

Enclosure Cabling Guide for Intel[®] C610 Series Chipset Based Server Systems with Hot-Swap Drive Enclosures

Cabling Guide for:

- Intel® C610 Series Chipset based Server Boards and Systems
- Intel® RAID Controller RS3WC080, RS3DC040, RS3DC080, RS3FC044, RS3UC080, RS25FB044, RS25AB080, RS25DB080, RS25NB008, RS25SB008, RCS25ZB040, RCS25ZB040LX
- Intel® Integrated RAID Module RMS3CC080, RMS3HC080, RMS3JC080, RMT3CB080, RMT3PB080, RMS25PB080, RMS25PB080N, RMS25PB040, RMS25CB080, RMS25CB040, RMS
- Intel® RAID Expander Card RES3TV360 and RES3FV288

Revision 1.1

Revision History

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ii October, 2014

Contents

1.	Introduction	1
2.	Enclosure Cabling List	1
2		
2	.2 Intel® Server Board S2600CW Product Family Cabling	4
2	.3 Cable Introduction	3
3.	Hot-Swap Backplane Overview1	1

1. Introduction

Chapter 2 introduces the cabling from server boards' onboard RAID options, and from RAID controllers or integrated RAID modules to backplane with or without expander. Below tables give guidance on which cables to order for specific hardware configurations with selected server board, chassis, and backplane.

Chapter 3 shows disk drive slots and cabling connectors on different backplanes in different chassis.

Note: For Cable Routing Diagrams, refer to Appendix E in the Intel® Server System R1000WT Product Family Technical Product Specification and Intel® Server System R2000WT Product Family Technical Product Specification and Chapter 6 System Interconnection in the Intel® Server Chassis P4304XXMFEN2/P4304XXMUXX Technical Product Specification that can be downloaded at http://www.intel.com/support.

2. Enclosure Cabling List

2.1 Intel® Server Board S2600WT Product Family Cabling

Boards	Chassis	Backplane	Cabling from On-board SATA Capable Controller	Cabling from Mezzanine 12Gb/s Integrated RAID Module	Cabling from Mezzanine 6Gb/s Integrated RAID Module	Cabling from 12Gb/s RAID Controller ¹	Cabling from 6Gb/s RAID Controller ¹
·	R1304; R1208	FR1304S3HSBP	AXXCBL800HRHD cable from AXXCBL1UHRHD ²	AXXCBL800HDHD	AXXCBL800HDMS	AXXCBL875HDHD (riser2) AXXCBL950HDHD (riser1)	AXXCBL875HD MS (riser2) AXXCBL950HD MS (riser1)
S2600WT	(all with 27 inch length)	F1U8X25S3HSBP	AXXCBL1UHRHD ²	AXXCBL650HDHD AXXCBL800HDHD	AXXCBL650HDMS AXXCBL800HDMS	AXXCBL730HDHD AXXCBL875HDHD	AXXCBL730HD MS AXXCBL875HD MS
		A1U44X25NVME DK	n/a	n/a	n/a	n/a	n/a
	R2208; R2216;	FXX8X25S3HSBP in Bay 1	AXXCBL730HDHD ²	AXXCBL730HDHD ²	AXXCBL730HDMS	AXXCBL730HDHD ²	AXXCBL730HD MS

Boards	Chassis	Backplane	Cabling from On-board SATA Capable Controller	Cabling from Mezzanine 12Gb/s Integrated RAID Module	Cabling from Mezzanine 6Gb/s Integrated RAID Module	Cabling from 12Gb/s RAID Controller ¹	Cabling from 6Gb/s RAID Controller ¹
	R2224; R2308;	FXX8X25S3HSBP in Bay 2	n/a	AXXCBL875HDHD	AXXCBL875HDMS	AXXCBL875HDHD	AXXCBL875HD MS
	R2312 (all with	FXX8X25S3HSBP in Bay 3	n/a	AXXCBL875HDHD	AXXCBL875HDMS	AXXCBL875HDHD	AXXCBL875HD MS
	27 inch length)	2x FXX8X25S3HSBP (to expander)	Reuse cables supplied with system	Reuse cables supplied with system	AXXCBL730HDMS	Reuse cables supplied with system	AXXCBL875HD MS
		2x FXX8X25S3HSBP (Expander to HSBP)	Use cables in Expander Kit	Use cables in Expander Kit	Use cables in Expander Kit	Use cables in Expander Kit	Use cables in Expander Kit
		3x FXX8X25S3HSBP (to expander)	Reuse cables supplied with system	Reuse cables supplied with system	AXXCBL730HDMS	Use cables in Expander Kit	AXXCBL875HD MS
		3x FXX8X25S3HSBP (Expander to HSBP)	Use cables in Expander Kit	Use cables in Expander Kit	Use cables in Expander Kit	Use cables in Expander Kit	Use cables in Expander Kit
		F2U8X35S3HSBP	AXXCBL800HDHD ² & AXXCBL950HDHD ²	AXXCBL800HDHD ² & AXXCBL950HDHD ²	AXXCBL800HDMS & AXXCBL950HDMS	AXXCBL800HDHD ² & AXXCBL950HDHD ²	AXXCBL800HD MS & AXXCBL950HD MS
		F2U12X35S3HSB P	AXXCBL800HDHD ² AXXCBL875HDHD ² AXXCBL950HDHD ² + Cables in Expander Kit	AXXCBL800HDHD ² AXXCBL875HDHD ² AXXCBL950HDHD ² + Cables in Expander Kit	AXXCBL800HDMS AXXCBL875HDMS AXXCBL950HDMS + Cables in Expander Kit	AXXCBL800HDHD ² AXXCBL875HDHD ² AXXCBL950HDHD ² + Cables in Expander Kit	AXXCBL800HD MS AXXCBL875HD MS AXXCBL950HD MS + Coffee Canyon & French Valley

Boards	Chassis	Backplane	Cabling from On-board SATA Capable Controller	Cabling from Mezzanine 12Gb/s Integrated RAID Module	Cabling from Mezzanine 6Gb/s Integrated RAID Module	Cabling from 12Gb/s RAID Controller ¹	Cabling from 6Gb/s RAID Controller ¹
		A2UREARHSDK	Use cables in kit	n/a	n/a	New cable from expander	n/a
		A2U44X25NVME DK	n/a	n/a	n/a	n/a	n/a

Notes:

- 1. Cables can be 75mm shorter if RAID controller has connectors on the card end.
- 2. 800mm cable from kit AXXCBL1UHRHD is shipped with R1304WTTGS and R1304WT2GS; One kit AXXCBL1UHRHD is shipped with R1208WTTGS and R1208WT2GS; one kit AXXCBL730HDHD is shipped with R2208WTTYS, R2208WTTYC1 and R2208WT2YS; One cable from kit AXXCBL800HDHD and one cable from kit AXXCBL950HDHD are shipped with R2308WTTYS; Three cables -- one from each kit AXXCBL800HDHD, AXXCBL875HDHD and AXXCBL950HDHD are shipped with R2312WTTYS; Six cables—2 kits AXXCBL875HDHD and 1 kit AXXCBL730HDHD are shipped with R2224WTTYS.

2.2 Intel® Server Board S2600CW Product Family Cabling

Board	Drive Numbe	Fixed or hot-	Types of Drives	Drive kit required	Expander required	Required Cabling if using On-board	Required Cabling if using On-board SAS	Required Cabling if using 12Gb/s RAID	Required Cabling if using 6Gb/s RAID
	r & Type	swap	Supported ²		·	SATA Capable Controller	Controller on S2600CW2S or S2600CWTS	Controller ¹	Controller ¹
	4x3.5"	Fixed	SATA Only	No additional parts needed.	N/A	Use one cable from AXXCBL450HD7S included with chassis	Use one cable from AXXCBL450HD7S included with chassis	N/A	N/A
		Hot Swap	SATA + SAS	1x FUP4X35S3HSDK	N/A	Use one cable from AXXCBL380HDHD included with kit	Use one cable from AXXCBL380HDHD included with kit	Need one cable from AXXCBL650HDHD	Need one cable from AXXCBL650HDHD
S2600CW	8x3.5"	Fixed	SATA Only	Need one FUP4X35NHDK for extra 4 HDD trays; Need two FUPMESK for extra power adapter cables	N/A	1x AXXCBL450HD7S	N/A	N/A	N/A
55		Hot Swap	SATA+ SAS	2X FUP4X35S3HSDK (with HSBP FUP4X35S3HSBP)	N/A	1x AXXCBL380HDHD	1x AXXCBL380HDHD	1x AXXCBL650HDHD	1x AXXCBL650HDMS
	8x2.5"	Fixed	SATA Only	Need one FUP4X35NHDK for extra 4 HDD trays; Need two FUPMESK for extra power adapter cables	N/A	1 AXXCBL450HD7 S	N/A	N/A	N/A

Board	Drive Numbe r & Type	Fixed or hot- swap	Types of Drives Supported ²	Drive kit required	Expander required	Required Cabling if using On-board SATA Capable Controller	Required Cabling if using On-board SAS Controller on S2600CW2S or S2600CWTS	Required Cabling if using 12Gb/s RAID Controller ¹	Required Cabling if using 6Gb/s RAID Controller ¹
		Hot Swap	SATA + SAS	FUP8X25S3HSDK (with SAS only HSBP FXX8X25S3HSBP)	N/A	1x AXXCBL380HDHD	1x AXXCBL380HDHD	1x AXXCBL650HDHD	1x AXXCBL650HDMS
S2600CW	8x2.5"	Hot Swap, NVMe support	Up to 4x 2.5" NVMe drives, Up to 8 SATA/SAS drives (total 8 drives)	1x FUP8X25S3NVDK	N/A	Up to 4 NVMe drives: cables included in NVMe kit FUP8x25S3NVDK Up to 8 SATA/SAS drives: 1x AXXCBL380HDHD	Up to 4 NVMe drives: cables included in NVMe kit FUP8x25S3NVDK Up to 8 SATA/SAS drives: 1x AXXCBL380HDHD	1x AXXCBL650HDHD	1x AXXCBL650HDMS
	16x2.5"	Fixed	N/A, max 8	x2.5" fixed drives					

Board	Drive Numbe r & Type	Fixed or hot- swap	Types of Drives Supported ²	Drive kit required	Expander required	Required Cabling if using On-board SATA Capable Controller	Required Cabling if using On-board SAS Controller on S2600CW2S or S2600CWTS	Required Cabling if using 12Gb/s RAID Controller ¹	Required Cabling if using 6Gb/s RAID Controller ¹
S2600CW	16x2.5"	Hot Swap	SATA + SAS	2X FUP8X25S3HSDK	No expander (use onboard SATA and SAS controllers, or use two 8 port HBAs. You will not be able to create a single array across all drives)	2x AXXCBL	380HDHD	2x AXXCBL650HDHD	2x AXXCBL650HDMS
				2X FUP8X25S3HSDK	1x RES3TV36 0	N/A	Controller to Expander: 1x AXXCBL380HDHD Expander to Backplanes: cables included with Expander kit	Controller to Expander: 1x AXXCBL650HDHD Expander to backplanes: Cables included with Expander kit	Controller to Expander: 1x AXXCBL650HDMS Expander to backplanes: Cables included with Expander kit

Board	Drive	Fixed or		Drive kit required	Expander	Required Cabling if	Required Cabling if	Required Cabling if	Required Cabling if
	Numbe	hot-	Drives		required	using On-board	using On-board SAS	using 12Gb/s RAID	using 6Gb/s RAID
	r & 	swap	Supported ²			SATA Capable	Controller on	Controller ¹	Controller ¹
	Type					Controller	S2600CW2S or		
							S2600CWTS	6	6 . II .
							Controller to	Controller to	Controller to
							Expander: Use	Expander: Use	Expander: Use
							cables shipped with		cables shipped
			SATA+	2X	1x		Expander kit	with Expander kit	with Expander kit
			SAS	FUP8X25S3HSDK		N/A			
			3713	1010/255511551	KE331 V200		Expander to	Expander to	Expander to
							backplanes:	backplanes:	backplanes:
							2x	2x	2x
							AXXCBL650HDHD	AXXCBL650HDHD	AXXCBL650HDHD
>							Controller to	Controller to	Controller to
Š		Hot					Expander: 1x	Expander: 1x	Expander: 1x
S2600CW	16x2.5"	Swap					AXXCBL380HDHD	AXXCBL650HDHD	AXXCBL650HDMS
326		Swap							
0)			Up to 4x	1X			Expander to	Expander to	Expander to
			NVMe +	FUP8X25S3HSDK	1x		Backplanes: cables	backplanes:	backplanes:
			Up to 16x		RES3TV36	NI/A	included with	Cables included	Cables included
			SATA/SAS	And		N/A	Expander kit	with Expander kit	with Expander kit
			(total 16	1x	0			•	
			drives)	FUP8X25S3NVDK			Cables for up to 4	Cables for up to 4	Cables for up to 4
							NVMe drives	NVMe drives	NVMe drives
							included in NVMe	included in NVMe	included in NVMe
							kit	kit	kit
							FUP8x25S3NVDK	FUP8x25S3NVDK	FUP8x25S3NVDK

Notes:

- 1. One cable from kit AXXCBL450HD7S is shipped with the Intel® Server Chassis P4304XXMFEN2 and P4304XXMUXX.
- 2. SAS drives require a hot-swap drive cage and a SAS controller, either onboard on S2600CW2S and S2600CWTS or via SAS HBA or Raid Controller.

2.3 Cable Introduction

Cable view	Cable P/N	Description
	AXXCBL950HDHD	950mm long, cable kit (2 cables included), straight SFF8643 to straight SFF8643. Used in multiple systems as spare and/or accessory (1304, 2308, 2312).
	AXXCBL875HDHD	875 mm long, cable kit (2 cables included), straight SFF8643 to straight SFF8643. Used in multiple systems as spare and/or accessory (1304, 1208, 2208, 2312).
	AXXCBL800HDHD	800 mm long, cable kit (2 cables included), straight SFF8643 to straight SFF8643. Used in multiple systems as spare and/or accessory (1203, 1208, 2308, 2312).
	AXXCBL730HDHD	730 mm long, cable kit (2 cables included), straight SFF8643 to straight SFF8643. Used in multiple systems as spare and/or accessory (1208, 2208).
	AXXCBL650HDHD	650 mm long, cable kit (2 cables included), straight SFF8643 to straight SFF8643. Used as accessory when installing 12Gb/s integrated RAID module in 1208 for optimal cabling. (longer cable may be used).

Cable view	Cable P/N	Description
	AXXCBL950HDMS	950mm long, cable kit (2 cables included), straight SFF8643 to straight SFF8087. Required in S2600WT 2U systems with 6Gb/s SAS integrated RAID module or 6Gb/s SAS RAID controller. (1304 with RAID controller, 2308 and 2312 with RAID controller/integrated RAID module).
	AXXCBL875HDMS	875mm long, cable kit (2 cables included), straight SFF8643 to straight SFF8087. Required in S2600WT 2U systems with 6Gb/s SAS integrated RAID module or 6G/s SAS RAID controller. (1304 and 1208 with RAID controller; 2216, 2224, and 2312 with RAID controller/integrated RAID module).
	AXXCBL800HDMS	800mm long, cable kit (2 cables included), straight SFF8643 to straight SFF8087. Required in S2600WT 2U systems with 6Gb/s SAS integrated RAID module or 6Gb/s SAS RAID controller. (1304 and 1208 with integrated RAID module, 2308 and 2312 with RAID controller/integrated RAID module).
	AXXCBL730HDMS	730mm long, cable kit (2 cables included), straight SFF8643 to straight SFF8087. Required in S2600WT 2U systems with 6Gb/s SAS integrated RAID module or 6Gb/s SAS RAID controller. (1208 with RAID controller, 2208 with RAID controller/integrated RAID module).
	AXXCBL650HDMS	650mm long, cable kit (2 cables included), straight SFF8643 to straight SFF8087. Used as accessory when installing 6Gb/s integrated RAID module in 1208 for optimal cabling. (longer cable may be used).

Cable view	Cable P/N	Description
	AXXCBL1UHRHD	Combo cable kit, contains 2 cables: one is 730mm long and the other is 800mm long; right angle SFF8643 to straight SFF8643; spare cables used in 1U S2600WT systems to connect to onboard SATA ports.
	AXXCBL450HD7S	2pcs 450mm, straight SFF8643 to 7 pin straight, used to replace cables shipped with pedestal 4U chassis. S2600CW spare kit.
	AXXCBL380HDHD	Combo cable kit: 380mm straight SFF8643 to straight SFF8643. S2600CW spare kit.
	AXXCBLEXPHDMS	Expander cable kit, used for 12G Expander in Rx000GZ/GL systems, 6 cables. (3) 165mm, (1) 185mm, (1) 245mm, (1) 300mm straight SFF8643 to straight SFF8087.

Note:

1. Decoder for cable naming: use AXXCBL950HDMS as an example, "950" -> cable length (mm); "HD" -> straight SFF8643; "MS" -> straight SFF8087; as to AXXCBL1UHRHD, "HR" -> right angle SFF8643; "1U"-> used in 1U systems.

3. Hot-Swap Backplane Overview

Note: Before any cabling operation, refer to the respective integrated RAID module or RAID controller *Tested Hardware and Operating System lists*, in order to confirm the compatible Intel® Server Boards or Systems.

Supported system/ chassis	Backplane P/N	Description	Disk drive slot and cabling connector view (Two sides of backplane)
Spare for 2U 8x3.5" chassis (R2308 family); Included in system R2308WT TYS	F2U8X35S3HSBP	0-7: 8 x 3.5" SAS/SATA drive slots	1 (C) 3 (C) 5 (B) 7 (B) 0 (C) 2 (C) 4 (B) 6 (B)
		A: Power connector B and C: 4-port SFF8643 connector – Drives 4-7 and 0-3 D: SMBus connector	AFO06808
Spare for 2U 12x3.5" chassis (R2312 family); Included	F2U12X35S3HSBP	0-11: 12 x 3.5" SAS/SATA drive slots	2 (C) 5 (B) 8 (A) 11 (A) 11 (A) 10 (A) 10 (A) 10 (A) 10 (A) 11 (A) 10 (A) 10 (A) 10 (A) 11 (A

Supported system/ chassis	Backplane P/N	Description	Disk drive slot and cabling connector view (Two sides of backplane)
in chassis R2312XX XX and system R2312WT TYS		A-C: 4-port SFF8643 connectors – Drives 8-11, 4-7, and 0-3 D: Power connectors E: SMBus connector	AF000810
Spare for 1U 8x2.5" chassis (R1208 family); Included in chassis		0-7: 8 x 2.5" SATA/SAS drive slots	1 (D) 3 (D) 5 (C) 0 (D) 2 (D) 4 (C) 6 (C) 7 (C) AFOORTSS
R1208XX XX and system R1208WT TGS and R1208WT 2GS	F1U8X25S3HSBP	A: Power connector B: SMBus-In cable connector – From server board C-D: SATA/SAS Ports 4-7 and 0-3 SFF8643 cable connector	AF000811

Supported system/ chassis	Backplane P/N	Description	Disk drive slot and cabling connector view (Two sides of backplane)
Spare for 1U 8x2.5" chassis (R1208 family)	Included in A1U44X25NVMEDK	0-3: 4 x 2.5" SATA/SAS drive slots 4-7: PCIe* SFF devices/ 4 x 2.5" SAS drive slots	1 (H) 3 (H) 5 (E) 7 (E) SATA/SAS AF006792 1 (G) PCle* SFF device or SAS AF006792
		A: Power connector B: SMBus-In cable connector – From server board C, D, F, and G: PCIe* SFF devices #3, #2, #0, and #1 SFF8643 cable connector E and H: SATA/SAS Ports 4-7 and 0-3 SFF8643 cable connector	C H AFOOR

Supported system/ chassis	Backplane P/N	Description	Disk drive slot and cabling connector view (Two sides of backplane)
Spare for 1U 4x3.5" chassis (R1304 family); Included in chassis R1304XX XX and system R1304WT TGS and R1304WT 2GS	FR1304S3HSBP	0-3: 4 x 3.5" drive slots	O (B) 1 (B) 2 (B) 3 (B) AF000790
		A: Power connector B: SFF8643 cable connector C: SGPIO connector	AF008613
Spare for 2U 8x2.5" cage (R2200 and P4000 families)	FXX8X25S3HSBP	0-7: 8 x 2.5" SAS/SATA drive slots A: SMBus-Out cable connector for multi-backplane support B and C: Ports 4-7 and 0-3 SFF8643 cable connector D: SMBus-In cable connector – From server board or other backplane E: Power connector	AF006815

Supported system/ chassis	Backplane P/N	Description	Disk drive slot and cabling connector view (Two sides of backplane)
Spare for R2200 system family or R2000 chassis family	Included in A2U8X25S3DPDK	0-7: 8 x 2.5" SAS/SATA drive slots A: SMBus-Out cable connector for multi-backplane support B and C: SATA/SAS Ports 4-7 (Secondary and Primary) SFF8643 cable connector D and E: SATA/SAS Ports 0-3 (Secondary and Primary) SFF8643 cable connector F: SMBus-In cable connector – From server board or other backplane G: Power connector	AF006816 AF006817

Supported system/ chassis	Backplane P/N	Description	Disk drive slot and cabling connector view (Two sides of backplane)
Spare for 2U or Pedestal systems	Included in FUP8X25S3NVDK for Pedestal; Included in A2U44X25NVMEDK for 2U	0-7: 8 x 2.5" Combo SAS / PCIe* SFF device slots A: SMBus-Out cable connector for multi-backplane support B and G: SATA/SAS Ports 4-7 and 0-3 SFF8643 cable connector C-F: PCIe* SFF devices #3, #2, #1, and #0 SFF8643 cable connector H: SMBus-In cable connector – From server board or other backplane I: Power connector	PCIe* SFF device or SAS AF000798 SATA/SAS BX SATA/SAS Only Drive Numbering AF00818

Supported system/ chassis	Backplane P/N	Description	Disk drive slot and cabling connector view (Two sides of backplane)
Spare for P4000 chassis	FUP4X35S3HSBP	0-3: 4 x 3.5" drive slots	O (C) 1 (C) 2 (C) 3 (C)
		A: HSBP I2C out connector B: Power connectors C: SFF8643 cable connector D: HSBP I2C in connector	AF00682d
Spare for R2000WT systems; Included in system R2312WT TYS and R2224WT	A2UREARHSDK	0-1: SATA/SAS drive Connectors	1 (B) O (E)

Supported system/ chassis	Backplane P/N	Description	Disk drive slot and cabling connector view (Two sides of backplane)
TYS;		A: SGPIO connector B: drive 1 C: Power connector D: HSBP I2C connector E: drive 0	A B C C C C C C C C C C C C C C C C C C

Note: For more details of above backplanes, refer to Chapter 5.5 Storage Backplane Option in the Intel® Server System R1000WT Product Family Technical Product Specification, Chapter 6.5 in the Intel® Server System R2000WT Product Family Technical Product Specification and Chapter 5 Hot-swap Backplane in the Intel® Server Chassis P4304XXMFEN2/P4304XXMUXX Technical Product Specification that can be downloaded at http://www.intel.com/support.