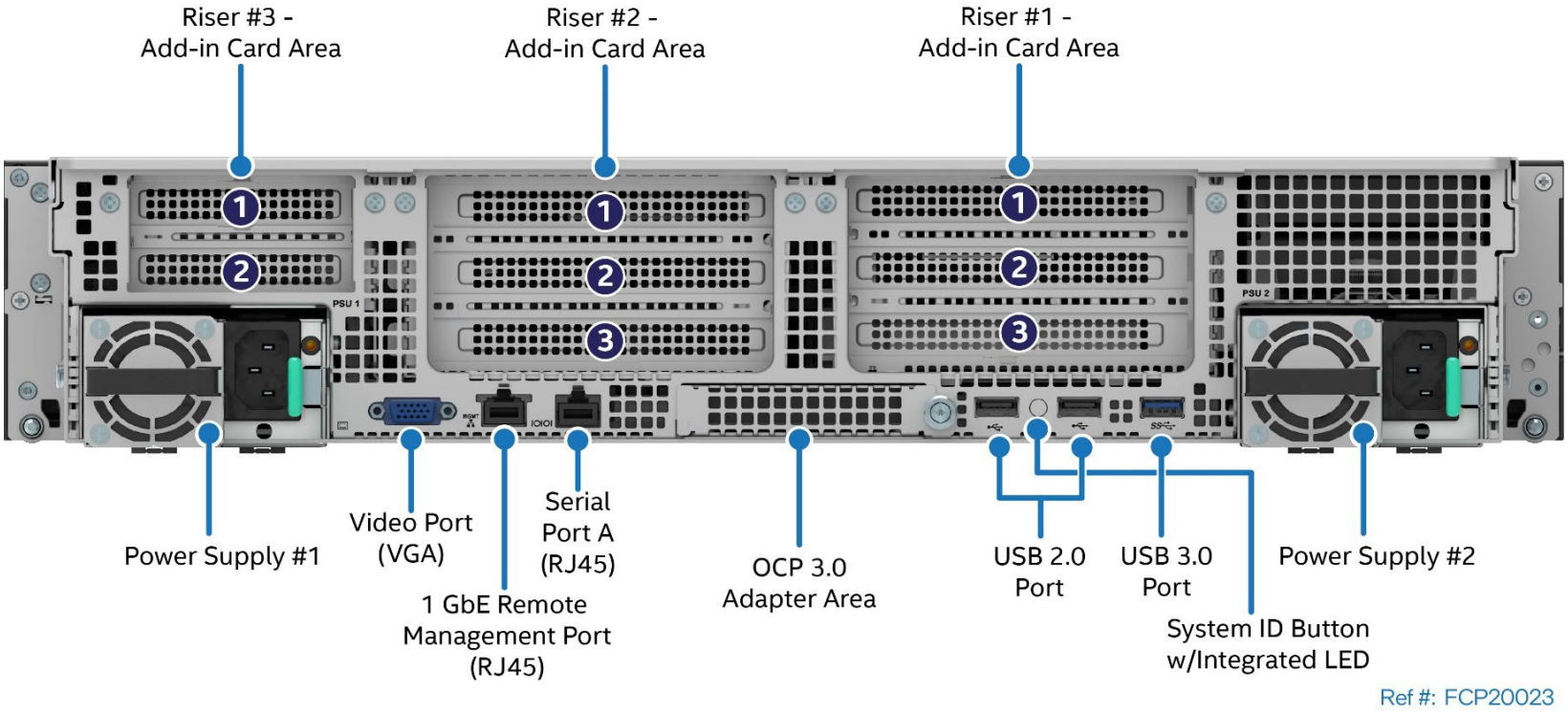


Figure 13. 2U Back Panel Feature Identification

The following table provides general information and lists the features and configuration options of the Intel® Server System M50FCP2UR.

Table 6. Intel® Server System M50FCP2UR Features

Feature	Details
Chassis Type	2U rack mount chassis
Chassis Dimensions	769.6 x 438 x 87 mm (L x W x H)
Server Board	Intel® Server Board M50FCP2SBSTD

Processor Support	• Dual Socket- E LGA4677
	• Supported 4th & 5th Gen Intel® Xeon® Scalable processor family SKUs:
	  ○ Intel® Xeon® Platinum 84xxx/85xxxx processor
	  ○ Intel® Xeon® Gold 64xxx/65xxxx processor
	  ○ Intel® Xeon® Gold 54xxx/55xxxx processor
	  ○ Intel® Xeon® Silver 44xxx/45xx processor
	  ○ Intel® Xeon® Bronze 33xxx/35xxx processor
	• Intel® UPI links: 3 at 16 GT/s (4th Gen Intel® Xeon® Platinum and Gold) or up to 2 at 16 GT/s (Silver)
	• Intel® UPI links: 3 at 20 GT/s (5th Gen Intel® Xeon® Platinum and Gold) or 2 at 16 GT/s (Silver)
	• Intel® Xeon® Bronze processors are used in single processor configurations only.
	Notes:
	Previous generation Intel® Xeon® processor and Intel® Xeon® Scalable processor families are not supported.
	For processor support details, see the Intel® Server Board M50FCP2SBSTD Technical Product Specification.

Maximum Supported Processor Thermal Design Power (TDP)	• Up to 350 W **Note:** The maximum supported processor TDP is dependent on the system configuration. See product TPS for additional information

Chipset	• Intel® C741 chipset platform controller hub (PCH)
	• Embedded features enabled on this server board:
	  ○ SATA 3.0 support
	  ○ USB 3.0 support
	  ○ PCIe 3.0 support

Memory Support	• 32 memory slots
	  ○ 16 memory slots per processor, eight memory channels per processor
	  ○ Two memory modules per channel
	• Registered DDR5 DIMM (standard RDIMM, 3DS-RDIMM, and 9x4 RDIMM)
	Note: 3DS = 3-dimensional stacking.
	• All DDR5 DIMMs must support ECC
	• Memory capacity: Up to 4 TB per processor (processor SKU dependent) using DDR5 DIMMs
	• Memory data transfer rates
	  ○ Up to 5600 MT/s at one DIMM per channel (Supported on 5th Gen Intel® Xeon® Scalable processor)
	  ○ Up to 4400 MT/s at two DIMMs per channel (processor SKU dependent)
	• DDR5 standard voltage of 1.1 V
	Note: For memory support details, see the *Intel® Server Board M50FCP2SBSTD Technical Product Specification*. Pending validation results for DDR5 DIMM size 256GB.

Feature	Details
System Fan Support	• Six managed 60-mm hot swap capable system fans • Integrated fans included with each installed power supply module

Power Supply Options	• The server system can support one or two power supply modules configurations.
	• Depending on the power supply configuration, the system will support the following power operating modes:
	  ○ 1+0 – Single functional power supply
	  ○ 1+1 – redundant power
	  ○ 2+0 – combined power, no redundancy
	• Power supply options:
	  ○ AC 1300 W Titanium
	  ○ AC 1600 W Titanium
	  ○ AC 2100 W Platinum

Onboard Network Support	Provided by optional Open Compute Project* (OCP*) adapter support.
Open Compute Project* (OCP*) Adapter Support	Server board x16 PCIe 5.0 OCP 3.0 connector (Small Form-Factor) slot. See section 5.3 for available options.

Riser Card Support	Concurrent support for up to three riser cards with support for up to eight PCIe add-in cards. In the following description FH = Full Height, FL = Full Length, HL =Half Length, LP = Low Profile.
	Riser Slot #1
	• Riser Slot #1 supports x32 PCIe lanes, routed from CPU 0
	• PCIe 5.0 support for up to 64 GB/s
	Riser Slot #1 supports the following Intel riser card options:
	• Two PCIe slot riser card (iPC **FCP2URISER1DW**), which support:
	  ○ One FH/FL double-width slot (x16 electrical, x16 mechanical)
	  ○ One FH/HL single-width slot (x16 electrical, x16 mechanical)
	• Two PCIe slot riser card (iPC **FCP2URISER1SW**), which support:
	  ○ Two FH/FL single-width slot (x16 electrical, x16 mechanical)
	• Three PCIe slot riser card (iPC **FCP2URISER1STD**), which support:
	  ○ One FH/FL single-width slot (x16 electrical, x16 mechanical)
	  ○ One FH/FL single-width slot (x8 electrical, x16 mechanical)
	  ○ One FH/HL single-width slot (x8 electrical, x8 mechanical)
	• NVMe riser card (iPC **FCP2URISER1RTM**), which supports:
	  ○ One HL or FL single-width slot (x16 electrical, x16 mechanical)
	  ○ Two x8 PCIe NVMe MCIO connectors, each with a re-timer
	Riser Slot #2
	• Riser Slot #2 supports x32 PCIe lanes, routed from CPU 1
	• PCIe 5.0 support for up to 64 GB/s
	Riser Slot #2 supports the following Intel riser card options:
	• Two PCIe slot riser card (iPC **FCP2URISER2DW**), which support:
	  ○ One FH/FL double-width slot (x16 electrical, x16 mechanical)
	  ○ One FH/HL single-width slot (x16 electrical, x16 mechanical)
	• Two PCIe slot riser card (iPC **FCP2URISER2SW**), which support:
	  ○ Two FH/FL single-width slot (x16 electrical, x16 mechanical)

Feature	Details

Riser Card Support (Cont.)	• Three PCIe slot riser card (iPC **FCP2URISER2STD**), which support:
	  ○ One FH/FL single-width slot (x16 electrical, x16 mechanical)
	  ○ One FH/FL single-width slot (x8 electrical, x16 mechanical)
	  ○ One FH/HL single-width slot (x8 electrical, x8 mechanical)
	Riser Slot #3
	• Riser Slot #3 supports x16 PCIe lanes, routed from CPU 1
	• PCIe 5.0 support for up to 32 GB/s
	Riser Slot #3 supports the following Intel riser card options:
	• Two PCIe slot riser card (iPC **FCP2URISER3STD**), which support:
	  ○ Two LP/HL single-width slots (x16 mechanical, x8 electrical)
	• NVMe riser card (iPC **CYPRISER3RTM**), which supports:
	  ○ Two PCIe NVMe SlimSAS connectors with re-timers

PCIe* NVMe* Support	• Supports up to 18 PCIe NVMe interconnects
	  ○ 16 server board MCIO connectors, eight per processor
	  ○ Two M.2 NVMe/SATA connectors
	• Additional NVMe support through select Riser Card options (see Riser Card Support)
	• Intel® Volume Management Device (Intel® VMD) 3.0 support
	• Intel® Virtual RAID on CPU for NVMe 8.0 (Intel® VROC for NVMe 8.0).
	  ○ Requires an Intel® VROC License Activation Key accessory option to enable embedded NVMe RAID support

Video Support	• Integrated 2D video controller • 128 MB of DDR4 video memory • One VGA connector on the rear of the chassis

Onboard SATA Support	• 10 x SATA III ports (6 Gb/s, 3 Gb/s, and 1.5 Gb/s transfer rates supported)
	  ○ Two M.2 connectors: SATA/PCIe
	  ○ Two 4-port Mini-SAS HD (SFF-8643) connectors
	• Intel® VROC for SATA 8.0 supporting RAID Levels: 0,1, 5, 10 (Standard feature, no additional upgrade key required)

USB Support	• One USB 3.0 and two USB 2.0 connectors on the rear of the chassis • One USB 3.0 and one USB 2.0 connector on the front panel
Serial Support	• One external RJ-45 Serial Port A connector on the rear of the chassis
Front Drive Bay Options	• 8 x 2.5” SAS/SATA/NVMe hot swap drive bays – iPC M50FCP2UR208 • 16 x 2.5” SAS/SATA/NVMe hot swap drive bays - iPC M50FCP2UR208 with installed accessory kits • 24 x 2.5” SAS/SATA/NVMe hot swap drive bays - iPC M50FCP2UR208 with installed accessory kits • 12 x 3.5” SAS/SATA hot swap drive bays (supports up to 4 NVMe drives) - iPC M50FCP2UR312
Server Management	• Integrated Baseboard Management Controller (BMC) • One dedicated RJ45 1 GbE server management port • Intelligent Platform Management Interface (IPMI) 2.0 compliant • Redfish* compliant • Support for Intel® Data Center Manager (Intel® DCM) • Support for Intel® Server Debug and Provisioning Tool (Intel® SDP Tool) • Support for Intel® Server Management Software • Intel® Light-Guided Diagnostics • Optional Advanced Server Management features (Purchased separately)

Feature	Details

Server Management Processor (SMP)	• Aspeed AST2600* Advanced PCIe Graphics and Remote Management Processor
	• Embedded features enabled on this server board:
	  ○ Baseboard Management Controller (BMC)
	  ○ 2D Video Graphics Adapter

System Configuration and Recovery Jumpers	• BIOS load defaults • BIOS password clear • Intel® Management Engine firmware force update Jumper • BIOS_SVN downgrade • BMC_SVN downgrade
Security Support	• Intel® Platform Firmware Resilience (Intel® PFR) technology with an I2C interface • Intel® Software Guard Extensions (Intel® SGX) • Converged Intel® Boot Guard and Trusted Execution Technology (Intel® TXT) • Intel® Total Memory Encryption – Multi-Key (Intel® TME-MK) • Trusted platform module 2.0 (China version) – iPC AXXTPMCHNE8 (accessory option) • Trusted platform module 2.0 (rest of the world) – iPC AXXTPMENC9 (accessory option) • Intel® Trust Domain Extension (Intel® TDX) (Supported on 5th Gen Intel® Xeon® Scalable processor)
Supported Rack Mount Kit Accessory Options (Sold separately)	**CYPHALFEXTRAIL** – Value rack mount rail kit **CYPFULLEXTRAIL** – Premium rail kit with cable management arm (CMA) support **AXXCMA2** – CMA (supports **CYPFULLEXTRAIL** only)
BIOS	Unified Extensible Firmware Interface (UEFI)-based BIOS (legacy boot not supported)

1.8 Available Server Board, Chassis, and System SKU Summary

The following tables provide an overview of available Intel product codes for the server board and systems within the Intel® Server M50FCP Family. Each line item identifies key features supported in the shipping Intel SKU. Additional order code information and full product descriptions for each option are provided in later sections.

The following terms are used in the tables:

- **N/A:** Not applicable.
- **Opt.:** Accessory option sold separately.
- **No**: Not Included
- **Yes:** Included.
- **L3:** Server system building block – server board only.
- **L6:** Integrated system – chassis and server board, with no processors, memory, power supply, or storage devices.

Table 7. Server Board (L3) Family Summary

Intel Product Code (iPC)	# Of CPU Sockets	# Of DIMM Slots	# Of Riser Slots	Onboard SATA ports (6 Gb)	Onboard NVMe* Ports	Intel® RAID Module (SAS) support	Intel® Ethernet Network Adapter for OCP* Support	Onboard Video	Onboard System Fan connectors	EVAC Heat Sink Support
M50FCP2SBSTD	2	32	3	8	18	Opt.	Opt.	Yes	6	No

Table 8. Server System (L6 BIK) Family Summary

Intel Product Code (iPC)	Chassis Form Factor	Server Board Option	Drive Form Factor	# Of Drive Bays (front)	2.5″ NVMe* Support	# of SSD Drives (internal fixed)	# of PCIe* Add-in Card Slots	Power Supply Modules	Rails	Memory Included	Processor Included
M50FCP1UR212	1U	M50FCP2SBSTD	2.5″	12	Opt. (up to 12)	N/A	3	Opt. (up to 2)	Opt.	No	No
M50FCP1UR204	1U	M50FCP2SBSTD	2.5″	4	Opt. (up to 4)	N/A	3	Opt. (up to 2)	Opt.	No	No
M50FCP2UR208[2]	2U	M50FCP2SBSTD	2.5″	8, 16, 24	Opt. (up to 24)	Opt. (up to 2)	8	Opt. (up to 2)	Opt.	No	No
M50FCP2UR312	2U	M50FCP2SBSTD	3.5″	12	Opt. (up to 4)	Opt. (up to 2)	8	Opt. (up to 2)	Opt.	No	No

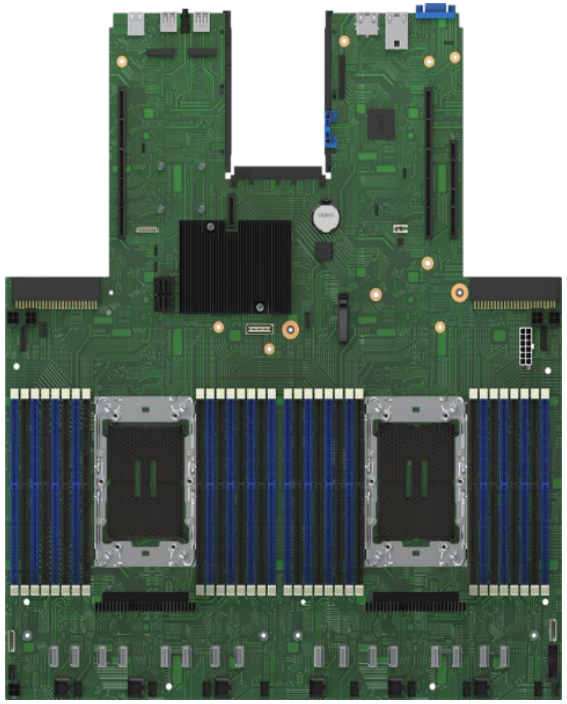
[2] As ordered, the 2U M50FCP2UR208 system SKU supports 8 front drive bays. The system can support configurations of 16 and 24 front drive bays with optionally installed accessory kits. See section 4.5.2 and section 4.5.3.

2. Server Building Block Options

Intel server building blocks are offered to provide the option of developing a custom server system using an Intel server board and other supported Intel accessories. Each Intel building block option is purchased separately and assembled by a system integrator.

At a minimum, a base functional server system using building blocks requires the following:

- Custom or 3rd party Rack Mount Server Chassis – not sold by Intel
- Rack mount kit
- Intel® Server Board M50FCP2SBSTD
- Power supply module(s) and Power cord(s)
- Processor Assembly
  - Processor(s) –4th & 5th Gen Intel® Xeon® Scalable processor family
  - Processor Heat Sink(s)
  - Processor Mounting Clip(s)
- DDR5 DIMMs



Intel® Server Board M50FCP2SB

Power supply module

PCIe* riser card

Figure 14. Intel Server Building Block Options

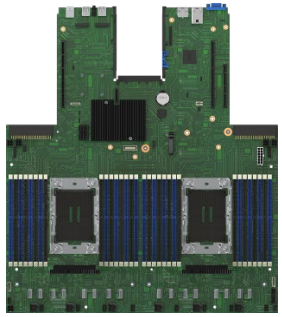
Optional accessories that can be added include the following:

- Intel PCIe riser card options
- Storage devices
- Proper storage device interface cables
- Intel® Integrated RAID Module with SAS support –PCIe add-in card and appropriate SAS data cable(s)
- Intel® Ethernet Network Adapter for OCP –to add additional features without losing a PCIe add-in slot

See Chapter 5 for all available options.

2.1 Intel® Server Board M50FCP2SBSTD

Table 9. Intel® Server Board M50FCP2SBSTD

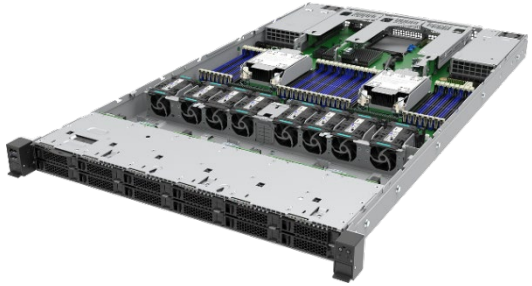
Product Image	Details	Description
	**Intel® Server Board M50FCP2SBSTD** **iPC** M50FCP2SBSTD **MM#** 99AN21 **UPC** 00735858534260 **EAN** 5032037265843 **MOQ** 5 **Product type** Server board only. Building block / spare FRU **Packaged gross wt.** 37.47 lbs. **Un-packaged net wt.** 4.54 lbs. (single board)	See Table 4 for the complete feature set. Unique board features include: • (2) Processor sockets • (32) memory slots, 16 per processor • (3) PCIe Riser Card slots • (1) OCP 3.0 Small Form Factor slot • (16) – Server board PCIe MCIO connectors, eight per processor – NVMe support • (10) – Eight SATA 6 Gbps ports + two M.2 SSD ports • (6) 6-pin managed system fan connectors • (8) 8-pin managed system fan connectors • (2) CPU fan headers (one for each CPU) • Intel® C741 chipset PCH **Box includes:** (5) server boards **Note:** All necessary mounting hardware, cabling, and shielding ship with the chassis and optional accessory kits.

3. Server System Configurations

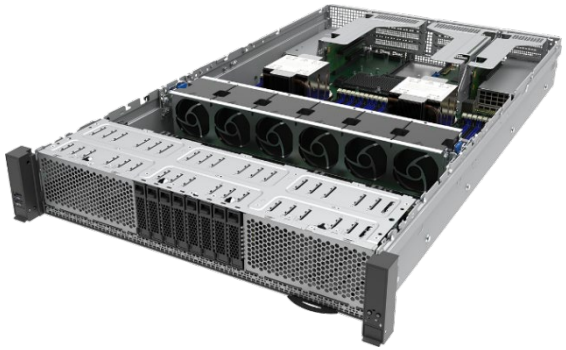
The Intel® Server M50FCP Family includes several 1U and 2U rack mount server systems with different front drive bay configurations. All systems include an integrated server board, backplane, system fans, and other components designed for proper cooling and airflow within the chassis. All systems are integrated to an L6 level, meaning that additional components must be ordered and integrated into the system to make it power on ready. At a minimum, building a functional server from one of these L6 configuration options requires the following components, which must be ordered separately from the system.

- Intel rack mount rail kit
- 1 or 2 Intel power supply modules with power cords
- 1 or 2 Intel processors – 4th & 5th Gen Intel® Xeon® Scalable processor family
- Up to 32 DDR5 DIMMs
- Storage drives
- Appropriate Intel cable kits for data interface to the backplane from the server board

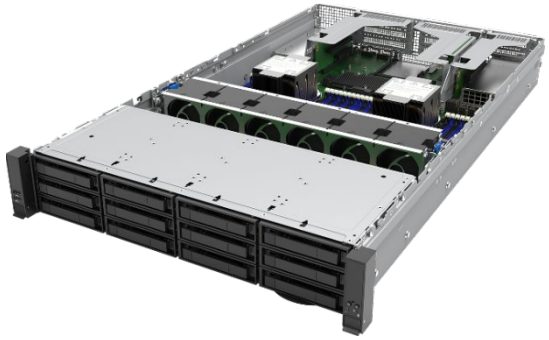
Intel® Server System M50FCP1UR204



Intel® Server System M50FCP1UR212



Intel® Server System M50FCP2UR208



Intel® Server System M50FCP2UR312

Figure 15. L6 Integrated System Options

Optional Intel accessories can be added to enhance the base system configuration:

- PCIe riser cards
- 2U 2.5" Front Drive Bay Expansion Accessory Kits
- Intel® RAID support – PCIe add-in card or module and appropriate SAS interface cable(s)
- Intel® RAID Maintenance Free Backup Unit –Intel RAID backup accessory
- Intel® Ethernet Network Adapters

See the product tables in the following sections for a complete list of parts included with each system option.

See Chapter 5 and Chapter 6 for a full list of available options.

3.1 Intel® Server System M50FCP1UR – 1U Rack Mount System

The product tables found in this section provide order code information and detailed descriptions for each available 1U Intel server system option. The bottom section of each table includes columns for:

- **Included** –The ship along components of the specified chassis product code (product BOM).
- **Required items** – Hardware that must be ordered separately from the system and installed by a system integrator for the system to attain basic power on functionality and rack installation.
- **Optional accessories** – Lists some of the available accessory options that can be installed to enhance the base feature set of the system. Optional accessories are sold separately. All supported accessories are listed in Chapter 5.

Note: The "Included" column of the product table identifies the following for each listed component: (Quantity included), Description, and either an iPC or iPN. An Intel Product Code (iPC) is an orderable part that Intel offers as a spare or accessory. An Intel Part Number (iPN) is a component that is not orderable but provided in the table for reference purposes only.

This product family offers one level of server system integration:

- **L6** – Integrated system: These systems are not power on ready as received. Additional components must be purchased separately and integrated into the system, making it ready for use.

Table 10. Intel® Server System M50FCP1UR204 Specifications and Configuration Requirements

Intel® Server System M50FCP1UR204 1U, Intel® Server Board M50FCP2SBSTD, 4 x 2.5" SAS / SATA / NVMe SSD front mount drive bays		
	iPC M50FCP1UR204 **MM#** 99AN20 **UPC** 00735858530187 **EAN** 5032037261760 **MOQ** 1	**Product type** L6 integrated system **Chassis form factor** 1U rack mount **Packaged gross wt.** 51.45 lbs. **Un-packaged net wt.** 35.53 lbs. **Chassis dimensions** 767 x 438.5 x 43 mm (L x W x H) **Package dimensions (outer box)** 994 x 592 x 300 mm (L x W x H)
Included	**Required Items (sold separately)**	**Optional Accessories (sold separately)**
(1) – 1U 2.5" chassis – iPN M36832-xxx (1) – Server board – iPC M50FCP2SBSTD (1) – 4 drive hot-swap drive bay assembly (1) 4 x 2.5" combo HSBP – iPC CYPHSBP1204 (4) Drive mounting rails – iPN K53035-xxx (4) 2.5" SSD blank – iPN K71491- xxx (1) I^2C cable from server board to HSBP – iPN K63232- xxx (1) Power cable from server board to HSBP – iPN K61358- xxx (1) – Riser #1 Assembly (1) Riser #1 Bracket (1) 1-Slot x16 LP PCIe riser card (Riser Slot #1) – iPC FCP1URISER1 (1) – Riser #2 Bracket - iPN K72604-001 (1) – Front panel (left) with two USB ports – iPN K48177- xxx (1) – Front Panel (left) USB cable– iPN K67061- xxx (1) – Front panel (right) with control panel – iPN K48178- xxx (1) – Front panel (right) cable pin – iPN K67060- xxx (8) – Dual-rotor system fans – iPC CYPFAN1UKIT (16) – DIMM slot blanks – iPN M45676- xxx (2) – EVAC CPU heat sinks – iPC FCP1UHSEVAC (2) – E1A (XCC) processor clips – iPC AXXSPRXCCCC (2) - E1B (MCC) processor clips - iPC AXXSPRMCCCC (1) – Air baffle (left) – iPN K72602- xxx (1) – Air baffle (right) – iPN K72603- xxx (1) – Intel® RAID Maintenance Free Backup Unit (RMFBU) bracket	• (1) or (2) power supply modules(s) – See Section 5.5 • Power cord(s) – See Section 5.5 • Rack mount kit – See Section 5.6 • (1) or (2)4th & 5th Gen Intel® Xeon® Scalable processor(s) • ECC registered DDR5 DIMMs	The following is a partial list of supported accessories. See Chapter 5 and Chapter 6 for all available accessory options. • Backplane compatible storage drives – NVMe, SATA, SAS • Front drive bay data Interface cables. See Chapter 4 • 2nd Riser Card • Intel® Ethernet Network Adapter for OCP – See Section 5.3 for available options

Table 11. Intel® Server System M50FCP1UR212 Specifications and Configuration Requirements

Intel® Server System M50FCP1UR212 1U, Intel® Server Board M50FCP2SBSTD, 12 x 2.5" SAS / SATA / NVMe SSD front mount drive bays		
	iPC M50FCP1UR212 **MM#** 99AN22 **UPC** 00735858530194 **EAN** 5032037261777 **MOQ** 1	**Product type** L6 integrated system **Chassis form factor** 1U rack mount **Packaged gross wt.** 46.49 lbs. **Un-packaged net wt.** 30.57 lbs. **Chassis dimensions** 767x 438.5 x 43 mm (L x W x H) **Package dimensions** 994 x 592 x 300 mm (L x W x H)
Included	**Required Items (sold separately)**	**Optional Accessories (sold separately)**
(1) – 1U 2.5" chassis – iPN M36832-xxx (1) – Server board – iPC M50FCP2SBSTD (1) – 12 drive hot-swap drive bay assembly (1) 12 x 2.5" combo HSBP – iPC CYPHSBP1212 (12) SSD mounting rail with extraction levers – iPN K71493-xxx (12) 2.5" drive blanks – iPN K71491-xxx (1) I2C cable from server board to HSBP – iPN K63231-xxx (1) power cable from server board to HSBP – iPN K61358-xxx (1) – Riser #1 Assembly (1) Riser #1 Bracket (1) 1-Slot x16 LP PCIe riser card (Riser Slot #1) – iPC FCP1URISER1 (1) – Riser #2 Bracket - iPN K72604-001 (1) – Front panel (left) with two USB ports – iPN K48177- xxx (1) – Front Panel (left) USB cable– iPN K67061- xxx (1) – Front panel (right) with Control Panel – iPN K48178- xxx (1) – Front panel (right) cable pin – iPN K67060- xxx (8) – Dual-rotor system fans – iPC CYPFAN1UKIT (16) – DIMM slot blanks – iPN M45676- xxx (2) –Standard 1U heat sink- – iPC EGSM1UHSSTD (2) – E1A (XCC) processor clips – iPC AXXSPRXCCCC (2) - E1B (MCC) processor clips - iPC AXXSPRMCCCC (1) – Air baffle (left) – iPN K72602- xxx (1) – Air baffle (right) – iPN K72603- xxx (1) – Intel® RAID Maintenance Free Backup Unit (RMFBU) bracket	• (1) or (2) power supply modules(s) – See Section 5.5 • Power cord(s) – See Section 5.5 • Rack mount kit – See Section 5.6 • (1) or (2) 4th & 5th Gen Intel® Xeon® Scalable processor(s) • ECC registered DDR5 DIMMs	The following is a partial list of supported accessories. See Chapter 5 and Chapter 6 for all available accessory options. • Backplane compatible storage drives – NVMe, SATA, SAS • Front drive bay data Interface cables. See Chapter 4 • 2nd Riser Card • Intel® Ethernet Network Adapter for OCP – See Section 5.3 for available options

3.2 Intel® Server System M50FCP2UR – 2U Rack Mount System

The product tables found in this section provide order code information and detailed descriptions for each available 2U Intel server system option. The bottom section of each table includes columns for:

- **Included** –The ship along components of the specified chassis product code (product BOM).
- **Required items** – Hardware that must be ordered separately from the system and installed by a system integrator for the system to attain basic power on functionality and rack installation.
- **Optional accessories** – Lists some of the available accessory options that can be installed to enhance the base feature set of the system. Optional accessories are sold separately. All supported accessories are listed in Chapter 5.

Note: The "Included" column of the product tables identify the following for each listed component: (Quantity included), Description, and either an iPC or iPN. An Intel Product Code (iPC) is an orderable part that Intel offers as a spare or accessory. An Intel Part Number (iPN) is a component that is not orderable but provided in the table for reference purposes only.

This product family offers one level of server system integration:

- **L6** – Integrated system: These systems are not power on ready as received. Additional components must be purchased separately and integrated into the system, making it ready for use.

Table 12. Intel® Server System M50FCP2UR208 Specifications and Configuration Requirements

Intel® Server System M50FCP2UR208
2U, Intel® Server Board M50FCP2SBSTD, 8 x 2.5″ SSD SAS/SATA front mount drives

iPC	M50FCP2UR208
MM#	99AN24
UPC	00735858530200
EAN	5032037261784
MOQ	1

Product type	L6 integrated system
Chassis form factor	2U rack mount
Packaged gross wt.	53.02 lbs.
Un-packaged net wt.	36.92 lbs.
Chassis dimensions	769.6 x 438 x 87 mm (L x W x H)
Package dimensions	994 x 592 x 300 mm (L x W x H)

Included

(1) – 2U 2.5″ Chassis – iPN M36826-xxx
(1) – Server board – iPC M50FCP2SBSTD
(1) – 8 drive hot-swap drive bay assembly
  (1) 8 x 2.5″ combo HSBP – iPC CYPHSBP2208
  (8) 2.5″ SSD mounting rails with lever – iPN K71493-xxx
  (8) 2.5″ drive blanks – iPN K71491-xxx
  (1) power cable, for 3x HSBPs – iPN K62572-xxx
  (1) I^2C cable, server board to HSBP– iPN K63232-xxx
(2) – Riser card assembly brackets
(1) – Front panel (left) with two USB ports – iPN K48177-xxx
(1) – Front Panel (left) USB cable – iPN K67061-xxx
(1) – Front panel (right) with control panel – iPN K48178-xxx
(1) – Front panel (right) cable pin – iPN K67059-xxx
(6) – Single-rotor system fans – iPC CYPFAN2UKIT
(16) – DIMM blanks – iPN M45676-xxx
(1) – Standard 2U air duct (for 2U-Tall HS) – iPC FCPDUCTSTD
(2) – Intel® RAID Maintenance Free Backup Unit (RMFBU) bracket
(2) – E1A (XCC) processor clips – iPC AXXSPRXCCCC
(2) - E1B (MCC) processor clips - iPC AXXSPRMCCCC

Required Items (sold separately)

- (1) or (2) power supply modules & power cord(s)
  – See Section 5.5
- Rack mount kit – See Section 5.6
- (1) or (2) 2U or 1U CPU Heat Sinks and 1U Heat sink compatible air duct – See Chapter 6
- (1) or (2) 4th & 5th Gen Intel® Xeon® Scalable processor(s)
- Up to 32 ECC registered DDR5 DIMMs

Optional Accessories (sold separately)

The following is a partial list of supported accessories. See Chapter 5 and Chapter 6 for all available accessory options.

- PCIe Riser Cards – See Section 5.2
- Backplane compatible storage drives – NVMe, SATA, SAS
- Front drive data interface cables – See Chapter 4
- Intel® Ethernet Network Adapter for OCP – See Section 5.3
- Front drive bay expansion to 16 or 24 drives – See Sections 4.5.2 & 4.5.3

Table 13. Intel® Server System M50FCP2UR312 Product Specifications and Configuration Requirements

Intel® Server System M50FCP2UR312 2U, Intel® Server Board M50FCP2SBSTD, 12 x 3.5″ SAS/SATA /NVMe front mount drives		
	iPC M50FCP2UR312 **MM#** 99AN25 **UPC** 00735858530217 **EAN** 5032037261791 **MOQ** 1	**Product type** L6 integrated system **Chassis form factor** 2U rack mount **Packaged gross wt.** 55.38 lbs. **Un-packaged net wt.** 39.28 lbs. **Chassis dimensions** 769.6 x 438 x 87 mm (L x W x H) **Package dimensions** 994 x 592 x 300 mm (L x W x H)
Included	**Required Items (sold separately)**	**Optional Accessories (sold separately)**
(1) – 2U 3.5″ chassis – iPN M36819-xxx (1) – Server board – iPC M50FCP2SBSTD (1) – 12 drive hot-swap drive bay assembly (1) 12 x 3.5 combo HSBP – iPC CYPHSBP2312 (12) 3.5″ HDD/SSD drive carriers – iPN J36447-xxx (1) HSBP power cable – iPN K67596-xxx (1) I^2C cable, server board to HSBP – iPN K63231-xxx (2) – Riser card assembly brackets (1) – Front panel (left) with two USB ports – iPN K48177-xxx (1) – Front Panel (left) USB cable – iPN K67061-xxx (1) – Front panel (right) with Control Panel – iPN K48178-xxx (1) – Front panel (right) cable pin – iPN K67059-xxx (6) – Single-rotor system fans – iPC CYPFAN2UKIT (16) – DIMM blanks – iPN M45676-xxx (1) – Standard 2U air duct (for 2U-Tall HS) – iPC FCPDUCTSTD (2) – Intel® RAID Maintenance Free Backup Unit (RMFBU) bracket (2) – E1A (XCC) processor clips – iPC AXXSPRXCCCC (2) - E1B (MCC) processor clips - iPC AXXSPRMCCCC	• (1) or (2) power supply modules & power cord(s) – See Section 5.5 • Rack mount kit – See Section 5.6 • (1) or (2) 2U or 1U CPU Heat Sinks and 1U Heat sink compatible air duct – See Chapter 6 • (1) or (2)4th & 5th Gen Intel® Xeon® Scalable processor(s) • Up to 32 ECC registered DDR5 DIMMs	The following is a partial list of supported accessories. See Chapter 5 and Chapter 6 for all available accessory options. • PCIe Riser Cards – See Section 5.2 • Backplane compatible storage drives – NVMe, SATA, SAS • Front drive data interface cables – See Chapter 4 • Intel® Ethernet Network Adapter for OCP – See Section 5.3

4. Front Drive Bay – Drive Interface Data Cable Guide

Drive interface cables for the front drive bay are not included with any of the L6 integrated server systems. They must be ordered separately to match the desired system configuration.

Figure through Figure show the back side of the 1U and 2U backplane options. The backside of each backplane has a four-port SFF-8643 Mini-SAS HD data connector for each set of four SAS/SATA drives. The back side of each backplane also includes either x4 (1 drive) or x8 (2 Drive) PCIe SlimSAS* connectors to support PCIe NVMe drives. Drive numbers in the cable configuration tables match the specific cable connectors found on the given backplane.

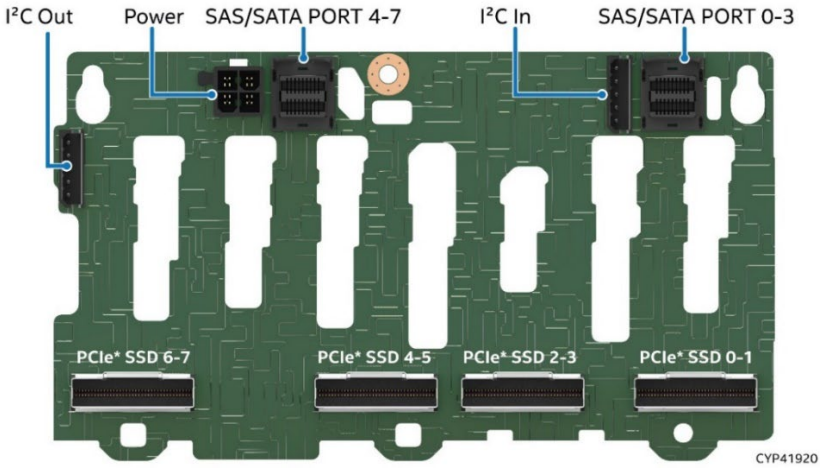


Figure 16. 2U 8 x 2.5” SAS / SATA / NVMe* Hot-Swap Backplane – Back Side

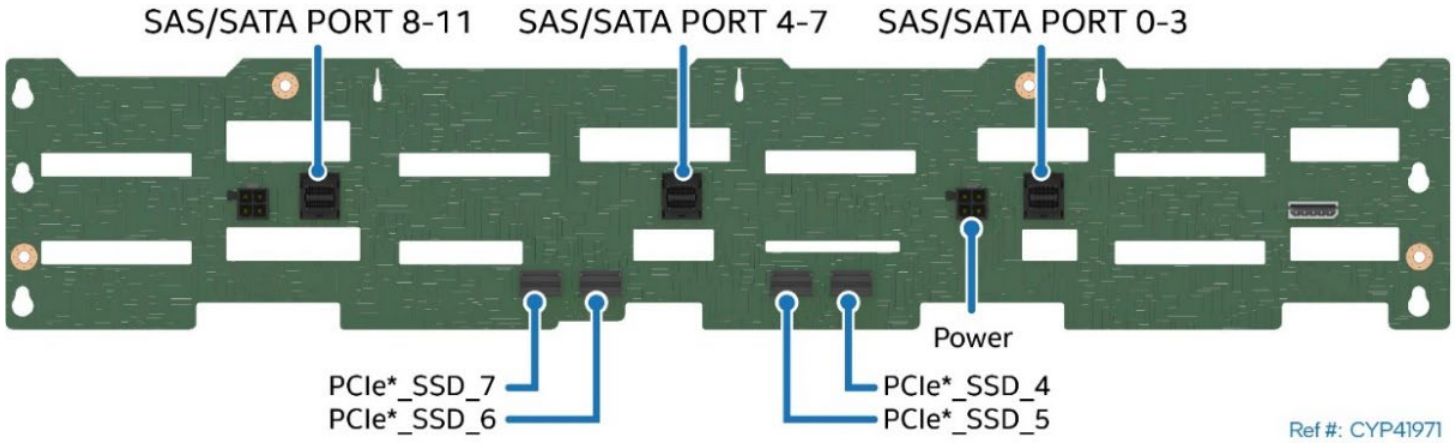


Figure 17. 2U 12 x 3.5” HSBP Connector Identification – Back Side

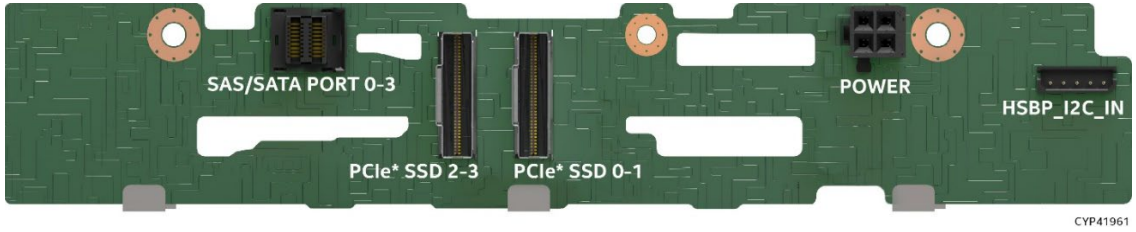


Figure 18. 1U 4 x 2.5" SAS / SATA / NVMe* Hot Swap Backplane – Back Side

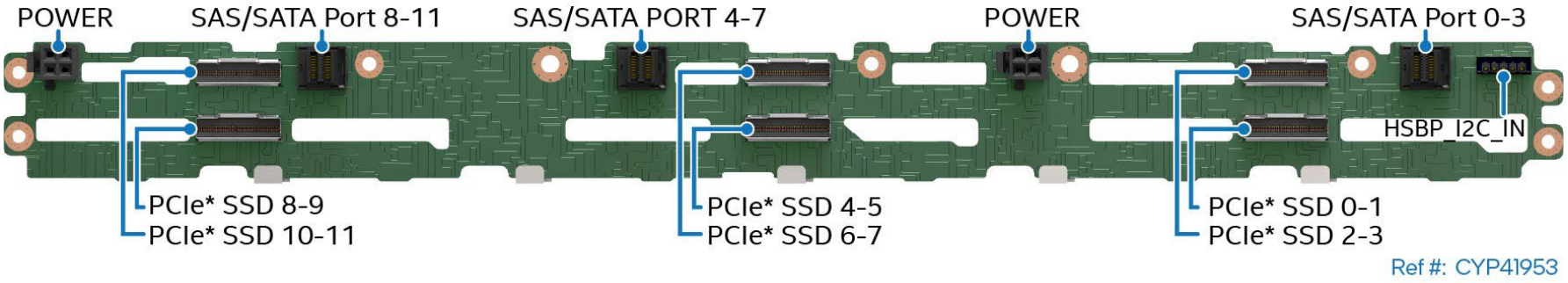


Figure 19. 1U 12 x 2.5" SAS / SATA / NVMe* Hot Swap Backplane – Back Side

4.1 Data Cable Connector Types

Table 14. Multiport Mini-SAS HD Interface Connectors

Image	Description
	SFF-8643 (Mini-SAS HD) Support for up to 22.5 Gb/s SAS **Where used:** • On the server board – (2) 4-port SATA connectors (SATA 0–3 and SATA 4–7) • Up to 22.5 Gb/s SAS capable hot-swap backplanes • Up to 22.5 Gb/s SAS RAID controllers • 12 Gb/s SAS expander card

Table 15. x4 PCIe* SlimSAS* Interface Connectors

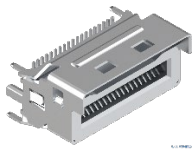
Image	Description
	**x4 SlimSAS* connectors** Support for PCIe NVMe SFF (2.5”) SSDs **Where used:** • On 2U 3.5” SAS/SATA/NVMe backplane

Table 16. x4 PCIe* MCIO Interface Connectors

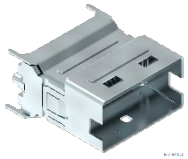
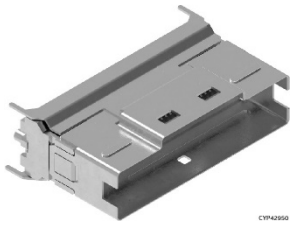
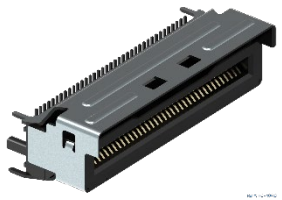
Image	Description
	**x4 MCIO connectors** Support for PCIe NVMe SFF (2.5”) SSDs **Where used:** • On the server board – 16 connectors (8 per processor)

Table 17. x8 PCIe* Interface Connectors

Image	Description
	**x8 SlimSAS* connector** Support for PCIe NVMe SFF (2.5”) SSDs **Where used:** HSBP options: 4 x 2.5” SAS/SATA/NVMe hot-swap backplane 12 x 2.5” SAS/SATA/NVMe hot-swap backplane 8 x 2.5” Drive SAS/SATA/NVMe combo backplane **Riser card options:** 2U PCIe NVMe riser card, Riser Slot #3 – iPC **CYPRISER3RTM**
	**x8 MCIO connector** Support for PCIe NVMe SFF (2.5”) SSDs **Riser card options:** PCIe NVMe riser card for Riser Slot #1 – iPC **FCP2URISER1RTM** Interposer riser card option – iPC **FCP1URISER2KIT**

4.2 1U / 2U Server System SAS / SATA / NVMe* Cable Kits

Product tables in this section reference specific SAS/SATA and NVMe cables. Different cable kits are offered to support specific system configurations. The product order code for each cable kit is made up of a string of letters and numbers to identify the type of cable included in the kit.

The following table identifies the different data cable connector types and the identifiers used in the cable kit product codes.

Table 18. Data Cable Connector Identification

Connector Image	Cable Connector Type	Description
	RA Mini-SAS HD	Right angle SFF-8643 (Mini-SAS HD) connector
	VT Mini-SAS HD	Straight/vertical SFF-8643 Mini-SAS HD connector
	RS Mini-SAS HD	Right side SFF-8643 Mini-SAS HD connector
	LS Mini-SAS HD	Left side SFF-8643 Mini-SAS HD connector
	VT x4 MCIO	Straight/vertical x4 MCIO PCIe NVMe connector
	VT x4 SlimSAS*	Straight/vertical x4 SlimSAS PCIe NVMe connector
	RA x4 SlimSAS	Right angle x4 SlimSAS PCIe NVMe connector
	RRA x4 SlimSAS	Reversed right angle x4 SlimSAS PCIe NVMe connector
	VT x8 SlimSAS	x8 SlimSAS PCIe NVMe connector
	VT x8 MCIO	X8 MCIO PCIe NVMe connector

4.2.1 Cable Kit Product Code Decoder Examples

Abbreviation	Description
CBL	Cable
Kit	Data cable kit
FCP	Intel® Server M50FCP Family
RT	Riser with re-timer
HD	Mini-SAS HD connector
SL	SlimSAS* connector
MCIO	MCIO connector

Examples:

iPC **CYPCBLHDHDXXX1** – SAS/SATA data cable

- CBL – Identifies a cable kit
- HDHD – Identifies that both ends of the cable are Mini-SAS HD SFF-8643 type connector

iPC **CBLMCSL1204KIT** – NVMe cable

- CBL – Identifies a cable
- MC – Identifies that one end of the cable has MCIO connector
- SL – Identifies that one end of the cable has SlimSAS connector
- 1204 – Identifies that the cable kit is for 1U, dual-socket, x4 front drive bay system
- KIT – identifies that this is a offered as a kit

4.2.2 Cable Kit Order Information

Note: A splitter cable is a cable that has two or more connectors on one end.

Table 19. SAS/SATA/NVMe* Data Cable Kit Description and Order Information

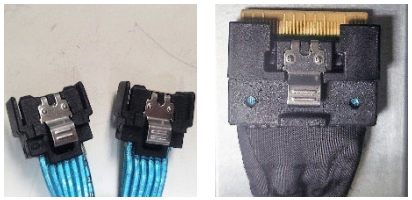
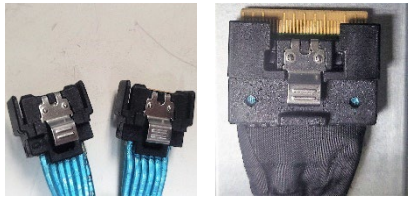
Image	Order Information	Product Description
	**iPC** CBLMCSL1204KIT **MM#** 99AN8A **UPC** 735858517690 **EAN** 5032037250924 **MOQ** 1	Used in 1U systems as spare or accessory. **Kit includes:** (1) – **210/220-mm** splitter cable, connects server board CPU0 x4 MCIO 4A and 4B (VT) to HSBP x8 SlimSAS* SSD0-1 (VT) (1) – **285/295-mm** splitter cable, connects server board CPU0 x4 MCIO 4C and 4D (VT) to HSBP x8 SlimSAS SSD2-3 (VT)
	**iPC** CBLMCSL1212KIT **MM#** 99AN85 **UPC** 735858517645 **EAN** 5032037250870 **MOQ** 1	Used in 1U systems as spare or accessory. **Kit includes:** (1) – **275/285-mm** splitter cable, connects server board CPU0 x4 MCIO 3A and 3B (VT) to HSBP x8 SlimSAS SSD0-1 (VT) (1) – **335/345-mm** splitter cable, connects server board CPU0 x4 MCIO 3C and 3D (VT) to HSBP x8 SlimSAS SSD2-3 (VT) (1) – **210/220-mm** splitter cable, connects server board CPU0 x4 MCIO 4A and 4B (VT) to HSBP x8 SlimSAS SSD4-5 (VT) (1) – **285/295-mm** splitter cable, connects server board CPU0 x4 MCIO 4C and 4D (VT) to HSBP x8 SlimSAS SSD6-7 (VT) (1) – **255/245-mm** splitter cable, connects server board CPU1 x4 MCIO 4A and 4B (VT) to HSBP x8 SlimSAS SSD8-9 (VT) (1) – **285/295-mm** splitter cable, connects server board CPU1 x4 MCIO 4C and 4D (VT) to HSBP x8 SlimSAS SSD10-11 (VT)

Image	Order Information	Product Description
	iPC CBLMCSL2208KIT **MM#** 99AN86 **UPC** 735858517652 **EAN** 5032037250887 **MOQ** 1	Used in 2U systems as spare or accessory. **Kit includes:** (1) – **255/235-mm** splitter cable, connects server board CPU0 x4 MCIO 4A and 4B (VT) to HSBP x8 SlimSAS* SSD0-1 (VT) (1) – **270/260-mm** splitter cable, connects server board CPU0 x4 MCIO 4C and 4D (VT) to HSBP x8 SlimSAS SSD2-3 (VT) (1) – **240/220-mm** splitter cable, connects server board CPU1 x4 MCIO 3A and 3B (VT) to HSBP x8 SlimSAS SSD4-5 (VT) (1) – **265/240-mm** splitter cable, connects server board CPU1 x4 MCIO 3C and 3D (VT) to HSBP x8 SlimSAS SSD6-7 (VT)
	iPC CBLMCSL2216KIT **MM#** 99AN87 **UPC** 735858517669 **EAN** 5032037250894 **MOQ** 1	Used in 2U systems as spare or accessory. **Kit includes:** (1)– **230/220-mm** splitter cable, connects server board CPU0 x4 MCIO 3A and 3B (VT) to HSBP (left) x8 SlimSAS SSD0-1 (VT) (1)– **255/235-mm** splitter cable, connecting server board CPU0 x4 MCIO 3C and 3D (VT) to HSBP (left) x8 SlimSAS SSD2-3 (VT) (1)– **310/290-mm** splitter cable, connects server board CPU0 x4 MCIO 4A and 4B (VT) to HSBP (left) x8 SlimSAS SSD4-5 (VT) (1)– **270/260-mm** splitter cable, connecting server board CPU0 x4 MCIO 4C and 4D (VT) to HSBP (left) x8 SlimSAS SSD6-7 (VT) (1)– **245/225-mm** splitter cable, connects server board CPU1 x4 MCIO 3A and 3B (VT) to HSBP (right) x8 SlimSAS SSD0-1 (VT) (1)– **240/220-mm** splitter cable, connects server board CPU1 x4 MCIO 3C and 3D (VT) to HSBP (right) x8 SlimSAS SSD2-3 (VT) (1)– **240/220-mm** splitter cable, connects server board CPU1 x4 MCIO 4A and 4B (VT) to HSBP (right) x8 SlimSAS SSD4-5 (VT) (1)– **275/255-mm** splitter cable, connects server board CPU1 x4 MCIO 4C and 4D (VT) to HSBP (right) x8 SlimSAS SSD6-7 (VT)

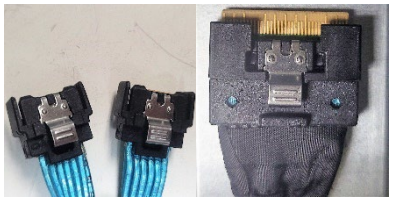
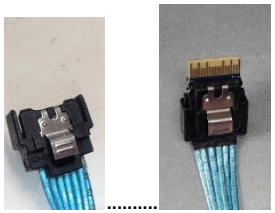
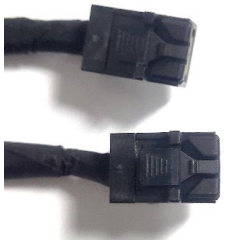
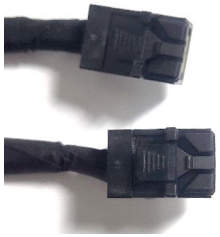
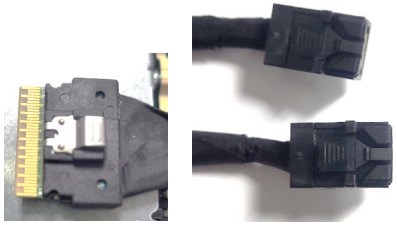
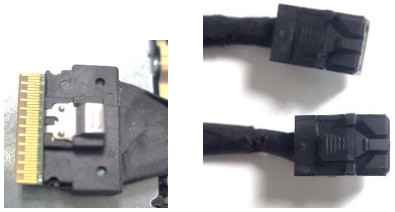
Image	Order Information	Product Description
	**iPC** CBLMCSL2224KIT **MM#** 99AW4T **UPC** 735858517676 **EAN** 5032037250900 **MOQ** 1	Used in 2U systems as spare or accessory. **Kit includes:** (1)– **230/220-mm** splitter cable, connects server board CPU0 x4 MCIO 3A and 3B (VT) to HSBP (left) x8 SlimSAS* SSD4-5 (VT) (1)– **255/235-mm** splitter cable, connecting server board CPU0 x4 MCIO 3C and 3D (VT) to HSBP (left) x8 SlimSAS SSD6-7 (VT) (1)– **260/240-mm** splitter cable, connects server board CPU0 x4 MCIO 4A and 4B (VT) to HSBP (middle) x8 SlimSAS SSD0-1 (VT) (1)– **270/260-mm** splitter cable, connecting server board CPU0 x4 MCIO 4C and 4D (VT) to HSBP (middle) x8 SlimSAS SSD2-3 (VT) (1)– **245/225-mm** splitter cable, connects server board CPU1 x4 MCIO 3A and 3B (VT) to HSBP (right) x8 SlimSAS SSD0-1 (VT) (1)– **240/220-mm** splitter cable, connects server board CPU1 x4 MCIO 3C and 3D (VT) to HSBP (right) x8 SlimSAS SSD2-3 (VT) (1)– **240/220-mm** splitter cable, connects server board CPU1 x4 MCIO 4A and 4B (VT) to HSBP (right) x8 SlimSAS SSD4-5 (VT) (1)– **275/255-mm** splitter cable, connects server board CPU1 x4 MCIO 4C and 4D (VT) to HSBP (right) x8 SlimSAS SSD6-7 (VT)
	**iPC** CBLMCSL2304KIT **MM#** 99AN88 **UPC** 735858517683 **EAN** 5032037250917 **MOQ** 1	Used in 2U 3.5″ systems as spare or accessory. **Kit includes:** (1) – **180-mm** cable, connects server board CPU0 x4 MCIO 4A connector to HSBP x4 SlimSAS SSD4 connector (1) – **200-mm** cable, connects server board CPU0 4x MCIO 4B connector to HSBP x4 SlimSAS SSD5 connector (1) – **280-mm** cable, connects server board CPU0 x4 MCIO 4C connector to HSBP x4 SlimSAS SSD6 connector (1) – **310-mm** cable, connects server board CPU0 x4 MCIO 4D connector on HSBP x4 SlimSAS SSD7 connector

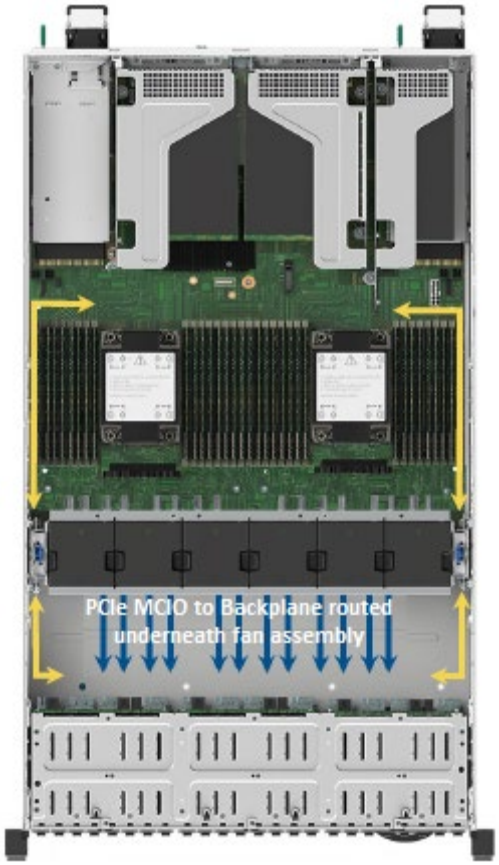
Image	Order Information	Product Description
	iPC CBLMCSLRTKIT **MM#** 99AN7Z **UPC** 00735858517638 **EAN** 5032037250863 **MOQ** 1	Used in 1U / 2U systems to support additional NVMe* drives in front drive bay. **Kit includes:** (4) – **660-mm** cables Usage in 2U systems: (1) – **660-mm** cable, connects Riser #1 NVMe riser card x8 MCIO PCIe_SSD_0-1 connector to HSBP x8 SlimSAS SSD_0-1 connector (1) – **660-mm** cable, connects Riser #1 NVMe riser card x8 MCIO PCIe_SSD_2-3 connector to HSBP x8 SlimSAS SSD_2-3 connector (1) – **660-mm** cable, connects Riser #3 x8 SlimSAS connector PCIe_SSD_0-1 to HSBP x8 SlimSAS SSD_4-5 connector (1) – **660-mm** cable, connects Riser #3 x8 SlimSAS connector PCIe_SSD_2-3 to HSBP x8 SlimSAS SSD_6-7 connector Usage in 1U x 12 from Riser #2 to front drive bay systems: (1) – **660-mm** cable, connects RAID add-in card x8 SlimSAS connector to HSBP x8 SlimSAS* connector (1) – **660-mm** cable, connects RAID add-in card x8 SlimSAS connector to HSBP x8 SlimSAS* connector **Note:** x8 MCIO PCIe to HSBP x8 SlimSAS cables no used in 1U systems.
	iPC CYPCBLSLSLX8 **MM#** 99AJR4 **UPC** 00735858487528 **EAN** 5032037224109 **MOQ** 1	Used in 1U / 2U systems to support additional NVMe drives in front drive bay. **Kit includes:** (1) – **860-mm** cable, connects add-in card x8 SlimSAS connector to HSBP x8 SlimSAS connector (1) – **1-m** cable, connects add-in card x8 SlimSAS connector to HSBP x8 SlimSAS connector
	iPC CYPCBLSLSSRIS **MM#** 99AMXV **UPC** 00735858497336 **EAN** 5032037232470 **MOQ** 1	Used in 1U x 12 front drive bay system to connect tri-mode RAID add-in card to HSBP for NVMe drive support. **Kit Includes:** • (1) – **860 mm** cable, add-in card x8 SlimSAS connector to HSBP 2 x8 SlimSAS connectors • (1) – **760 mm** cable, add-in card x8 SlimSAS connector to HSBP 2 x8 SlimSAS connectors

Image	Order Information	Product Description
	**iPC** CYPCBLHDHDXXX1 **MM#** 99AJF8 **UPC** 00735858484756 **EAN** 5032037221511 **MOQ** 1	Used in 1U / 2U systems to support SAS/SATA drives in front drive bay. Usage varies depending on the front drive bay configuration. **Kit includes:** (1) – **640-mm** cable, connects add-in card Mini-SAS HD connector to HSBP Mini-SAS HD connector (VT to VT) (1) – **840-mm** cable, connects add-in card Mini-SAS HD connector to HSBP Mini-SAS HD connector (RA to VT) (1) – **930-mm** cable, connects add-in card or server board Mini-SAS HD connector to HSBP Mini-SAS HD connector (RA to VT)
	**iPC** CYPCBLHDHDXXX2 **MM#** 99AJF9 **UPC** 00735858475235 **EAN** 5032037213189 **MOQ** 1	Used in 1U / 2U x8 systems to support SAS/SATA drives in front drive bay. **Kit includes:** (1) – **180-mm** cable, connects SAS ROC module Mini-SAS HD connector to HSBP Mini-SAS HD port 0–3 connector (1) – **250-mm** cable, connects SAS ROC module Mini-SAS HD connector to HSBP Mini-SAS HD port 4–7 connector
	**iPC** CYPCBLSLHDKIT **MM#** 99AMXX **UPC** 00735858497350 **EAN** 5032037232494 **MOQ** 1	Used in 1U / 2U systems to connect add-in cards to HSBP. **Kit includes:** (1) – **860-mm** cable, RAID x8 SlimSAS* connector to HSBP x4 Mini-SAS HD connector (1) – **660-mm** cable, RAID x8 SlimSAS connector to HSBP x4 Mini-SAS HD connector
	**iPC** CBLSLHDKIT **MM#** 99C3FZ **UPC** 00735858527774 **EAN** 5032037259767 **MOQ** 1	Used in 1U systems to connect add-in cards to HSBP. **Kit includes:** (1) – **1000-mm** cable, RAID x8 SlimSAS connector to HSBP x4 Mini-SAS HD connector (1) – **1120-mm** cable, RAID x8 SlimSAS connector to HSBP x4 Mini-SAS HD connector

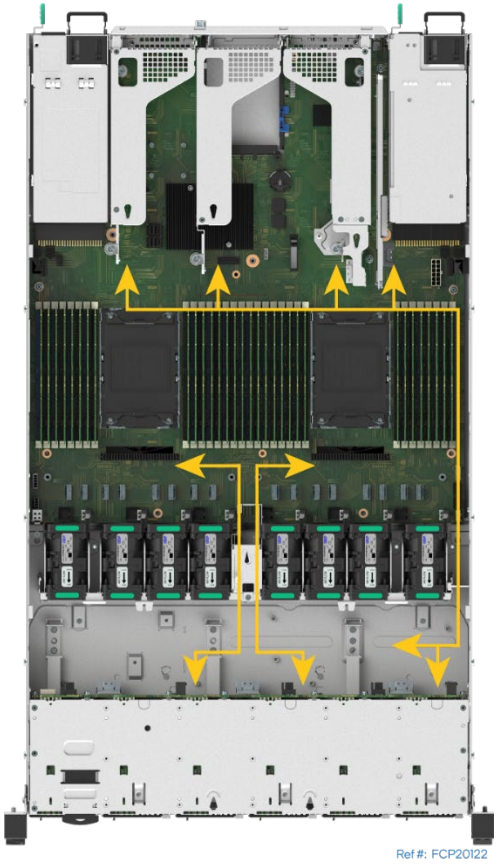
4.2.3 Cable Recommendations

Each table in the following sections identifies the cable connections and recommended cable lengths for each supported storage controller option in the specified system. Each recommended cable length for a given connector pair provides enough cable to attach the two devices and provides the least amount of excess cable, providing the cleanest cable routing possible.

Refer to the following diagrams when **right** or **left** cable routing is specified for a given cable configuration. All cable recommendations are for a system configured for two processors.



2U Server System Cable Routing



1U Server System Cable Routing

Figure 20. Server System Cable Routing

4.3 1U 4 x 2.5” – M50FCP1UR204 SAS /SATA / NVMe* Data Cable Guide

Figure 21. 4 x 2.5” Front Drive Bay Configuration – M50FCP1UR204

Note: A splitter cable is a cable that has two or more connectors on one end.

Table 20. Data Cable Guide for Intel® Server System M50FCP1UR204

Storage Interface Type	Storage Interface Source	Cable Connection	Cable Routing	Intel Cable Kit (iPC)	Notes
SATA	Server board	Server board SATA 0–3 to backplane SATA 0–3	Routed along the right side of chassis	CYPCBLHDHDXXX1	**840-mm** cable, RA □ VT
SAS / SATA RAID	PCIe SAS RAID add-in card	Riser 1, 2, PCIe interposer add-in card SATA 0 or 1 to backplane SATA 0–3	Routed along the right side of chassis	CBLSLHDKIT	**1000/1120-mm** cable, VT □ VT
NVMe*	Server board	Server board MCIO to backplane SlimSAS*	Routed through middle of fan assembly	CBLMCSL1204KIT	For more details on cable connections, see Table 19.
NVMe	PCIe tri-mode RAID add-in card	Riser 1, 2, PCIe interposer SlimSAS* port 0 to backplane SSD 0-1	Routed along the right side of chassis	CYPCBLSLSLX8	**1000/860- mm** cable, VT □ VT
		Riser 1, 2, PCIe interposer SlimSAS* port 1 to backplane SSD 2-3			**1000/860-mm** cable, VT □ VT
NVMe	NVMe riser card	Riser 3 to backplane		N/A	**Configuration not supported**

Notes: (1) All cables are routed along the chassis right side. (2) In an M50FCP1UR204 system, riser 3 slot does not support add-in cards.

4.4 1U 12 x 2.5” – M50FCP1UR212 SAS / SATA / NVMe* Data Cable Guide

Figure 22. 12 x 2.5” Front Drive Bay Configuration – M50FCP1UR212

Note: A splitter cable is a cable that has two or more connectors on one end.

Table 21. Data Cable Guide for Intel® Server System M50FCP1UR212

Storage Interface Type	Storage Interface Source	Cable Connection	Cable Routing	Intel Cable Kit (iPC)	Notes
SATA	Server board	Server board SATA 0–3 to backplane SATA 4–7 routed	Routed along right side of chassis	CYPCBLHDHDXXX1	**930-mm** cable, RA □ VT
SATA		Server board SATA 4–7 to backplane SATA 8–11 routed	Routed along right side of chassis		**840-mm** cable, RA □ VT
SAS / SATA RAID	PCIe SAS RAID add-in card	Riser 2 add-in card SATA 0 to backplane SATA 0–3	Routed along right side of chassis	CBLSLHDKIT	**1000-mm** cable, VT □ VT
SAS / SAS RAID		Riser 2 add-in card SATA 0 to backplane SATA 4–7	Routed along right side of chassis	CYPCBLSLHDKIT	**860-mm** cable, VT □ VT
SAS / SAS RAID		Riser 2 add-in card SATA 1 to backplane SATA 8–11	Routed along right side of chassis		**660-mm** cable, VT □ VT
SAS / SAS RAID		Riser 1 or interposer add-in card SATA 0 to backplane SATA 0–3	Routed along right side of chassis	CBLSLHDKIT	**1120-mm** cable, VT □ VT
SAS / SAS RAID		Riser 1 or interposer add-in card SATA 0 to backplane SATA 4–7	Routed along right side of chassis		**1000-mm** cable, VT □ VT
SAS / SAS RAID		Riser 1 or interposer add-in card SATA 1 to backplane SATA 8–11	Routed along right side of chassis		**1000-mm** cable, VT □ VT
NVMe*	Server board	Server board MCIO to backplane SlimSAS*	Routed under the fan assembly.	CBLMCSL1212KIT	For more details on cable connections, see Table 19.
NVMe*	PCIe tri-mode RAID add-in card	PCIe interposer card, add-in card SlimSAS* port 0 to backplane SSD 4-5	Routed along right side of chassis	CYPCBLSLSLX8	**860-mm** cable, VT □ VT
		PCIe interposer card, add-in card SlimSAS* port 1 to backplane SSD 6-7			**860-mm** cable, VT □ VT

Storage Interface Type	Storage Interface Source	Cable Connection	Cable Routing	Intel Cable Kit (iPC)	Notes
NVMe*	PCIe tri-mode RAID add-in card	Riser 2, add-in card to backplane	Routed along right side of chassis	CBLMCSLRTKIT	For more details on cable connections, see Table 19.
NVMe	NVMe riser card	Riser 3 NVMe riser card to backplane		N/A	**Configuration not supported**

Notes: (1) All cables are routed along the chassis right side. (2) In an M50FCP1UR212 system, riser 3 slot does not support add-in cards.

4.5 2U 2.5" Front Mount Drive Bay Cable Guide

The 2U 2.5" system can support up to 24 front drive bays using three 8 x 2.5" SAS / SATA NVMe drive combo backplanes.

The 2U 2.5" system supports the following system configurations: 8 drives (M50FCP2UR208), 16 drives (M50FCP2UR208 + 8 drive accessory kit), or 24 drives (M50FCP2UR208 + two 8 drive accessory kits).

The front side of the backplane includes eight 68-pin SFF-8639 drive interface (U.2) connectors, each capable of supporting SAS, SATA, or NVMe drives. The connectors are labeled SSD_0 through SSD_7.

The backside of the backplane includes two multiport Mini-SAS HD connectors labeled SAS/SATA PORT 0–3 and SAS/SATA PORT 4–7; and four x8 PCIe SlimSAS connectors, labeled PCIe SSD 0–1, PCIe SSD 2–3, PCIe SSD 4–5, and PCIe SSD 6–7. Each x8 PCIe SlimSAS connector is routed to two U.2 connectors on the front side. For example, PCIe SSD 0–1 is routed to SSD_0 and SSD_1.

4.5.1 M50FCP2UR208 SAS / SATA / NVMe* Data Cable Guide for up to 8 Front Drive Bays

Note: Drive numbering in the system illustrations is for general reference only. Actual drive numbering is dependent on SAS / SATA controller configuration and how they are cabled to the backplane.

Figure 23. 2U 8 x 2.5" Front Drive Bay Configuration – M50FCP2UR208

Note: A splitter cable is a cable that has two or more connectors on one end.

Table 22. M50FCP2UR208 Cable Guide for up to 8 Front Drive Bays

Storage Interface Type	Storage Interface Source	Cable Connection	Cable Routing	Intel Cable Kit (iPC)	Notes
SATA	Server board	Server board SATA 0–3 to backplane SATA 0–3	Routed along left side of chassis	CYPCBLHDHDXXX1	**840-mm** cable, RA □ VT
		Server board SATA 4–7 to backplane SATA 4–7			**930-mm** cable, RA □ VT
SAS / SAS RAID	PCIe SAS RAID add-in card	Riser 1,2,3 add-in card SATA 0 to backplane SATA 0–3	Routed along right side of chassis	CYPCBLSLHDKIT	**860-mm** cable, VT □ VT
		Riser 1,2,3 add-in card SATA 1 to backplane SATA 4–7			**660-mm** cable, VT □ VT
NVMe*	Server board	Server board MCIO to backplane.	Routed underneath the fan assembly	CBLMCSL2208KIT	For more details, see Table 19.
NVMe	PCIe NVMe riser card	Riser 1 & 3 NVMe riser card to backplane		N/A	**Configuration not supported**

4.5.2 M50FCP2UR 16 x 2.5” SAS / SATA / NVMe* Data Cable Guide

Notes:

- For M50FCP2UR 16 x 2.5” configurations, make sure that the ventilation blank is installed in the middle of the chassis as shown in the following figure.
- Drive numbering in the system illustrations is for general reference only. Actual drive numbering is dependent on SAS / SATA controller configuration and how they are cabled to the backplane.

Figure 24. 2U 16 x 2.5” Front Drive Bay Configuration

The following accessory kits are needed to convert an M50FCP2UR208 system into an 8–15 front drive bay configuration.

- (1) 8 x 2.5" hot-swap backplane kit (iPC **CYPHSBP2208**)
- (8) 2.5" front drive bay module (iPC **CYP25HSCARRIER**)

Table 23. 2U 2.5" SAS/SATA Cable Guide for 16 Front Drive Bay Configuration

Storage Interface Type	Storage Interface Source	Cable Connection	Cable Routing	Intel Cable Kit (iPC)	Notes
SATA	Server board	Server board SATA 0–3 or SATA 4–7 to backplane SATA port 0–3, port 4–7, or port 8–11	Routed along left side of chassis	CYPCBLHDHDXXX1	**840-mm** cable, RA □ VT
		Server board SATA 0–3 or SATA 4–7 to backplane SATA port 12–15	Routed along left side of chassis		**930-mm** cable, RA □ VT
SAS / SATA RAID	PCIe SAS RAID add-in card	Riser 1,2,3 add-in card port 0 to backplane SATA port 0–3	If using riser 1, route the cables through the left side of the chassis. If using riser 2 or riser 3, route the cables through the right side of the chassis.	CYPCBLSLHDKIT	**660/860-mm** cable, VT □ VT
		Riser 1,2,3 add-in card port 1 to backplane SATA port 4–7			**660/860-mm** cable, VT □ VT
		Riser 1,2,3 add-in card port 2 to backplane SATA port 8–11			**660/860-mm** cable, VT □ VT
		Riser 1,2,3 add-in card port 3 to backplane SATA port 12–15			**660/860-mm** cable, VT □ VT

Note: To support add-in card port 3 connectivity, it is necessary to order an additional iPC **CYPCBLSLHDKIT** cable kit.

Note: A splitter cable is a cable that has two or more connectors on one end.

Table 24. 2U 2.5" PCIe* NVMe* Cable Guide for 16 Front Drive Bays

Storage Interface Type	Storage Interface Source	Cable Connection	Cable Routing	Intel Cable Kit (iPC)	Notes
NVMe*	Server board	Server board MCIO to backplane.	Routed along left of chassis	CBLMCSL2216KIT	For more details, see Table 19.
NVMe*	PCIe NVMe riser card	Riser 1 & 3 NVMe riser card to backplane		N/A	**Configuration not supported**

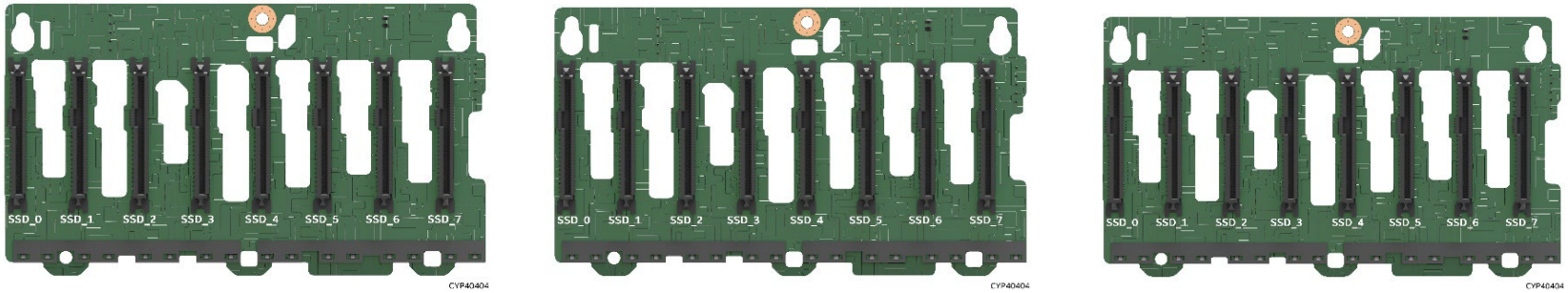
4.5.3 M50FCP2UR 24 x 2.5" SAS / SATA / NVMe* Data Cable Guide

Note: Drive numbering in the system illustrations is for general reference only. Actual drive numbering is dependent on SAS / SATA controller configuration and how they are cabled to the backplane.

Figure 25. 2U 24 x 2.5" M50FCP2UR208 Front Drive Bay Configuration

The following accessory kits are needed to convert an M50FCP2UR208 system into a 17– 24 front drive bay configuration.

- (2) 8 x 2.5" hot-swap backplane kit (iPC **CYPHSBP2208**)
- (16) 2.5" front drive bay module (iPC **CYP25HSCARRIER**)



HSBP 1 **HSBP 2** **HSBP 3**

Figure 26. 2U 2.5" x 24 System HSBP Enumeration

Table 25. 2U 2.5" SAS / SATA / NVMe* Cable Guide for 24 Front Drive Bays

Storage Interface Type	Storage Interface Source	Cable Connection	Cable Routing	Intel Cable Kit (iPC)	Notes
SATA	Server board	Server board SATA 0–3 or 4–7 to backplane, any SATA port except port 20–23	Route along left side of chassis	CYPCBLHDHDXXX1	**840-mm** cable, RA VT
		Server board SATA 0–3 or 4–7 to backplane SATA port 20–23			**930-mm** cable, RA VT
SAS / SATA	PCIe SAS RAID add-in card	Riser 1,2,3 add-in card port 0 to backplane SATA ports	If using riser 1, route the cables along the left side of the chassis. If using riser 2 or riser 3, route the cables along the right side of the chassis.	CYPCBLSLHDKIT	**860-mm** cable, VT VT
		Riser 1,2,3 add-in card port 1 to backplane SATA ports			**660-mm** cable, VT VT
NVMe*	Server board	Server board MCIO to backplane.	Routed underneath the fan assembly	CBLMCSL2224KIT	For more details, see Table 19.
NVMe	PCIe NVMe riser card	Riser 1 NVMe riser card PCIe SSD 0–1 to backplane (HSBP1) SSD 0–1	Routed along left of chassis	CBLMCSLRTKIT	**660-mm** cable, VT VT
		Riser 1 NVMe riser card PCIe SSD 2–3 to backplane (HSBP1) SSD 2–3			
		Riser 3 NVMe riser card PCIe SSD 0–1 to backplane (HSBP2) SSD 4–5	Routed along right of chassis		
		Riser 3 NVMe riser card PCIe SSD 2–3 to backplane ((HSBP2) SSD 6–7			

4.6 2U 12 x 3.5” – M50FCP2UR312 SAS / SATA / NVMe* Data Cable Guide

Figure 27. 2U 12 x 3.5” M50FCP2UR312 Front Drive Bay Configuration

Table 26. 2U 12 x 3.5” M50FCP2UR312 SAS / SATA / NVMe* Cable Guide

Storage Interface Type	Storage Interface Source	Cable Connection	Cable Routing	Intel Cable Kit (iPC)	Notes
SATA	Server board	Server board SATA 0–3 to backplane SATA port 0–3 or port 4–7	Routed along the left side of chassis	CYPCBLHDHDXXX1	**840-mm** cable, RA □ VT
SATA	Server board	Server board SATA 4–7 to backplane SATA port 4–7 or port 8–11			**930-mm** cable, RA □ VT
SAS / SATA	PCIe SAS RAID add-in card	Riser 1,2,3 add-in card port 0 to backplane SATA port 0–3	If using riser 1, route the cables along the left side of the chassis. If using riser 2 or riser 3, route the cables along the right side of the chassis.	CYPCBLSLHDKIT	**860-mm** cable, VT □ VT
SAS / SATA	PCIe SAS RAID add-in card	Riser 1,2,3 add-in card port 1 to backplane SATA port 4–7			**660-mm** cable, VT □ VT
SAS / SATA	PCIe SAS RAID add-in card	Riser 1,2,3 add-in card port 2 to backplane SATA port 8–11			**860-mm** cable, VT □ VT
NVMe*	Server board	Server board CPU0 MCIO to backplane SSD 4. For more details, see Table 19.	Route cables under the fan assembly	CBLMCSL2304KIT	**180-mm** cable, VT □ VT
NVMe	Server board	Server board CPU0 MCIO to backplane SSD 5. For more details, see Table 19.			**200-mm** cable, VT □ VT
NVMe	Server board	Server board CPU0 MCIO to backplane SSD 6. For more details, see Table 19.			**280-mm** cable, VT □ VT
NVMe	Server board	Server board CPU0 MCIO to backplane SSD 7. For more details, see Table 19.			**310-mm** cable, VT □ VT
NVMe	PCIe NVMe riser card	N/A	N/A	N/A	**Configuration not supported**

5. 1U / 2U System Optional Accessories

The following sections identify available accessory kits and spare parts (FRUs) for all field-replaceable components supported by the Intel Server M50FCP Family.

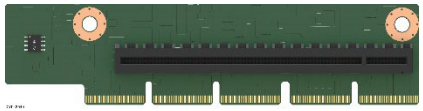
The product tables found in this chapter are each divided into the following table columns:

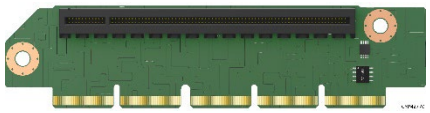
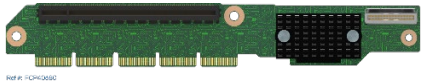
- Product Description / Image.
- Order Information –Product identifiers used to order the product.
- Product Information –Product overview, kit content.

Note: Refer to *Intel® Server Board M50FCP2SBSTD Technical Product Specification* for the maximum available power of the riser card connectors.

5.1 Riser Card Accessories and Spares for 1U Systems

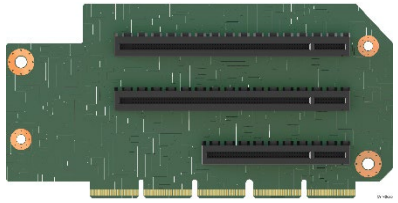
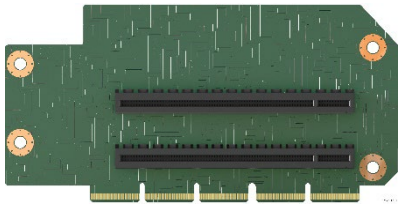
Table 27. Riser Card Accessories and Spares for 1U Systems

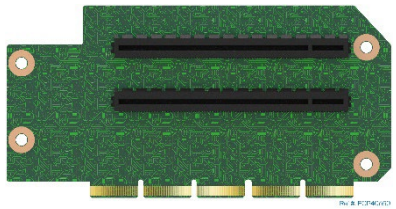
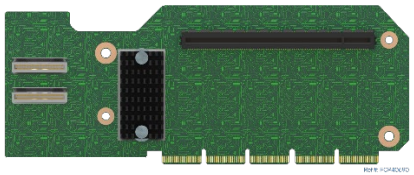
Description / Image	Order Information	Product Information
1-Slot Riser Card For Riser Slot #1 1U System 	**iPC** FCP1URISER1 **MM#** 99AN29 **UPC** 00735858534277 **EAN** 5032037265850 **MOQ** 1	**Product type: Accessory / Spare** **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP1UR **Product overview:** Riser card option for Riser Slot #1 only. The one-slot PCIe 5.0 riser card option supports: • One low profile, half-length, single-width add-in card (x16 electrical, x16 mechanical) on slot 1 **Kit includes:** (1) – Riser card

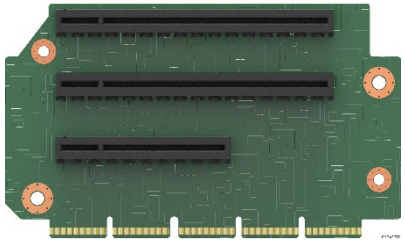
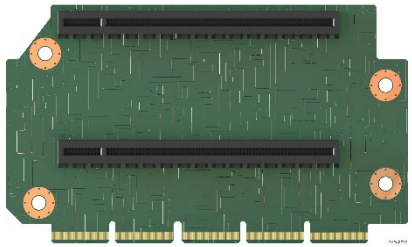
Description / Image	Order Information	Product Information
1-Slot Riser Card For Riser Slot #2 1U System 	**iPC** FCP1URISER2 **MM#** 99AN2A **UPC** 00735858534284 **EAN** 5032037265867 **MOQ** 1	**Product type: Accessory / Spare** **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP1UR **Product overview:** Riser card option for Riser Slot #2 only. The one-slot PCIe 5.0 riser card option supports: • Slot 1 – One low profile, half-length, single-width add-in card (x16 electrical, x16 mechanical) **Kit includes:** (1) – Riser card
PCIe* Interposer Kit For Interposer Riser Slot and Riser Slot #2 1U System **Interposer Riser Card** **PCIe* Riser Card for Riser Slot #2**  **PCIe* 5.0 Interposer Cable** 	**iPC** FCP1URISER2KIT **MM#** 99AN28 **UPC** 00735858534291 **EAN** 5032037265874 **MOQ** 1	**Product type: Accessory / Spare** **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP1UR **Product overview:** The two-slot PCIe 5.0 interposer riser card option supports: • Slot 1 (right side) – One low profile / half-length, single-width add-in card. (x8 electrical, x8 mechanical) • PCIe_SSD_0-1 (left side) – (x8 electrical, x8 mechanical) The two-slot PCIe 5.0 riser card option for Riser Slot #2 supports: • Slot 1 (left side) – One low profile / half-length, single-width add-in card. (x16 electrical, x16 mechanical) • PCIe_SSD_0-1 (right side) (x8 electrical, x8 mechanical) **Kit includes:** (1) – PCIe interposer riser card (1) – PCIe riser card for Riser Slot #2 (1) – PCIe interposer cable

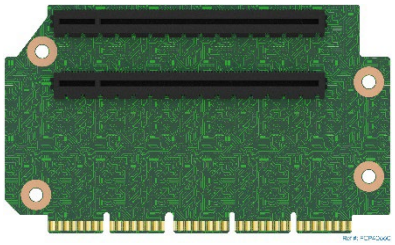
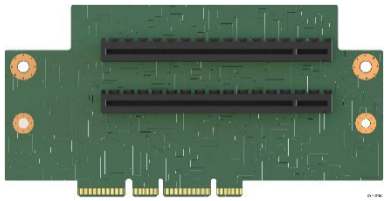
5.2 Riser Card Accessories and Spares for 2U Systems

Table 28. Riser Card Accessories and Spares for 2U Systems

Description / Image	Details	Description
2U 3-Slot Riser Card For Riser Slot #1 2U System 	**iPC** FCP2URISER1STD **MM#** 99AN80 **UPC** 00735858534307 **EAN** 5032037265881 **MOQ** 1	**Product type: Accessory / Spare** **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP2UR **Product overview:** Riser card option for Riser Slot #1 only. The three-slot PCIe 5.0 riser card option supports: • Slot 1 (top) – One full height/full length single-width add-in card slot (x16 electrical, x16 mechanical, 75W) • Slot 2 (middle) – One full height/full length single-width add-in card slot (x8 electrical, x16 mechanical,50W) • Slot 3 (bottom) – One full height/half-length single-width add-in card slot (x8 electrical, x8 mechanical,25W) **Kit includes:** (1) – Riser card
2U 2-Slot PCIe* 5.0 Riser Card For Riser Slot #1 2U System 	**iPC** FCP2URISER1DW **MM#** 99AN2D **UPC** 00735858534314 **EAN** 5032037265898 **MOQ** 1	**Product type: Accessory / Spare** **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP2UR **Product overview:** Riser card option for Riser Slot #1 only. The two-slot PCIe 5.0 riser card option supports: • Slot 1 (top) – One full height/full length double-width slot (x16 electrical, x16 mechanical,75W) • Slot 2 (bottom) – One full height/half-length single-width slot (x16 electrical, x16 mechanical,75W) **Kit includes:** (1) – Riser card

Description / Image	Details	Description
2U 2-Slot PCIe* 5.0 Riser Card For Riser Slot #1 2U System 	**iPC** FCP2URISER1SW **MM#** 99AN2F **UPC** 00735858534321 **EAN** 5032037265904 **MOQ** 1	**Product type: Accessory / Spare** **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP2UR **Product overview:** Riser card option for Riser Slot #1 only. The two-slot PCIe 5.0 riser card option supports: • Slot 1 (top) – One full height/full-length single-width slot (x16 electrical, x16 mechanical,75W) • Slot 2 (bottom) – One full height/full-length single-width slot (x16 electrical, x16 mechanical,75W) **Kit includes:** (1) – Riser card
2U PCIe NVMe* Riser Card For Riser Slot #1 2U System 	**iPC** FCP2URISER1RTM **MM#** 99AN2C **UPC** 00735858534338 **EAN** 5032037265911 **MOQ** 1	**Product type: Accessory / Spare** **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP2UR **Product overview:** Riser card option for Riser Slot #1 only. The PCIe 5.0 NVMe riser card option supports: • Slot 3 (top) – One half-length or full length single-width slot (x16 electrical, x16 mechanical,75W) • Two x8 PCIe NVMe MCIO connectors: • PCIe_SSD_0-1 (top) (x8 electrical, x8 mechanical) • PCIe_SSD_2-3 (bottom) (x8 electrical, x8 mechanical) **Kit includes:** (1) – Riser card

Description / Image	Details	Description
2U 3-Slot PCIe* Riser Card For Riser Slot #2 2U System 	**iPC** FCP2URISER2STD **MM#** 99AN81 **UPC** 00735858534345 **EAN** 5032037265928 **MOQ** 1	**Product type: Accessory / Spare** **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP2UR **Product overview:** Riser card option for Riser Slot #2 only. The three slot PCIe riser card option supports: • Slot 1 (top) – One full height/full length single-width slot (x16 electrical, x16 mechanical,75W) • Slot 2 (middle) – One full height/full length single-width slot (x8 electrical, x16 mechanical,50W) • Slot 3 (bottom) – One full height/half-length single-width slot (x8 electrical, x8 mechanical,25W) **Kit includes:** (1) – Riser card
2U 2-Slot PCIe Riser Card For Riser Slot #2 2U System 	**iPC** FCP2URISER2DW **MM#** 99AN30 **UPC** 00735858534352 **EAN** 5032037265935 **MOQ** 1	**Product type: Accessory / Spare** **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP2UR **Product overview:** Riser card option for Riser Slot #2 only. The two slot PCIe riser card option supports: • Slot 1 (top) – One full height/full length double-width slot (x16 electrical, x16 mechanical,75W) • Slot 2 (bottom) – One full height/half-length single-width slot (x16 electrical, x16 mechanical,75W) **Kit includes:** (1) – Riser card

Description / Image	Details	Description
2U 2-Slot PCIe* Riser Card For Riser Slot #2 2U System 	**iPC** FCP2URISER2SW **MM#** 99AN31 **UPC** 00735858534369 **EAN** 5032037265942 **MOQ** 1	**Product type: Accessory / Spare** **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP2UR **Product overview:** Riser card option for Riser Slot #2 only. The two slot PCIe 5.0 riser card option supports: • Slot 1 (top) – One full height/half-length single-width slot (x16 electrical, x16 mechanical,75W) • Slot 2 (bottom) – One full height/half-length single-width slot (x16 electrical, x16 mechanical,75W) **Kit includes:** (1) – Riser card
2U 2-Slot PCIe Riser Card For Riser Slot #3 2U System 	**iPC** FCP2URISER3STD **MM#** 99AN82 **UPC** 00735858534376 **EAN** 5032037265959 **MOQ** 1	**Product type: Accessory / Spare** **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP2UR **Product overview:** Riser card option for Riser Slot #3 only. The two slot PCIe riser card option supports: • Slot 1 (top) – Low profile/ half-length single-width slots (x8 electrical, x16 mechanical,40W) • Slot 2 (bottom) – Low profile/ half-length single-width slots (x8 electrical, x16 mechanical,40W) **Kit includes:** (1) – Riser card

Description / Image	Details	Description
2-Slot PCIe* NVMe* Riser Card For Riser Slot #3 2U Systems 	**iPC** CYPRISER3RTM **MM#** 99A3PA **UPC** 00735858471763 **EAN** 5032037210201 **MOQ** 1	**Product type: Accessory / Spare** **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP2UR **Product overview:** Riser card option for Riser Slot #3 only. The Two-Slot PCIe NVMe riser card supports two x8 PCIe SlimSAS connectors labeled PCIe_SSD_0-1 and PCIe_SSD_2-3. Each connector supports up to two NVMe SSDs in the front drive bay through a backplane. The two slot PCIe NVMe riser card option supports: • PCIe_SSD_0-1 Slot (top) (x8 electrical, x8 mechanical) • PCIe_SSD_2-3 Slot (bottom) (x8 electrical, x8 mechanical) **Kit includes:** (1) – Riser card

5.3 Intel® Ethernet Network Adapters for OCP*

The server system supports several types of Intel Ethernet Network Adapters (see Table 29). These adapters are compatible with the Open Compute Project* (OCP*) 3.0 specifications. The OCP-compatible modules are mounted to a high-density 168-pin connector on the server board, labeled OCP_IO_Module. The following figure shows the Intel Ethernet Network Adapter placement on the server board.

Note: Refer to https://servertools.intel.com/sct for the latest list of adapters supported by the server board.

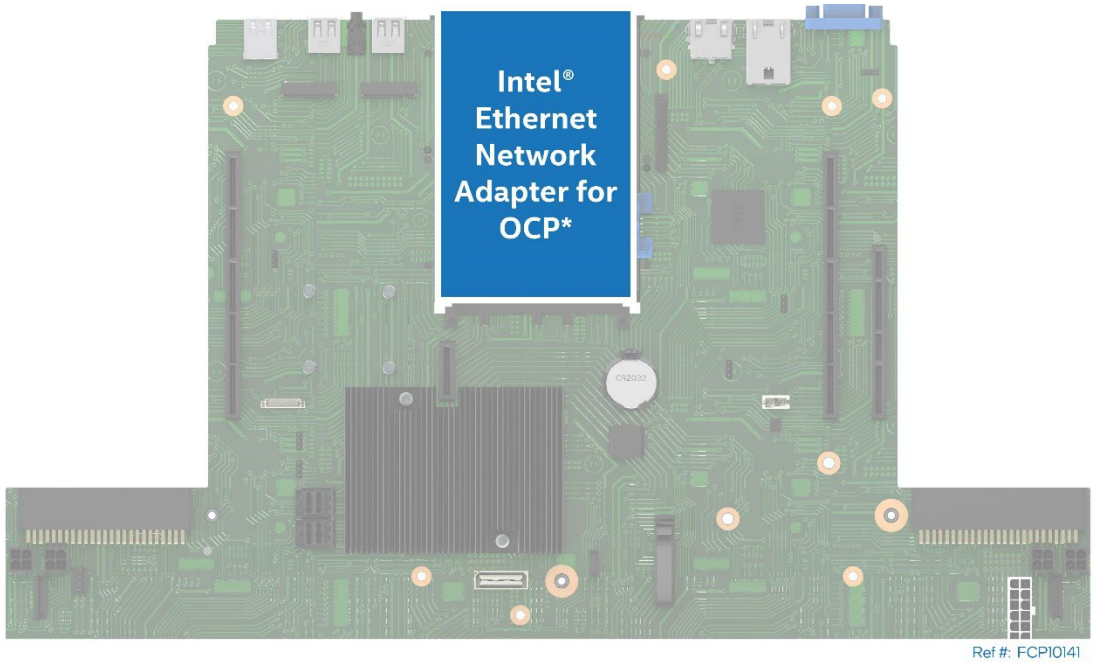


Figure 28. Intel® Ethernet Network Adapter Placement

All OCP module types support one of these three engagement mechanisms: pull tab, ejector latch, or internal lock. The engagement mechanism refers to the mechanism required to install / remove the OCP module.

Supported OCP modules are installed into an OCP bay in the back of the server chassis. The modules are installed from the outside of the chassis. Figure shows the installation of the pull tab engagement mechanism.

First remove the bay filler panel (see Figure). Then, carefully slide the module into the bay until it is fully seated in the OCP slot on the server board and is locked in place (see Figure). For more information on OCP module installation and removal of each OCP module type, see the *Intel® Server System M50FCP2UR System Integration and Service Guide* or the *Intel® Server System M50FCP1UR System Integration and Service Guide.*

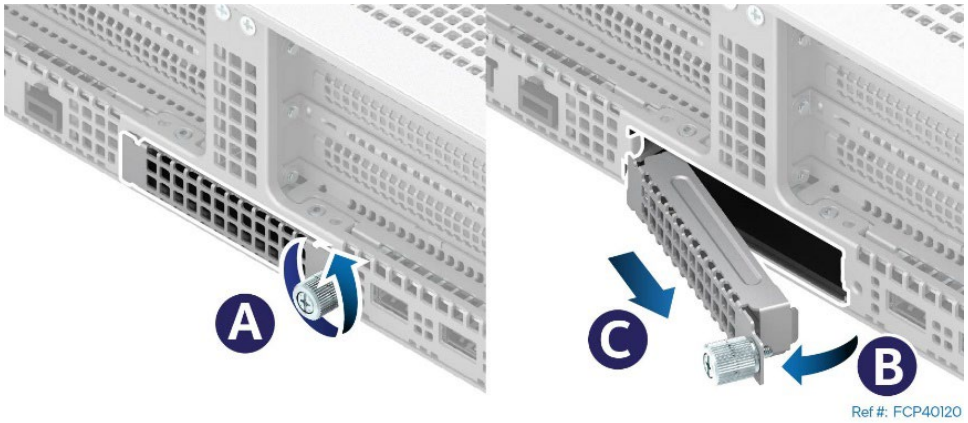


Figure 29. OCP* Module Bay Filler Removal (2U System Shown)

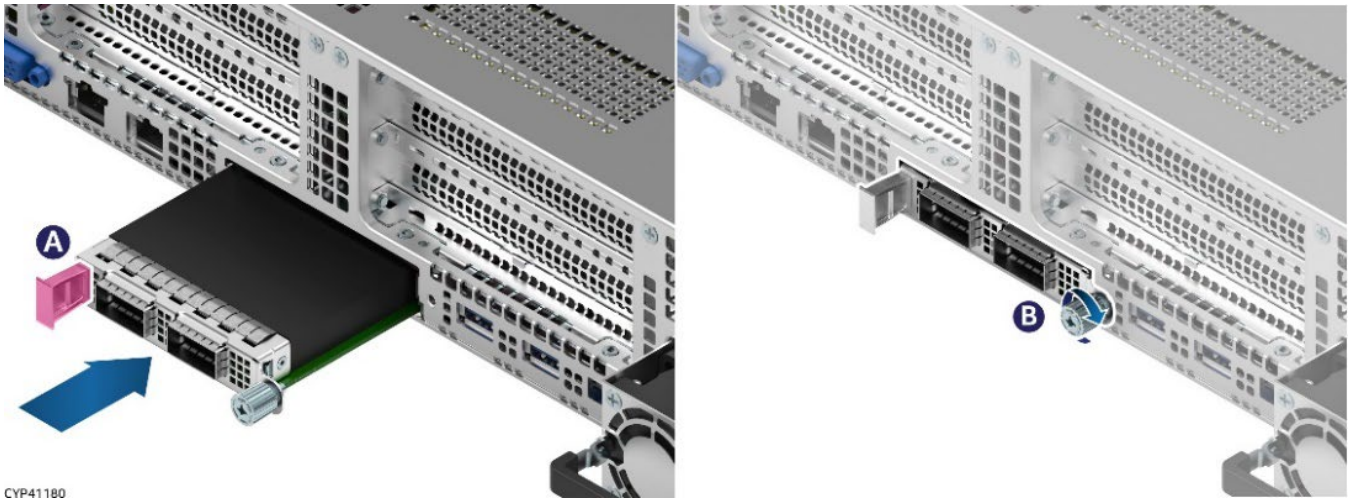


Figure 30. OCP* Module with Pull Tab Installation (2U System Shown)

Table 29. Intel® Ethernet Network Adapters for OCP*

Description / Image	Order Information	Product Information
Intel® Ethernet Network Adapter E810-CQDA1 for OCP* 3.0 1U / 2U Systems 	**iPC** E810CQDA1OCPV3 **MM#** 983092 **UPC** 00735858461115 **EAN** 5032037200639 **MOQ** 1	**Product type: 1U / 2U accessory kit** **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP1UR • Intel® Server System M50FCP2UR **Product overview:** • Single port, QSFP28, 100/50/25/10/1 GbE OCP 3.0 Network Adapter • Connects to server board using the OCP Module Connector • Supports x16 PCIe 4.0 lanes • Supports Pull Tab module installation/removal mechanism • Concurrent RDMA (iWARP and RoCEv2) support • Data Plane Development Kit (DPDK) optimized • Application Device Queues (ADQ) support • Extensive Network Virtualization Overlay protocol support • Enhanced QoS and Access Control List (ACL) support **Kit includes:** (1)– Intel Ethernet Network Adapter
Intel® Ethernet Network Adapter E810-CQDA2 for OCP* 3.0 1U / 2U Systems 	**iPC** E810CQDA2OCPV3 **MM#** 983581 **UPC** 00735858456883 **EAN** 5032037196512 **MOQ** 1	**Product type: 1U / 2U accessory kit** **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP1UR • Intel® Server System M50FCP2UR **Product overview:** • Dual port, QSFP28, 100/50/25/10/1 GbE OCP 3.0 Module • Connects to server board using the OCP Module Connector • Supports x16 PCIe 4.0 lanes • Supports pull tab module installation/removal mechanism • Concurrent RDMA (iWARP and RoCEv2) support • Data Plane Development Kit (DPDK) Optimized • Application Device Queues (ADQ) support • Extensive Network Virtualization Overlay protocol support • Enhanced QoS and Access Control List (ACL) support **Kit includes:** (1) – Intel Ethernet Network Adapter

Description / Image	Order Information	Product Information
Intel Ethernet Network Adapter E810-XXVDA2 for OCP* 3.0 1U / 2U Systems 	**iPC** E810XXVDA2OCPV3 **MM#** 983262 **UPC** 00735858452977 **EAN** 5032037193238 **MOQ** 1	**Product type: 1U / 2U accessory kit** **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP1UR • Intel® Server System M50FCP2UR **Product overview:** • Dual port, SFP28, 25/10 GbE OCP 3.0 Module • Connects to server board using the OCP Module Connector • Supports x16 PCIe 4.0 lanes • Concurrent RDMA (iWARP and RoCEv2) support • Data Plane Development Kit (DPDK) Optimized • Application Device Queues (ADQ) support • Extensive Network Virtualization Overlay protocol support • Enhanced QoS and Access Control List (ACL) support **Kit includes:** (1) – Intel Ethernet Network Adapter
Intel® Ethernet Network Adapter X710-T2L for OCP* 3.0 1U / 2U Systems 	**iPC** X710T2LOCPV3 **MM#** 9999MJ **UPC** 00735858447027 **EAN** 5032037188111 **MOQ** 1	**Product type:** 1U / 2U accessory kit **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP1UR • Intel® Server System M50FCP2UR **Product overview:** • Dual port, RJ45, 10/1 GbE OCP 3.0 Module • Connects to server board using the OCP Module Connector • Supports x8 PCIe 3.0 lanes • Supports pull tab module installation/removal mechanism • Network virtualization support (VxLAN, GENEVE, NVGRE, MPLS, and VXLAN-GPE with NSH) • Intel® Ethernet Flow Director (Intel® Ethernet FD) support for hardware-based application traffic steering • Data Plane Development Kit (DPDK) Optimized **Kit includes:** (1) – Intel Ethernet Network Adapter

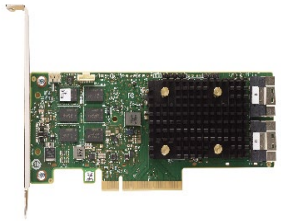
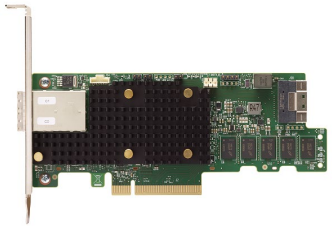
Description / Image	Order Information	Product Information
Intel® Ethernet Network Adapter X710-T4L for OCP* 3.0 1U / 2U Systems 	**iPC** X710T4LOCPV3 **MM#** 9999ML **UPC** 00735858450010 **EAN** 5032037190619 **MOQ** 1	**Product type: 1U / 2U accessory kit** **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP1UR • Intel® Server System M50FCP2UR **Product overview:** • Quad port, RJ45, 10/1 GbE OCP 3.0 Module • Connects to server board using the OCP Module Connector • Supports x8 PCIe 3.0 lanes • Supports pull tab module installation/removal mechanism • Network Virtualization (VxLAN, GENEVE, NVGRE, MPLS, and VXLAN-GPE with NSH) support • Intel® Ethernet FD support for hardware based application traffic steering • Data Plane Development Kit (DPDK) Optimized **Kit includes:** (1) – Intel Ethernet Network Adapter
Intel® Ethernet Network Adapter X710-DA2 for OCP* 3.0 1U / 2U Systems 	**iPC** X710DA2OCPV3 **MM#** 979095 **UPC** 00735858421232 **EAN** 5032037163743 **MOQ** 1	**Product type: 1U / 2U accessory kit** **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP1UR • Intel® Server System M50FCP2UR **Product overview:** • Dual port, SFP+ DA, 2X 10 GbE OCP 3.0 Module • Connects to server board using the OCP Module Connector • Supports x8 PCIe 3.0 lanes • Supports pull tab module installation/removal mechanism • Network virtualization (VxLAN, GENEVE, NVGRE, MPLS, and VXLAN-GPE with NSH) support • Intel® Ethernet FD support for hardware based application traffic steering • Data Plane Development Kit (DPDK) Optimized **Kit includes:** (1) – Intel Ethernet Network Adapter

5.4 Intel® RAID Add-In Cards, Modules, and Accessories

5.4.1 Intel® RAID Controller Add-In Cards

Table 30. Intel® RAID Controller Add-In Cards – SAS 3.0 (12 Gb/s) and NVMe* PCIe* 4.0

Description/Image	Order Information	Product Information
Intel® Storage Controller RS3P4QF160J 1U / 2U Systems 	**iPC** RS3P4QF160J **MM#** 999RKM **UPC** 00735858452830 **EAN** 5032037193115 **MOQ** 5	**Product type: 1U / 2U accessory kit** **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP1UR • Intel® Server System M50FCP2UR **Product overview:** • Low-profile, half-length, (MD2 compliant) PCIe 4.0 add-in card • Entry level tri-mode SAS/SATA/NVMe adapter. • 16 internal SAS / SATA ports / 4 NVMe (PCIe 4.0) • Broadcom* SAS3816 IO Controller • JBOD (SAS/SATA/NVMe Connectivity) **Note:** SAS and NVMe data cables not included and must be purchased separately. **Kit includes:** (1) – Intel® Storage Controller (1) – Low-profile mounting bracket
Intel® Storage Controller RS3P4GF016J 1U / 2U Systems 	**iPC** RS3P4GF016J **MM#** 999TJ3 **UPC** 00735858452823 **EAN** 5032037193108 **MOQ** 5	**Product type: 1U / 2U accessory kit** **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP1UR • Intel® Server System M50FCP2UR **Product overview:** • Low-profile, half-length, (MD2 compliant) PCIe 4.0 add-in card • Entry level tri-mode SAS/SATA/NVMe adapter. • 16 external SAS / SATA ports • Broadcom* SAS3816 IO Controller • JBOD (SAS/SATA Connectivity) **Note:** SAS data cables not included and must be purchased separately. **Kit includes:** (1)– Intel Storage Controller (1) – low-profile mounting bracket

Description/Image	Order Information	Product Information
Intel® RAID Controller RS3P4TF160F 1U / 2U Systems 	**iPC** RS3P4TF160F **MM#** 999TJ4 **UPC** 00735858452816 **EAN** 5032037193092 **MOQ** 5	**Product type: 1U / 2U accessory kit** **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP1UR • Intel® Server System M50FCP2UR **Product overview:** • Low-profile, half-length, (MD2 compliant) PCIe 4.0 add-in card • Full featured tri-mode RAID controller • 16 internal SAS / SATA ports / 4 NVMe (PCIe 4.0) • Broadcom* SAS3916 ROC • RAID levels – 0/1/10/5/6/50/60 and JBOD • Supports maintenance free backup unit – iPC AXXRMFBU7 **Note:** SAS and NVMe data cables not included and must be purchased separately. **Kit includes:** (1) – Intel® RAID Controller (1) – Low-profile mounting bracket
Intel® RAID Controller RS3P4MF088F 1U / 2U Systems 	**iPC** RS3P4MF088F **MM#** 99ADDX **UPC** 00735858486590 **EAN** 5032037223287 **MOQ** 5	**Product type: 1U / 2U accessory kit** **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP1UR • Intel® Server System M50FCP2UR **Product overview:** Low Profile, half-length, (MD2 Compliant) PCIe 4.0 add-in card Full featured tri-mode RAID controller 8 internal SAS / SATA ports / 4 NVMe (PCIe 4.0) 8 external SAS Broadcom* SAS3916 ROC RAID levels – 0/1/10/5/6/50/60 and JBOD Supports maintenance free backup unit – iPC **AXXRMFBU7** **Note:** SAS and NVMe data cables not included and must be purchased separately. **Kit includes:** (1) – Intel RAID Controller (1) – Low-profile mounting bracket

5.4.2 Intel® VROC for NVMe License Activation Keys

The Intel® Server M50FCP family uses embedded Intel® Virtual RAID on CPU (Intel® VROC for NVMe) 8.0 technology to provide RAID support for both Intel and non-Intel NVMe SSDs interfaced through the onboard PCIe MCIO connectors. Intel® VROC for NVMe is an optional feature and must be activated before it can be used for NVMe RAID configurations.

Intel offers two Intel® VROC for NVMe License Activation key options, Standard and Premium. See Table 31 for option details.

An Intel® VROC for NVMe License Activation key is a software key that can be pre-loaded onto the system by Intel when ordering a fully integrated L9 server system using Intel's online Configure-to-Order (CTO) tool, or it can be purchased separately from the system and installed later using the system's Integrated BMC Web Console, Redfish* API, or the Intel® Server Configuration utility. Full download, registration, and installation instructions are provided when the activation license key is ordered separately.

Note: Refer to *Integrated Baseboard Management Controller Web Console (Integrated BMC Web Console) User Guide* for more information.

Supported features for available Intel® VROC for NVMe License Activation keys are shown in the following table.

Table 31. Intel® VROC for NVMe License Activation Key Accessory Option Features

NVMe* RAID Major Features	Standard Intel® VROC for NVMe License Activation Key (iPC VROCSTANKEY)	Premium Intel® VROC for NVMe License Activation Key (iPC VROCPREMKEY)
Processor-Attached NVMe* SSD – High Performance	Yes	Yes
Boot on RAID Volume	Yes	Yes
Third Party Vendor SSD Support	Yes	Yes
RAID 0/1/10	Yes	Yes
RAID 0/1/5/10	No	Yes
RAID Write Hole Closed (RMFBU Replacement)	No	Yes
Hot Plug/ Surprise Removal (2.5" SSD Form Factor Only)	Yes	Yes
Enclosure LED Management	Yes	Yes

Table 32. Intel® VROC for NVMe License Activation Key Options

Image	Details	Description
Standard Intel® VROC for NVMe License Activation Key Intel® Virtual RAID on CPU – Standard **No Image**	**iPC** VROCSTANKEY **MM#** 99CAGD **UPC** N/A **EAN** N/A **MOQ** 1	**Product type:** Accessory / spare **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP1UR • Intel® Server System M50FCP2UR **Product overview:** Intel® VROC License Activation Key used to enable NVMe RAID levels 0,1,10 for Intel and non-Intel NVMe SSDs. **Kit includes:** (1) – Standard Intel® VROC License Activation Key to be uploaded to the server board
Premium Intel® VROC for NVMe License Activation Key Intel® Virtual RAID on CPU – Premium **No Image**	**iPC** VROCPREMKEY **MM#** 99CAGF **UPC** N/A **EAN** N/A **MOQ** 1	**Product type:** Accessory / spare **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP1UR • Intel® Server System M50FCP2UR **Product overview:** Intel® VROC license activation key used to enable NVMe RAID levels 0,1, 5,10 for Intel and non-Intel NVMe SSDs. **Kit includes**: (1) – Premium Intel® VROC License Activation Key to be uploaded to the server board

5.4.3 Miscellaneous Intel® RAID Accessory Options

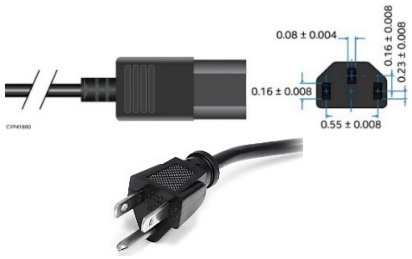
Table 33. Intel® RAID Accessory Options

Image	Details	Description
Intel® RAID Maintenance Free Backup Unit 1U / 2U Systems 	**iPC** AXXRMFBU7 **MM#** 957677 **UPC** 00735858336192 **EAN** 5032037099790 **MOQ** 5	**Product type: Accessory kit** **Product overview:** A super-capacitor module designed to protect data in dynamic memory during a power failure or system crash event. The AXXRMFBU7 is used with the full-featured tri-mode RAID modules and controllers. **Compatible with:** Intel® RAID Controller RS3P4TF160F Intel® RAID Controller RS3P4MF088F

5.5 Power Supply Unit Options and Power Cable Kits

Table 34. Power Supply Modules and Power Cords

Description/Image	Order Information	Product Information
Power Supply 2100 W AC Common Redundant 2U System 	**iPC** FCXX2100CRPS **MM#** 99C4MW **UPC** 00735858424592 **EAN** 5032037166829 **MOQ** 1	**Product type: Accessory / Spare** **Where used:** • Intel® Server System M50FCP2UR **Product overview:** 2100 W AC common redundant power supply with 80 PLUS* Platinum efficiency. **Note:** Power cord is sold separately. **Kit includes:** (1) – Power supply module
Power Supply 1600 W AC Common Redundant 1U / 2U Systems 	**iPC** AXX1600TCRPS **MM#** 99ADF2 **UPC** 00735858407038 **EAN** 5032037151245 **MOQ** 1	**Product type: Accessory / Spare** **Where used:** • Intel® Server System M50FCP1UR • Intel® Server System M50FCP2UR **Product overview:** 1600 W AC common redundant power supply with 80 PLUS Titanium efficiency. **Note:** Power cord is sold separately. **Kit includes:** (1) – Power supply module
Power Supply 1300 W AC Common Redundant 1U / 2U Systems 	**iPC** AXX1300TCRPS **MM#** 956542 **UPC** 00735858345705 **EAN** 5032037106191 **MOQ** 1	**Product type: Accessory / Spare** **Where used:** • Intel® Server System M50FCP1UR • Intel® Server System M50FCP2UR **Product overview:** 1300 W AC common redundant power supply with 80 PLUS Titanium efficiency. **Note:** Power cord is sold separately. **Kit includes:** (1) – Power supply module

Description/Image	Order Information	Product Information
Power Cable 1500-mm (59 in) North America 1U / 2U Systems 	**iPC** FPWRCABLENA **MM#** 879287 **UPC** 00735858181129 **EAN** 503203702015738 **MOQ** 1	**Product type: Accessory / Spare** **Where used:** • Intel® Server System M50FCP1UR • Intel® Server System M50FCP2UR **Product overview:** North America power cord. **Kit includes:** (1) – Power Cable

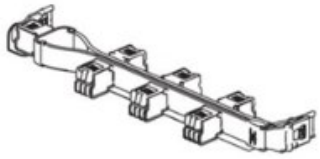
5.6 1U / 2U Rack Mount Kits

Advisory Note: Available rack and cabinet mounting kits are not designed to support shipment of the server system while installed in a rack. If you choose to do so, Intel advises verification of your shipping configuration with appropriate shock and vibration testing before shipment. Intel does not perform shipping tests that cover the complex combination of unique rack offerings and custom packaging options.

Caution: Exceeding the specified maximum weight limit of a given rail kit or misaligning the server in the rack may result in failure of the rack rails, which could damage the system or cause personal injury. Involving two people or the use of a mechanical assist tool to install and align the server into the rack is highly recommended.

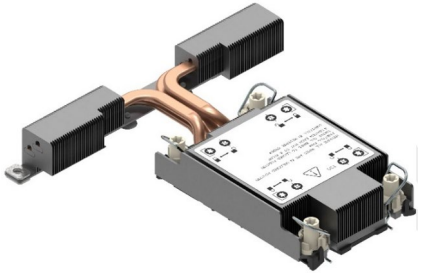
Table 35. Rack Mount Kits

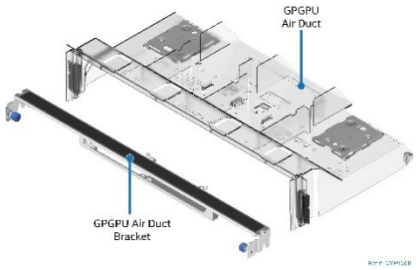
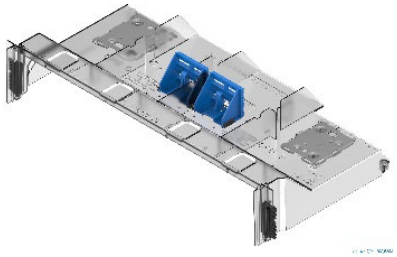
Description/Image	Order Information	Product Information
Full Extension Rail Kit 1U / 2U Systems 	**iPC** CYPFULLEXTRAIL **MM#** 999ZCN **UPC** 00735858447096 **EAN** 5032037188180 **MOQ** 1	**Product type: Accessory** **Where used:** • Intel® Server System M50FCP1UR • Intel® Server System M50FCP2UR **Product overview:** **CYPFULLEXTRAIL** – Premium rail kit with cable management arm (CMA) support • 1U, 2U compatible • Toolless installation • Rack installation front and rear post distance adjustment from 623 mm ~ 942 mm • 820 mm travel distance • Full extension from rack • 31 kg (68.34 lbs.) maximum supported weight • Support for CMA AXXCMA2

Description/Image	Order Information	Product Information
Half Extension Rail Kit 1U / 2U Systems 	**iPC** CYPHALFEXTRAIL **MM#** 99A3RR **UPC** 00735858456333 **EAN** 5032037196017 **MOQ** 1	**Product type: Accessory** **Where used:** • Intel® Server System M50FCP1UR • Intel® Server System M50FCP2UR **Product overview:** **CYPHALFEXTRAIL** – Value rack mount rail kit • 1U, 2U compatible • Toolless chassis attachment • Tools required to attach rails to rack • Rack installation front and rear post distance adjustment from 660 mm to 838 mm • 560 mm travel distance • Half extension from rack • Support for front cover removal and fan replacement • 31 kg (68.34 lbs.) maximum support weight **Note:** No CMA support.
Cable Management Arm 1U / 2U Systems 	**iPC** AXXCMA2 **MM#** 939211 **UPC** 00735858292009 **EAN** 5032037070560 **MOQ** 1	**Product type: Accessory** **Where used:** • Intel® Server System M50FCP1UR • Intel® Server System M50FCP2UR **Product overview:** Supports CYPFULLEXTRAIL only

6. Miscellaneous Accessory Options

Table 36. Miscellaneous Accessory Options

Description/Image	Order Information	Product Information
2U Tall Processor Heat Sink Board / 2U System 	**iPC** EGSM2UHSSTD **MM#** 99AN83 **UPC** 735858518925 **EAN** 5032037251723 **MOQ** 1	**Product type: Accessory/Spare** **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP2UR **Product overview:** Spare 2U-height heat sink. **Note:** Systems installed with 2U standard heat sink(s) only support half-length add-in cards. **Kit includes:** (1) – 2U-height heat sink
1U Tall Processor Heat Sink Board / 1U / 2U Systems 	**iPC** EGSM1UHSSTD **MM#** 99ANGK **UPC** 00735858527828 **EAN** 5032037259811 **MOQ** 1	**Product type: Accessory/Spare** **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP1UR • Intel® Server System M50FCP2UR **Product overview:** Spare 1U-height heat sink. **Kit includes:** (1) – 1U-height heat sink
EVAC Processor Heat Sink Board / 1U System 	**iPC** FCP1UHSEVAC **MM#** 99AN3F **UPC** 735858523233 **EAN** 5032037255394 **MOQ** 1	**Product type: Accessory/Spare** **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP1UR **Product overview:** Spare EVAC heat sink. **Note:** Standard in Intel® Server System M50FCP1UR204 only. Not supported in any other Intel server system SKUs. **Kit includes:** (1) – EVAC heat sink

Description/Image	Order Information	Product Information
2U System GPGPU Air Duct For 2U systems when using GPGPU accelerator Add-in Card 	**iPC** FCPGPGPUKIT **MM#** 99AN58 **UPC** 735858522809 **EAN** 5032037255011 **MOQ** 1	**Product type: Accessory/Spare** **Where used:** • Intel® Server System M50FCP2UR **Product overview:** Required 2U accessory kit when installing GPGPU accelerator add-in cards. **Notes:** • Not compatible with 2U CPU heat sinks. This air duct requires the system be configured with low-profile 1U CPU heat sinks – iPC EGSM1UHSSTD • The Intel® Server System M50FCP1UR and M50FCP2UR families do not support GPGPU accelerator cards with active heat sinks. Systems configured with any type of GPGPU card must have the shipping bracket installed before the system is exposed to any level of shock or vibration or is shipped to the end user location. Failure to install the shipping bracket can cause serious damage to various components within the system. **Kit includes:** (1) – GPGPU air duct (1) – GPGPU air duct bracket (2) – 3**00/250-mm** GPGPU power cable (2) – **285-mm** ATS300W power cable (2) – **285-mm** PVC power cable (2) – Intel® RAID Maintenance Free Backup Unit (RMFBU) bracket
2U System Air Duct for 1U CPU Heat Sinks 2U System 	**iPC** FCPDUCTCMN **MM#** 99AN57 **UPC** 00735858522823 **EAN** 5032037255035 **MOQ** 1	**Product type: Accessory/Spare** **Where used:** • Intel® Server System M50FCP2UR **Product overview:** Air duct for low profile 1U-height CPU heat sinks. **Kit includes:** (1) – Air duct with holders for full length add-in cards. (2) – Intel® RAID Maintenance Free Backup Unit (RMFBU) bracket installed on top of air duct.

Description/Image	Order Information	Product Information
Power cable for internal SATA, Mini-SAS HD 2U System 	**iPC** FCPCBLINTSTKIT **MM#** 99AN56 **UPC** 735858522793 **EAN** 5032037255004 **MOQ** 1	**Product type: Accessory / Spare** **Where used:** • Intel® Server System M50FCP2UR **Product overview:** Power cable for internal SATA SSDs, Mini-SAS HD to 7-pin SATA, internal SATA SSD bracket. Used in 2U systems as spare and/or accessory (M50FCP2UR208 based x8, x16, x24 front drive bay systems, M50FCP2UR312). **Kit includes:** (1) – **120/180-mm** splitter cable, 2U power cable for internal SATA. Power cable connects server board 3.3/5/12 V power connector to internal SATA SSD power connectors (1) – **175-mm** cable, server board Mini-SAS HD connectors to internal 7-pin SATA SSD (2 ports) (1) – Sheet metal bracket for internal SATA SSDs
Front Bezel 1U Systems 	**iPC** MYP1UBEZEL **MM#** 99A2D7 **UPC** 00735858455244 **EAN** 5032037195164 **MOQ** 1	**Product type: Accessory** **Where used:** • Intel® Server System M50FCP1UR **Product overview:** Non-locking plastic front panel bezel that latches between the two chassis rack handles of a 1U chassis. **Kit includes:** (1) – 1U bezel
Front Bezel 2U Systems 	**iPC** CYP2UBEZEL **MM#** 99A5T7 **UPC** 00735858471657 **EAN** 5032037210096 **MOQ** 1	**Product type: Accessory** **Where used:** • Intel® Server System M50FCP2UR **Product overview:** Non-locking plastic front panel bezel that latches between the two chassis rack handles of a 2U chassis. **Kit includes:** (1) – 2U bezel

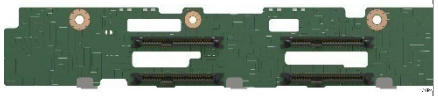
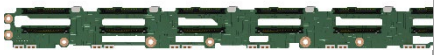
Description/Image	Order Information	Product Information
Intel® TPM 2.0 Board / 1U / 2U Systems 	**iPC** AXXTPMENC9 **MM#** 99C8ZW **UPC** 00735858527378 **EAN** 5032037259385 **MOQ** 1	**Product type: Accessory/Spare** **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP1UR • Intel® Server System M50FCP2UR **Product overview:** A TPM is a hardware-based security device that addresses the growing concern on boot process integrity and offers better data protection. TPM protects the system start-up process by ensuring that it is tamper-free before releasing system control to the operating system. A TPM device provides secured storage to store data, such as security keys and passwords. In addition, a TPM device has encryption and hash functions. AXXTPMENC9 implements TPM as per TPM PC Client specifications revision 2.0 by the Trusted Computing Group (TCG).
Intel® TPM 2.0 Board / 1U / 2U Systems Compatible for use in China 	**iPC** AXXTPMCHNE8 **MM#** 960608 **UPC** 00735858347341 **EAN** 5032037107068 **MOQ** 1	**Product type: Accessory/Spare** **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP1UR • Intel® Server System M50FCP2UR **Product overview:** **Note:** AXXTPMCHNE8 compatible for use in China. A TPM is a hardware-based security device that addresses the growing concern on boot process integrity and offers better data protection. TPM protects the system start-up process by ensuring that it is tamper-free before releasing system control to the operating system. A TPM device provides secured storage to store data, such as security keys and passwords. In addition, a TPM device has encryption and hash functions. AXXTPMCHNE8 implements TPM as per TPM PC Client specifications revision 2.0 by the Trusted Computing Group (TCG).

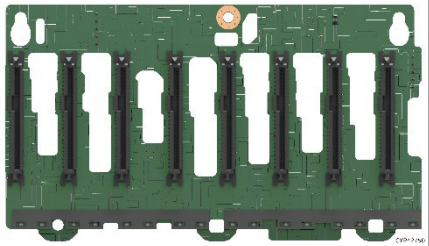
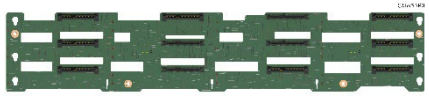
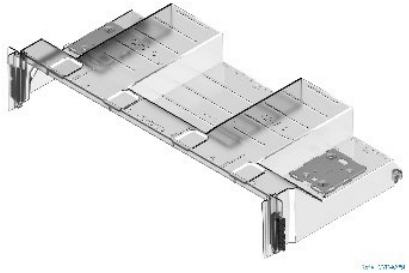
Description/Image	Order Information	Product Information
Advanced System Management Key Board / 1U / 2U Systems **No Image**	**iPC** ADVSYSMGMTKEY **MM#** 99AJX5 **UPC** N/A **EAN** N/A **MOQ** 1	**Product type: Accessory** **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP1UR • Intel® Server System M50FCP2UR **Product overview:** The Advanced System Management product key (iPC **ADVSYSMGMTKEY**) unlocks the following advanced system management features: • Virtual KVM over HTML5 • Virtual Media Local Image Redirection • Virtual Media shared files and folders redirection • Out-of-band hardware RAID Management for latest Intel® RAID cards • Included single system license for Intel® Data Center Manager (Intel® DCM) **Note:** Needed to enable advance system management features within the Integrated BMC Web Console. For more information, see the *Intel® Server Board M50FCP2SBSTD TPS*. **Kit includes:** Software license key to be uploaded to the onboard BMC

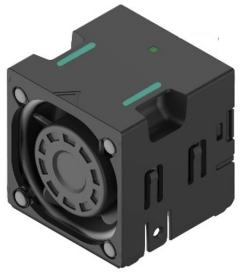
7. 1U / 2U Spare and Replacement Parts (FRUs)

System integrators and distributors may choose to hold additional stock of individual system components. Intel makes available the following spare and replacement parts (FRUs) compatible with the specified Intel server family.

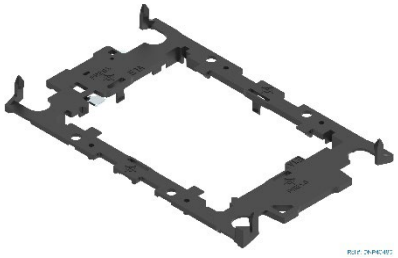
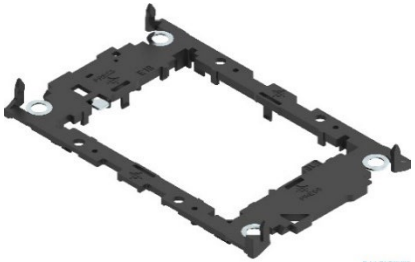
Table 37. Spare and Replacement Parts

Description / Image	Order Information	Product Information
4 x 2.5" Drive Backplane 1U System 	**iPC** CYPHSBP1204 **MM#** 99A3NM **UPC** 00735858471800 **EAN** 5032037210249 **MOQ** 1	**Product type: Spare** Hot-swap backplane board spare supporting SAS/SATA and NVMe drives in the M50FCP1UR204 system. **Where used:** • Intel® Server System M50FCP1UR204 **Product overview:** 1U backplane with support for up to four 3.5" or 2.5" drives. Each drive connector is hot-swap capable and supports SATA, SAS, or NVMe drive interfaces. See the *Intel® Server System M50FCP1UR TPS* for additional information. **Kit includes:** (1) – Backplane board
12 x 2.5" SAS/SATA/NVMe* Backplane 1U System 	**iPC** CYPHSBP1212 **MM#** 99A3NN **UPC** 00735858471817 **EAN** 5032037210256 **MOQ** 1	**Product type: Spare** **Where used:** • Intel® Server System M50FCP1UR212 **Product overview:** 1U backplane with support for up to twelve 3.5" or 2.5" drives. Each drive connector is hot-swap capable and supports SATA, SAS, or NVMe drive interfaces. See the *Intel® Server System M50FCP1UR TPS* for additional information. **Kit includes:** (1) – Backplane board

Description / Image	Order Information	Product Information
8 x 2.5" Drive Backplane 2U System 	**iPC** CYPHSBP2208 **MM#** 99A3NF **UPC** 00735858471787 **EAN** 5032037210225 **MOQ** 1	**Product type: Accessory / Spare** **Where used:** • Intel® Server System M50FCP2UR **Product overview:** Hot swap backplane board spare supporting SAS/SATA and NVMe drives in the systems based on M50FCP2UR208. **Kit includes:** (1) – Backplane board (1) – **75-mm** cable, HSBP I^2C connector to HSBP I^2C connector (5 pin to 5 pin) (1) – **250-mm** cable, server board I^2C connector (left) to HSBP I^2C connector (left) (5 pin to 5 pin) (1) – **350-mm** cable, server board I^2C connector (left) to HSBP (middle) I^2C connector (5 pin to 5 pin)
12 x 3.5" Drive Backplane 2U System 	**iPC** CYPHSBP2312 **MM#** 99A3NL **UPC** 00735858471794 **EAN** 5032037210232 **MOQ** 1	**Product type: Spare** **Where used:** • Intel® Server System M50FCP2UR **Product overview:** Combination hot-swap backplane board spare supporting SAS/SATA and NVMe drives in the M50FCP2UR312 systems. **Kit includes:** (1) – Backplane board.
2U Tall Air Duct 2U System 	**iPC** FCPDUCTSTD **MM#** 99AN39 **UPC** 735858522816 **EAN** 5032037255028 **MOQ** 1	**Product type: Spare** **Where used:** • Intel® Server System M50FCP2UR **Product overview:** Air duct for 2U-height CPU heat sinks. Note: The use of low-profile 1U CPU heat sinks with this air duct is not supported. **Kit includes:** (1) – Intel® RAID Maintenance Free Backup Unit (RMFBU) bracket installed on top of the air duct.

Description / Image	Order Information	Product Information
System Fan 1U System (4 Pack) 	**iPC** CYPFAN1UKIT **MM#** 99A3NZ **UPC** 00735858471848 **EAN** 5032037210287 **MOQ** 4	**Product type: Spare** **Where used:** • Intel® Server System M50FCP1UR **Product overview:** Spare system fans. **Each kit includes:** (1) – 40 x 40 x 56 mm dual motor system fans with 8-pin connectors.
System Fan 2U System (3 Pack) 	**iPC** CYPFAN2UKIT **MM#** 99A3P0 **UPC** 00735858471855 **EAN** 5032037210294 **MOQ** 3	**Product type: Spare** **Where used:** • Intel® Server System M50FCP2UR **Product overview:** **Each kit includes:** (1) – 60 x 60 x 38 mm dual motor system fans with 6-pin connectors.

Description / Image	Order Information	Product Information
2.5" SSD Drive Mounting Rail Plus Drive Extraction Lever Kit (8-Pack) 1U / 2U Systems 	**iPC** CYP25HSCARRIER **MM#** 99AKCJ **UPC** 00735858471596 **EAN** 5032037210034 **MOQ** 8	**Product type: 1U / 2U Accessory / Spare** **Where used:** • Intel® Server System M50FCP1UR • Intel® Server System M50FCP2UR **Product overview:** The mounting drive rail is used to insert and extract a 2.5" SSD from the front drive bay of the Intel® Server Systems M50FCP1UR and M50FCP2UR. With no SSD installed, the mounting drive rail must be populated with a drive blank to meet the airflow specifications of the system. This kit is offered as one of several required accessory kits for the Intel® Server Systems M50FCP1UR and M50FCP2UR when looking to upgrade the front drive bay. **Each kit includes:** (8) –2.5" SSD drive mounting rails plus drive extraction lever (8) –2.5" SSD drive blank
3.5" Drive Carrier 2U System 	**iPC** FXX35HSCAR2 **MM#** 958245 **UPC** 00735858345675 **EAN** 5032037106160 **MOQ** 1	**Product type: Accessory / Spare** **Where used:** • Intel® Server System M50FCP2UR **Product overview:** Spare 3.5" toolless drive hot-swap drive carrier **Kit includes:** (1) –3.5" toolless drive hot-swap drive carrier with mounting screws for mounting 2.5" SSDs.

Description / Image	Order Information	Product Information
E1A Processor Carrier Clip Board / 1U / 2U Systems 	**iPC** AXXSPRXCCCC **MM#** 99ARX0 **UPC** 735858518642 **EAN** 5032037251518 **MOQ** 2	**Product type: Accessory/Spare** **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP1UR • Intel® Server System M50FCP2UR **Product overview:** The processor carrier clip is a component within the processor heat sink module (PHM). It is used to attach the processor to the heat sink before the PHM is installed onto the processor socket on the server board. For the 4th & 5th Gen Intel® Xeon® Scalable processors, two types of processor carrier clips are supported. The type of carrier clip used is determined by the processor SKU. The carrier clip type designation (E1A or E1B) is marked on the carrier clip. The type designation for the needed carrier clip is also marked on each processor package. **Kit includes:** (2) – E1A processor carrier clip
E1B Processor Carrier Clip Board / 1U / 2U Systems 	**iPC** AXXSPRMCCCC **MM#** 99ARX2 **UPC** 735858518659 **EAN** 5032037251525 **MOQ** 2	**Product type: Accessory/Spare** **Where used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP1UR • Intel® Server System M50FCP2UR **Product overview:** The processor carrier clip is a component within the PHM. It is used to attach the processor to the heat sink before the PHM is installed onto the processor socket on the server board. For the 4th & 5th Gen Intel® Xeon® Scalable processors, two types of processor carrier clips are supported. The type of carrier clip used is determined by the processor SKU. The carrier clip type designation (E1A or E1B) is marked on the carrier clip. The type designation for the needed carrier clip is also marked on each processor package. **Kit includes:** (2) – E1B processor carrier clip

Description / Image	Order Information	Product Information
Cable Kit 1U / 2U Systems 	CYPCBLCOMMKIT **iPC** CYPCBLCOMMKIT **MM#** 99A3P1 **UPC** 00735858475266 **EAN** 5032037213219 **MOQ** 1	**Product type: Spare FRU** **Where used:** • Intel® Server System M50FCP1UR • Intel® Server System M50FCP2UR **Product overview:** Low-cost cable kit. Used in 1U / 2U systems as spare or accessory. **Kit includes:** (1) – **455/565/720-mm** splitter cable, 2U power cable, server board to HSBPs (1, 2, and 3) (2x6 pin to three 2x2 pin) (1) – **445/720-mm** splitter cable, 1U / 2U power cable, server board to HSBP (2x3 pin to two 2x2 pin) (1) – **425/660-mm** splitter cable, 2U power cable, server board to 3.5″HSBP (2x6 pin to two 2x2 pin) (1) – **598.5-mm** cable, front control panel cable for 2U systems (26 pin) (1) – **597.5-mm** cable, front control panel cable for 1U systems (26 pin) (1) – **601-mm** cable, USB 3.0/2.0 cable for front USB panel (26 pin) for 2U and 1U systems (1) – **250-mm** cable, server board I^2C connector (left of board) to HSBP (left) I^2C connector (5 pin to 5 pin) (1) – **350-mm** cable, server board I^2C connector (left) to HSBP I^2C connector (middle) (5 pin to 5 pin) (1) – **900-mm** cable, server board to front control panel / USB panel (26 pin to 26 pin)
DIMM Blank 	**iPC** DNPDMMBLNK **MM#** 99ARXP **UPC** 735858532563 **EAN** 5032037264143 **MOQ** 1	**Product Type: Spare FRU** **Where Used:** • Intel® Server Board M50FCP2SBSTD • Intel® Server System M50FCP1UR • Intel® Server System M50FCP2UR **Product Overview:** To maintain proper airflow for air-cooled configurations, it is necessary to populate all memory slots with either memory modules or DIMM blanks. Order number of DIMM Blank kits to populate DIMM slots not occupied by memory DIMMs. Each DIMM Blank kit contains 4 DIMM Blanks **Kit Includes:** **(4) Blanks per pack**

Appendix A. Glossary

Term	Definition
BIK	Baseboard in knock-down-kit –integrated system
BOM	Bill of material
CMA	Cable management arm
CRPS	Common redundant power supply
CXL	Compute Express Link
DDDC	Double device data correction
EAN	International Article Number (Barcode)
ECC	Error correcting code
EMI	Electromagnetic interference
Intel® Ethernet FD	Intel® Ethernet Flow Director
FRU	Field replaceable unit
GPGPU	General purpose computing on graphics processing unit
iPC	Intel Product Code – used to identify an orderable Intel product
iPN	Intel Part Number – an internal part number issued to a component within a product bill of material (BOM). Individual Intel part numbers are not orderable unless it is included within an orderable Intel product code (iPC)
JBOD	Just a bunch of drives
L6 BIK	Integrated system with no processors, memory, or storage devices installed
L9 BIK	Integrated system including storage devices, but no processors or memory
KDK	Knock-down-kit (chassis only product)
KVM	Keyboard, video, mouse
MM#	Main material order number - used to identify an orderable Intel product
MOQ	Minimum order quantity
NVMe*	NVM Express* – based on Non-Volatile Memory Host Controller Interface Specification (NVMHCI)
ODD	Optical disk drive
Intel® OP HFI	Intel® Omni-Path Host Fabric Interface
Optional Accessory	Hardware that can be added to the system to enhance the default feature set of the shipping configuration
PCBA	Printed circuit board assembly
POST	Power-on self-test
QSFP	Quad small form factor pluggable
RAID	Redundant array of independent drives
RDC	Resource & Documentation Center
Required Option	Hardware that must be added to the shipping configuration for the system to operate

Term	Definition
RMFBU	RAID maintenance free backup unit
ROC	RAID on Chip
RA	Right angle cable connector position
RRA	Reverse right angle cable connector position
SAS	Serial Attached SCSI
SATA	Serial ATA
SFF NVMe*	NVMe SSD in a 2.5” form factor
SFF	Small form factor
SFP	Small form factor pluggable
SKU	Stock keeping unit
SSD	Solid state drive
TPM	Trusted platform manager
UPC	Universal product code (barcode)
VT	Vertical connector position (also known as horizontal, straight)
Intel® VCA	Intel® Visual Compute Accelerator
Intel® VROC	Intel® Virtual RAID on CPU
PCN	Product change notification
Intel® TDX	Intel® Trust Domain Extension