

NEC EXPRESS5800/R320d-E4 Configuration Guide

**Windows Server
2008 R2 model**



Introduction

This document contains product and configuration information that will enable you to configure your system. The guide will ensure fast and proper configuration of your NEC EXPRESS5800 server.

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Technical Specification

Key Features

- Fault tolerant technology based on GeminiArchitecture™
- Full manageability by integrated EXPRESSSCOPE Engine 3
- High performance with the latest Intel® Xeon® processor E5-2600 v2 product family
- Up to 256GB of high speed DDR3L-1600 memory

Specification

Model		R320d-E4
Part Number		N8800-184F
Processor	Type	Intel® Xeon® processor E5-2620 v2
	Clock speed	2.10 GHz
	Logical Number of Processors	1 or 2
	Cache	15 MB
	Cores and Threads	6C / 12T
Chipset		Intel® C602 Chipset with GeminiEngine™
Memory	Type	DDR3L-1600 Registered DIMM with ECC
	Memory Clock	1600MHz
	Logical Standard Capacity	0GB
	Logical Maximum Capacity	256GB (16 x 16 GB)
	Memory protection	ECC, x4 SDDC
Internal Storage	Standard Capacity	0GB
	Maximum Logical Capacity	9.6 TB (8 x 1.2TB)
	Disk Controller	SAS: 6Gb/s (Standard)
	RAID	SAS : RAID 1 (Standard)
	Hot Plug	Supported
	Optical Disk Drive	DVD Super Multi drive ¹
	Optical Drive Bays [free]	1 [0]
Expansion Slots [free]	Logical Disk Drive Bays [free]	8 [8]
	Standard	Total: 2 slots available 2 Low-profile PCIe x4 Gen 2 (x8 connector)
Video	Controller (VRAM)	Integrated in Server Management Controller (32MB)
	Resolution / Color Supported	800 x 600 / 16.7M, 1024 x 768 / 16.7M, 1280 x 1024 / 65K
Interfaces		1 VGA (15-pin mini D-sub, 1 rear per system) 4 USB2.0 (1 front, 3 rear per system) 4 1000BASE-T LAN connector (RJ-45, 2 rear per module) 2 Management LAN connector (RJ-45, 1 rear per module)
Server Management		EXPRESSSCOPE Engine 3
Power Supply		2 x 800 Watt (1 per module, 80 PLUS® Platinum certified) 100-240 VAC ± 10% 50 / 60 Hz ± 3 Hz

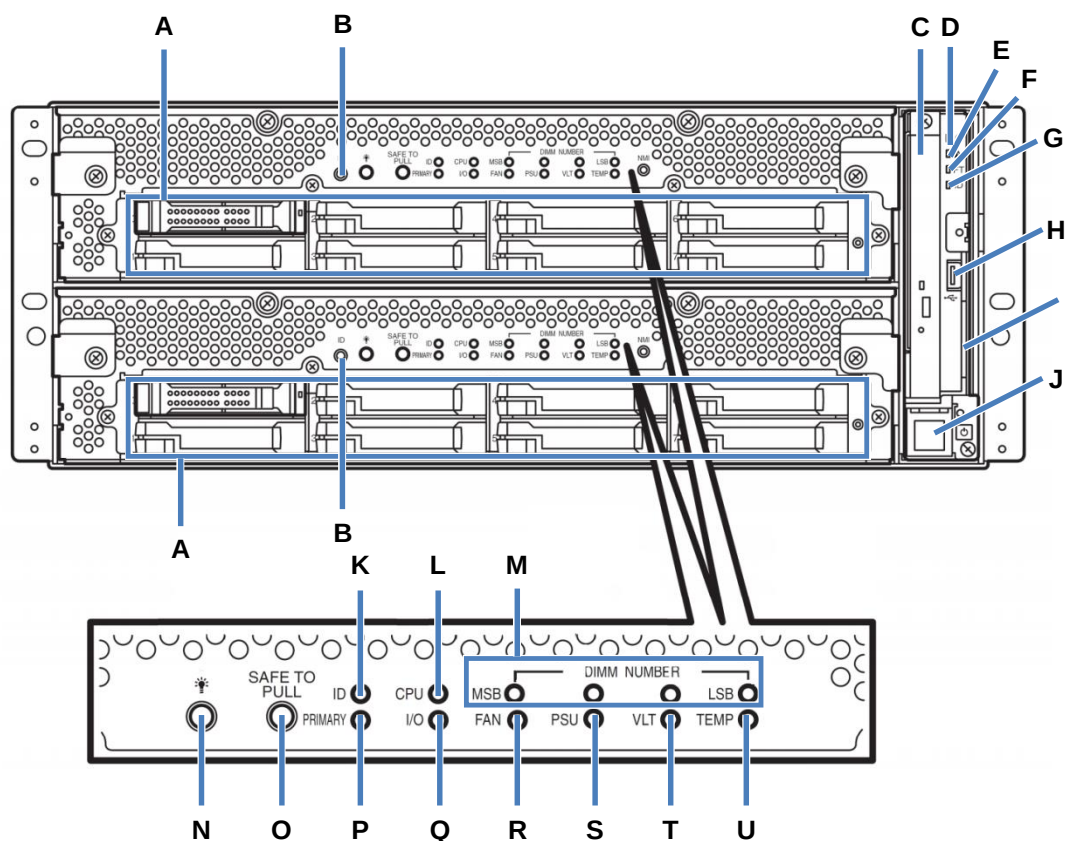
Model		R320d-E4
Power Consumption	(Max. Config, Operating)	1,300 VA / 1,290 Watt
Dimensions (W x D x H)		483.0 x 736.0 x 178 mm / 19.0 x 29.0 x 7.0 in (4U)
Weight (Minimum / Maximum)		45 kg / 51 kg, 99.21 lbs. / 112.44 lbs.
Temperature, Relative Humidity (non-condensing)		Operating: 10° to 35° C / 50° to 95° F, 20 to 80% Non-Operating: -10° to 55° C / 14° to 131° F, 20 to 80%
Regulatory and Safety		FCC, CE, BSMI, CCC, UL, CB, RoHS
Operating Systems		Microsoft Windows Server® 2008 R2 Enterprise SP1

¹ Writing software is not provided for this DVD drive.

External Views

Front and Rear Views

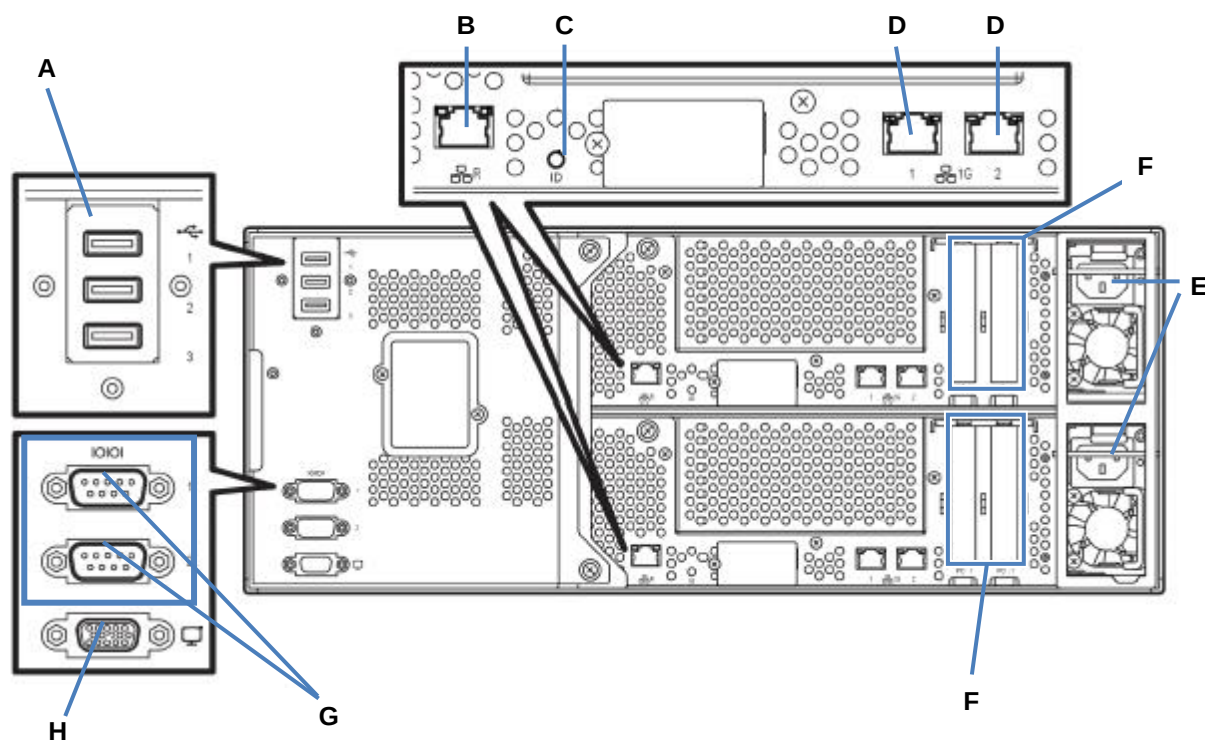
Front View



Legend

A.	Drive Bays	L.	CPU Fault LED
B.	UID Button	M.	Memory Fault LED
C.	DVD Super Multi Drive	N.	Module Power LED
D.	System Power LED	O.	SAFE TO PULL LED
E.	System Status LED	P.	PRIMARY LED
F.	System FT LED	Q.	IO Module Fault LED
G.	UID LED	R.	Fan Fault LED
H.	USB Connector	S.	PSU Fault LED
I.	Pull-out Tab	T.	DC Power Fault LED
J.	Power Button	U.	Temperature Fault LED
K.	Module ID LED		

Rear View



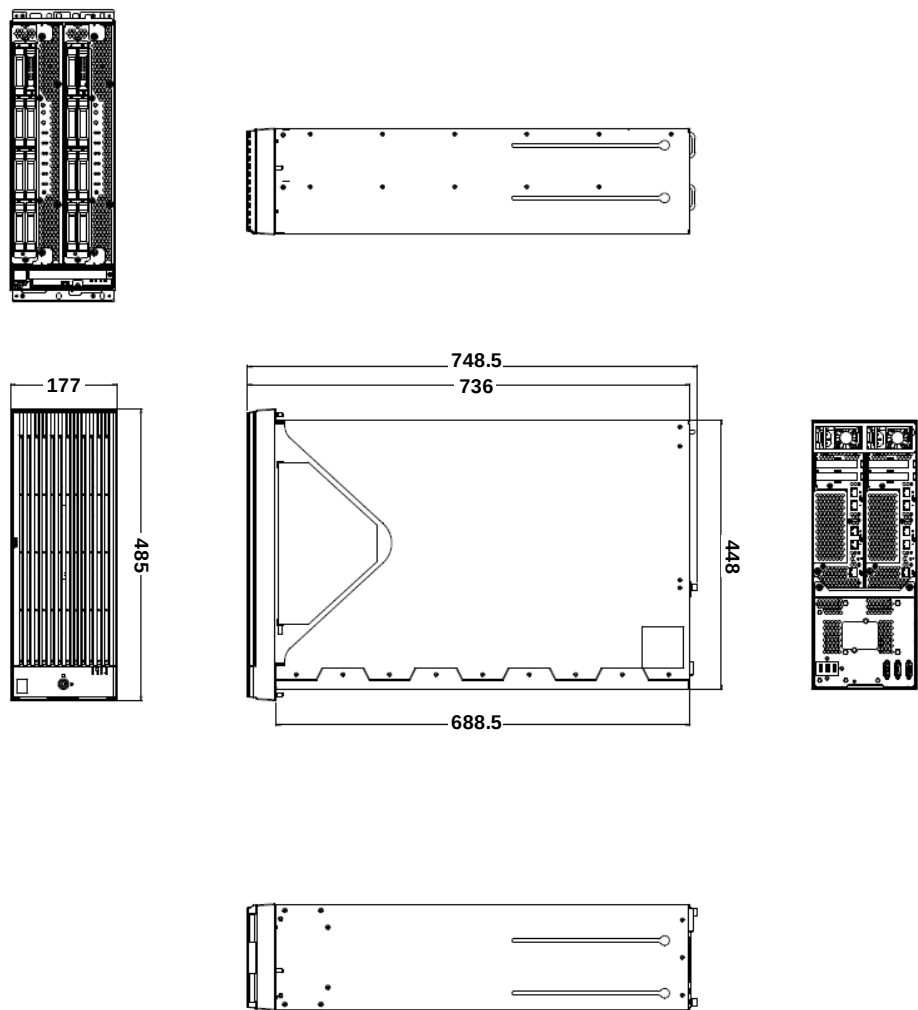
Legend

A.	USB Connectors	E.	AC Inlet
B.	Management LAN Connector	F.	PCI Slots (Low-Profile)
C.	Module ID LED	G.	Serial Port Connector ¹
D.	Data LAN Connectors	H.	VGA Connector

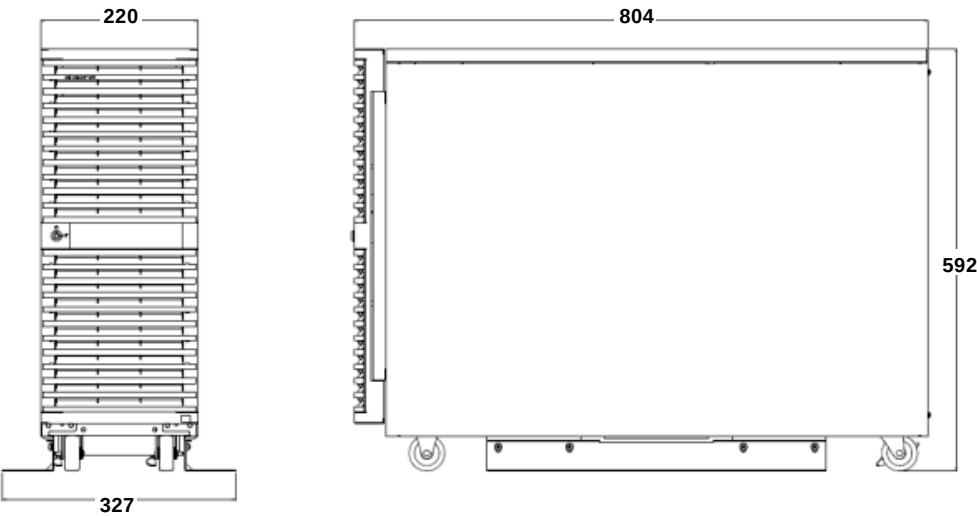
¹ For service personnel only.

Dimensions (mm)

Rack mount

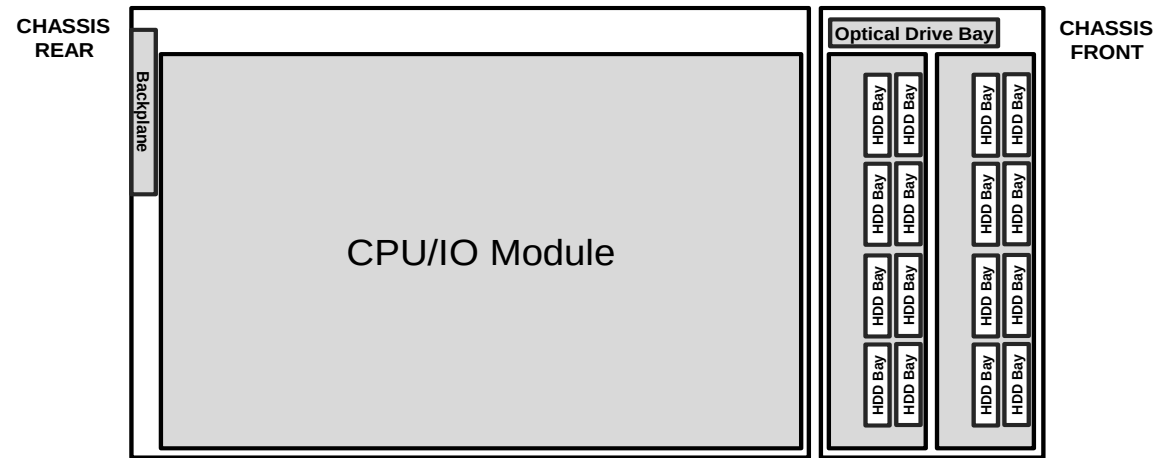


Tower Conversion (Optional)



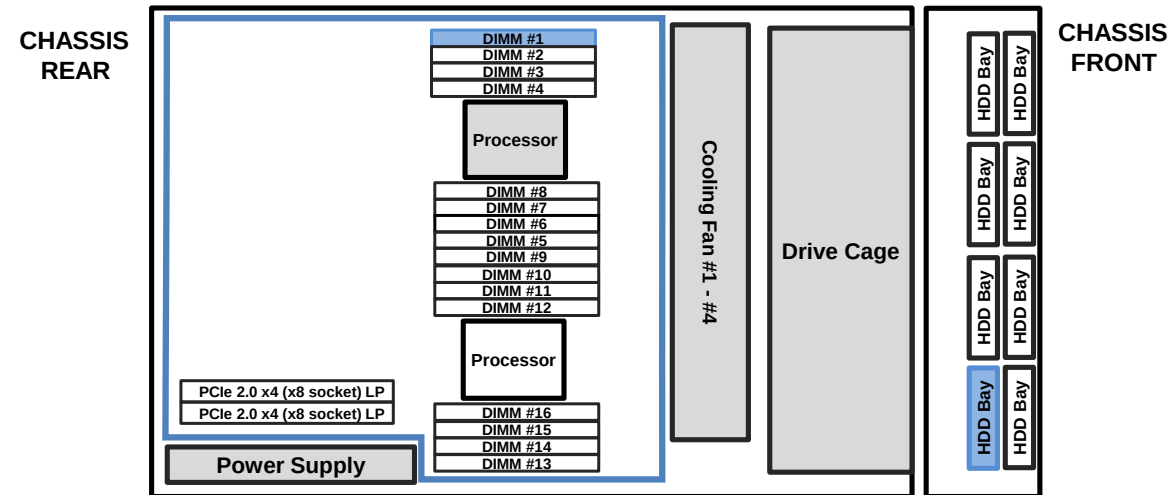
Configuration Diagram

Server

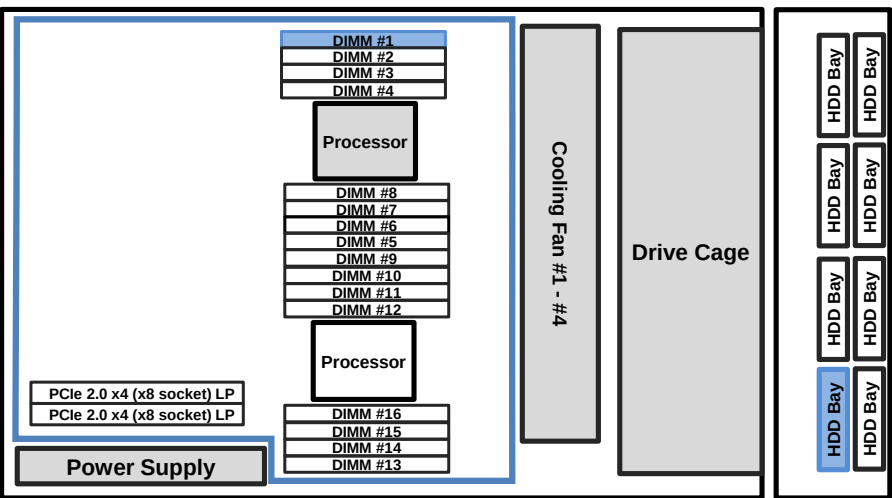


CPU/IO Module

CPU/IO module #0 :



CPU/IO module #1 :



Legend: Minimum required components Standard components

Server Configuration

1 Base Models

Product Name / Description	Part Number
EXPRESS5800/R320d-E4 no RAM, no 2.5-inch HDD Including: Intel Xeon Processor E5-2620 v2, 1 x DVD Super Multi, EXPRESSBUILDER DVD	N8800-184F

2 2nd Processor

Available logical sockets: 1

Product Name / Description	Part Number
Intel® Xeon® Processor E5-2620 v2 2nd Processor Kit : 2.10 GHz / 6C-12T / 15 MB, 2 processors included	N8801-046F

3 Memory

Available logical slots: 8 per processor

Product Name / Description	Part Number
4GB DDR3-1600 REG Memory Kit : 2 x 1 x 4GB DIMM included	N8802-060
32GB DDR3-1600 REG Memory Kit : 2 x 4 x 8GB DIMM included	N8802-061
64GB DDR3-1600 REG Memory Kit : 2 x 4 x 16GB DIMM included	N8802-062

NOTE:

- Minimum one memory kit must be installed.

Memory Configuration Guideline

See the table below for the number of memory kits required in accordance with logical main memory size and number of logical processors. Memory configurations which are not listed below are not supported in the system.

Number of Logical Processors	Logical Main Memory Size	Number of Memory Kits Required		
		4GB	32GB	64GB
1	4GB ¹	1	-	-
	8GB	2	-	-
	12GB	3	-	-
	16GB	4	-	-
	20GB	5	-	-
	24GB	6	-	-
	28GB	7	-	-
	32GB	8	-	-
		-	1	-
	48GB	4	1	-
	64GB	-	2	-
	64GB	-	-	1
	96GB	-	1	1
	128GB	-	-	2
2	4GB ¹	1	-	-
	8GB ¹	2	-	-
	12GB ¹	3	-	-
	16GB	4	-	-
	24GB	6	-	-
	32GB	8	-	-
	40GB	10	-	-
	48GB	12	-	-
	56GB	14	-	-
	64GB	16	-	-
		-	2	-
	96GB	8	2	-
	128GB	-	4	-
		-	-	2
	192GB	-	2	2
	256GB	-	-	4

¹ Interleave is not supported.

4 Internal Hard Disk Drives

Available bays: 8

Product Name / Description	Part Number
600GB 10K Hot Plug 2.5-inch SAS HDD : 1 x 600GB	N8850-047
900GB 10K Hot Plug 2.5-inch SAS HDD : 1 x 900GB	N8850-048
1.2TB 10K Hot Plug 2.5-inch SAS HDD : 1 x 1.2TB	N8850-051
146.5GB 15K Hot Plug 2.5-inch SAS HDD : 1 x 146.5GB	N8850-049
300GB 15K Hot Plug 2.5-inch SAS HDD : 1 x 300GB	N8850-050

NOTE:

- Hard drives must be installed in identical pairs to configure RAID 1.

Required System Disk Capacity

See the table below for minimum required system disk capacity to store whole memory dump data.

It is recommended to install hard drives providing the minimum required system disk capacity to reduce the time to resynchronize after a hard drive replacement.

Memory Size	Required System Disk Capacity
Up to 28GB	146.5GB
32GB to 64GB	300GB
96GB to 192GB	600GB
256GB	900GB

5 Optical Drive

Available bays: 1

Product Name / Description	Part Number
Internal DVD Super Multi Drive : 1 x DVD Super Multi drive, not including writing software	(Standard)

6 PCI Card

6.1 LAN Controller

Category	Product Name / Description	Part Number
LAN Controller	1000BASE-T 2ch board kit : 2 x GbE NIC Intel® Gigabit ET Dual Port Server Adapter	N8804-009
	10GBASE-T 1ch Adapter Kit : 2 x 10GbE NIC Intel® X540-T1	N8804-011

NOTE:

- Up to one controller per module
- FCoE functionality is not supported

NOTE:

- For iSCSI (data) connection, only 1000BASE-T ports (Including standard LAN ports) are supported.

6.2 Fibre Channel / SAS Controller

Category	Product Name / Description	Part Number
Fibre Channel Controller	Fibre Channel board kit (8Gbps) : 2 x FC Controller QLogic QLE2560 8Gbps Fibre Channel Adapters	N8803-038
SAS Controller	SAS Controller : 1 x SAS Controller LSI SAS9212-4i4e Host Bus Adapter NOTE: Up to one controller per module	N8803-039

NOTE:

- For supported NEC Storage products to connect with N8803-038, contact your sales representative or refer to the NEC Storage WEB site. (<http://www.nec.com/global/prod/storage/>)

7 Other Add-in Components

7.1 Input Devices

Category	Product Name / Description	Part Number
Keyboard	USB Keyboard	N8870-002AF
Mouse	USB Optical Wheel Mouse	N8870-012
Cable	USB cable : 1.5m USB extension cable	K410-177(1A)

8 Add-on Components

8.1 17-inch LCD Console Drawer

Category		Product Name / Description	Part Number
Drawer w/ KVM Switch	Drawer	17inch LCD Console Unit (1U/8port) 17-inch LCD, US 83-keys Keyboard, Optical mouse, 8 port KVM switch, 1U height	N8143-77F
	Cable	Switch Unit Connection Cable Set (USB, 1.8m) 1.8 m, 1 x 15-pin mini D-SUB to 1 x 15-pin mini D-SUB / 1 x 4-pin USB A	K410-118(1A)
		Switch Unit Connection Cable Set (USB, 3m) 3 m, 1 x 15-pin mini D-SUB to 1 x 15-pin mini D-SUB / 1 x 4-pin USB A	K410-118(03)
		Switch Unit Connection Cable Set (USB, 5m) 5 m, 1 x 15-pin mini D-SUB to 1 x 15-pin mini D-SUB / 1 x 4-pin USB A	K410-118(05)
Drawer w/o KVM Switch	Drawer	17inch LCD Console Unit 1U 17-inch LCD, US 83-keys Keyboard, Optical mouse, 1U height, 4-pin USB B to 4-pin USB A cable 2m, PS/2 Y-splitter cable 2m, 15-pin mini D-sub VGA cable 2m	N8143-76F
		17inch LCD Console Drawer (1port) 17-inch LCD, US 103-keys Keyboard with 10-key, Touch pad with 3-button, 1U height, 4-pin USB B to 4-pin USB A cable 1.8 m, Two PS/2 cable 1.8 m, 15-pin mini D-sub VGA cable 1.8 m	N8143-84F
	Keypad	Keyboard Unit (JP) JP 108-keys Keyboard with 10-key for N8143-84F 17inch LCD Console Drawer (1port)	N8143-85
		Keyboard Unit (UK) UK 104-keys Keyboard with 10-key, for N8143-84F 17inch LCD Console Drawer (1port)	N8143-87

8.2 KVM Switch

Category		Product Name / Description	Part Number
KVM Switch		Server Switch Unit (8 server) 1U USB 8 port KVM switch	N8191-12F
Cable	KVM	Switch Unit Connection Cable Set (USB,1.8m) 1.8 m, 1 x 15-pin mini D-sub to 1 x 15-pin mini D-sub / 1 x 4-pin USB A	K410-118(1A)
		Switch Unit Connection Cable Set (USB,3m) 3 m, 1 x 15-pin mini D-sub to 1 x 15-pin mini D-sub / 1 x 4-pin USB A	K410-118(03)
		Switch Unit Connection Cable Set (USB,3m) 5 m, 1 x 15-pin mini D-sub to 1 x 15-pin mini D-sub / 1 x 4-pin USB A	K410-118(05)
	Cascading	Switch Unit Connection Cable 1.8 m 1.8 m, 1 x 15-pin mini D-sub - 1x 15-pin mini D-Sub / 2x PS/2	K410-119(1A)

8.3 Flash FDD

Order the Flash FDD if you need to prepare an alternative for a floppy drive.

Product Name / Description	Part Number
Flash FDD USB flash emulating USB floppy disk, Native capacity 1.44 MB	N8160-86

8.4 Operating System

Product Name / Description	Part Number
Microsoft Windows Server® 2008 R2 Enterprise (1-2 Processor, 25CAL Version):	
English	UL0999-436EN
Chinese Traditional	UL0999-436CT
Chinese Simplified	UL0999-436CS
Korean	UL0999-436KR

NOTE:

- Service Pack1 is not included in these products. Service Pack1 needs to be applied separately.

8.5 Active Upgrade™

Product Name / Description	Part Number
Active Upgrade for ft	UL1535-001E

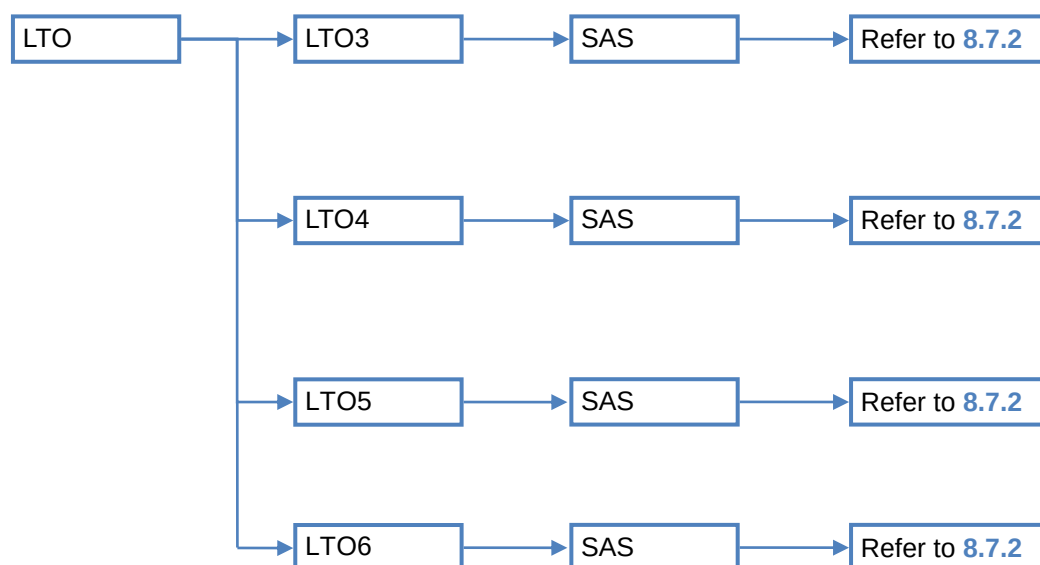
8.6 Tower Conversion Kit

Product Name / Description	Part Number
Tower Conversion Kit 23 inch height pedestal with front bezel	N8843-004

8.7 External Tape Drives

8.7.1 Tape Drive Selection

Refer to the section in accordance with your type of tape drives.



8.7.2 LTO / SAS

Category	Product Name / Description	Part Number
Controller Required	SAS Controller LSI SAS9212-4i4e Host Bus Adapter 6Gb/s SAS, Int. 4 / Ext. 4, 7-pin SATA / SFF-8088, PCIe 2.0 x8, LP/FH NOTE: Up to one controller per module	N8803-039
External Cable Required	External SAS cable 2 m, for Tape Drive Enclosure connection	K410-191(02)
Tape Enclosure Required	2U Tape Drive Enclosure 4 x 5-inch media bays, two internal SAS cables included	N8141-59F
Power Module Recommended	Power Supply 1 x non-hot plug power supply unit for redundant configuration	N8181-54F
Internal Cable	Internal SAS cable 2 m, for 2U Tape Drive Enclosure internal connection NOTE: Required when three or more SAS connections (including other general purpose servers) to the N8141-59F	K410-249(00)
Drive 2 bays available	Internal LTO (SAS) LTO3, Half height, Native capacity 400GB	N8151-102
	Internal LTO (SAS) LTO4, Half height, Native capacity 800GB	N8151-90
	Internal LTO (SAS) LTO5, Half height, Native capacity 1500GB	N8151-103
	Internal LTO (SAS) LTO6, Half height, Native capacity 2.5 TB	N8151-106

8.7.3 Notes for Double Backup

In a single backup configuration, in case a CPU/IO module or backup device fails, backup is not possible until the failed part is repaired or replaced. If this does not meet your system requirements, consider a double backup configuration.

Refer to the following notes on double backup configuration.

- When configuring two sets of a SAS controller, a SAS cable and a backup device, two backup devices are recognized separately by the OS. When scheduling an automatic backup job, make a job for each backup device so that the other backup device can backup in case one device fails.
- With BrightStor ARCserve Backup, backup is not executed if you enter an asterisk (*) in the group box under the destination tab when defining a job. Be sure to create two backup jobs by correctly selecting the device group for the group box, and entering an asterisk (*) or the name of the media in the media box.

8.7.4 Supported Backup Software

See the table below for the supported backup software on NEC EXPRESS5800/R320d.

Tape drive		Backup software	
Product Name / Description	Part Number	ARCserve	Backup Exec
		ARCserve r16.5	Backup Exec 2012
		WS2008R2	WS2008R2
Internal LTO (SAS) LTO3, Half height, Native capacity 400 GB	N8151-102	✓ *a1	✓ *b1
Internal LTO (SAS) LTO4, Half height, Native capacity 800 GB	N8151-90	✓ *a1	✓ *b1
Internal LTO (SAS) LTO5, Half height, Native capacity 1.5 TB	N8151-103	✓ *a1	✓ *b1
Internal LTO (SAS) LTO6, Half height, Native capacity 2.5 TB	N8151-106	✓ *a1	✓ *b1

*a1: Do not disable the tape driver on the device manager.

*b1: Do not install the Symantec driver. Apply the driver which comes with the tape drive.

NOTE:

- Disaster Recovery Option is not supported on the ft server system.
- It is not supported to backup from NEC Express5800/ft series to a backup device directly using NetBackup. However, NEC Express5800/ft series can be a backup-client machine of NetBackup.

References

Server Management

The EXPRESSSCOPE Engine 3, integrated into the server, provides superior remote control and system management features listed in the table below.

Hardware monitoring	Temperature/voltage/power/fan /degeneration (memory/hard drive)	✓
	Hardware event log collection	✓
Boot monitoring	Bootting, BIOS/POST stall, OS stall, shutdown	✓
Alerting	HW error, Boot error and OS panic (by SNMP, E-Mail)	✓
Remote KVM (via LAN)	POST/BIOS setup, DOS utility	✓
	Panic screen, Boot screen	✓
	Text-based screen (OS console)	✓
	GUI-based screen (OS console)	✓
Remote control (via LAN)	Remote reset/power on-off/ dump	✓
	OS shutdown	✓
	Remote media (CD/DVD/FD)	✓
	Server Management Command Line Protocol (DMTF compliant)	✓
	Remote control via Web browser (without dedicated app)	✓
	Remote batch	✓
	Scheduling (without UPS)	✓
Others	Set automatic IP address via DNS/DHCP	✓
Remote wakeup	Wake On LAN, Wake On Ring	✓
Centralized management	Monitoring and control of multiple servers	✓
Industry standard	IPMI	2.0

Supported PCI Cards and Installable Slots

Part Number	Product Name	Slots		Notes
	Slot # :	#1	#2	
	PCI Slot:	x4	x4	
	Card height:	LP	LP	
	Slot type:	x8	x8	
N8804-009	1000BASE-T 2ch board kit	✓	✓	
N8804-011	10GBASE-T 1ch board set	✓	✓	Max. 1
N8803-038	Fibre Channel board kit	✓ ¹	✓ ¹	
N8803-039	SAS board	✓ ¹	✓ ¹	Max. 1

¹ Not installable when using Tower Conversion Kit.

Notes for using Hyper-V

Brief system interruption during synchronization process

In the synchronization process of CPU modules, a memory copy is performed to duplex memory on both CPU modules. Most of the memory area can be copied without interrupting the system through the so-called brownout copy method, and just a small portion requires the system to stop. However, with Hyper-V, the system cannot use the brownout copy method. Therefore, the system does not respond for a longer period of time during the synchronization process of the CPU modules than without Hyper-V. See the table below for the reference values of interruption during re-synchronization of CPU/IO modules in a Hyper-V system. It is recommended that your system design take the interruption into account.

Model / Memory Size	8GB	16GB	64GB	128GB	256GB
R320d-E4	2 sec	3 sec	10 sec	18 sec	36 sec
R320d-M4	2 sec	3 sec	8 sec	14 sec	27 sec

About Guest OS

Guest operating systems supported on NEC Express5800/ft series are the same as other general purpose servers. Refer to the [Microsoft web site](#) for Supported Guest Operating Systems on Hyper-V.

Backup

When using Hyper-V on a FT server, prepare a separate server for backup in the same way as for other general purpose servers with Hyper-V. For backup patterns, refer to each backup software company's web site.

NEC ESMPRO Agent

For monitoring guest operating systems, NEC ESMPRO Agent for Guest OS is required. Contact your sales representative for this software.

Active Upgrade

A team assigned to the virtual network by Hyper-V Virtual Network Manager cannot be used in Active Upgrade. To use Active Upgrade, at least one team that is not assigned to virtual network is required.

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For hard drive capacity measurements, 1 GB = 1 billion bytes. Actual formatted capacity is less.

Revision History

Revision	Date	Description
1.0	2014.3.18	Initial release