



IBM BladeCenter

The Right Choice – Open, Easy, Green

Interoperability Guide

February, 2011

Document Purpose: Quick reference for BladeCenter Interoperability.

Compliment to ServerProven, COG, and the Configuration tools with

ServerProven being the most reliable, accurate, and up to date tool.

This paper is intended to provide information regarding BladeCenter Interoperability. It assembles data from other published IBM tools. Findings may not be realized in all customer environments, and implementation in such environments may require additional steps, configurations, and performance analysis. The information herein is provided "AS IS" with no warranties, express or implied. This information does not constitute a specification or form part of the warranty for any IBM, Intel, Brocade, Cisco, Emulex, McData, Myrinet, NetXen or QLogic products.

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Terminology

aMM Advanced Management Module

CFFh Combo Form Factor Horizontal I/O Expansion Card

CFFv Combo Form Factor Vertical I/O Expansion Card

CIOv Combinational (or Combo) IO Vertical expansion card

cMM Chassis Management Module

cMM2 Chassis Management Module II

EC I/O Expansion Card

HSEC High Speed I/O Expansion Card

(Formerly referred to as HSFF)

LFF HSEC Large Form Factor High Speed I/O Expansion Card

MSIM Multi Switch Interconnect Module

NEBS Network Equipment-Building System

BOFM BladeCenter Open Fabric Manager

OPM Optical Pass-Thru Module

SFF Small Form Factor

SFF EC Small Form Factor I/O Expansion Card

StFF Standard Form Factor (may require removal of Primary or secondary HDD)

Blades & Management Modules to Chassis Interoperability

Blade Servers	S (8886/ 1948)	T ¹ (DC 8720, AC 8730)	H (8852, 7989)	HT ¹ (DC 8740, AC 8750)	aMM/ cMM2	MM
HX5 (7872)	Up to 130W ⁶	-	Up to 130W ⁵	Y ^{1,2}	Y	-
HS12 (8014, 8028)	Y	Y	Y	Y	Y	-
HS21 Quad Core (8853)	Y	Up to 50W ²	Y	Up to 120W ^{1,2}	Y	Y
HS21 XM Quad Core (7995)	Up to 80W	Up to 50W ²	Up to 80W	Up to 80W ²	Y	Y
HS22 (7870)	Y	-	Up to 130W ⁵	Up to 130W ^{1,2,4}	Y	-
HS22V (7871)	Y	-	Up to 130W ⁵	Up to 130W ^{1,2,4}	Y	-
LS22 (7901)	Y	-	Y	Y	Y	-
LS42 (7902)	Y	-	Y	Y	Y	-
JS12 (7998-60x)	Y	Y	Y	Y	Y	-
JS22 (7998-61x)	Y	-	Y	Y ³	Y	-
JS23/43 (7778-23x)	Y	-	Y	Y	Y	-
PS700/701/702 (8406-70Y/71Y)	Y	-	Y	Y	Y	-
QS21 (0792)	Y	-	Y	Y ¹	Y	-
QS22 (0793)	Y	-	Y	Y ¹	Y	-
Management Modules						
Management Module (MM)	-	-	-	-	N/A	N/A
Advanced Management Module (aMM)	Y	-	Y	Y	N/A	N/A
Advanced Management Module for Telco (also known as cMM2)	-	Y	-	-	N/A	N/A

W = CPU power in watts, TDP watts

Note 1 Enterprise environment only (max 32°C). See 'Telco blades to Telco chassis Interoperability' table (next table) for NEBS statements.

Note 2 May require power management policy to be set to "Redundant with Potential Performance Impact" in both domains to support higher-wattage CPUs.

Note 3 Ten is the maximum number of JS22 blades supported in BCHT chassis.

Note 4 Ten is the maximum number of 130W HS22 or HS22V supported in BCHT chassis.

Note 5 130W is supported on HX5 (w/o MAX5), HS22 and HS22V with enhanced blowers. For HX5 with MAX5, 130W is supported up to six blades with 2900 power supply, and seven blades with 2980 power supply.

Note 6 Four is maximum number of HX5 130W supported in BCS.

Blades & Management Modules to Chassis Interoperability continued

Blade Servers	E (8677); 1200W, 1400W power supplies	E (8677); 1800W power supplies	E (8677); 2000W power supplies	E (8677); 2320W power supplies	aMM	MM
HX5 (7872)	-	-	-	-	Y	-
HS12 (8014, 8028)	Y	Y	Y	Y	Y	-
HS21 Quad Core (8853)	Up to 80W	Up to 80W	Up to 80W	Up to 80W	Y	Y
HS21 XM Quad Core (7995)	Up to 80W ¹	Up to 80W ¹	Up to 80W ¹	Up to 80W ¹	Y	Y
HS22 (7870)	-	-	Up to 95W ²	Up to 95W	Y	-
HS22V (7871)	-	-	Up to 95W ²	Up to 95W	Y	-
LS22 (7901)	Up to 79W	Up to 79W	Up to 79W	Y	Y	-
LS42 (7902)	Up to 79W	Up to 79W	Up to 79W	Y	Y	-
JS12 (7998-60x)	Y	Y	Y	Y	Y	-
JS22 (7998-61x)	-	-	-	-	-	-
JS23/43 (7778-23x)	-	-	-	-	-	-
PS700	-	-	-	Y ³	Y ³	-
PS701/702	-	-	-	-	-	-
QS21 (0792)	-	-	-	-	-	-
QS22 (0793)	-	-	-	-	-	-
Management Modules						
Management Module (MM)	Y	Y	-	-	N/A	N/A
Advanced Management Module (aMM)	Y	Y	Y	Y	N/A	N/A
Advanced Management Module for Telco (also known as cMM2)	-	-	-	-	N/A	N/A

W = CPU power in watts, TDP watts

Note 1 When fully configuring a BC-E (8677) chassis with the maximum possible HS21 XM blade server configuration (fourteen HS21 XM blade servers, each with two 80W processors, eight 4GB memory DIMMs, one SAS HDD, one USB-based flash drive, one I/O card and one cKVM card), there could be periods of time that Power Domain 2 exceeds the 13.5amp rating guidance (Power Domain 1 will not exceed the rating guidance). While this is not violating any safety rules, we recommend that your clients review the electrical infrastructure and power distribution of their installations to account for a peak of 14.4A

Note 2 HS22 and HS22V configurations supported in BC-E with 2000W power supplies:

Power rating of HS22 or HS22V CPU	Max HS22 or HS22V/s installable	Total blades installable	Power domain 1						Power domain 2						Total bays that must remain empty		
			Bay 1	Bay 2	Bay 3	Bay 4	Bay 5	Bay 6	Bay 7	Bay 8	Bay 9	Bay 10	Bay 11	Bay 12		Bay 13	Bay 14
130 W	0	0	E	E	E	E	E	E	E	E	E	E	E	E	E	E	14
95 W	11	11	■	■	■	■	■	E	■	■	■	■	■	■	E	E	3
95 W	6	12	■	■	■	■	■	E	■	■	■	■	■	■	E	E	2
95 W	5	13	■	■	■	■	■	E	■	■	■	■	■	■	■	■	1
80 W	12	12	■	■	■	■	■	E	■	■	■	■	■	■	■	E	2
80 W	7	13	■	■	■	■	■	■	■	■	■	■	■	■	■	E	1
60 W	13	13	■	■	■	■	■	■	■	■	■	■	■	■	■	E	1
60 W	6	14	■	■	■	■	■	■	■	■	■	■	■	■	■	■	0
40 W	14	14	■	■	■	■	■	■	■	■	■	■	■	■	■	■	0

- A green square ■ in a bay means it can hold any blade server supported in the BladeCenter E including the HS22 and HS22V.
- A blue square ■ in a bay means it can hold any blade server *except* an HS22 or HS22V.
- An E in a square means that the bay must remain empty.
- No support for 130W HS22 and HS22V on BladeCenter E

HX5, HS22 and HS22V configurations supported in BC-H with 2900W power supplies:

Blade	Power rating of HX5, HS22 or HS22V CPU	Max blades installable	Power domain 1							Power domain 2							Total bays that must remain empty	
			Bay 1	Bay 2	Bay 3	Bay 4	Bay 5	Bay 6	Bay 7	Bay 8	Bay 9	Bay 10	Bay 11	Bay 12	Bay 13	Bay 14		
HS22 or HS22V	Up to 95W	14																0
	130W**	12							E								E	2
HX5	Up to 105W	14																0
	130W**	12							E								E	2
HX5 + MAX5	Up to 95W	7																0
	130W	6							E								E	2

Comment [I1]:

- A green square in a bay means blade supported
- An E in a square means that the bay must remain empty. Bay Number for representation only – bay number not relevant (example: empty bay 1 can be substituted for empty bay 7). Total number of blades per domain cannot exceed 6 blades.
- Enhanced blowers (PN 68Y6650) must be installed to support 130W HS22, 130W HS22V and 130W HX5 in BladeCenter H

Note 3 PS700 is supported in the following BCE chassis:
 8677-4Sx
 8677-4Tx
 8677-3Sx with upgraded 2320W power supplies
 8677-3Tx with upgraded 2320W power supplies

PS700 is NOT supported in the following BCE chassis:
 8677-3Xx
 8677-3Rx
 8677-E2x

HX5, HS22 and HS22V support across BladeCenter H, S and HT and E chassis

	BCH Models Other Than 4TX				BCH 4TX
	2900W		2980W (PN 68Y6601)		2980W
	Legacy blowers	Enhanced blowers PN: 68Y6650	Legacy blowers	Enhanced blowers	Enhanced blowers
HX5 (95W & 105W)	14	14	14	14	14
HX5 (130W)	No support	10	No support	12	12
HX5 + MAX5 (95W, 105W)	7	7	7	7	7
HX5 + MAX5 (130W)	6	6	7	7	7
HS22 & HS22V (up to 95W)	14	14	14	14	14
HS22 & HS22V (130W)	No support	12	No support	14	14

	BC-S	BC-HT (AC only) Non NEBS	BladeCenter E	
			2000W	2320W
HX5 (95W & 105W)	5	10	No support	No support
HX5 (130W)	4	8	No support	No support
HX5 + MAX5 (95W, 105W)	2	5	No support	No support
HX5 + MAX5 (130W)	2	5	No support	No support
HS22 & HS22V (up to 95W)	6	12	See Note 2^	14
HS22 & HS22V (130W)	5	10	No support	No support

Note: HX5 not supported in BladeCenter E, BladeCenter HT NEBS and BladeCenter T

Refer to "**Note 2** HS22 and HS22V configurations supported in BC-E with 2000W power supplies:"

Telco Blades to Telco Chassis Interoperability

This table provides guidance on blade servers that have been tested for NEBS Level 3 and ETSI compliance for use in a central office environment. The vendor CPU identifiers are listed for each blade server type (AMD, Cell, Intel, Power)

NEBS-Compliant Blade Servers	T NEBS3 / ETSI	HT NEBS3 / ETSI
HX5 (7872)	-	-
HS12 (8014,8028)	-	-
HS21 Dual Core (8853)	5138 (35W)	5138 (35W) 5140 (65W)
HS21 Quad Core (8853)	L5408 (40W)	E5345 (80W) E5440 (80W) L5408 (40W)
HS21 XM Dual Core (7995)	5138 (35W)	5138 (35W)
HS21 XM Quad Core (7995)	L5408 (40W)	E5345 (80W/4c) E5440 (80W/4c) L5408 (40W/2c)
HS22 (7870) Intel® Xeon® 5500 series	-	E5540 (80W/4c) L5518 (60W/4c) L5508 (38W/2c)
HS22 (7870) Intel® Xeon® 5600 series	-	Planned 4Q'10: E5620 (80W/4c) E5645 (80W/6c) L5638 (60W/6c) L5618 (40W/4c)
HS22V (7871) Intel® Xeon® 5600 series	-	Planned 4Q'10: E5620 (80W/4c) E5645 (80W/6c) L5638 (60W/6c) L5618 (40W/4c)
LS22 (7901)	-	-
LS42 (7902)	-	8376 HE (55W)
JS12 (7998-60X)	-	-
JS22 (7998; except 60X)	-	P6 DC 4.0GHz
JS23/43 (7778-23x)	-	P6+ 4.2GHz
PS700/701/702 (8406-70Y/71Y)	-	Planned 4Q'10
QS21 (0792)	-	-
QS22 (0793)	-	Cell BE 3.2GHz

BladeCenter HT Average Blade Power

Average per slot blade power is determined by AC or DC power chassis, power policy (user definable), and to a lesser extent, the power domain. The following table is for the BladeCenter HT, and assumes that all four power supplies are installed and all switch bays are occupied:

	BLADE PWR			BLADE PWR		
	AC-W / Domain	AC- PD1	AC- PD2	DC-W / Domain	DC- PD1	DC- PD2
<u>Redundant w/o Performance Impact</u>	3160	404	410	2535	300	305
<u>Redundant with Potential Performance Impact</u>	3420	447	454	3160	404	410
<u>Non-Redundant</u>	4000	544	550	3420	447	453

Blades to Expansion Units Interoperability

Blade Servers	Storage I/O 39R7563	Memory and I/O Expansion Blade 42C1600	Multi-Proc Unit 26K5934	PCI Expansion Unit II 25K8373	BladeCenter PCI Express I/O Expansion Unit 43W4391	BladeCenter PCI Express Gen 2 Expansion Unit 46M6730	BladeCenter GPU Expansion Blade FC5090 M2070 FC A10R M2070Q
HX5 (7872)	-	-	-	-	-	Note 3	-
HS12 (8014,8028)	Y	-	-	-	Note 2	-	-
HS21 Dual and Quad Core (8853)	Y	Y	-	Y	Y	-	-
HS21 XM Dual and Quad Core (7995)	Y	-	-	Y	Y	-	-
HS22 (7870)	-	-	-	-	Y	Y	Note 4
HS22V (7871)	-	-	-	-	Y	-	-
LS22 (7901)	Y	-	-	Y	Y	-	-
LS42 (7902)	Y	-	-	Y	Y	-	-
JS12 (7998-60X)	-	-	-	-	-	-	-
JS22 (7998; except 60X)	-	-	-	-	-	-	-
JS23/43 (7778-23x)	-	-	-	-	-	-	-
PS700/701/702 (8406- 70Y/71Y)	-	-	-	-	-	-	-
QS21 (0792)	-	-	-	-	Y	-	-
QS22 (0793)	-	-	-	-	Y	-	-

Note 1 If you need support on the PCI Expansion Unit II (PEU2) for the LS21/41, contact your IBM Representative. IBM System x Sales representative, a SPORE is required to execute the LS21/41 on PEU2 solution.

Note 2 Support only for machine type 8028

Note 3 Support for three BPE4s on 2-socket HX5 and two BPE4s on 4-socket HX5

Note 4 Support for up to 3 BladeCenter GPU Expansion Blades.. Support for 4 BladeCenter GPU Expansion Blades through special bids only.

Expansion Units Detail

Expansion Units	Max # CPU	RAID Control	# HDD	Memory DIMM Slots	On Board NICS	Exp Slot 1	Exp Slot 2	Exp Slot 3
Storage and I/O Expansion Unit (39R7563)	0	Y	3	0	0	Note 1	Note 2	Note 3
Memory and I/O Expansion Unit (42C1600)	0	-	0	4	2	Note 1	Note 2	Note 3
Multi-proc Expansion Unit (26K5934)	2	-	1	8	2	Note 1	Note 2	Note 3
PCI I/O Expansion Unit II (25K8373) Note 4	0	0	0	0	0	-	-	-
PCI I/O Expansion Unit II (25K8373) Note 4	0	0	0	0	0	-	-	-
PCI Express I/O Expansion Unit (43W4391) Note 4	0	0	0	0	0	-	-	-
PCI Express Gen 2 Expansion Unit (46M6730) Note 4	0	0	0	0	0	-	-	-

Note 1 Slot 1: Either StFF, SFF, or CFFv card can be used in slot. The card in Slot 1 must be an Ethernet card.

Note 2 Either StFF, SFF or CFFv can be used in slot (when StFF or SFF is installed, CFFh cannot be in adjacent slot)

Note 3 HSEC or CFFh can be used in slot (when HSEC is installed, StFF or SFF cannot be in adjacent slot)

Note 4 HSEC or CFFh can NOT be used on a blade on which a PEU II or BPE3 is installed

The following PCI-x adapters can be used in slot 1 or 2 of the PCI I/O Expansion Unit II (25K8373).

02R0988	IBM ServeRAID-6M Ultra320 SCSI Controller (256MB Cache)
06P3601	IBM 10/100 Ethernet Server Adapter
13N2249	IBM Ultra320 SCSI Controller 2
24P0960	DS4000 Host Bus Adapter
22P6901	Wireless PCI
32P0033	IBM ServeRAID-6M Ultra320 SCSI Controller (128MB Cache)
39R8815	IBM ServeRAID-6M Ultra320 SCSI Controller (128MB Cache)
39R8816	IBM ServeRAID-6M Ultra320 SCSI Controller (256MB Cache)
39Y6079	NetXtreme 1000 T + Ethernet Adapter
39Y6088	NetXtreme 1000 SX + Fiber Ethernet Adapter
39Y6093	NetXtreme 1000 T + Dual Port Ethernet Adapter
73P4001	NetXtreme 1000 SX+ Ethernet Adapter-PCI-X
73P4101	NetXtreme 1000+ Server Adapter
73P4201	NetXtreme 1000+ Dual Port Server Adapter
90P3741	CMM Redundant Management Module for BladeCenter T

The following PCI-e adapters can be used in slot 1 or 2 of the PCI Express I/O Expansion Unit(43W4391).

39R6525	QLogic 4Gb FC Single-Port PCIe HBA for IBM System x
39R6527	QLogic 4Gb FC Dual-Port PCIe HBA for IBM System x
39Y6066	NetXtreme II 1000 Express Ethernet Adapter
39Y6136	PRO/1000 PT Quad Port Server Adapter by Intel
43W4324	IBM Ultra 320 SCSI Controller PCIe

43W4339 ServeRAID-MR10M SAS/SATA Controller

The following PCI-e adapters can be used in slot 1 or 2 of the PCI Express I/O Expansion Unit(46M6730).

44X1940	QLogic Ethernet and 8Gb Fibre Channel Expansion Card (CFFh) for IBM BladeCenter
43W4423	InfiniBand 4X DDR Expansion Card (CFFh) for IBM BladeCenter
46M0878	IBM 320GB High IOPS SD Class SSD PCIe Adapter
42C1830	QLogic 2-port 10Gb Converged Network Adapter (CFFh) for IBM BladeCenter
46M6164	Broadcom 10Gb 4-port Ethernet Expansion Card (CFFh) for IBM BladeCenter
46M6168	Broadcom 10Gb 2-port Ethernet Expansion Card (CFFh) for IBM BladeCenter
49Y4235	Emulex Virtual Fabric Adapter (CFFh) for IBM BladeCenter

Blade Server to I/O Adapters/Modules Interoperability

Option Part Number / Feature Code for x / Feature Code for p	I/O Expansion adapters/cards or connection devices (Form Factor)	H X 5	H S 1 2	H S 2 1	H S 2 1 X M	H S 2 2	H S 2 2 V	L S 2 2	L S 4 2
SAS									
43W3974	SAS Connectivity Card (CFFv)	-	Y	-	Y	-	-	-	-
39Y9190//8250	SAS Expansion Card (CFFv)	-	Y	Y	Y	-	-	-	-
SSD Expansion Card for IBM BladeCenter HX5 (Option PN 46M6908) is required.//8246	SAS Connectivity Card (CIOv)	Y ¹³	-	-	-	Y ⁶	Y ⁶	-	-
46C7167//8257	ServeRAID MR10ie (CIOv)	-	Y ⁴	-	-	Y ^{6,7}	Y ^{6,8}	-	-
46M6908	SSD Expansion Card for IBM BladeCenter HX5	Y	-	-	-	-	-	-	-
InfiniBand									
32R1760	Cisco Systems 4X InfiniBand Expansion Card (HSFF) ³	-	Y	Y	Y	-	-	Y	Y
43W4420//8298	Voltaire 4x InfiniBand DDR Expansion Card (CFFh) ³	-	Y	Y	Y	Y	Y	Y	Y
43W4423//8258	4x InfiniBand DDR Expansion Card (CFFh) ³	-	Y	Y	Y	Y	Y	Y	Y
46M6001//8272	2-port 40Gb InfiniBand Expansion Card (CFFh) ³	Y	Y	Y	Y	Y	Y	Y	Y
Ethernet									
39R8624	IBM SFF Gb Expansion Card (SFF)	-	Y	Y	Y	-	-	Y	Y
39Y9310 / / 8249	Ethernet Expansion Card (CFFv)	-	Y	Y	Y	-	-	Y	Y
44W4465	4 port 10Gb card (CFFh) ⁵	-	Y	Y	Y	Y	Y	Y	Y
44W4466	Broadcom 10Gb 2-port Ethernet Exp Card (CFFh) ⁵	-	Y	Y	Y	Y	Y	Y	Y
44W4475// 8243	Ethernet Expansion Card (CIOv)	Y	-	-	-	Y	Y	-	-
44W4479//8291	2/4 Port Ethernet Expansion Card (CFFh) ⁹	Y	Y	Y	Y	Y	Y	Y	Y
46M6164//8293	Broadcom 10 Gb Gen 2 4-port Ethernet Expansion Card (CFFh)	Y	-	Y	Y	Y	Y	Y	Y
46M6168//8292	Broadcom 10 Gb Gen 2 2-port Ethernet Expansion Card (CFFh)	Y	-	Y	Y	Y	Y	Y	Y
49Y4235	Emulex Virtual Fabric Adapter (CFFh)	Y	-	-	-	Y	Y	-	-
42C1810	Intel 10 Gb 2-port Ethernet Expansion Card	-	-	-	-	Y	Y	-	-
Fibre Channel over Ethernet (FCoE)									
81Y1650	Brocade 2-port 10GbE Converged Network Adapter for IBM BladeCenter	-	-	-	-	Y	Y	-	-
42C1830 //8275	QLogic 2-port 10Gb Converged Network Adapter (CFFh)	Y	Y	Y	Y	Y	Y	Y	Y

Blade Server to I/O Adapters/Modules Interoperability Continued

Option Part Number / Feature Code for x / Feature Code for p	I/O Expansion adapters/cards or connection devices (Form Factor)	J	J	J	J	P	P	P	P	Q	Q
		S	S	S	S	S	S	S	S	S	S
		1	2	2	4	0	0	0	0	4	2
		2	2	3	3	0	1	2	1	1	2
	SAS										
43W3974	SAS Connectivity Card (CFFv)	-	-	-	-	-	-	-	-	-	-
39Y9190//8250	SAS Expansion Card (CFFv)	Y	Y	-	-	-	-	-	-	-	-
43W4068//8246	SAS Connectivity Card (CIOv)	-	-	Y ¹²	Y ¹²	Y ¹²	Y ¹²	Y ¹²	-	-	-
46C7167//8257	ServeRAID MR10ie (CIOv)	-	-	-	-	-	-	-	-	-	-
	InfiniBand										
32R1760	Cisco Systems 4X InfiniBand Expansion Card (HSFF) ³	Y	Y	-	-	-	-	-	-	Y	Y
43W4420//8298	Voltaire 4x InfiniBand DDR Expansion Card (CFFh) ³	Y	Y	Y	Y	-	-	-	-	-	-
43W4423//8258	4x InfiniBand DDR Expansion Card (CFFh) ³	Y	Y	Y	Y	Y	Y	Y	-	Y	Y
46M6001//8272	2-port 40Gb InfiniBand Expansion Card (CFFh) ³	-	-	-	-	-	-	-	-	-	-
	Ethernet										
39R8624	IBM SFF Gb Expansion Card (SFF)	-	-	-	-	-	-	-	-	-	-
39Y9310 // 8249	Ethernet Expansion Card (CFFv)	Y	Y	-	-	-	-	-	-	-	-
44W4465	4 port 10Gb card (CFFh) ⁵	-	-	-	-	-	-	-	-	-	-
44W4466	Broadcom 10Gb 2-port Ethernet Exp Card (CFFh) ⁵	-	-	-	-	-	-	-	-	-	-
44W4475// 8243	Ethernet Expansion Card (CIOv)	-	-	Y	Y	Y	Y	Y	-	-	-
44W4479 // 8291	2/4 Port Ethernet Expansion Card (CFFh) ⁹	Y	Y	Y	Y	Y	Y	Y	-	-	-
46M6164//8293	Broadcom 10 Gb Gen 2 4-port Ethernet Expansion Card (CFFh)	-	-	-	-	-	-	-	-	-	-
46M6168//8292	Broadcom 10 Gb Gen 2 2-port Ethernet Expansion Card (CFFh)	-	-	-	-	-	-	-	-	-	-
49Y4235	Emulex Virtual Fabric Adapter (CFFh)	-	-	-	-	-	-	-	-	-	-
42C1810	Intel 10 Gb 2-port Ethernet Expansion Card	-	-	-	-	-	-	-	-	-	-
	Fibre Channel over Ethernet (FCoE)										
81Y1650	Brocade 2-port 10GbE Converged Network Adapter for IBM BladeCenter	-	-	-	-	-	-	-	-	-	-
42C1830 //8275	QLogic 2-port 10Gb Converged Network Adapter (CFFh)	Y ¹⁰	Y ¹⁰	Y ¹⁰	Y ¹⁰	Y ¹⁰	Y ¹⁰	Y ¹⁰	-	-	-

Note 3 Only one CFFh/HS Option is allowed PER single-wide or multi-width Blade configuration, with the following exception. In the JS43 and PS702, the CFFh/HS option may be stored in the top and/or bottom unit of the double-wide configuration.

Note 4 a. Supported only on machine type 8028.

b. Attach to other disks not on the server blade (e.g. DSM, EXP 3000) requires the SAS Connectivity Card (43W3974) to be installed

Note 5 Supported only on BC-H and BC-HT

Note 6 HS22 cannot physically accommodate both the SRMR10ie (46C7167) and the SAS Connectivity Card (43W4068) as they both go in the same connector.

Note 7 Does not support the use of SATA or SSD drives on the HS22 blade.

Note 8 Installation of optional battery-backed RAID adapter is for connection to external storage, not for internal SSD drives.

Note 9 This 1Gb CFFh adapter drives HSSM bays 7,8,9,10

Note 10 See FCoE Configuration Matrix for JS/PS Blades

Note 11 Limitations (per 30mm HX5 blade)

- Both CPUs must be populated
 - Not supported on HX5 with 130W CPUs
 - Not supported with 105W CPUs on BCS chassis
- Up to 12 memory DIMMs populated
- For BCH, supported only in the BCH 4TX model with enhanced blowers

Note 12 IBM BladeCenter S 6-Disk Storage Module, Options PN 43W3581 FC#4545 must be installed in BCS Chassis to support external SAS storage using the SAS Connectivity Card in JS and PS blades.

Note 13 HX5 does not have an onboard LSI controller. SSD Expansion Card (LSI 1064E, FRU 46M6908) required for SSD or SAS Connectivity Card support

Blade Server to I/O Adapters/Modules Interoperability continued

Option Part Number / Feature Code for x / Feature Code for p	I/O Expansion adapters/cards or connection devices (Form Factor)	H X 5	H S 1 2	H S 2 1	H S 2 1 X M	H S 2 2	H S 2 2 V	L S 2 2	L S 4 2
Fibre Channel									
26R0890	QLogic 4Gb SFF Fibre Channel Expansion Card (SFF) ⁴	-	-	Y	Y	-	-	-	-
39Y9186	Emulex 4Gb SFF Fibre Channel Expansion Card (SFF) ⁵	-	-	Y	Y	-	-	-	-
39Y9306 // 8252	QLogic Ethernet and 4Gb Fibre Channel Expansion Card (CFH) ^{3,4}	-	Y	Y	Y	-	-	Y	Y
43W6859 // 8251	Emulex 4Gb Fibre Channel Expansion Card (CFV) ⁵	-	Y	Y	Y	-	-	Y	Y
41Y8527 // 8248	QLogic 4Gb Fibre Channel Expansion Card (CFV) ⁴	-	Y	Y	Y	-	-	Y	Y
44X1940//8271	QLogic Ethernet and 8 GB Fibre Channel Expansion Card (CFH) ^{3,6}	Y	Y	Y	Y	Y	Y	Y	Y
44X1945 // 8242	QLogic 8Gb Fibre Channel Card (CIOv) ¹	Y	-	-	-	Y	Y	-	-
46M6065//8241	QLogic 4Gb Fibre Channel Expansion Card (CIOv) for IBM BladeCenter	Y	-	-	-	Y	Y	-	-
46M6140 //8240	Emulex 8Gb Fibre Channel Expansion Card (CIOv)	Y	-	-	-	Y	Y	-	-
Myrinet									
73P6000 // 8247	Myrinet Cluster Expansion Card (StFF)	-	-	Y	Y	-	-	Y	Y
iSCSI									
32R1923	QLogic iSCSI Expansion Card (StFF)	-	-	Y	Y	-	-	Y	Y
Other Blade Options									
38R4163	PCI NVRAM Blade Adapter	-	-	-	-	-	-	-	-
26K5939	cKVM Feature Card	-	Y	Y	Y	-	-	Y	Y

Blade Server to I/O Adapters/Modules Interoperability continued

Option Part Number / Feature Code for x / Feature Code for p	I/O Expansion adapters/cards or connection devices (Form Factor)	J S 1 2	J S 2 2	J S 2 3	J S 4 3	P S 7 0 0	P S 7 0 1	P S 7 0 2	P N 4 1	Q S 2 1	Q S 2 2
Fibre Channel											
26R0890	QLogic 4Gb SFF Fibre Channel Expansion Card (SFF) ⁴	-	-	-	-	-	-	-	-	-	-
39Y9186	Emulex 4Gb SFF Fibre Channel Expansion Card (SFF) ⁵	-	-	-	-	-	-	-	-	-	-
39Y9306 // 8252	QLogic Ethernet and 4Gb Fibre Channel Expansion Card (CFFh) ^{3,4}	Y	Y	Y	Y	Y	Y	Y	-	-	-
43W6859 // 8251	Emulex 4Gb Fibre Channel Expansion Card (CFFv) ⁵	Y	Y	-	-	-	-	-	-	-	-
41Y8527 // 8248	QLogic 4Gb Fibre Channel Expansion Card (CFFv) ⁴	Y	Y	-	-	-	-	-	-	-	-
44X1940//8271	QLogic Ethernet and 8 GB Fibre Channel Expansion Card (CFFh) ^{3,6}	Y ²	Y ²	Y ²	Y ²	Y ²	Y ²	Y ²	-	-	-
44X1945 // 8242	Qlogic 8GB Fibre Channel Card (CIOv) ¹	-	-	Y	Y	Y	Y	Y	-	-	-
46M6065//8241	QLogic 4Gb Fibre Channel Expansion Card (CIOv) for IBM BladeCenter	-	-	Y	Y	Y	Y	Y	-	-	-
46M6140 //8240	Emulex 8Gb Fibre Channel Expansion Card (CIOv)	-	-	Y	Y	Y	Y	Y	-	-	-
Myrinet											
73P6000 // 8247	Myrinet Cluster Expansion Card (StFF)	-	-	-	-	-	-	-	-	-	-
iSCSI											
32R1923	QLogic iSCSI Expansion Card (StFF)	Y	Y	-	-	-	-	-	-	-	-
Other Blade Options											
38R4163	PCI NVRAM Blade Adapter	-	-	-	-	-	-	-	-	-	-
26K5939	cKVM Feature Card	-	-	-	-	-	-	-	-	-	-

Note 1 Not supported on Brocade 10 port – 4Gb SAN Switch (32R1813) and Brocade 20 port – 4Gb SAN Switch (32R1812)

Note 2 Supported only as a Fibre Channel card with both Linux AIX, and IBM i.

Note 3 Only one CFFh/HS Option is allowed PER Blade. It must be installed on the top unit of the multi-width blade, with the following exception. In the JS43 and PS702, the CFFh/HS option may be stored in the top and/or bottom unit of the double-wide configuration.

Note 4 Internal switch connections to blade ports only supported at 2Gb FC in BC-T and BCH-T chassis with all switches except for 44X1905 / 3241 and 44X1907 / 3241 which support a max of 4Gb internal port speed in BC-HT only. External FC ports max speed is based on the individual switch capabilities.

Note 5 Internal switch connections to blade ports only supported at 2Gb FC in BC-T and BCH-T chassis. External FC ports max speed is based on the individual switch capabilities.

Note 6 Supported only in BCH with MSIM

Blade Expansion cards Form Factors

Blade Servers	CFFh	CFFv	CIOv	HSEC	SFF	StFF
HX5 (7872)	Y	-	Y	-	-	-
HS12 (8014,8028)	Y	Y	Y ²	-	Y	-
HS21 (8853)	Y	Y	-	Y	Y	Y
HS21 XM (7995)	Y	Y	-	Y	Y	Y
HS22 (7870)	Y	-	Y	-	-	-
HS22 V (7871)	Y	-	Y	-	-	-
LS22	Y	Y	-	Y	Y	Y
LS41 (7972)	Y	Y	-	Y	Y	Y
LS42 (Y	Y	-	Y	Y	Y
JS12 (7998-60X)	Y	Y	-	Y	-	Y
JS22 (7998-61x)	Y	Y	-	Y	-	Y ¹
JS23/43 (7778-23x)	Y	-	Y	-	-	-
PS700/701/702 (8406-70Y/71Y)	Y	-	Y	-	-	-
QS21 (0792)	Y	Y	-	Y	-	-
QS22 (0793)	Y	Y	-	Y	-	-

Note 1 JS12 and JS22 can physically accommodate the StFF form factor, but no StFF option cards will be tested and/or supported on it.

Note 2 Only works with ServerRAID-MR10ie (46C7167)

Chassis to I/O Modules Interoperability

Option Part Number/ Feature Code for x/ Feature Code for p	I/O Module	S ¹⁴ (88 86)	E ⁵ (86 77)	T ¹⁴ (DC 8720, AC 8730)	H ^{7, 10, 14} (8852, 7989)	HT ^{7, 10, 14} (8740, 8750)	MSIM ₃	MSIM -HT ³	aMM/ cMM2	MM
SAS										
39Y9195//3267	SAS Connectivity Module	Y	Y ⁶	Y	Y	Y	-	-	Y	-
43W3584 //3734	IBM BladeCenter S SAS RAID Controller Module ⁴	Y	-	-	-	-	-	-	Y	-
Ethernet										
32R1859 // 3211	BNT Layer 2-7 Gb Ethernet Switch	Y	Y	Y ¹³	Y	Y ¹³	-	-	Y	Y
32R1860 // 3212	BNT Layer 2/3 Copper Gb Ethernet Switch	Y ¹²	Y	Y ¹³	Y	Y ¹³	Y ¹	Y	Y	Y
32R1861 // 3213	BNT Layer 2/3 Fiber Gb Ethernet Switch	Y ¹²	Y	Y ¹³	Y	Y ¹³	Y ¹	-	Y	Y
32R1888 // 3214	Cisco Systems Intelligent Gb Fiber Ethernet Switch	-	Y	Y ¹³	Y	Y ¹³	Y ¹	-	Y	-
32R1892	Cisco Systems Intelligent Gb Ethernet Switch	-	Y	Y ¹³	Y	Y ¹³	Y ¹	Y	Y	-
39Y9267	BNT 6-port 10Gb Ethernet Switch Module	-	-	-	Y ⁸	Y ¹³	-	-	Y	-
39Y9324// 3220	Server Connectivity Module	Y	Y	Y ¹³	Y	Y ¹³	Y ¹	-	Y	Y
41Y8522 / 2988 / 3171	Cisco Catalyst Switch Module 3110X	-	Y	Y ¹³	Y	Y ¹³	Y ¹	Y	Y	-
41Y8523 / 2989 / 3173	Cisco Catalyst Switch Module 3110G	-	Y	Y ¹³	Y	Y ¹³	Y ¹	Y	Y	-
43W4395 / 5450 / 3174	Cisco Catalyst Switch Module 3012	Y ¹²	Y	Y ¹³	Y	Y ¹³	Y ¹	Y	Y	-
44W4404 // 1590	BNT 1/10 Gb Uplink Ethernet Switch Module	Y ¹²	Y	Y ¹³	Y	Y ¹³	Y ¹	Y	Y	-
Fibre Channel over Ethernet (FCoE)										
46C7191// 3248	BNT 10-Port 10 Gb Ethernet Switch Module for IBM BladeCenter	-	-	-	Y	Y ¹³	-	-	Y	-
46M6071// 2241	Cisco Nexus 4001I Switch Module	-	-	-	Y	Y	-	-	Y	-
46M6172// 3268	QLogic Virtual Fabric Extension Module	-	-	-	Y	-	-	-	Y ¹¹	-
46M6181// 5412	10Gb Ethernet Pass-Thru Module	-	-	-	Y	Y	-	-	Y	-
69Y1909	Brocade Converged 10GbE Switch Module for IBM BladeCenter	-	-	-	Y	Y	-	-	-	-
InfiniBand										
32R1756 // 3217	Cisco Systems 4X InfiniBand Switch Module	-	-	-	Y	-	-	-	Y	-
43W4419// 3216	4x InfiniBand Pass-Thru Module	-	-	-	Y	-	-	-	Y	-
46M6005// 3204	Voltaire 40Gb InfiniBand Switch Module	-	-	-	Y	-	-	-	Y	-

Note 1 Supported in left I/O Module bay of MSIM (39Y9314) with I/O cards QLogic Ethernet and 4 Gb Fibre Channel Expansion Card (CFFh, 39Y9306) and QLogic Ethernet and 8 GB Fibre Channel Expansion Card (CFFh, 44X1940). Supported in left and right I/O bay with 2/4 Port Ethernet Expansion Card (CFFh, 44W4479).

Note 2 Supported in right I/O Module bay of MSIM (39Y9314) in BC-H or MSIM-HT = 44R5913 in BC-HT with I/O card QLogic Ethernet and 4 Gb Fibre Channel Expansion Card (CFFh, 39Y9306)

Note 3 MSIM = 39Y9314. MSIM-HT = 44R5913

Note 4

- a. SAS RAID Controller Module minimum quantity of 2 is supported and must be installed in BladeCenter S I/O Bays 3 and 4
- b. SAS RAID Controller supports new Nearline SAS disk, ~~(42D0546)~~, which have features similar to SATA disks. The SAS RAID Controller Module does not support SATA disks
- c. SAS RAID Controller should be used with the SAS Expansion Card (CFFv) for IBM BladeCenter (39Y9190), the SAS Connectivity Card (CFFv) for IBM BladeCenter (43W3974) or the SAS Connectivity Card (CIOv) for IBM BladeCenter (43W4068) as appropriate by blade type specified elsewhere in this document (current pages 14-15).
- d. One Battery Backup Unit is shipped / packaged with each SAS RAID Controller
- e. External storage or host attachment via the external SAS ports on the SAS RAID Controller is not supported.

Note 5 BCE chassis came standard with the Management Module, not the Advanced Management Module (AMM).

Note 6 When using BCE chassis with SAS Connectivity module (39Y9195), you must also have a AMM installed in the chassis.

Note 7 44W4479 is a four port 1GB Ethernet adapter. It requires the MSIM in the BC-H or MSIM-HT in the BC-HT and an ethernet switch in the left and right side of the MSIMs or up to 4 BNT Virtual Fabric 10Gb (46C7191) or Cisco Nexus 4001i (46M6071) high-speed switch modules.

Note 8 BC-H and BC-HT now supports four BNT 6-port 10Gb Ethernet Switches (39Y9267) when combined with Broadcom 4 port 10GB card (44W4465)

Note 10 Power supplies 3 and 4 are required when installing a switch module into Bays 5 through 10

Note 11 Supports only aMM

Note 12 Supported in BC-S chassis bay 1 or bay 2 with a CFFh Ethernet card

Note 13 Switch is NEBS Level 3 compliant in respective chassis. Reports are available upon request.

Note 14 Link Aggregation is not supported with the SOL ethernet port on JS and PS blades.

Chassis to I/O Modules Interoperability continued

A Brocade SAN Switch Module for BladeCenter or any other Brocade switch or director utilizing the Fabric OS Access Gateway mode can connect to an INCITS T11 NPIV compliant device. The Brocade Access Gateway mode was designed to adhere to this standard. In addition, any INCITS T11 NPIV compliant device can connect to a Brocade switch or director that supports NPIV connectivity. Brocade does not test or make a discreet statement of support for any other vendor's devices. Brocade will assist IBM with problem determination for compliant configurations.

Option Part Number / Feature Code for x / Feature Code for p	I/O Module	S (88 86)	E (86 77)	T (DC 8720, AC 8730)	H ¹² (8852, 7989)	HT ¹² (8740, 8750)	MSIM	MSIM-HT	aMM/cMM2	MM
Fibre Channel										
32R1812 // 3206	Brocade 20 port – 4Gb SAN Switch	-	Y	Y ^{6,15}	Y	Y ^{6,15}	Y ^{2,5}	-	Y	Y
32R1813 // 3207	Brocade 10 port – 4Gb SAN Switch	Y	Y	Y ^{6,15}	Y	Y ^{6,15}	Y ^{2,5}	-	Y	Y
39Y9280 // 3242	Cisco Systems 4Gb 20 port Fibre Channel Switch Module	-	Y	Y ⁶	Y	Y ^{6,15}	Y ^{2,5}	-	Y	Y
39Y9284 // 3241	Cisco Systems 4Gb 10 port Fibre Channel Switch Module	Y	Y	Y ⁶	Y	Y ^{6,15}	Y ^{2,5}	-	Y	Y
43W6723 // 3245	4Gb Intelligent Pass-thru Module for IBM BladeCenter	Y	Y	Y ⁶	Y	Y ⁶	Y ^{2,5}	-	Y	Y
43W6724 // 3243	QLogic 10 port – 4Gb SAN Switch Module	Y	Y	Y ^{6,15}	Y	Y ^{6,15}	Y ^{2,5}	Y ²	Y	Y
43W6725 // 3244	QLogic 20 port – 4Gb SAN Switch Module	-	Y	Y ^{6,15}	Y	Y ^{6,15}	Y ^{2,5}	Y ²	Y	Y
44X1905 // 3284	QLogic(R) 20-port 8 Gb SAN Switch Module ⁷	Y	Y	Y ⁸	Y	Y ^{9,15}	Y ^{2,5}	-	Y	-
44X1907 // 5449	QLogic(R)8 Gb Intelligent Pass-thru Module ⁷	Y	Y	Y ⁸	Y	Y ^{9,15}	Y ^{2,5}	-	Y	-
42C1828	Brocade Enterprise 20port switch with software	-	Y ¹⁰	-	Y ¹⁰	Y ^{9,10,15}	Y ^{5,11}	-	Y	-
44X1920//5869	Brocade 20-port 8Gb SAN Switch Module	-	Y ¹⁰	-	Y ¹⁰	Y ^{9,10,15}	Y ^{5,11}	-	Y	-
44X1921//5045	Brocade 10-port 8Gb SAN Switch Module	-	Y ¹⁰	-	Y ¹⁰	Y ^{9,10,15}	Y ^{5,11}	-	Y	-
Other Modules										
39Y9314 // 3239	Multi-switch Interconnect Module (MSIM)	-	-	-	Y	-	-	-	Y	-
44R5913 //	Multi-switch Interconnect Module (MSIM-HT)	-	-	-	-	Y ¹⁵	-	-	Y	-
39Y9316 // 3218	Optical Pass-thru Module	Y	Y	Y ¹⁵	Y	Y ¹⁵	Y ⁴	-	Y	Y
39Y9320 // 3219	Copper Pass-thru Module ¹⁶	Y	Y ¹³	Y ¹⁵	Y	Y ¹⁵	Y ^{1,14}	-	Y	Y
44W4483	Intelligent Copper Pass-thru Module	Y	Y	Y ¹⁵	Y	Y ¹⁵	Y ^{1,14}	-	Y	-

Note 1 Supported in left I/O Module bay of MSIM (39Y9314) with I/O card QLogic Ethernet and 4 Gb Fibre Channel Expansion Card (CFFh, 39Y9306) and supported in left and right I/O module bay of MSIM (39Y9314) with I/O card 2/4 Port Ethernet Expansion Card (CFFh, 44W4479).

Note 2 Supported in right I/O Module bay of MSIM and MSIM-HT with I/O card QLogic Ethernet and 4 Gb Fibre Channel Expansion Card (CFFh, 39Y9306)

Note 3 Not supported or not applicable for use with MSIM (39Y9314) or MSIM-HT (44R5913)

Note 4 OPM is supported in MSIM (39Y9314) for Ethernet in left or right I/O module bay with I/O card 2/4 Port Ethernet Expansion Card (CFFh, 44W4479) or Fibre Channel in right I/O module bay with I/O card QLogic Ethernet and 4 Gb Fibre Channel Expansion Card (CFFh, 39Y9306)

Note 5 Supported in right I/O Module bay of MSIM with I/O card QLogic Ethernet and 8 Gb Fibre Channel Expansion Card (CFFh, 44X1940)

Note 6 Internal switch connections to blade ports only supported at 2Gb FC. External ports support full 4Gb FC.

Note 7 Not supported in combination with Cell blade (QS)

Note 8 Internal switch connections to blade ports only supported at 2Gb FC. External ports support up to 8Gb FC.

Note 9 Internal switch connections to blade ports supported at 2Gb or 4Gb maximum speed depending on the type of FC expansion card being used. See the Blade Server to I/O Adapters/Modules Interoperability Table in this document for more details. External ports support up to 8Gb FC.

Note 10 Does not support Emulex 4Gb Expansion cards

Note 11 Supports only 8Gb CFFh expansion cards in MSIM

Note 12 Power supplies 3 and 4 are required when installing a switch module into Bays 5 through 10

Note 13 Must be paired with an additional switch or Intelligent Copper Pass-thru Module (44W4483) to flash HS22 firmware through the aMM

Note 14 QLogic Ethernet and 8 GB Fibre Channel Expansion Card (44X1940, CFFH) supported in MSIM bays 7/9

Note 15 Switch is NEBS Level 3 compliant in respective chassis. Reports are available upon request.

Note 16 Not supported with PS70x blades

Enhance I/O Redundancy on BladeCenter S

		Ethernet 2 Ports	Ethernet 4 Ports	Ethernet 6 Ports
S A S	0	Base NIC on Blade	Base NIC + 2/4 port 1Gb CFFh (44W4479)	Base NIC + 2 port 1Gb CFFv (39Y9310) + 2/4 port 1Gb CFFh (44W4479)
S A S	2	Base NIC + SAS Expansion card (CFFv) (39Y9190 or 43W3974)	Base NIC + SAS Expansion card (CFFv) (39Y9190 or 43W3974) + 2/4 port 1Gb CFFh (44W4479)	

Enhance I/O Flexibility on BladeCenter H and BladeCenter HT

		Ethernet; requires MSIM in High Speed Bays	Ethernet; requires MSIM or MSIM-HT in High Speed Bays	Ethernet; requires MSIM or MSIM-HT in High Speed Bays	Ethernet; requires MSIM or MSIM-HT in High Speed Bays
Fibre Channel		2 Ports	4 Ports	6 Ports	8 Ports
Fibre Channel	0	Base NIC on Blade	Base NIC + 2 port 1Gb CFFv (39Y9310)	Base NIC + 2/4 port 1Gb CFFh (44W4479) or 4 port 10Gb CFFh (44W4465)	Base NIC + 2 port 1Gb CFFv (39Y9310) + 2/4 port 1Gb CFFh (44W4479) or 4 port 10Gb CFFh (44W4465)
Fibre Channel	2	Base NIC + 2 port 4Gb FC card (CFFv) (41Y8527) OR 2 port 4Gb FC card (CFFv) (43W6859)	B Base NIC + 2 FC & 2 Ethernet Combo card (CFFh) (39Y9306 or 44X1940) OR Base NIC + 2 port 4Gb FC card (CFFv) (41Y8527 or 43W6859) + 2/4 port 1Gb CFFh (44W4479) or 2 port 10Gb CFFh (44W4466)	Base NIC + 2 port 4Gb FC card (CFFv) (41Y8527) or (43W6859) + 2/4 port 1Gb CFFh (44W4479) or 4 port 10Gb CFFh (44W4465)	N/A
Fibre Channel	4	Base NIC + 2 port 4Gb FC card (CFFv) (41Y8527 or 43W6859) + 2 FC & 2 Ether net Combo card (CFFh) (39Y9306 or 44X1940)	Base NIC + 2 port 4Gb FC card (CFFv) (41Y8527 or 43W6859) + 2 FC & 2 Ethernet Combo card (CFFh) (39Y9306 or 44X1940)	N/A	N/A

Switch to card Interoperability

Option Part Number	I/O Module	1GB to the blade					10GB to the blade							
		32R1923 QLogic iSCSI Expansion Card (SFF)	39R8624 SFF Gb Expansion Card (SFF)	39Y9310 Ethernet Expansion Card (CFFv)	44W4475 Ethernet Expansion Card (C10v)	44W4479 2/4 Port Ethernet Expansion Card (CFFh)	81Y1650 Brocade 2-port 10GbE Converged Network Adapter	42C1830 QLogic 2-port 10Gb Converged Network Adapter (CFFh)	44W4465 4 port 10Gb card (CFFh)	44W4466 Brocade 10Gb 2-port Ethernet Exp Card (CFFh)	46M6164 Brocade 10 Gb Gen 2 4-port Ethernet Expansion Card (CFFh)	49Y4235 Emulex Virtual Fabric Adapter (CFFh)	46M6168 Brocade 10 Gb Gen 2 2-port Ethernet Expansion Card (CFFh)	42C1810 Intel 10 Gb 2-port Ethernet Expansion Card (CFFh)
Ethernet														
32R1859	BNT Layer 2-7 Gb Ethernet Switch	-	-	Y	Y	Y ⁵	-	-	-	-	-	-	-	-
32R1860	BNT Layer 2/3 Copper Gb Ethernet Switch	-	-	Y	Y	Y ¹	-	-	-	-	-	-	-	-
32R1861	BNT Layer 2/3 Fiber Gb Ethernet Switch	-	-	Y	Y	Y ¹	-	-	-	-	-	-	-	-
32R1888	Cisco Systems Intelligent Gb Fiber Ethernet Switch	Y	Y	Y	Y	Y ¹	-	-	-	-	-	-	-	-
32R1892	Cisco Systems Intelligent Gb Ethernet Switch	Y	Y	Y	Y	Y ¹	-	-	-	-	-	-	-	-
39Y9267	BNT 10G Ethernet Switch Module for IBM BladeCenter	-	-	-	-	-	-	-	Y	Y	Y	Y ³	Y	Y ⁷
39Y9324	Server Connectivity Module	-	-	Y	Y	Y ¹	-	-	-	-	-	-	-	-
41Y8522	Cisco Catalyst Switch Module 3110X	Y	Y	Y	Y	Y ¹	-	-	-	-	-	-	-	-
41Y8523	Cisco Catalyst Switch Module 3110G	Y	Y	Y	Y	Y ¹	-	-	-	-	-	-	-	-
43W4395	Cisco Catalyst Switch Module 3012	Y	Y	Y	Y	Y ¹	-	-	-	-	-	-	-	-
44W4404	BNT 1/10 Gb Uplink Ethernet Switch Module	-	-	Y	Y	Y ¹	-	-	-	-	-	-	-	-
44W4483	Intelligent Copper Pass-thru Module	Y	Y	Y	Y	Y ¹	-	-	-	-	-	-	-	-
Fibre Channel over Ethernet (FCoE)														
46C7191	BNT 10-Port 10 Gb Ethernet Switch Module for IBM BladeCenter	-	-	-	-	Y	-	Y ⁶	Y	Y	Y	Y ²	Y	Y
46M6181	10Gb Ethernet Pass-Thru Module	-	-	-	-	-	-	Y ⁶	-	-	Y	Y ³	Y	Y
46M6071	Cisco Nexus 4001I Switch Module	-	-	-	-	Y	-	Y ⁶	Y	Y	Y	Y ³	Y	Y
46M6172	QLogic Virtual Fabric Extension Module	-	-	-	-	-	-	Y ^{4,6}	-	-	-	-	-	-
69Y1909	Brocade Converged 10GbE Switch Module for IBM BladeCenter	-	-	-	-	-	Y	Y ⁶	-	-	-	-	-	-

Note 1 Requires MSIM in BC-H or MSIM-T in BC-HT

Note 2 Supports vNic capability as long as 46C7191 is not stacked

Note 3 Supports only pNic mode

Note 4 Requires BNT Virtual Fabric 10Gb switch module for IBM BladeCenter (46C7191)

Note 5 Supports only BC-S

Note 6 See FCoE Configuration Matrix for JS/PS Blades

Note 7 Force switch port to 10Gb fixed, WoL not supported

Switch to card Interoperability continued

Option Part Number	I/O Module		4GB	26R0890 QLogic 4Gb SFF Fibre Channel Expansion Card (SFF)	39Y9186 Emulex 4Gb SFF Fibre Channel Expansion Card (SFF)	39Y9306 QLogic Ethernet and 4Gb Fibre Channel Expansion Card (CFFh)	43W6859 Emulex 4Gb Fibre Channel Expansion Card (CFFv)	41Y8527 QLogic 4Gb Fibre Channel Expansion Card (CFFv)	46M6065 QLogic 4Gb Fibre Channel Expansion Card (CIOv)	8GB	44X1940 QLogic Ethernet and 8 GB Fibre Channel Expansion Card (CFFH)	44X1945 Qlogic 8GB Fibre Channel Card (CIOv)	46M6140 Emulex 8Gb Fibre Channel Expansion Card (CIOv)
Fibre Channel													
4GB													
32R1812	Brocade 20 port – 4Gb SAN Switch			Y	Y	Y	Y	Y	Y		Y	-	Y
32R1813	Brocade 10 port – 4Gb SAN Switch			Y	Y	Y	Y	Y	Y		Y	-	Y
39Y9280	Cisco Systems 4Gb 20 port Fibre Channel Switch Module			Y	Y	Y	Y	Y	Y		Y	Y	Y
39Y9284	Cisco Systems 4Gb 10 port Fibre Channel Switch Module			Y	Y	Y	Y	Y	Y		Y	Y	Y
43W6723	4Gb Intelligent Pass-thru Module for IBM BladeCenter			Y	Y	Y	Y	Y	Y		Y	Y	Y
43W6724	QLogic 10 port – 4Gb SAN Switch Module			Y	Y	Y	Y	Y	Y		Y	Y	Y
43W6725	QLogic 20 port – 4Gb SAN Switch Module			Y	Y	Y	Y	Y	Y		Y	Y	Y
8GB													
44X1905	QLogic 20-port 8Gb SAN Switch Module ⁷			Y	Y	Y	Y	Y	Y		Y	Y	Y
44X1907	QLogic 8Gb Intelligent Pass-thru Module			Y	Y	Y	Y	Y	Y		Y	Y	Y
42C1828	Brocade Enterprise 20port switch with software			Y	-	Y	Y	Y	Y		Y	Y	Y
44X1920	Brocade 20-port 8Gb SAN Switch Module			Y	-	Y	Y	Y	Y		Y	Y	Y
44X1921	Brocade 10-port 8Gb SAN Switch Module			Y	-	Y	Y	Y	Y		Y	Y	Y

Switch to card Interoperability continued

Option Part Number	I/O Module	32R1760 Cisco Systems 4X InfiniBand Expansion Card (HSFF)	43W4420 Voltaire 4x InfiniBand DDR Expansion Card (CFFh)	43W4423 4x InfiniBand DDR Expansion Card (CFFh)	46M6001 2-port 40Gb InfiniBand Expansion Card (CFFh)
	InfiniBand				
32R1756	Cisco Systems 4X InfiniBand Switch Module	Y	-	-	-
43W4419	4x InfiniBand Pass-Thru Module	-	Y	Y	-
46M6005	Voltaire 40Gb InfiniBand Switch Module	-	Y	Y	Y

Option Part Number	I/O Module	39Y9190 SAS Expansion Card for IBM BladeCenter (CFFv)s	43W3974 SAS Connectivity Card (CFFv)	43W4068 SAS Connectivity Card (CIOv)	46C7167 ServeRAID MR101e (CIOv)
	SAS				
39Y9195	IBM BladeCenter SAS Connectivity Module	Y	Y	Y	Y
43W3584	SAS RAID Controller Module for BladeCenter S Chassis	Y	Y	Y	N

FCoE Configuration Matrix for IBM BladeCenter

Blade Converged Network Adapter (IBM PN, Vendor PN)	BladeCenter Switch Module	FCoE Top of Rack Switch	Supported SAN Fabric
QLogic CNA (42C1830, QMI8142)	10Gb Ethernet Pass-Thru Module (46M6181)	IBM Converged Switch B32 (Brocade 8000) ¹	Brocade
QLogic CNA (42C1830, QMI8142)	10Gb Ethernet Pass-Thru Module (46M6181)	Cisco Nexus 5010/5020 ²	Cisco
QLogic CNA (42C1830, QMI8142)	Cisco® Nexus 4001I Switch Module (46M6071)	Cisco Nexus 5010/5020 ²	Cisco
QLogic CNA (42C1830, QMI8142)	BNT Virtual Fabric 10Gb Switch Module (46C7191) + QLogic Virtual Fabric Extension Module (46M6172)	Not Required	Brocade ³ & Cisco ³
QLogic CNA (42C1830, QMI8142)	Brocade Converged 10GbE Switch (69Y1909)	IBM Converged Switch B32 (Brocade 8000) ^{1, 4}	Brocade
QLogic CNA (42C1830, QMI8142)	Brocade Converged 10GbE Switch (69Y1909)	Not Required	Brocade
Brocade CNA (81Y1650, IB-1007)	Brocade Converged 10GbE Switch (69Y1909)	IBM Converged Switch B32 (Brocade 8000) ^{1, 4}	Brocade
Brocade CNA (81Y1650, IB-1007)	Brocade Converged 10GbE Switch (69Y1909)	Not Required	Brocade

Note 1 For full interoperability for IBM Converged Switch B32 (Brocade 8000), go to <http://www-03.ibm.com/systems/storage/san/b-type/library.html>

Note 2 For full interoperability for Cisco Nexus Switch for IBM System go to <http://www-03.ibm.com/systems/networking/hardware/ethernet/c-type/nexus/index.html>

Note 3 Must be through Intelligent Pass Through Mode through QLogic Virtual Fabric Extension Module

Note 4 Ethernet traffic only to ToR, FibreChannel traffic direct to SAN from BladeCenter Switch Module

FCoE Configuration Matrix for JS/PS Blades

Blade Converged Network Adapter (FC# for P, Option PN)	BladeCenter Switch Module	FCoE Top of Rack Switch
QLogic CNA (FC#8275 , 42C1830) ³	10Gb Ethernet Pass-Thru Module (FC#5412)	IBM Converged Switch B32 (Brocade 8000) ¹
QLogic CNA (FC#8275 , 42C1830) ⁵	10Gb Ethernet Pass-Thru Module (FC#5412)	Cisco Nexus 5010/5020 ²
QLogic CNA (FC#8275 , 42C1830) ⁴	BNT Virtual Fabric 10Gb Switch Module (FC#3248)	TOR w/NIC traffic only
QLogic CNA (FC#8275 , 42C1830) ⁷	BNT Virtual Fabric 10Gb Switch Module (FC#3248) + QLogic Virtual Fabric Extension Module (FC#3268) ⁶	TOR not required ^{1, 2}
QLogic CNA (FC#8275 , 42C1830) ⁷	Cisco® Nexus 4001I Switch Module (FC#2241, 2242) ⁸	Cisco Nexus 5010/5020 ^{2, 9}

Note 1 For full interoperability for IBM SAN b-type switches, go to <http://www-03.ibm.com/systems/storage/san/b-type/library.html>. Refer to 3rd party providers for 3rd party storage support information.

Note 2 For full interoperability for Cisco Nexus Switch for IBM System go to <http://www-03.ibm.com/systems/networking/hardware/ethernet/c-type/nexus/index.html> . Refer to 3rd party providers for 3rd party storage support information.

Note 3 Support for NPIV with VIOS 2.1.3.0, AIX 5.3 TL 12 and 6.1 TL 5 or later.

Note 4 Supports VIOS 2.1.3.0, AIX 5.3 TL 12 and 6.1 TL 5 or later .

Note 5 Support for NPIV with VIOS 2.1.3.0 and AIX 6.1 TL6 SP3 or later .

Note 6 Requires BNT FW 6.5.0.29, Qlogic FW V9.0.3.2.0, or later levels. Must be through Intelligent Pass Through Mode through QLogic Virtual Fabric Extension Module.

Note 7 Requires IBMi 6.1.1 or 7.1 TR1, VIOS 2.2.0.0, AIX5.3.TL12, AIX 6.1.TL5, AIX 7.1, QLogic CNA FW 010203; or later levels. Host side NPIV is supported.

Note 8 Requires Nexus 4001 FW level 4.1(2)E1(1d) or later level

Note 9 IBMi supports DS8000 storage only. For AIX and Linux, IBM storage is not currently supported. Refer to 3rd party providers for 3rd party storage support information.

Switch to Transceiver Interoperability

Option Part Number // Feature code for P	I/O Module	32R1877 IBM 10GBase-SR XFP	44W4408 //3282 10GBase-SR 10GbE 850 nm Fiber ok. +	BN-CKM-SP-LR BLADE 10GBase-LR SFP+	BN-CKM-SP-SR BLADE 10Gbase-SR SFP+	BN-CKM-S-T BLADE 1000Base-T SFP	BN-CKM-S-SX BLADE 1000Base-SX SFP	BN-CKM-S-LX BLADE 1000Base-LX SFP	BN-CKM-SR BLADE 10GBase-SR XFP	BN-CKM-X-CX4 BLADE 10GBase-CX4 XFP	JXP-01LWAA1 JDSU 10Gbase-LR XFP (requires SW ver. 1.2.5.1 or newer)	88Y6606 Cisco OneX Converter Module (Cisco CVR-X2-SFP 10G)	Cisco X2-10GB-CX4	Cisco X2-10GB-SR	Cisco SFP-H10GB-CU1M	Cisco SFP-H10GB-CU3M	Cisco SFP-H10GB-CU5M	Cisco X2-10GB-LX4	88Y6058 Cisco 1000BASE-T SFP (GLC-T)	88Y6062 Cisco 1000BASE-SX SFP (GLC-SX-MM)	88Y6054 Cisco 10GBase-SR SFP + (SFP-10G-SR)	GE SFP, LC connector LX/LH (GLC-LH-SM)	45W2398 Copper Direct Attach Cable – 1M	45W2408 Copper Direct Attach Cable – 3M	45W3039 Copper Direct Attach Cable – 5M		
Ethernet																											
32R1861	BNT Layer 2/3 Fiber Gb Ethernet Switch	-	-	-	-	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32R1888	Cisco Systems Intelligent Gb Fiber Ethernet Switch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39Y9267	BNT 10G Ethernet Switch Module	Y	-	-	-	-	-	-	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41Y8522	Cisco Catalyst Switch Module 3110X	-	-	-	-	-	-	-	-	-	-	Y	Y	Y	-	-	-	Y	Y	Y	Y	-	-	-	-	-	-
43W4395	Cisco Catalyst Switch Module 3012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41Y8523	Cisco Catalyst Switch Module 3110G	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44W4404	BNT 1/10 Gb Uplink Ethernet Switch Module	-	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Y	Y	Y	-	-
Fibre Channel over Ethernet (FCoE)																											
46C7191	BNT 10-Port 10 Gb Ethernet Switch Module for IBM BladeCenter	-	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Y	Y	Y	-
46M6071	Cisco Nexus 4001I Switch Module	-	-	-	-	-	-	-	-	-	-	-	-	-	Y	Y	Y	-	Y	Y	Y	Y	-	-	-	-	-
46M6172	QLogic Virtual Fabric Extension Module	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46M6181	10Gb Ethernet Pass-Thru Module	-	Y	-	-	-	-	-	-	-	-	-	-	Y	Y	Y	-	-	-	-	-	-	Y	Y	Y	-	-

Switch to Transceiver Interoperability continued

Option Part Number // Feature code for P	I/O Module	22R4902 4 Gbps SW SFP Transceiver	44x1962 //5358 Brocade 8Gb SFP+ SW Optical Xcvr	49&4216 Brocade 10Gb SFP+ SR Optical Transceiver	45W0493 SFP Transceiver 4 Gbps SW	45W0495 SFP Transceiver 4 Gbps 10Km LW	45W0499 SFP Transceiver 4 Gbps 30Km ELW	45W0494 SFP Transceiver 4 Gbps 4Km LW	45W1216 SFP Transceiver 8 Gbps 10 km LW	45W0500 SFP Transceiver 8 Gbps SW	41Y8598 //3261 Cisco Systems 4Gb SW SFP	39R6475//3238 4-Gbps SW SFP Transceiver	26K7941 Short Wave 4Gb SFP pair	44X1964//3286 8Gb SFP+ SW Optical Transceiver	23R1703 SFP Transceiver 4 Gbps 4 km LW	23R1704 SFP Transceiver 4 pk 4 Gbps 4 km LW	22R4897 SFP Transceiver 4 pk 4 Gbps SW	
Fibre Channel																		
32R1812	Brocade 20 port – 4Gb SAN Switch	Y	-	-	Y	-	-	-	-	-	-	Y	Y	-	-	-	-	-
32R1813	Brocade 10 port – 4Gb SAN Switch	Y	-	-	Y	-	-	-	-	-	-	Y	Y	-	-	-	-	-
39Y9280	Cisco Systems 4Gb 20 port Fibre Channel Switch Module	-	-	-	-	-	-	-	-	-	Y	-	-	-	-	-	-	-
39Y9284	Cisco Systems 4Gb 10 port Fibre Channel Switch Module	-	-	-	-	-	-	-	-	-	Y	-	-	-	-	-	-	-
43W6723	4Gb Intelligent Pass-thru Module for IBM BladeCenter	Y	-	-	-	-	-	-	-	-	-	Y	Y	-	-	-	-	-
43W6724	QLogic 10 port – 4Gb SAN Switch Module	Y	-	-	-	-	-	-	-	-	-	Y	Y	-	-	-	-	-
43W6725	QLogic 20 port – 4Gb SAN Switch Module	Y	-	-	-	-	-	-	-	-	-	Y	Y	-	-	-	-	-
44X1905	QLogic(R) 20-port 8 Gb SAN Switch Module	Y	-	-	-	-	-	-	-	-	-	Y	Y	Y	Y	Y	Y	Y
44X1907	QLogic(R)8 Gb Intelligent Pass-thru Module	Y	-	-	-	-	-	-	-	-	-	Y	Y	Y	Y	Y	Y	Y
44X1920	Brocade 20-port 8Gb SAN Switch Module	-	Y	-	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-
44X1921	Brocade 10-port 8Gb SAN Switch Module	-	Y	-	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-
42C1828	Brocade 20-port Enterprise 8Gb SAN Switch Module	-	Y	-	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-
Fibre Channel over Ethernet (FCoE)																		
46M6172	QLogic Virtual Fabric Extension Module	Y	-	-	-	-	-	-	-	-	-	Y	Y	Y	Y	Y	Y	Y
69Y1909	Brocade Converged 10GbE Switch Module	-	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Fibre Channel NPIV Support Matrix on JS and PS Blades

NPIV Compatibility Matrix	AIX Client			IBM i Client			Linux Client		
	QLogic 8Gb CIOv Feature Code #8242 ¹	QLogic 8Gb CFFh Feature Code #8271 ¹	Emulex 8Gb CIOv Feature Code #8240	QLogic 8Gb CIOv Feature Code #8242 ¹	QLogic 8Gb CFFh Feature Code #8271 ¹	Emulex 8Gb CIOv Feature Code #8240	QLogic 8Gb CIOv Feature Code #8242 ¹	QLogic 8Gb CFFh Feature Code #8271 ¹	Emulex 8Gb CIOv Feature Code #8240
QLogic 4Gb Switch Modules Feature Codes #3243, #3244 See Note 2	N	N	N	N	N	N	N	N	N
QLogic 8Gb Switch Module Feature Code #3284 See Note 3	Y	Y	N	Y ⁸	Y ⁸	N	Y	Y	N
Brocade 4Gb Switch Modules Feature Codes #3206, #3207	N	N	Y ⁵	N	N	Y ⁴	N	N	Y
Brocade 8Gb Switch Modules Feature Codes #5045, #5869, Option# 42C1828	Y	Y	Y	Y ⁸	Y ⁸	Y ⁴	Y	Y	Y
Cisco 4Gb Switch Module Feature Code #3242	Y ⁷	Y ⁷	Y ⁶	Y ¹⁰	Y ¹⁰	Y ⁴	N	N	N
QLogic 8Gb Int. Passthrough Module Feature Code #5449	Y ⁹	Y ⁹	N	N	N	N	N	N	N

Note 1 Requires firmware version level 5.02.01 or later

Note 2 Requires firmware version level 6.5.0.22.00 or later

Note 3 Requires firmware version level 7.10.1.04 or later

Note 4 Virtual Tape only with VIOS 2.1.2 or later

Note 5 Requires AIX 6.1 TL5 and AIX 5.3 TL12, Emulex adapter FW level 1.11A8 and Brocade switch firmware level v6.2.1b ; or later levels.

Note 6 Requires AIX 6.1 TL5 or AIX 5.3 TL11 or later levels, Emulex adapter FW 1.11A8 and Cisco switch firmware level v4.2(3); or later levels.

Note 7 Requires VIOS 2.1.2, AIX 5.3 TL 12 , AIX 6.1 TL5, 4Gb Cisco SM FW v4.2.3 , Qlogic 8Gb FC adapter FW 0314050309, or later levels

Note 8 DS8000 support requires Qlogic 8Gb FC adapter FW 0314050309 or later

Note 9 Requires VIOS 2.1.3, AIX 6.1 TL6, AIX 7.1, 8Gb IPM FW level 7.10.1.4.0 or later levels

Note 10 Requires VIOS 2.2.0 , IBM i 6.1.1 and 7.1, Cisco 4G SM FW 3.3 (2), or later levels

BladeCenter S SAS RAID Controller Module Support; Hardware, Software and Blade Interoperability

The IBM BladeCenter S SAS RAID Module Interoperability Matrix is a separate document that contains the detailed information for the SAS RAID Module.

SAS RAID Module Interoperability - General Contents

Hardware Requirements:

- BladeCenter Chassis
- Management Modules
- Ethernet Switch Modules
- Blade Servers
- Storage Devices (Drives)

Software Requirements:

- Operating Systems
- IBM Storage Configuration Manager
- Path Management Support (SAS Expansion Card - Multipath Drivers)
- Management Module
- SAS RAID Controller Firmware Update Package
- SAS Device Drivers
- SAS Expansion Card (CFFv) BIOS and Firmware

Note: One Battery Backup Module (22R6833) is provided/included with each SAS RAID Module (43W3584/3734)

SAS RAID Module Interoperability – How to obtain the document

Option 1 – Find from SAS RAID Module ibm.com support page.

1. Go to: <http://www.ibm.com/systems/support/supportsite.wss/docdisplay?Indocid=MIGR-5078481&brandind=5000020>

2. Click "Guide" Link for "SAS RAID Module - Interoperability Guide"

3. View / Download: "SAS RAID Module Interoperability Guide"

Option 2 – Direct Link to SAS RAID Module Interoperability Guide Download Page

1. Go to: <http://www.ibm.com/systems/support/supportsite.wss/docdisplay?Indocid=MIGR-5078491&brandind=5000020>

2. View / Download: "SAS RAID Module Interoperability Guide"

Note: REQUIRED ACTION: Review SAS RAID Module Support website prior to installing the BladeCenter S SAS RAID Module. This website contains links and documentation for all requirements related to the SAS RAID Module option.

Direct link to SAS RAID Module support page.

1. Go to: <http://www.ibm.com/systems/support/supportsite.wss/docdisplay?Indocid=MIGR-5078481&brandind=5000020>

Note: SAS RAID Module requires the following Host SAS Adapter. Details about the Host SAS Adapter are contained within the SAS RAID Module Interoperability Guide.

Option Number/AAS Feature	Description
39Y9190 / 8250	SAS Expansion Card (CFFv)
43W4068 / 8246	SAS Connectivity Card (CIOv)
43W3974 / NA	SAS Connectivity Card (CFFv) (HS21 XM, HS12, HS22)

Note: SAS RAID Module drive support details are contained within the SAS RAID Module Interoperability Guide. Mixing SAS and Nearline SAS is supported as long as each drive type is part of a separate array in the BladeCenter S SAS RAID Controller Module. To ensure maximum availability, it's recommended that configurations include at least 1 spare of each drive type.

Option Number/AAS Feature Code	FRU Number	Drive Capacity	Form Factor	Speed	Description
43W7523 / 3748	43W7525	73Gb	3.5"	15K	Hot Swap SAS HDD
43W7524 / 3749	43W7526	146Gb	3.5"	15K	Hot Swap SAS HDD
43X0802 / 3747	43X0805	300Gb	3.5"	15K	Hot Swap SAS HDD
44W2234 / 3747	42D0568	300Gb	3.5"	15K	Hot Swap SAS HDD
42D0519 / 3762	42D0520	450Gb	3.5"	15K	Hot Swap SAS HDD
44W2239 / 3762	42D0573	450Gb	3.5"	15K	Hot Swap SAS HDD
44W2244 / 3763	42D0578	600Gb	3.5"	15K	Hot Swap SAS HDD
42D0546 / NA	42D0548	750Gb	3.5"	7.2K	Hot Swap NL SAS HDD
42D0547 / NA	42D0549	1Tb	3.5"	7.2K	Hot Swap NL SAS HDD
42D0777 / NA	42D0778	1Tb	3.5"	7.2K	Hot Swap NL SAS HDD
42D0767 / NA	42D0768	2Tb	3.5"	7.2K	Hot Swap NL SAS HDD

Note: SAS RAID Module requires path management software. Details about path management software are contained within the SAS RAID Module Interoperability Guide.

Windows: IBM Subsystem Device Driver Device Specific Module (SDDDSM)

- http://www.ibm.com/support/docview.wss?rs=540&context=ST52G7&dc=D430&uid=ssg1S4000350&loc=en_US&cs=utf-8&lang=en

Linux: Red Hat/SUSE Device Mapper Multipath (DMM)

- http://www.ibm.com/support/docview.wss?rs=540&context=ST52G7&dc=D430&uid=ssg1S4000107&loc=en_US&cs=utf-8&lang=en

AIX: Subsystem Device Driver Path Control Module (SDDPCM)

- http://www.ibm.com/support/docview.wss?rs=540&context=ST52G7&dc=D430&uid=ssg1S4000201&loc=en_US&cs=utf-8&lang=en

Note: REQUIRED ACTION: If running a Windows Server 2003-based OS, the following Microsoft Hotfixes are required to be downloaded & installed using the following links:

- <http://support.microsoft.com/kb/941276/en-us>
- <http://support.microsoft.com/kb/934739/en-us>

Note: REQUIRED ACTION: If running a Windows Server 2008-based OS, the following Microsoft Hotfixes are required to be downloaded & installed using the following links:

- <http://support.microsoft.com/kb/967349>

Note: IBM Storage Configuration Manager Support information can be found within the IBM Storage Configuration Manager documentation, including operating system and browser support. The SAS RAID Module support page contains a link to the IBM Storage Configuration Manager pages.

Tape on BladeCenter Solution Requirements

System x Tape Description (Machine Type or Part Number)	Comments
BladeCenter Chassis S (8886, 7779), E (8677), H (8852, 7989)	Supported Chassis'
HX5 (7872), HS21 (8853), HS21 XM (7995), LS21 (7971), LS41 (7972), HS22 (7870), LS22 (7901), LS42 (7902)	Supported Blades
HH LTO3 (43W8478), HH LTO4 (44E8895)	Supported Tape Devices. Must be housed in a Tape Enclosure
Tape Enclosures (8767HHX, 8767HNX, 87651UX, 87651NX, 87664UX, 87664NX)	Supported Tape Enclosures
IBM BladeCenter SAS Connectivity Module (39Y9195)	One in each chassis
SAS Expansion Card (CFFv) for IBM BladeCenter (39Y9190)	One in each blade

Storage Group Tape Description (Machine Type or Part Number)	Comments
BladeCenter Chassis S (8886), E (8677), T (DC 8720, AC 8730), H (8852, 7989), HT (8740, 8750)	Supported Chassis'
Blades HX5 (7872), HS21 (8853), HS21 XM (7995), LS21 (7971) LS22 (7901), LS42 (7902)	Supported Blades
Tape Devices TS3100/3200, TS2230, TS2240, TS2900, TS3310	Supported Tape Devices
IBM BladeCenter SAS Connectivity Module (39Y9195)	One in each chassis
SAS Expansion Card (CFFv, 39Y9190)	One in each blade

Storage Group Tape Description (Machine Type or Part Number)	Comments
BladeCenter Chassis S (8886), E (8677), T (DC 8720, AC 8730), H (8852, 7989), HT (8740, 8750)	Supported Chassis'
Blades HX5 (7872), HS22 (7870)	Supported Blades
Tape Devices TS3100/3200, TS2230, TS2240, TS3310, TS3500	Supported Tape Devices
SAS Connectivity Card (CIOv, 43W4068)	One in each blade

Storage Group Tape Description (Machine Type or Part Number)	Comments
BladeCenter Chassis S (8886, 7779), H (8852, 7989), HT (8740, 8750)	Supported Chassis'
Blades JS23 (7778), JS43 (7778), PS700 (8406-70Y), PS701 (8406-71Y), PS702 (8406-71Y)	Supported Blades
Tape Devices TS2900, TS3100/3200, TS3310, TS2230, TS2240, TS2250, TS2350	Supported Tape Devices
SAS Connectivity Card (CIOv, 43W4068)	One in each blade

Storage Group Tape Description (Machine Type or Part Number)	Comments
BladeCenter Chassis S (8886, 7779), H (8852, 7989), HT (8740, 8750), T (DC 8720, AC 8730) – JS12 ONLY	Supported Chassis'
Blades JS12 (7998-60X), JS22 (7998-61X)	Supported Blades
Tape Devices TS2900, TS3100/3200, TS3310, TS2230, TS2240, TS2250, TS2350	Supported Tape Devices
SAS Expansion Card (CFFv, 39Y9190 / 8250)	One in each blade

Storage Group Tape Description (Machine Type or Part Number)	Comments
BladeCenter Chassis S (8886), E (8677), H (8852, 7989)	Supported Chassis'
Blades HX5 (7872), HS21 (8853), HS21 XM (7995), LS21 (7971), LS41 (7972) LS22 (7901), LS42 (7902)	Supported Blades
Tape Devices TS3100/3200, TS2230, TS2240, TS3310, TS3500	Supported Tape Devices
Emulex 4Gb Fibre Channel Expansion Card (CFFv, 3W6859) Qlogic 4Gb Fiber Channel Expansion Card (CFFv, 41Y8527) Qlogic Ethernet and 4Gb Fiber Channel Expansion Card (CFFh, 39Y9306) QLogic CFFh 8Gb Fibre Channel/10Gb Enet Expansion Card (44X1940)	One in each blade

Storage Group Tape Description (Machine Type or Part Number)	Comments
BladeCenter Chassis S (8886), E (8677), H (8852, 7989)	Supported Chassis'
Blades HX5 (7872), HS22 (7870)	Supported Blades
Tape Devices TS3100/3200, TS2230, TS2240, TS3310, TS3500	Supported Tape Devices
QLogic CFFh 8Gb Fibre Channel/10Gb Enet Expansion Card (44X1940) Emulex 1XE 8Gb Fiber Channel Expansion Card (46M6140) QLogic 1XE 4Gb Fibre Channel Expansion Card (46M6065) QLogic 1XE 8Gb Fibre Channel Expansion Card for BladeCenter (44V1945)	One in each blade

Storage Group Tape Description (Machine Type or Part Number)	Comments
BladeCenter Chassis S (8886, 7779), H (8852, 7989), HT (8740, 8750)	Supported Chassis'
Blades JS23 (7778), JS43 (7778), PS700 (8406-70Y), PS701 (8406-71Y), PS702 (8406-71Y)	Supported Blades
Tape Devices TS2900, TS3100/3200, TS3310, TS3500, TS2230, TS2240, TS2350	Supported Tape Devices
QLogic CFFh 8Gb Fibre Channel/1Gb Enet Expansion Card (44X1940 / 8271) QLogic Ethernet and 4Gb Fibre Channel Expansion Card (CFFh) (39Y9306 / 8252) Emulex 1XE 8Gb Fiber Channel Expansion Card (46M6140/8240) QLogic 1XE 4Gb Fibre Channel Expansion Card (46M6065/8241) QLogic 1XE 8Gb Fibre Channel Expansion Card for BladeCenter (44X1945/8242) QLogic 2-port 10Gb Converged Network Adapter (CFFh) for IBM BladeCenter (42C1830/8275)	One in each blade

Storage Group Tape Description (Machine Type or Part Number)	Comments
BladeCenter Chassis S (8886, 7779), H (8852, 7989), HT (8740, 8750), T (DC 8720, AC 8730) – JS12 ONLY	Supported Chassis'
Blades JS12 (7998-60X), JS22 (7998-61X)	Supported Blades
Tape Devices TS3100/3200, TS3310, TS3500	Supported Tape Devices
QLogic CFFh 8Gb Fibre Channel/1Gb Enet Expansion Card (44X1940 / 8271) QLogic Ethernet and 4Gb Fibre Channel Expansion Card (CFFh) (39Y9306 / 8252) Emulex 4Gb Fibre Channel Expansion Card (CFFv) (43W6859 / 8251) QLogic 4Gb Fibre Channel Expansion Card (CFFv) (41Y8527 / 8248) QLogic 2-port 10Gb Converged Network Adapter (CFFh) for IBM BladeCenter (42C1830 / 8275)	One in each blade

BladeCenter Tape Interoperability

Red Hat Linux	Blades	Tape Product
Red Hat Enterprise Linux 4 for x86	HS21 (8853), HS21 XM (7995), LS21 (7971), LS41 (7972), HS22 (7870), LS22 (7901), LS42 (7902)	HH LTO3 (43W8478), HH LTO4 (44E8895), TS3100/3200, TS2230, TS2240, TS2900, TS3310, TS3500
Red Hat Enterprise Linux 4 for AMD64/EM64T	HS21 (8853), HS21 XM (7995), LS21 (7971), LS41 (7972), HS22 (7870), LS22 (7901), LS42 (7902)	HH LTO3 (43W8478), HH LTO4 (44E8895), TS3100/3200, TS2230, TS2240, TS2900, TS3310, TS3500
Red Hat Enterprise Linux 5 for x86	HS21 (8853), HS21 XM (7995), LS21 (7971), LS41 (7972), HS22 (7870), LS22 (7901), LS42 (7902)	HH LTO3 (43W8478), HH LTO4 (44E8895), TS3100/3200, TS2230, TS2240, TS2900, TS3310, TS3500
Red Hat Enterprise Linux 5 for AMD64/EM64T	HX5 (7872), HS21 (8853), HS21 XM (7995), LS21 (7971), LS41 (7972), HS22 (7870), LS22 (7901), LS42 (7902)	HH LTO3 (43W8478), HH LTO4 (44E8895), TS3100/3200, TS2230, TS2240, TS2900, TS3310, TS3500
Novell SUSE LINUX		
SUSE LINUX Enterprise Server 9 for x86	HS21 (8853), HS21 XM (7995), LS21 (7971), LS41 (7972), HS22 (7870), LS22 (7901), LS42 (7902)	HH LTO3 (43W8478), HH LTO4 (44E8895)
SUSE LINUX Enterprise Server 9 for AMD64/EM64T	HS21 (8853), HS21 XM (7995), LS21 (7971), LS41 (7972), HS22 (7870), LS22 (7901), LS42 (7902)	HH LTO3 (43W8478), HH LTO4 (44E8895)
SUSE LINUX Enterprise Server 10 for x86	HS21 (8853), HS21 XM (7995), LS21 (7971), LS41 (7972), HS22 (7870), LS22 (7901), LS42 (7902)	HH LTO3 (43W8478), HH LTO4 (44E8895), TS3100/3200, TS2230, TS2240, TS2900, TS3310, TS3500
SUSE LINUX Enterprise Server 10 for AMD64/EM64T	HS21 (8853), HS21 XM (7995), LS21 (7971), LS41 (7972), HS22 (7870), LS22 (7901), LS42 (7902)	HH LTO3 (43W8478), HH LTO4 (44E8895), TS3100/3200, TS2230, TS2240, TS2900, TS3310, TS3500
IBM		
AIX Version 5.3	JS12, JS21, JS22 (7998), JS23/43 (7778) PS700 (8406-70Y), PS701 (8406-71Y), PS702 (8406-71Y)	TS2900, TS3100/3200, TS2230, TS2240, TS2250, TS3310, TS3500
AIX Version 6.1	JS12, JS22 (7998), JS23/43 (7778) PS700 (8406-70Y), PS701 (8406-71Y), PS702 (8406-71Y)	TS2900, TS3100/3200, TS2230, TS2240, TS2250, TS3310, TS3500
IBM i 6.1.1 and 7.1 ¹	JS12, JS22 (7998), JS23/43 (7778) PS700 (8406-70Y), PS701 (8406-71Y), PS702 (8406-71Y)	TS2240, TS2250
IBM i 6.1.1 and 7.1 ²	JS12, JS22 (7998), JS23/43 (7778) PS700 (8406-70Y), PS701 (8406-71Y), PS702 (8406-71Y)	TS3100/TS3200/TS3310/TS3500 with LTO3, LTO4 and LTO5 tape drives, TS3400/TS3500 with TS1120 and TS1130 tape drives, TS3500 with 3592-J1A tape drives
Microsoft		
Microsoft Windows Server 2003	HS21 (8853), HS21 XM (7995), LS21 (7971), LS41 (7972), HS22 (7870), LS22 (7901), LS42 (7902)	HH LTO3 (43W8478), HH LTO4 (44E8895), TS3100/3200, TS2230, TS2240, TS2900, TS3310, TS3500
Microsoft Windows Server 2008	HX5 (7872), HS21 (8853), HS21 XM (7995), LS21(7971), HS22 (7870), LS22 (7901), LS42 (7902)	HH LTO3 (43W8478), HH LTO4 (44E8895), TS3100/3200, TS2230, TS2240, TS2900, TS3310, TS3500

Note 1 Requires VIOS 2.1.1 or later.

Note 2 Requires VIOS 2.1.3 or later using NPIV. For supported NPIV HBAs and Switch Modules see "Fibre Channel NPIV Support Matrix on JS Blades" in this document.

Server Drive Compatibility

Option Part Number / Feature Code for x / Feature Code for p	Drives	H X 5	H S 1 2	H S 2 1	H S 2 1 X M	H S 2 2 V	L S 2 2	L S 4 2	J S 1 2	J S 2 2	J S 2 3	J S 4 3	P S 7 0 0	P S 7 0 1	P S 7 0 2	P N 4 1	Q S 2 1	Q S 2 2	
Solid State																			
43W7618	ServerBlade 31.4GB SSD SATA 2.5" NHS	-	Y ⁴	-	Y	-	-	Y ²	Y ²	-	-	-	-	-	-	-	-	-	-
43W7648	31.4GB SSD SATA 2.5" Slim-HS	-	Y ⁵	-	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-
43W7706	50 GB SATA 2.5" SFF NHS High IOPS SSD	-	-	-	Y	-	-	Y	Y	-	-	-	-	-	-	-	-	-	-
43W7714	50GB SATA 2.5" SFF Slim-HS High IOPS SSD	-	-	-	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-
43W7734	50GB SATA 1.8" NHS SSD	Y ⁶	-	-	-	-	Y	-	-	-	-	-	-	-	-	-	-	-	-
Flash																			
39R8697	4GB Modular Flash Drive	-	-	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43W3934	8GB Modular Flash Drive	-	-	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	Y
60H4324	8GB Modular Flash Drive	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Y
Hot Swap																			
39M4558	500GB 3.5" Dual Port Hot-Swap SATA II	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39R7388	36GB 10K SAS SFF HS in BSE-3 with	-	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39R7389	73GB 10K SAS SFF HS in BSE-3 with	-	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42D0519	450GB 15K SAS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42D0546	750GB 7200 NL SAS HS 3.5" HDD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42D0547	1 TB 7200 NL SAS HS 3.5" HDD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42D0632	146GB 10K 6Gbps SAS 2.5" SFF Slim-HS	-	Y ⁵	-	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-
42D0637	300GB 10K 6Gbps SAS 2.5" SFF Slim-HS	-	Y ⁵	-	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-
42D0672	73GB 15K 6Gbps SAS 2.5" SFF Slim-HS	-	Y ⁵	-	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-
42D0677	146GB 15K 6Gbps SAS 2.5" SFF Slim-HS	-	Y ⁵	-	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-
42D0747	160GB 7200 NL SATA 2.5" SFF Slim-HS HDD	-	Y ⁵	-	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-
42D0752	500GB 7200 NL SATA 2.5" SFF Slim-HS HDD	-	Y ⁵	-	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-
43W7523	73GB 15K 3.5" SAS Hot-Swap	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43W7524	146GB 15K 3.5" Hot-Swap SAS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43W7535	73GB 10K SAS SFF SAS Slim-HS	-	Y ⁵	-	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-
43W7536	146GB 10K SAS SFF SAS Slim-HS	-	Y ⁵	-	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-
43W7545	73GB 15K SAS SFF SAS Slim-HS	-	Y ⁵	-	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-
43W7580	750GB Hot-Swap SATA Dual Port	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43W7630	1000GB Hot Swap Dual Port SATA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43W7670	300GB 10K SATA 2.5" Slim-HS HDD	-	Y ⁵	-	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-
43X0802	300GB 15K 3.5" Hot-Swap SAS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43X0853	73GB SAS 15K 2.5" SFF HS DD-SAS in SIO with	-	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note 1 LS41 (7972) can support two solid state drives in 2 separate HDD bays.

Note 2 Code level to support SSD's on linux on the LS22/42 is LSI 1064e SAS Controller BIOS and firmware update v2.50

Note 4 HS12 Machine Type 8014 only

Note 5 HS12 Machine Type 8028 only

Note 6 SSD Expansion Card for IBM BladeCenter HX5 (Option PN 46M6908) is required.

Server Drive Compatibility continued

Option Part Number / Feature Code for x / Feature Code for p	Drives	H X 5	H S 1 2	H S 2 1	H S 2 1 X M	H S 2 2	H S 2 2 V	L S 2 2	L S 4 2	J S 1 2	J S 2 2	J S 2 3	J S 4 3	P S 7 0 0	P S 7 0 1	P S 7 0 2	P N 4 1	Q S 2 1	Q S 2 2
	Other																		
22P7196	Portable 40GB USB 2.0 Hard Drive	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26K5776	36GB 10K SFF SAS NHS	-	-	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26K5777	73GB 10K SFF SAS NHS	-	-	Y	Y	-	-	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-
41Y8268	USB Memory Key for VMware ESXi 3.5 U3	-	-	-	-	-	-	Y	Y	-	-	-	-	-	-	-	-	-	-
41Y8269	USB Memory Key for VMware ESXi 3.5 U4	-	-	-	-	Y ²	Y ²	Y	Y	-	-	-	-	-	-	-	-	-	-
41Y8278	USB Memory Key for VMware ESXi	Y ³	-	-	-	Y ³	Y ³	-	-	-	-	-	-	-	-	-	-	-	-
42D0421	146GB SAS 10K SFF NHS	-	-	Y	Y	-	-	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-
42D0627	300GB 10K 6Gbps SAS 2.5" SFF NHS HDD	-	-	Y	Y	-	-	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-
42D0667	146GB 15K 6Gbps SAS 2.5" SFF NHS HDD	-	-	Y	Y	-	-	Y	Y	-	-	-	-	-	-	-	-	-	-
42D0737	160GB 7200 NL SATA 2.5" SFF NHS HDD	-	Y ¹	Y	Y	-	-	Y	Y	-	-	-	-	-	-	-	-	-	-
42D0742	500GB 7200 NL SATA 2.5" SFF NHS HDD	-	Y ¹	Y	Y	-	-	Y	Y	-	-	-	-	-	-	-	-	-	-
43W7640	80GB 7200 SATA ED 2.5" NHS	-	Y ¹	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43W7666	300GB 10K SATA 2.5" NHS HDD	-	-	Y	Y	-	-	Y	Y	-	-	-	-	-	-	-	-	-	-
43X0844	36GB SAS 15K SFF Blade Option	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
43X0845	73GB SAS 15K SFF Blade Option	-	-	Y	Y	-	-	Y	Y	-	-	-	-	-	-	-	-	-	-
8276	600GB 10K 6Gbps SAS 2.5" NHS HDD	-	-	-	-	-	-	-	-	-	-	Y	Y	Y	Y	Y	-	-	-
39R7563	IBM BladeCenter Storage and I/O Expansion Blade	-	Y ¹	Y	Y	-	-	Y	Y	-	-	-	-	-	-	-	-	-	-
	IBM RDX Removable Hard Disk Storage System																		
362516X	IBM RDX 160 GB External USB Drive	-	Y	Y	Y	-	-	Y	Y	Y	Y	-	-	-	-	-	-	-	Y
362532X	IBM RDX 320 GB External USB Drive	-	Y	Y	Y	-	-	Y	Y	-	-	-	-	-	-	-	-	-	-
362550X	IBM RDX 500 GB External USB Drive	-	Y	Y	Y	-	-	Y	Y	-	-	-	-	-	-	-	-	-	-

Note 1 HS12 Machine Type 8014 only

Note 2 For E5500 series processors only

Note 3 Contains ESXi 4.0

Chassis Drive Compatibility

Option Part Number / Feature Code for x / Feature Code for p	Drives	BC-S chassis with SAS Connectivity Module	BC-S chassis with RAID Controller Module	BC-E chassis	BC-H chassis
22P7196	Portable 40GB USB 2.0 Hard Drive	Y	Y	-	-
362516X	RDX Removable Hard Disk Storage System – External USB 160 GB Bundle	Y	Y	-	-
362532X	RDX Removable Hard Disk Storage System – External USB 320 GB Bundle	Y	Y	-	-
362550X	RDX Removable Hard Disk Storage System – External USB 500 GB Bundle	Y	Y	-	-
39M4558	500GB 3.5" Dual Port Hot-Swap SATA II	Y	-	-	-
42D0519	450GB 15K SAS	Y	Y	-	-
42D0546	750GB 7200 NL SAS HS 3.5" HDD	Y	Y	-	-
42D0547	1 TB 7200 NL SAS HS 3.5" HDD	Y	Y	-	-
43W7524	146GB 15K 3.5" Hot-Swap SAS	Y	Y	-	-
42D0767	2 TB 7200 NL SAS HS 3.5" HDD	Y	Y	-	-
42D0777	1 TB 7200 NL SAS HS 3.5" HDD	Y	Y	-	-
43W7523	73GB 15K 3.5" Hot-Swap SAS	Y	Y	-	-
43W7580	750GB Hot-Swap SATA Dual Port	Y	-	-	-
43W7630	1000GB Hot Swap Dual Port SATA	Y	-	-	-
43X0802	300GB 15K 3.5" Hot-Swap SAS	Y	Y	-	-
44W2234	300GB15K 6Gbps SAS 3.5" Hot-Swap HDD	Y	Y	-	-
44W2239	450GB15K 6Gbps SAS 3.5" Hot-Swap HDD	Y	Y	-	-
44W2244	600GB15K 6Gbps SAS 3.5" Hot-Swap HDD	Y	Y	-	-
46C5364	RDX Removable Hard Disk Storage System – Internal USB 160GB Bundle	Y	-	-	-
46C5387	RDX Removable Hard Disk Storage System – Internal USB 320GB Bundle	Y	-	-	-
46C5388	RDX Removable Hard Disk Storage System – Internal USB 500GB Bundle	Y	-	-	-
46M0901	UltraSlim Enhanced SATA DVD-ROM	Y	Y	Y	-
46M0902	UltraSlim Enhanced SATA Multi-Burner	Y	Y	Y	Y

Memory

Option Part Number	Memory	H X 5 ^s	H S 1 2 1	H S 2 1 X M	H S 2 2		H S 2 2 V		L S 2 2	L S 4 2	J S 1 2 2 3	J S 2 2 3	J S 4 0 0	P S 7 7 0 1	P S 7 7 0 2	P S 7 4 1	Q S 2 1
					5500	5600	5500	5600									
39M5782	1GB Kit (2x 512MB DIMM) PC2 5300 DDR2 FBD CL4	-	-	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-
39M5861	1GB (2x512MB) PC2-5300 CL5 ECC DDR2 VLP RDIMM	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	Y ¹
39M5864	2GB (2x1GB) PC2-5300 CL5 ECC DDR2 VLP RDIMM	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41Y2825	2GB (2x1GB Kit) PC2-5300 CL5 DDR2 667 DIMM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41Y2828	4GB (2x 2GB Kit) PC2-5300 CL5 DDR2 667 DIMM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42C1600	IBM BladeCenter Memory and I/O Blade	-	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-
44T1485	1GB 1Rx8 1Gbit PC3-10600R-999, VLP RDIMM	-	-	-	-	Y	-	Y	-	-	-	-	-	-	-	-	-
44T1486	2GB DDR3-1333 2Rx8 VLP RDIMM	Y ¹	-	-	-	Y	-	Y	-	-	-	-	-	-	-	-	-
44T1487	2GB 1Rx4 1Gbit PC3-10600R-999, VLP RDIMM	-	-	-	-	Y	-	Y	-	-	-	-	-	-	-	-	-
44T1488	4GB 2Rx4 1Gbit PC3-10600R-999, VLP RDIMM	-	-	-	-	Y	-	Y	-	-	-	-	-	-	-	-	-
44T1579	8GB PC3-8500 CL7 ECC DDR3 1066MHz Chipkill VLP RDIMM	-	-	-	-	Y	-	Y	-	-	-	-	-	-	-	-	-
44T1596	4GB DDR3-1333 2Rx8 VLP RDIMM	Y	-	-	-	Y	Y	Y	Y	-	-	-	-	-	-	-	-
46C7451	8GB PC3-10600 CL9 ECC DDR3 1333MHz Chipkill VLP RDIMM	-	-	-	-	Y	-	Y	-	-	-	-	-	-	-	-	-
44T1547 ³	16GB (2x8GB)	-	-	-	-	-	-	-	Y	Y	-	-	-	-	-	-	-
46C0501	2GB (2x1GB) PC2-6400 CL6 ECC DDR2 VLP RDIMM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46C0509	4GB (2x2GB) 800MHz VLP PC2-6400 DDR2 Memory Kit	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46C0510	8GB (2x4GB) PC2-6400 CL6 ECC DDR2 VLP RDIMM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46C0511	16GB (2x8GB kit) PC2-4200 CL4 ECC DDR2 VLP RDIMM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46C0512	4GB (2x2GB) PC2-5300 CL5 ECC DDR2 667 Single Rank VLP RDIMM	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46C0513	8GB (2x4GB) PC2-5300 CL5 ECC DDR2 667 Dual Rank VLP RDIMM	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46C0522	2GB (2 x 1GB) PC2-5300 CL5 ECC DDR2 667MHz VLP	-	-	-	-	-	-	-	Y	Y	-	-	-	-	-	-	-
46C0512	4GB (2 x 2GB) PC2-5300 CL5 ECC DDR2 667MHz VLP	-	-	-	-	-	-	-	Y	Y	-	-	-	-	-	-	-
46C0561	2GB 1R PC3L-10600R CL9, VLP RDIMM 1333MHz (1.35v)	-	-	-	-	-	Y	-	Y	-	-	-	-	-	-	-	-
46C0567	4GB 2R PC3L-10600R CL9, VLP RDIMM 1333MHz (1.35v)	-	-	-	-	-	Y	-	Y	-	-	-	-	-	-	-	-
46C0569	8GB 2R PC3L-8500R CL7, VLP RDIMM 1066MHz (1.35v)	-	-	-	-	-	Y	-	Y	-	-	-	-	-	-	-	-
46C7418	2GB (2x1GB) Single Rank PC2-5300 CL5 ECC FBD 667MHz Low Power Memory	-	-	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-
46C7419	4GB (2x2GB) Dual Rank PC2-5300 CL5 ECC FBD 667MHz Low Power Memory	-	-	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-
46C7420	8GB (2x4GB) Quad Rank PC2-5300 CL5 ECC FBD 667MHz Low Power Memory	-	-	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-
46C7499	8GB DDR3-1066 4Rx8 VLP RDIMM	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46C7524	8GB (2 x 4GB) PC2-5300 CL5 ECC DDR2 667MHz VLP	-	-	-	-	-	-	-	Y	Y	-	-	-	-	-	-	-
46C7525	8GB (2 x 4GB) PC2-6400 CL5 ECC DDR2 800MHz VLP	-	-	-	-	-	-	-	Y	Y	-	-	-	-	-	-	-
46C7577	16GB (2x8GB) PC2-5300 CL5 ECC DDR2 667 FBDIMM AMB+	-	-	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-

Memory (continued)

Option Part Number	Memory	H	H	H	H	H	H	H	L	L	J	J	J	J	P	P	P	P	Q	Q	
		X	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	N	S	S
		5	1	2	1	M	5500	5600	5500	5600	2	2	2	2	3	0	1	0	0	4	2
49Y1427	1GB 1R PC3L-10600 CL9, VLP RDIMM 1333MHz	-	-	-	-	-	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-
49Y1428	2GB 2R PC3L-10600 CL9, VLP RDIMM 1333MHz	-	-	-	-	-	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-
49Y1429	2GB 1R PC3L-10600 CL9, VLP RDIMM 1333MHz	-	-	-	-	-	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-
49Y1430	4GB 2R PC3L-10600 CL9, VLP RDIMM 1333MHz	-	-	-	-	-	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-
49Y1431	8GB 2R PC3L-10600 CL9, VLP RDIMM 1333MHz	-	-	-	-	-	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-
/8229	4GB(2X2GB) MEMORY, 667MHz VLP RDIMMS	-	-	-	-	-	-	-	-	-	Y	-	-	-	-	-	-	-	-	-	-
/8239	8GB(2X4GB) MEMORY, 667 MHz VLP RDIMMS	-	-	-	-	-	-	-	-	-	Y	-	Y	Y	-	-	-	-	-	-	-
/8245	16GB(2X8GB) MEMORY, 400MHz VLP RDIMMS	-	-	-	-	-	-	-	-	-	Y	-	Y	Y	-	-	-	-	-	-	-
/8208	8GB(2X4GB), 1066MHz, DDR3, VLP DIMMS	-	-	-	-	-	-	-	-	-	-	-	-	-	Y	Y	Y	-	-	-	-
/8209	16GB(2X8GB), 1066MHz, DDR3, VLP DIMMS	-	-	-	-	-	-	-	-	-	-	-	-	-	Y	Y	Y	-	-	-	-
44T1594	2GB (1x2GB, 1Rx8, 1.5V) PC3-10600 CL9 ECC DDR3 1333MHz VLP RDIMM	-	-	-	-	-	-	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-
46C0560	2GB (1x2GB, 1Rx8, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz VLP RDIMM	-	-	-	-	-	-	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-
46C0563	4GB (1x4GB, 1Rx4, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz VLP RDIMM	-	-	-	-	-	-	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-
46C0564	4GB (1x4GB, 2Rx8, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz VLP RDIMM	-	-	-	-	-	-	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-
46C0599	16GB (1x16GB, 2Rx4, 1.35V) PC3L-10600 CL9 ECC DDR3 1333MHz VLP RDIMM	-	-	-	-	-	-	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-

Note 1 Optional as I/O buffer memory only

Note 2 Total processor memory on IBM BladeCenter QS22 is variable from 4-32 GB. Memory DIMMs are 1GB, 2GB, and 4GB in size and must be installed in sets of 4 up to a total of 8 DIMMs per QS22. Highest memory bandwidth and optimal performance can be achieved when all eight memory DIMM sockets are populated. It is recommended that option memory be added such that all memory DIMM sockets are used.

Note 3 This memory will operate at 533MHz in the LS22 and LS42

Note 4 2GB memory not supported on MAX5

Note 5 All DIMM slots must be populated for optimal performance

Shared Storage Subsystem and Storage Enclosures

Part Number or MT-Model	Shared Storage Subsystem or Enclosure	H X 5	H S 1 2	H S 2 1	H S 2 1 X M	H S 2 2	H S 2 2 V	L S 2 2	L S 4 2	J S 1 2	J S 2 2	J S 2 2 3	J S 4 3	P S 7 0 0	P S 7 0 1	P S 7 0 2	P N 4 1	Q S 2 1	Q S 2 2
172621X	IBM System Storage DS3200 Storage Controller - SAS Single Controller	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-
172622X	IBM System Storage DS3200 Storage Controller - SAS Dual Controller	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-
172631X	IBM System Storage DS3300 Storage Controller - iSCSI Single Controller	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-
172632X	IBM System Storage DS3300 Storage Controller-- iSCSI Dual Controller	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-
172641X	IBM System Storage DS3400 Storage Controller-- FC Single Controller	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-
172642X	IBM System Storage DS3400 Storage Controller-- FC Dual Controller	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-
172701X	IBM System Storage EXP3000 Expansion Unit	2	2	-	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-
1746A2D	IBM System Storage DS3512 Express Dual Controller Storage System	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-
1746A2S	IBM System Storage DS3512 Express Single Controller Storage System	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-
1746A4D	IBM System Storage DS3524 Express Dual Controller Storage System	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-
1746A4S	IBM System Storage DS3524 Express Single Controller Storage System	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-
1750-511	IBM TotalStorage DS6800 1750 model 511	-	-	Y	Y	-	Y	-	-	-	-	-	-	-	-	-	-	-	-
18149xx	IBM System Storage DS3950 Express	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-
1814-20A	IBM System Storage DS5020 Midrange Disk System	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-
1818-51A	IBM System Storage DS5100 Midrange Disk System	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-
1818-53A	IBM System Storage DS5300 Midrange Disk System	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	-	-	-

Note 1 – DS3000 and DS5000 storage system support on a given blade will vary by attachment type (FC, iSCSI, SAS), operating system, and storage controller firmware level. Refer to the IBM System Storage Interoperation Center (SSIC) for up-to-date and comprehensive interoperability information:

<http://www.ibm.com/systems/support/storage/config/ssic>

Note 2 – The IBM System Storage EXP3000 Expansion Unit is supported for direct connection to selected BladeCenter systems using the ServeRAID-MR10ie (CIOv) Controller for IBM BladeCenter w/Battery CIO (PN 46C7167). The EXP3000 is compatible with all BladeCenter systems and operating systems supported by the ServeRAID-MR10ie controller. The EXP3000 is only supported with the SAS Connectivity Module (39Y9195/ 3267) and is not supported with the BC-S SAS RAID Controller Module (43W3584 / 3734).

Shared Storage Subsystem and Storage Enclosures continued

Part Number	Shared Storage Subsystem or Enclosure	H X 5	H S 1 2	H S 2 1	H S 2 1 X M	H S 2 2	H S 2 2 V	L S 2 2	L S 4 2	J S 1 2	J S 2 2	J S 2 3	J S 4 3	P S 7 0 0	P S 7 0 1	P S 7 0 2	P N 4 1	Q S 2 1	Q S 2 2
2107-92E/9AE	IBM TotalStorage DS8000 Expansion Unit 2107 model 92E/9AE	Y	-	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-
2107-xxx	IBM TotalStorage DS8100 2107 (all models)	Y	-	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-
2107-xxx	IBM TotalStorage DS8300 2107(all models)	Y	-	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-
2412-xxx	IBM System Storage DS8700 2412 (all models)	-	-	-	-	-	-	-	-	Y	Y	-	Y	Y	Y	Y	-	-	-
2145 v5.1.x	IBM SAN Volume Controller version 5.1.x	Y	-	-	-	-	Y	-	-	Y	Y	Y	Y	Y	Y	Y	-	-	-
2812-A14	IBM XIV Storage System Model A14	-	-	-	-	-	-	-	-	Y	Y	Y	Y	Y	Y	Y	-	-	-
2858-A10, A20	IBM System Storage N6040 model A10/A20 and Gateway feature	-	-	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-
2858-A11, A21	IBM System Storage N6070 model A11/A21 and Gateway feature	-	-	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-
2858-A12, A22	IBM System Storage N6060 model A12/A22 and Gateway feature	-	-	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-
2859-A10, A20	IBM System Storage N3300 model A10/A20	-	-	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-
2859-A11/ A21, G11/G21	IBM System Storage N3400 model A11/A21 G11/G21	-	-	-	-	-	-	-	-	Y	Y	Y	Y	Y	Y	Y	-	-	-
2862-A10, A20	IBM System Storage N3600 model A10/A20	-	-	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-
2863-A10, A20	IBM System Storage N3700 model A10, A20	-	-	Y	-	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-
2864-A10,A20,G10,G20	IBM System Storage N5200 model A10, A20, G10, G20	-	-	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-
2865-A10,A20,G10,G20	IBM System Storage N5500 model A10, A20, G10, G20	-	-	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-
2866-A10,A20,G10,G20	IBM System Storage N7600 model A10, A20, G10, G20	-	-	Y	Y	Y	Y	Y	-	-	Y	Y	Y	Y	Y	Y	-	-	-
2866-A11,A21,G11,G21	IBM System Storage N7700 model A11, A21, G11, G21	-	-	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-
2867-A10,A20,G10,G20	IBM System Storage N7800 model A10, A20, G10, G20	-	-	Y	Y	Y	Y	-	-	-	Y	Y	Y	Y	Y	Y	-	-	-
2867-A11,A21,G11,G21	IBM System Storage N7900 model A11, A21, G11, G21	-	-	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-
2868-A10,A20,G10,G20	IBM System Storage N5600 model A10, A20, G10, G20	-	-	-	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-
2869-A10,A20,G10,G20	IBM System Storage N5300 model A10, A20, G10, G20	-	-	-	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-
9406-xxx	IBM System i (all models) Integration with BladeCenter and System x	-	-	Y	Y	-	-	Y	Y	-	-	-	-	-	-	-	-	-	-

BladeCenter Open Fabric Manager¹ Compatibility

M/T or Part Number	Description	BOFM Basic (44W3981 = 2019B1X)	BOFM 2.1 Advanced Upgrade (46C3551, stand alone)	BOFM 3.0/3.1 Advanced Upgrade (4812S3X, stand alone)	BOFM 4.0 Advanced Upgrade (4812S3X, stand alone)	BOFM Advanced 2.1 Upgrade for IBM Director (46C3552, plug-in)	BOFM Advanced 3.0/3.1 Upgrade for IBM Director (4812S3D, plug-in)	BOFM Advanced 3.2 Upgrade for IBM Director (4812S3D, plug-in)
Chassis								
8677	IBM BladeCenter E	Y	Y	Y	Y	Y	Y	Y
8852	IBM BladeCenter H	Y	Y	Y	Y	Y	Y	Y
8740, 8750	BladeCenter HT	Y	Y	Y	Y	Y	Y	Y
8720, 8730	BladeCenter T	Y	Y	Y	Y	Y	Y	Y
8886	BladeCenter S	Y	Y	Y	Y	Y	Y	Y
Blades Servers								
7872	HX5	Y	-	Y	Y	-	Y	-
8014,8028	HS12	Y	Y	Y	Y	Y	Y	Y
8853	HS21	Y	Y	Y	Y	Y	Y	Y
7995	HS21 XM	Y	Y	Y	Y	Y	Y	Y
7870	HS22	Y	-	Y	Y	-	Y	Y
7871	HS22V	Y	-	Y	Y	-	Y	Y
7901	LS22	Y	Y	Y	Y	Y	Y	Y
7902	LS42	Y	Y	Y	Y	Y	Y	-
7998-60x	JS12	Y ²	Y ²	Y ²	Y ²	Y ²	Y ²	Y ²
7998-61x	JS22	Y ²	Y ²	Y ²	Y ²	Y ²	Y ²	Y ²
7778-23x	JS23	Y ²	Y ²	Y ²	Y ²	Y ²	Y ²	Y ²
7778-23x	JS43	Y ²	Y ²	Y ²	Y ²	Y ²	Y ²	-
8406-70Y/71Y	PS700/701	Y ²	-	Y ²	Y ²	-	Y ²	Y ^{2k}
8406-70Y/71Y	PS702	Y ²	-	Y ²	Y ²	-	Y ²	-
0792	QS21	-	-	-	-	-	-	-
0793	QS22	-	-	-	-	-	-	-

Note 1 Reflects single instance compatibility.

Note 2 BOFM is not supported for SAS adapters on JSxx or PSxxx blades. BOFM Advanced upgrades are not applications installed on the JSxx or PSxxx blade.

BladeCenter Open Fabric Manager¹ Compatibility continued

M/T or Part Number	Description	BOFM Basic (44W3981 = 2019B1X)	BOFM 2.1 Advanced Upgrade (46C3551, stand alone)	BOFM 3.0 Advanced Upgrade (4812S3X, stand alone)	BOFM Advanced 2.1 Upgrade for IBM Director (46C3552, plug-in)	BOFM Advanced 3.0 Upgrade for IBM Director (4812S1D, plug-in)
Expansion Cards						
26R0884	QLogic 4Gb Standard Fibre Channel Expansion Card	Y	Y	Y	Y	Y
26R0890	QLogic 4 Gb SFF Fibre Channel Expansion Card	Y	Y	Y	Y	Y
39R8624	IBM SFF Gb Ethernet Expansion Card	Y	Y	Y	Y	Y
39Y9186	Emulex 4 Gb SFF Fibre Channel Expansion Card	Y	Y	Y	Y	Y
39Y9190	SAS Expansion Card for IBM BladeCenter (CFFv)	Y	-	Y	-	Y
39Y9306	QLogic Ethernet and 4 Gb Fibre Channel Expansion Card (CFFh)	Y	Y	Y	Y	Y
39Y9310	Ethernet Expansion Card (CFFv)	Y	Y	Y	Y	Y
41Y8527	QLogic 4 Gb Fibre Channel Expansion Card (CFFv)	Y	Y	Y	Y	Y
42C1830	QLogic 2-port 10Gb Converged Network Adapter (CFFh)	Y	-	Y	-	Y
43W3974	SAS Connectivity Card (CFFh)	Y	-	Y	-	Y
43W4068	SAS Connectivity Card (CIOv)	Y	-	Y	-	Y
43W6859	Emulex 4Gb Fibre Channel Expansion Card (CFFv)	Y	Y	Y	Y	Y
44W4465	Broadcom 10Gb 4-port Ethernet Exp Card (CFFh)	Y	Y	Y	Y	Y
44W4466	Broadcom 10Gb 2-port Ethernet Exp Card (CFFh)	Y	Y	Y	Y	Y
44W4475	Ethernet Expansion Card (CIOv)	Y	Y	Y	Y	Y
44W4479	2/4 Port Ethernet Expansion Card (CFFh)	Y	Y	Y	Y	Y
44X1940	QLogic Ethernet and 8 Gb Fibre Channel Expansion Card (CFFh)	Y	Y	Y	Y	Y
44X1945	QLogic 8Gb Fibre Channel Expansion Card (CIOv)	Y	-	Y	-	Y
46M6065	QLogic 4 Gb Fibre Channel Expansion Card (CIOv)	Y	Y	Y	Y	Y
46M6140	Emulex 8Gb Fibre Channel Expansion Card (CIOv)	Y	-	Y	-	Y

Note 1 Reflects single instance compatibility

Blades & BladeBoot (iSCSI SW Boot) Compatibility

Provides iSCSI communication

BladeBoot™ enables you to boot from a SAN over a standard Ethernet port using the iSCSI protocol. This allows for storage consolidation, efficiencies in storage utilization, simplified deployment, improved reliability, and simpler ecosystem management. No local disk is required to reside within the blade server.

Blade Servers	Windows Server 2003	Windows Server 2008	SLES10 SP1	RHEL 5 ¹
HX5 (7872)	-	Y	Y	Y
HS12 (8014,8028)	Y	Y	Y	Y
HS21 Dual Core (8853)	Y	Y	Y	Y
HS21 Quad Core (8853)	Y	Y	Y	Y
HS21 XM Dual Core (7995)	Y	Y	Y	Y
HS21 XM Quad Core (7995)	Y	Y	Y	Y
HS22 (7870)	Y	Y	Y	Y
HS22V (7871)	Y	Y	Y	Y
LS22	-	-	-	-
LS42	-	-	-	-
JS12 (7998-60X)	-	-	-	-
JS22 (7988; except 60X)	-	-	-	-
JS23/43 (7778-23x)	-	-	-	-
PS700	-	-	-	-
PS701	-	-	-	-
PS702	-	-	-	-
QS21 (0792)	-	-	-	-
QS22 (0793)	-	-	-	-

Note 1 RHEL 5 represents limited support, with full support targeted for RHEL 5.2

Targets: IBM System Storage N series iSCSI Models and DS3300

Blades NOS Compatibility

Operating System	H X 5	H S 1 2	H S 2 1	H S 2 1 X M	H S 2 2	H S 2 2 V	L S 2 2	L S 4 2	J S 1 2	J S 2 2	J S 2 3	J S 4 3	P S 7 0 0	P S 7 0 1	P S 7 0 2	P N 4 1	Q S 2 1	Q S 2 2	
Microsoft																			
Windows Vista ¹	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Windows Server 2003 ¹	-	Y	Y	Y	-	-	Y	Y	-	-	-	-	-	-	-	-	-	-	-
Windows Small Business Server 2003 ¹	-	-	-	-	-	-	Y	-	-	-	-	-	-	-	-	-	-	-	-
Windows Server 2008 ¹	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-
Windows Server 2003 Compute Cluster ¹	-	Y	Y	Y	-	-	Y	Y	-	-	-	-	-	-	-	-	-	-	-
IBM																			
4690 Operating System ¹	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VIOS ¹	-	-	-	-	-	-	-	-	Y	Y	Y	Y	Y	Y	Y	-	-	-	-
IBM i operating system ¹	-	-	-	-	-	-	-	-	Y	Y	Y	Y	Y	Y	Y	-	-	-	-
AIX ¹	-	-	-	-	-	-	-	-	Y	Y	Y	Y	Y	Y	Y	-	-	-	-
Cloudshield																			
Cloudshield Packetworks Operating System	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Y	-	-	-
Red Hat																			
Red Hat Enterprise Linux 5 ¹	Y	-	Y ²	Y ²	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-
Red Hat Enterprise Linux 5 for System i and System p ¹	-	-	-	-	-	-	-	-	Y	Y	Y	Y	Y	Y	Y	-	Y	Y	-
Red Hat Enterprise Linux 4 ¹	-	-	Y ²	Y ²	-	-	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-
Red Hat Enterprise Linux 4 AS for iSeries and pSeries ¹	-	-	-	-	-	-	-	-	Y	Y	Y	Y	-	-	-	-	-	-	-
Red Hat Enterprise Linux 3 ¹	-	-	Y ²	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Red Hat Enterprise MRG 1.0 Realtime (x64) ¹	-	-	-	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-
VMware																			
VMware ESX Server 4.1 ¹	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-
VMware ESX Server 4.0 ¹	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-
VMware ESX Server 3.5 ¹	-	Y ⁴	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-
VMware ESX Server 3.0 ¹	-	-	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VMware ESX Server 2.5 ¹	-	-	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VMware ESX Server 2.1 ¹	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VMware ESX Server 2.0 ¹	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Novell																			
SUSE Linux Enterprise Server 11 ¹	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-
SUSE LINUX Enterprise Server 11 for IBM POWER ¹	-	-	-	-	-	-	-	-	-	Y	Y	Y	Y	Y	Y	-	-	-	-
SUSE Linux Enterprise Server 10 ¹	Y	Y	Y ²	Y ²	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-
SUSE LINUX Enterprise Server 10 for IBM POWER ¹	-	-	-	-	-	-	-	-	Y	Y	Y	Y	Y	Y	Y	-	-	-	-
SUSE Linux Enterprise Server 9 ¹	-	Y	Y ²	Y ²	-	-	Y	Y	-	-	-	-	-	-	-	-	-	-	-
Open Enterprise Server 2 (SLES 10) ¹	-	-	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Open Enterprise Server/Open Enterprise Server 2 (NetWare 6.5) ¹	-	-	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Open Enterprise Server (SLES 9) ¹	-	-	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SUSE LINUX Enterprise Real Time 10 AMD64/EM64T ¹	-	-	-	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-

Note 1 See ServerProven for specific version & servicepac levels.

<http://www-03.ibm.com/servers/eserver/serverproven/compat/us/nos/ematrix.shtml>

Note 2 Available for purchase with new Blade servers

Note 3 Supports model 8843-J1Y only

Note 4 Supports 8208, not 8014

BladeCenter NOS Compatibility - Chassis

The BladeCenter S chassis supports VMware ESX 3.0, 3.5 & 4.0

Additional detail can be found at http://www.vmware.com/pdf/vi3_io_guide.pdf

Tools Compatibility

Tool Name	H X 5	H S 1 2	H S 2 1	H S 2 1 X M	H S 2 2	H S 2 2 V	L S 2 2	L S 4 2	J S 1 2	J S 2 2	J S 2 2 3	J S 4 3	P S 7 0 0	P S 7 0 0 1	P S 7 0 0 2	P N 4 1	Q S 2 1	Q S 2 2
Microsoft Windows Preinstallation Environment 2.1	Y	Y	Y	Y	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	-
IBM Director	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	Y	Y
Remote Deployment Manager	-	Y	Y	Y	-	-	Y	Y	-	-	-	-	-	-	-	-	Y	-
Tivoli Provisioning Manager for OS Deployment	Y	-	-	-	Y	Y	Y	Y	-	-	-	-	-	-	-	-	-	Y
IBM Dynamic System Analysis Preboot	-	Y	-	-	Y	-	Y	Y	-	-	-	-	-	-	-	-	Y	Y
IBM Dynamic System Analysis 3.0x	Y	-	-	-	-	Y	-	-	-	-	-	-	-	-	-	-	-	-
IBM Dynamic System Analysis Online 2.12	-	-	Y	Y	Y	-	Y	Y	-	-	-	-	-	-	-	-	-	-
Active Energy Manager	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	-	Y	Y
Power Configurator	Y	-	Y	Y	Y	Y	Y	Y	-	Y	-	-	Y	Y	Y	-	Y	Y
IBM UpdateXpress System Pack Installer 2.01	-	-	Y	Y	Y	-	-	-	-	-	-	-	-	-	-	-	-	-
IBM UpdateXpress System Pack Installer 3.x	Y	-	-	-	-	Y	-	-	-	-	-	-	-	-	-	-	-	-

Note 1 See ServerProven for specific version information

Select BladeCenter related URLs

BladeCenter User's Guides for chassis, servers, and options - <http://www.redbooks.ibm.com/abstracts/tips0756.html>

BladeCenter Interoperability Guide - <http://www-947.ibm.com/systems/support/supportsite.wss/docdisplay?Indocid=MIGR-5073016&brandind=5000020>

Configurations and Options Guide (COG) - <http://www.ibm.com/systems/xbc/coq/>

System Storage Interoperation Center (SSIC) - http://www-03.ibm.com/systems/support/storage/config/ssic/displayesssearchwithoutjs.wss?start_over=yes

Director - <http://www.ibm.com/systems/management/director/>

Electronic Service Agent (eSA) - http://www.ibm.com/ict03004c/support/electronic/portal!/ut/p/kcxml/04_Sj9SPykssy0xPLMnMz0vM0Y_Qiz_KLt4y3dAXJgFku-pHllqbxjnCBIH1vfV-P_NxU_QD9gtzQiHJHR0UAHunMNw!!/delta/base64xml/L2dJQSEvUUt3QS80SVVFLzZfOV85RQ!!?category=5&locale=en_US

Power Calculation Tool - <http://www.ibm.com/systems/bladecenter/resources/powerconfig/index.html>

Redbooks – for BladeCenter - <http://www.redbooks.ibm.com/cgi-bin/searchsite.cgi?query=bladecenter>

ServerGuide - <http://www.ibm.com/systems/support/supportsite.wss/docdisplay?Indocid=SERV-GUIDE&brandind=5000008>

ServerGuide Scripting Toolkit - <http://www.ibm.com/systems/management/sqstk.html>

ServerProven - <http://www.ibm.com/servers/eserver/serverproven/compat/us/eserver.html>

Stand-alone Solutions Configuration Tool (SSCT) - <http://www.ibm.com/systems/support/supportsite.wss/docdisplay?Indocid=MIGR-62168&brandind=5000008>

Techline System x Repository - IBM W3: <http://techlinelinuxshare.greenock.uk.ibm.com/index.shtml>
Partnerworld: <http://www.ibm.com/services/weblectures/techline>

WorkLoad Estimator (WLE) - <http://www.ibm.com/wle/EstimatorServlet>

xRef Sheets - <http://www.redbooks.ibm.com/Redbooks.nsf/pages/xref?Open>

IBM BladeCenter iSCSI BladeBoot™ - <http://www.ibm.com/systems/bladecenter/hardware/storage/iscsi.html>

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