FUJITSU

ETERNUS Multipath Driver (Windows Version) Installation Information

September 2011

Contents

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About ETERNUS Multipath Driver for Windows

ETERNUS Multipath Driver for Windows is based on Microsoft Storage Technologies - MPIO framework. ETERNUS Multipath Driver for Windows is equivalent to Device Specific Module (DSM) in MPIO framework.

Supported Operation System (OS) Versions

This table shows the versions of Windows supported by ETERNUS Multipath Driver.

Supported OS Versions	ETERNUS Multipath Driver Version Level
Microsoft® Windows Server® 2003, Standard Edition (32-bit) Microsoft® Windows Server® 2003, Enterprise Edition (32-bit) Microsoft® Windows Server® 2003, Datacenter Edition (32-bit) Microsoft® Windows Server® 2003 R2, Standard Edition (32-bit) Microsoft® Windows Server® 2003 R2, Enterprise Edition (32-bit) Microsoft® Windows Server® 2003 R2, Datacenter Edition (32-bit) Microsoft® Windows Storage Server® 2003 R2, Standard Edition (32-bit) Microsoft® Windows Storage Server® 2003 R2, Enterprise Edition (32-bit) Microsoft® Windows Unified Data Storage Server 2003 Standard Edition (32-bit) Microsoft® Windows Unified Data Storage Server 2003 Enterprise Edition (32-bit)	V2.0L10 or later
Microsoft® Windows Server® 2003, Standard x64 Edition Microsoft® Windows Server® 2003, Enterprise x64 Edition Microsoft® Windows Server® 2003, Datacenter x64 Edition Microsoft® Windows Server® 2003 R2, Standard x64 Edition Microsoft® Windows Server® 2003 R2, Enterprise x64 Edition Microsoft® Windows Server® 2003 R2, Datacenter x64 Edition Microsoft® Windows Storage Server® 2003 R2, Standard x64 Edition Microsoft® Windows Storage Server® 2003 R2, Enterprise x64 Edition Microsoft® Windows Unified Data Storage Server 2003 Standard x64 Edition Microsoft® Windows Unified Data Storage Server 2003 Enterprise x64 Edition	V2.0L11 or later
Microsoft® Windows Server® 2003, Enterprise Edition for Itanium-based Systems Microsoft® Windows Server® 2003, Datacenter Edition for Itanium-based Systems	V2.0L10 or later
Microsoft® Windows Server® 2008 Standard Microsoft® Windows Server® 2008 Enterprise Microsoft® Windows Server® 2008 Datacenter Microsoft® Windows Server® 2008 for Itanium-Based Systems Microsoft® Windows HPC Server® 2008	V2.0L14 or later
Microsoft® Windows Server® 2008 R2 Standard Microsoft® Windows Server® 2008 R2 Enterprise Microsoft® Windows Server® 2008 R2 Datacenter Microsoft® Windows Server® 2008 R2 for Itanium-Based Systems Microsoft® Windows HPC Server® 2008 R2	V2.0L16 or later

For Windows Server 2003
   The architecture types of x86 (32-bit), x64 and IA64 (Itanium) are supported.
   The software levels of SP0 (no SP applied), SP1 and SP2 are supported.
   V2.0L11 or later version is required in the environment of MSCS with SP1 or later.

For Windows Server 2008
   The architecture types of x86 (32-bit), x64 and IA64 (Itanium) are supported.
   The software levels of SP1 (no SP applied) and SP2 are supported. SP2 is supported by V2.0L14 or later.

For Windows Server 2008 R2
   The architecture types of x64 and IA64 (Itanium) are supported.
   The software levels of SP0 (no SP applied) and SP1 are supported. SP1 is supported by V2.0L16 or later.

Hyper-V are supported, see also Hyper-V environment.

For Windows 2000, GR Multipath Driver is included in the product CD.
Refer to "GR Multipath Driver Installation Information - Windows version" for detail.

Supported Disk Storage Systems

ETERNUS Multipath Driver supports the following disk storage systems.
- ETERNUS DX60
- ETERNUS DX80
- ETERNUS DX90
- ETERNUS DX60 S2
- ETERNUS DX80 S2
- ETERNUS DX90 S2
- ETERNUS DX400 series
- ETERNUS DX400 S2 series
- ETERNUS DX8000 series
- ETERNUS2000
- ETERNUS4000
- ETERNUS8000
- ETERNUS3000
- ETERNUS6000
- ETERNUS GR series

ETERNUS DX60, ETERNUS DX80, ETERNUS DX90

Disk Storage System	ETERNUS Multipath Driver Product Names	Version Level
ETERNUS DX60 ETERNUS DX80 ETERNUS DX90	for Entry Model for Standard Model for Enterprise Model	V2.0L15 or later

ETERNUS DX60 S2, ETERNUS DX80 S2, ETERNUS DX90 S2

Disk Storage System	ETERNUS Multipath Driver Product Names	Version Level
ETERNUS DX60 S2 ETERNUS DX80 S2 ETERNUS DX90 S2	for Entry Model for Standard Model for Enterprise Model	V2.0L18 or later

ETERNUS DX400 series

Disk Storage System	ETERNUS Multipath Driver Product Names	Version Level
ETERNUS DX400 series	for Standard Model for Enterprise Model	V2.0L15 or later

ETERNUS DX400 S2 series

Disk Storage System	ETERNUS Multipath Driver Product Names	Version Level
ETERNUS DX400 S2 series	for Standard Model for Enterprise Model	V2.0L18 or later

ETERNUS DX8000 series

Disk Storage System	ETERNUS Multipath Driver Product Names	Version Level
ETERNUS DX8000 series up to 2 Paths	for Standard Model for Enterprise Model	V2.0L15 or later
ETERNUS DX8000 series	for Enterprise Model	

ETERNUS2000

Disk Storage System	ETERNUS Multipath Driver Product Names	Version Level
ETERNUS2000	for Entry Model for Standard Model for Enterprise Model	V2.0L13 or later

ETERNUS4000

Disk Storage System	ETERNUS Multipath Driver Product Names	Version Level
ETERNUS4000 model 80 ETERNUS4000 model 100	for Entry Model for Standard Model for Enterprise Model	V2.0L12 or later
ETERNUS4000 model 300 ETERNUS4000 model 500	for Standard Model for Enterprise Model	V2.0L12 or later
ETERNUS4000 model 400 ETERNUS4000 model 600		V2.0L14 or later

ETERNUS8000

Disk Storage System	ETERNUS Multipath Driver Product Names	Version Level
ETERNUS8000 model 700 up to 2 Paths ETERNUS8000 model 900 up to 2 Paths ETERNUS8000 model 1100 up to 2 Paths ETERNUS8000 model 2100 up to 2 Paths	for Standard Model for Enterprise Model	V2.0L12 or later
ETERNUS8000 model 800 up to 2 Paths ETERNUS8000 model 1200 up to 2 Paths ETERNUS8000 model 2200 up to 2 Paths		V2.0L14 or later
ETERNUS8000 model 700 ETERNUS8000 model 900 ETERNUS8000 model 1100 ETERNUS8000 model 2100	for Enterprise Model	V2.0L12 or later
ETERNUS8000 model 800 ETERNUS8000 model 1200 ETERNUS8000 model 2200		V2.0L14 or later

ETERNUS3000

Disk Storage System	ETERNUS Multipath Driver Product Names	Version Level
ETERNUS3000 model 50 ETERNUS3000 model 80 ETERNUS3000 model 100	for Entry Model for Standard Model for Enterprise Model	V2.0L10 or later
ETERNUS3000 model 200 ETERNUS3000 model 300 ETERNUS3000 model 400 ETERNUS3000 model 500 ETERNUS3000 model 600 ETERNUS3000 model 700	for Standard Model for Enterprise Model	

ETERNUS6000

Disk Storage System	ETERNUS Multipath Driver Product Names	Version Level
ETERNUS6000 up to 2 Paths	for Standard Model for Enterprise Model	V2.0L10 or later
ETERNUS6000	for Enterprise Model	

ETERNUS GR series

Disk Storage System	ETERNUS Multipath Driver Product Names	Version Level
GR710	for Entry Model for Standard Model for Enterprise Model	V2.0L10 or later
GR720 GR730	for Standard Model for Enterprise Model	
GR740 Up to 2 Paths GR820 Up to 2 Paths GR840 Up to 2 Paths	for Standard Model for Enterprise Model	
GR740 GR820 GR840	for Enterprise Model	

Related Products Requirements

Supported Related Products are as follows:
For the combinations of servers, HBAs, and topologies, please contact us.

Related Hardware Product Requirements

- FC card

Server	HBAs		ETERNUS Multipath Driver Version Level
PRIMERGY/ PRIMEQUEST	PG-FC105	S26361-F2624-E1	V2.0L10 or later
	PG-FC106	S26361-F2843-E1 S26361-F2843-E201	
	PG-FC107	S26361-F3141-E10 S26361-F3141-E210	
	PG-FC201	S26361-F3141-E1	
	PG-FC202(L)	S26361-F3306-E1 S26361-F3306-E201	
	PG-FC203(L)	S26361-F3961-E1 S26361-F3961-E201	
	PG-FC204(L)	S26361-F3961-E2 S26361-F3961-E202	
	PG-FC205(L)	S26361-F3631-L1	
	PG-FC206(L)	S26361-F3631-L2	
	PG-FCD101 PG-FCD102	S26361-F3023-E1 S26361-F3023-E2 S26361-F3023-L2	
	PG-FCD201	S26361-F3306-E601 S26361-F3306-L601	
	PG-FCD202	MC-FC82E	
	MC-08FCxx		V2.0L11 or later
	MC-0JFCxx		V2.0L16 or later
3rd party PC servers	Emulex FC Cards Qlogic FC Cards		V2.0L10 or later

- SAS card

Server	HBAs	ETERNUS Multipath Driver Version Level
PRIMERGY	PG-228B(L) PG-22DC(L)	V2.0L14 or later
3rd party PC servers	LSI Logic SAS Cards	

- iSCSI

Server	NICs	ETERNUS Multipath Driver Version Level
PRIMERGY/ PRIMEQUEST	S26361-F3011-E1 etc.	V2.0L12 or later
3rd party PC servers	Intel Pro/1000MT etc.	
	Qlogic iSCSI Cards	V2.0L10 or later

- FCoE

Server	CNAs		ETERNUS Multipath Driver Version Level
PRIMERGY	PG-292B(L)	S26361-F3592-L2 S26361-F3592-L202	V2.0L16 or later
	PG-CND201	MC-CNA102E-F	
3rd party PC servers	Emulex CNA Cards		

- Topology

Interface	Topology	ETERNUS Multipath Driver Version Level
FC	FC-AL	V2.0L10 or later
	Fabric	
SAS	Point-to-Point	V2.0L14 or later
	Fabric [*1]	V2.0L18 or later
iSCSI	Point-to-Point	V2.0L10 or later
	Switch	
FCoE	Fabric	V2.0L16 or later

*1: Only ETERNUS DX80S2/DX90 S2.

Related Software Product Requirements

- Clustering Software

Clustering Software	ETERNUS Multipath Driver Version Level
SafeCLUSTER	V2.0L10 or later
MSCS (Not applying Windows Server 2003 SP1)	
MSCS (Applying Windows Server 2003 SP1 or later)	V2.0L11 or later
WSFC (Windows Server 2008)	V2.0L14 or later
WSFC (Windows Server 2008 R2)	V2.0L16 or later

MSCS: Microsoft Cluster Service
WSFC: Windows Server Failover Cluster

- Microsoft iSCSI Software Initiator

iSCSI Software Initiator Version	ETERNUS Multipath Driver Version Level
Version 2.02 or later	V2.0L12 or later

- HBA Drivers

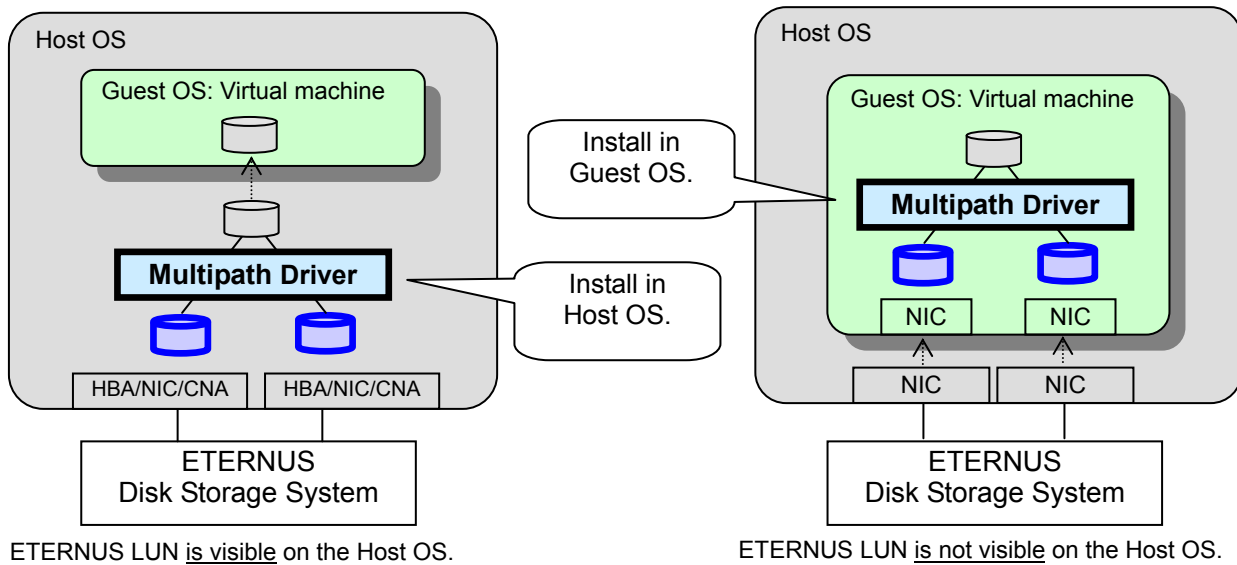| HBA Drivers	ETERNUS Multipath Driver Version Level
SCSIport Miniport Driver	V2.0L10 or later
Storport Miniport Driver (*2)	

*2： When using Storport Miniport Driver, Windows Server 2003 Service Pack(SP1 or later) is required.

Virtualization Environments

Virtualization Environments	Running on Host OS	Running on Guest OS
Hyper-V	Supported	Supported
VMware	N/A	Not Supported
Linux Xen	N/A	Not Supported
Linux KVM	N/A	Not Supported

Hyper-V environment

ETERNUS Multipath Driver must be installed in the OS which see the multipath connections to the LUNs.

ETERNUS LUN is visible on the Host OS.

ETERNUS LUN is not visible on the Host OS.

The figure above to the left is for a LUN on disk storage system that is recognized on Host OS. In a configuration like this, ETERNUS Multipath Driver must be installed in Host OS.

The figure above to the right is for a LUN on disk storage system is not recognized on Host OS. The Guest OS directly recognizes the LUN on disk storage system without going through Host OS. For example, if you install MS iSCSI Initiator in Guest OS, the right figure is applied. ETERNUS Multipath Driver must be installed in the Guest OS.

CAUTION
-For the configuration shown above in the figure to the left, even if the LUN on the Host OS is configured to be seen by the Guest OS with Hyper-V pass-through disk function, ETERNUS Multipath Driver does not need to be installed in Guest OS.
-The host interface which supports the configuration shown above in the figure to the right is only iSCSI.

The supported Host OS of ETERNUS Multipath Driver.
・Microsoft Windows Server 2008 Standard (x64)
・Microsoft Windows Server 2008 Enterprise (x64)
・Microsoft Windows Server 2008 Datacenter (x64)
・Microsoft Windows Server 2008 R2 Standard (x64)
・Microsoft Windows Server 2008 R2 Enterprise (x64)
・Microsoft Windows Server 2008 R2 Datacenter (x64)

The supported Guest OS of ETERNUS Multipath Driver.
・Microsoft Windows Server 2003, Standard Edition (32-bit)
・Microsoft Windows Server 2003, Enterprise Edition (32-bit)
・Microsoft Windows Server 2003, Datacenter Edition (32-bit)
・Microsoft Windows Server 2003 R2, Standard Edition (32-bit)
・Microsoft Windows Server 2003 R2, Enterprise Edition (32-bit)
・Microsoft Windows Server 2003 R2, Datacenter Edition (32-bit)
・Microsoft Windows Server 2003, Standard x64 Edition
・Microsoft Windows Server 2003, Enterprise x64 Edition
・Microsoft Windows Server 2003, Datacenter x64 Edition
・Microsoft Windows Server 2003 R2, Standard x64 Edition
・Microsoft Windows Server 2003 R2, Enterprise x64 Edition
・Microsoft Windows Server 2003 R2, Datacenter x64 Edition

・Microsoft Windows Server 2008 Standard (32-bit, x64)
・Microsoft Windows Server 2008 Enterprise (32-bit, x64)
・Microsoft Windows Server 2008 Datacenter (32-bit, x64)
・Microsoft Windows Server 2008 R2 Standard (x64)
・Microsoft Windows Server 2008 R2 Enterprise (x64)
・Microsoft Windows Server 2008 R2 Datacenter (x64)

Channel Adapter ID and Connection Points

CAID is the information displayed on the Multipath Manager window and it can identify the location of the port in the disk storage system.

CAID is different from a physical port number. To confirm a physical port number, refer to the manual of the disk storage system. Please note that the port position and the physical port number depend on the type of disk storage system.

ETERNUS DX60, ETERNUS DX80 rear view

[FC / iSCSI]
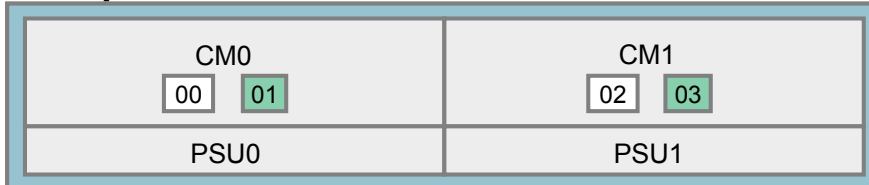
CM0		CM1	
00	01	02	03
PSU0		PSU1	

CM: Controller Module, PSU: Power Supply Unit

☐ : When using 2 port CM

[SAS]

CM0		CM1	
00	00	02	02
PSU0		PSU1	

CM: Controller Module, PSU: Power Supply Unit

☐ : When using 2 port CM

ETERNUS DX90 rear view

CM0				CM1			
00	01	04	05	02	03	06	07
PSU0				PSU1			

CM: Controller Module, PSU: Power Supply Unit

ETERNUS DX60 S2 rear view

[FC / iSCSI]

CM0		CM1	
00	01	02	03
PSU0		PSU1	

CM: Controller Module, PSU: Power Supply Unit

⬜ : When using 2 port CM

[SAS]

CM0		CM1	
00	00	02	02
PSU0		PSU1	

CM: Controller Module, PSU: Power Supply Unit

⬜ : When using 2 port CM

ETERNUS DX80 S2, ETERNUS DX90 S2 rear view

CM0				CM1			
CA0		CA1		CA0		CA1	
00	01	20	21	02	03	22	23
PSU0				PSU1			
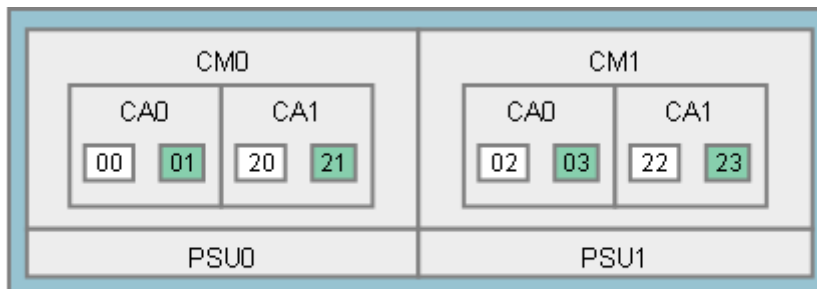
CM: Controller Module, CA: Channel Adapter, PSU: Power Supply Unit

⬜ : When using 2 port CA

ETERNUS DX400 series rear view
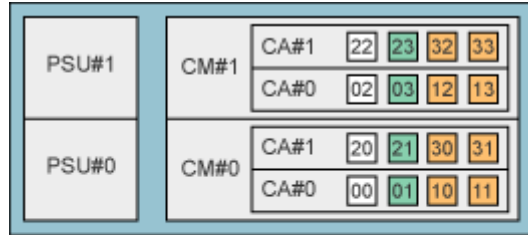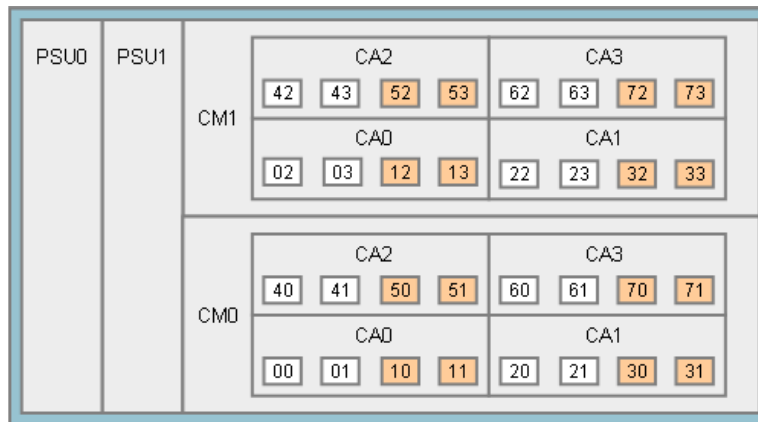

CM : Controller Module, PSU : Power Supply Unit

When using 2port-CA

When using 4port-CA

ETERNUS DX400 S2 series rear view

CM: Controller Module, CA: Channel Adapter , PSU: Power Supply Unit

: When using 4 port CA

ETERNUS DX8100 rear view
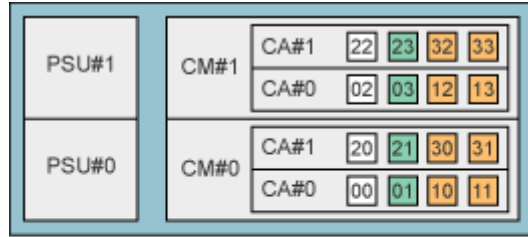
PSU#1		CM#1	CA#1	22	23	32	33
			CA#0	02	03	12	13
PSU#0		CM#0	CA#1	20	21	30	31
			CA#0	00	01	10	11

CM : Controller Module, PSU : Power Supply Unit

■ When using 2port-CA

■ When using 4port-CA

ETERNUS DX8400, ETERNUS DX8700 rear view

CM#4

CA#0	CA#1	CA#2	CA#3
08	28	48	68
09	29	49	69
18	38	58	78
19	39	59	79

CM#5

CA#0	CA#1	CA#2	CA#3
0A	2A	4A	6A
0B	2B	4B	6B
1A	3A	5A	7A
1B	3B	5B	7B

CM#6

CA#0	CA#1	CA#2	CA#3
0C	2C	4C	6C
0D	2D	4D	6D
1C	3C	5C	7C
1D	3D	5D	7D

CM#7

CA#0	CA#1	CA#2	CA#3
0E	2E	4E	6E
0F	2F	4F	6F
1E	3E	5E	7E
1F	3F	5F	7F

CM#0

CA#0	CA#1	CA#2	CA#3
01	20	40	60
01	21	41	61
10	30	50	70
11	31	51	71

CM#1

CA#0	CA#1	CA#2	CA#3
02	22	42	62
03	23	43	63
12	32	52	72
13	33	53	73

CM#2

CA#0	CA#1	CA#2	CA#3
04	24	44	64
05	25	45	65
14	34	54	74
15	35	55	75

CM#3

CA#0	CA#1	CA#2	CA#3
06	26	46	66
07	27	47	67
16	36	56	76
17	37	57	77

CM : Controller Module

■ When using 4Port-CA

ETERNUS2000 rear view

[FC / iSCSI]

PSU0	CM0	BBU	CM1	PSU1
	01 00		03 02	

CM: Controller Module, PSU: Power Supply Unit, BBU: Buttery Backup Unit
☐ : When using 2 port CM

[SAS]

PSU0	CM0	BBU	CM1	PSU1
	00 00		02 02	
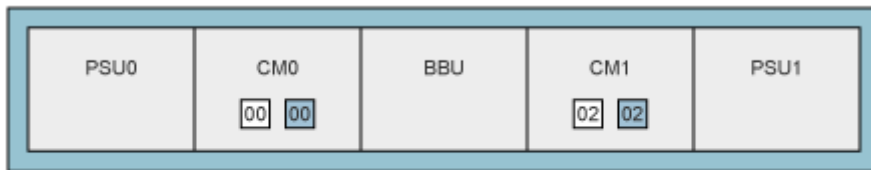
CM: Controller Module, PSU: Power Supply Unit, BBU: Buttery Backup Unit
☐ : When using 2 port CM

ETERNUS4000 model 80/100 rear view
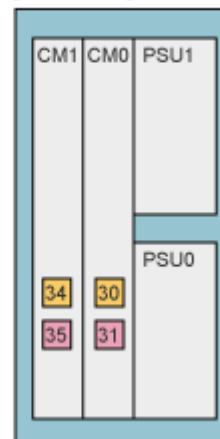
[Rack mount]

35 34		CM1
31 30		CM0
PSU0	PSU1	

CM:Controller Module, PSU:Power Supply Unit
☐ When using 2 port-CM ☐ CAID

[Pedestal]

CM1	CM0	PSU1
		PSU0
34	30	
35	31	

ETERNUS4000 model 300/400/500/600 rear view

PSU#1	CM#1	CA#1	22 23 32 33
		CA#0	02 03 12 13
PSU#0	CM#0	CA#1	20 21 30 31
		CA#0	00 01 10 11

CM : Controller Module, PSU : Power Supply Unit
☐ When using 2port-CA
☐ When using 4port-CA

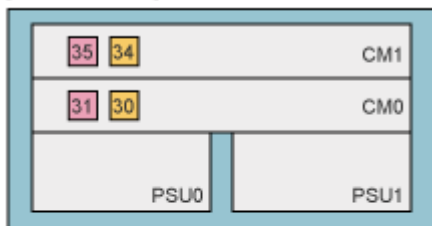ETERNUS8000 model 700/800 rear view
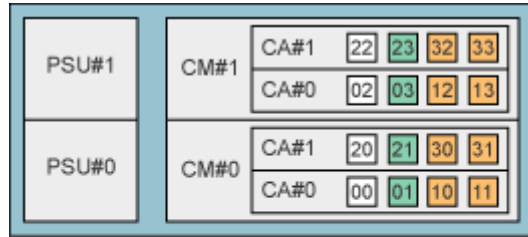
PSU#1	CM#1	CA#1	22	23	32	33
		CA#0	02	03	12	13
PSU#0	CM#0	CA#1	20	21	30	31
		CA#0	00	01	10	11

CM : Controller Module, PSU : Power Supply Unit
- When using 2port-CA
- When using 4port-CA

ETERNUS8000 model 900/1100/1200/2100/2200 rear view

CM#4

CA#0	CA#1	CA#2	CA#3
08	28	48	68
09	29	49	69
18	38	58	78
19	39	59	79

CM#5

CA#0	CA#1	CA#2	CA#3
0A	2A	4A	6A
0B	2B	4B	6B
1A	3A	5A	7A
1B	3B	5B	7B

CM#6

CA#0	CA#1	CA#2	CA#3
0C	2C	4C	6C
0D	2D	4D	6D
1C	3C	5C	7C
1D	3D	5D	7D

CM#7

CA#0	CA#1	CA#2	CA#3
0E	2E	4E	6E
0F	2F	4F	6F
1E	3E	5E	7E
1F	3F	5F	7F

CM#0

CA#0	CA#1	CA#2	CA#3
01	20	40	60
01	21	41	61
10	30	50	70
11	31	51	71

CM#1

CA#0	CA#1	CA#2	CA#3
02	22	42	62
03	23	43	63
12	32	52	72
13	33	53	73

CM#2

CA#0	CA#1	CA#2	CA#3
04	24	44	64
05	25	45	65
14	34	54	74
15	35	55	75

CM#3

CA#0	CA#1	CA#2	CA#3
06	26	46	66
07	27	47	67
16	36	56	76
17	37	57	77

CM : Controller Module
- When using 4Port-CA

ETERNUS3000 model 50 rear view

[Rack mount]

[Pedestal]

CM:Controller Module, PSU:Power Supply Unit
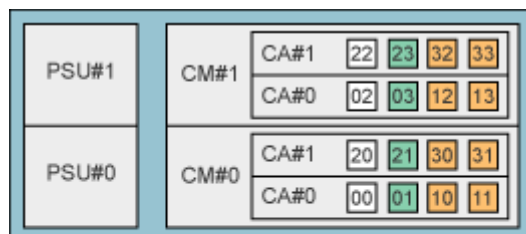CAID

ETERNUS3000 model 80/100 rear view

[Rack mount]

[Pedestal]

CM:Controller Module, PSU:Power Supply Unit
When using 2 port-CM   CAID

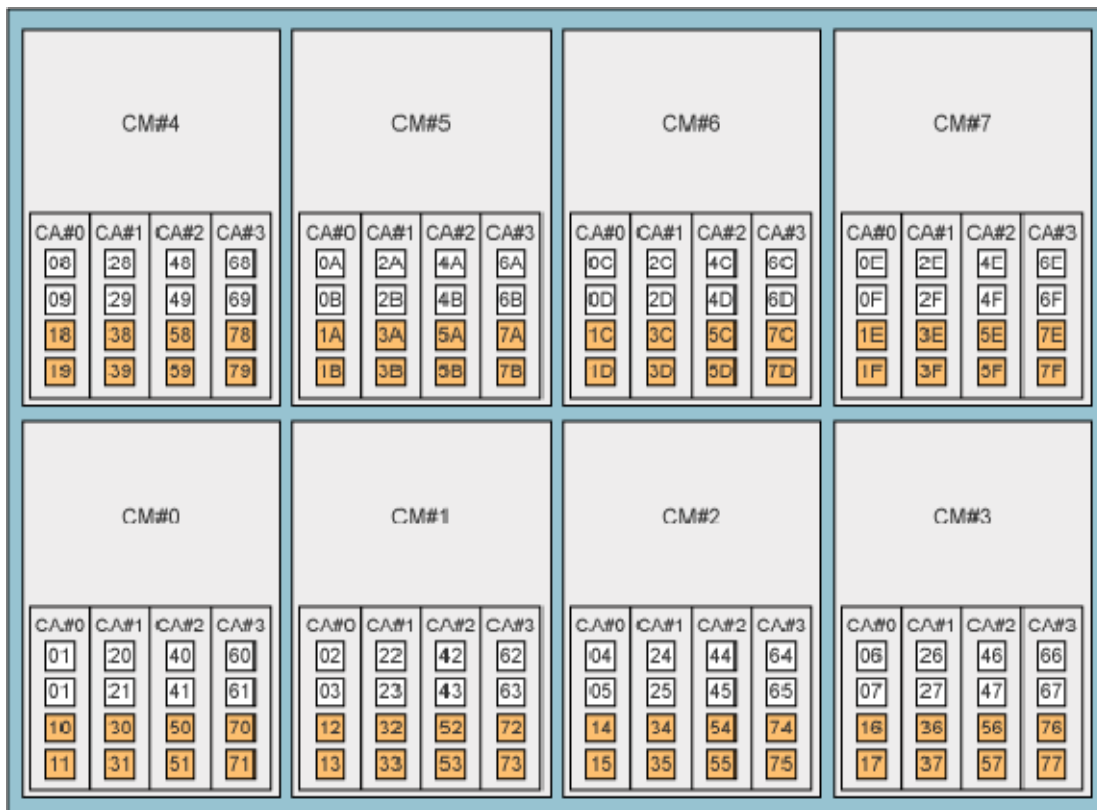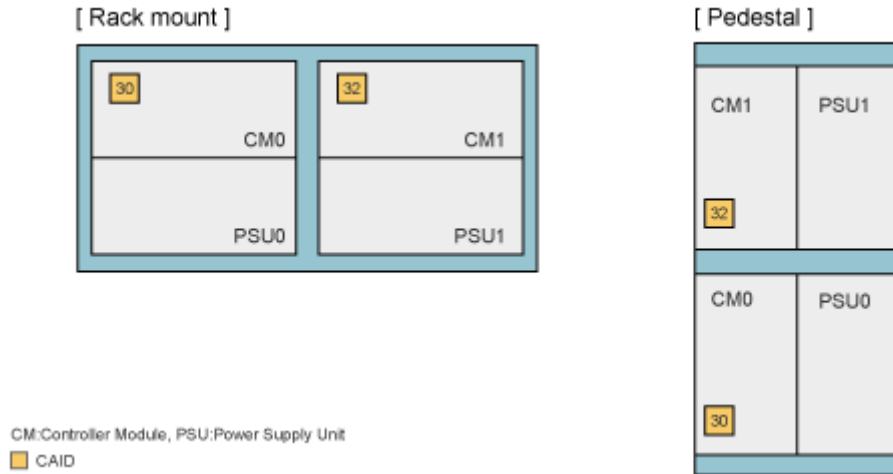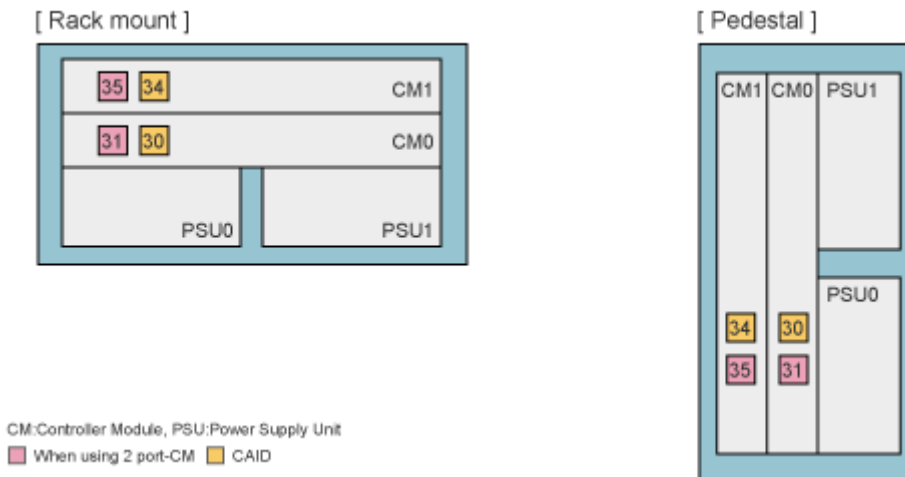## ETERNUS3000 model 200/300/400/500/600/700 rear view

[Floor stand / Rack mount]

[Pedestal]

CM:Controller Module, PSU:Power Supply Unit
When using 2 port-CA   CAID
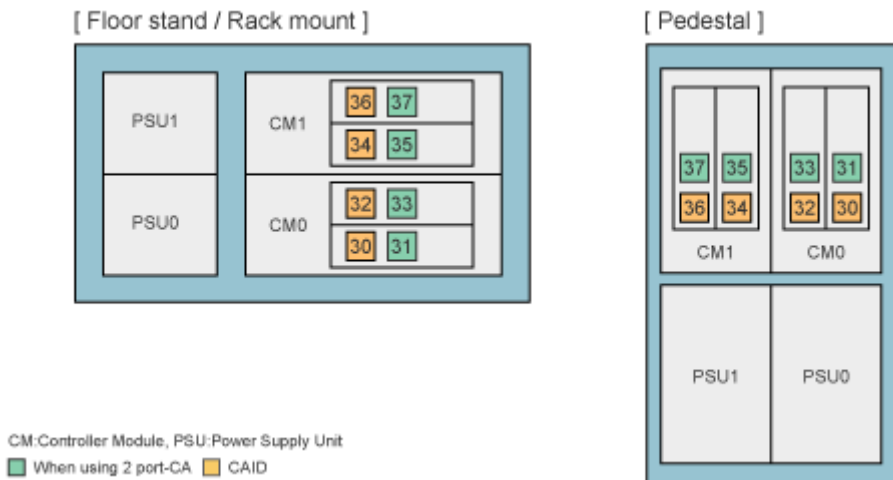
ETERNUS6000 front and rear view

[Front view]

	CA#0	CA#2					CA#0	CA#2	
RT #11	E0	F0	DA #0	CM #11	CM #01	RT #01	A0	B0	DA #0
	E2	F2					A2	B2	
	E1	F1					A1	B1	
	E3	F3					A3	B3	
	CA#1	CA#3					CA#1	CA#3	
	E4	F4	DA #1				A4	B4	DA #1
	E6	F6					A6	B6	
	E5	F5					A5	B5	
	E7	F7					A7	B7	

[Rear view]

	CA#0	CA#2					CA#0	CA#2	
RT #00	80	90	DA #0	CM #00	CM #10	RT #10	C0	D0	DA #0
	82	92					C2	D2	
	81	91					C1	D1	
	83	93					C3	D3	
	CA#1	CA#3					CA#1	CA#3	
	84	94	DA #1				C4	D4	DA #1
	86	96					C6	D6	
	85	95					C5	D5	
	87	97					C7	D7	
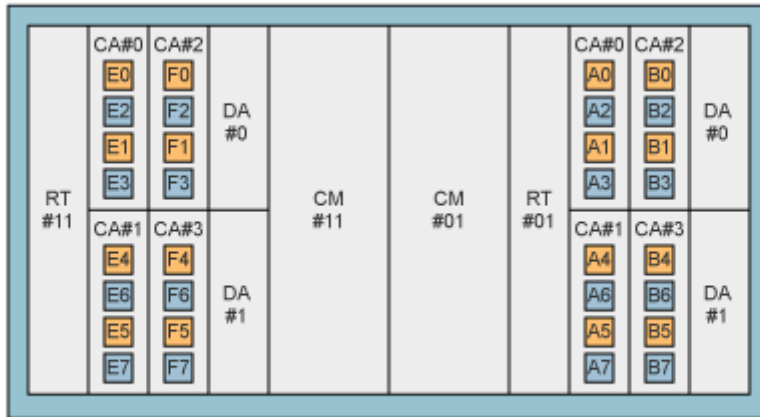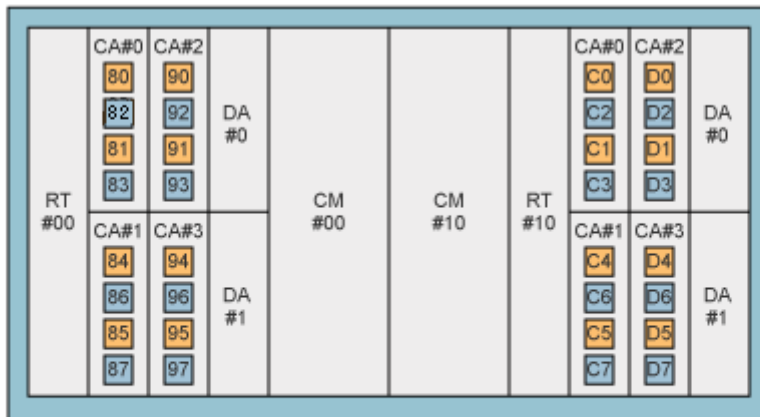
■ When using 4Port-CA   ■ CAID

GR710 rear view

[Rack mount]

30		32	
	CM0		CM1
	PSU0		PSU1

[Pedestal]

CM1	PSU1
32	
CM0	PSU0
30	

CM:Controller Module, PSU:Power Supply Unit
☐ CAID

GR720, GR730 rear view

	CM1
33 32	
	CM0
31 30	

CM:Controller Module
☐ CAID
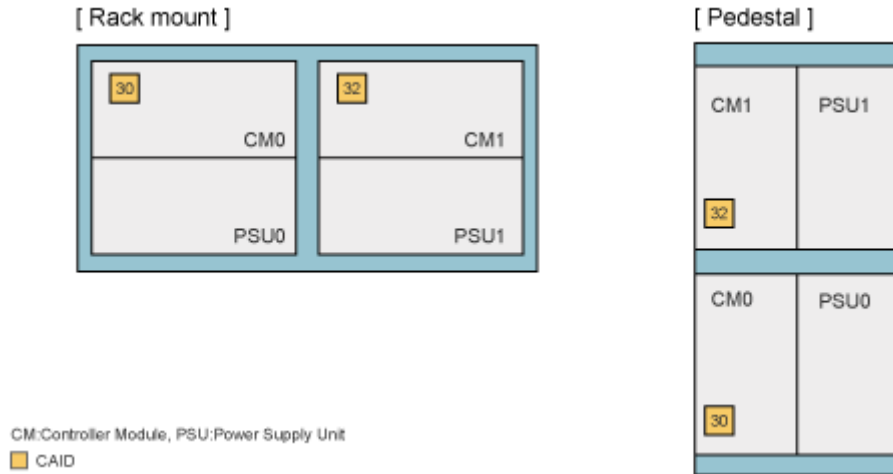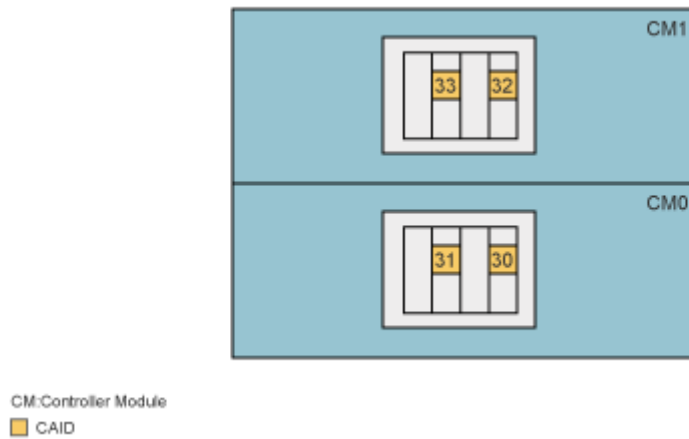
GR740, GR820, GR840 rear view

[Front view]

20 21	23 24	26 27	29 2A
IOB00	IOB01	IOB02	IOB03

[Rear view]

2C 2D	2F 30	32 33	35 36
IOB10	IOB11	IOB12	IOB13

CM:Controller Module
☐ CAID
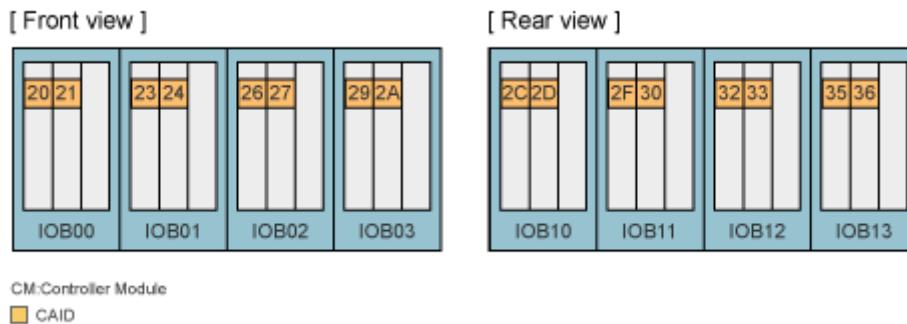
Assigned-/ Non-assigned-CM Type Disk Storage Systems

For ETERNUS and GR Storage series, there are two system types: "Assigned-CM" and "Non-assigned-CM." With Assigned-CM disk storage systems, the main access path for each LU is assigned to a particular controller. With Non-assigned-CM disk storage system, there are no assigned LU access paths as such.

With "Assigned-CM" type disk storage systems, the path connected to the assigned controller is active. Paths to other controllers are on standby. With "Non-assigned-CM" type disk storage systems, all paths are active and used for access.

The table below shows the "Assigned-CM" and "Non-assigned-CM" disk storage systems.

Load balancing/fail over performance can differ depending on "Assigned-CM" and "Non-assigned-CM" use and the number of paths employed. For details, refer to the supplied product manual.

Assigned-CM type	ETERNUS DX60, ETERNUS DX80, ETERNUS DX90, ETERNUS DX60 S2, ETERNUS DX80 S2, ETERNUS DX90 S2, ETERNUS DX400 series, ETERNUS DX400 S2 series, ETERNUS2000, ETERNUS4000, ETERNUS3000, GR710, GR720, GR730
Non-assigned-CM type	ETERNUS DX8000 series, ETERNUS8000, ETERNUS6000, GR740, GR820, GR840

Notes

1. LUN mapping

If LUN mapping in the disk storage system is not set properly, Windows may not recognize LUNs correctly. For proper LUN mapping, the LUN numbers Windows recognizes must be in ascending order from LUN 0.

2. HBA driver settings

If the HBA driver settings are not correct, Windows may not recognize LUNs correctly. For proper HBA driver settings, follow the instructions written in the "Disk Storage System Server Connection Guide" or "User Guide – Server Setting Guide" that comes with the disk storage system.

ETERNUS Multipath Driver Updates

Version No.	Detail
V2.0L10 (Jan / 2005)	First edition - Added Microsoft MPIO framework - Added support for iSCSI - Added support for Storport Miniport - Added mpio 1.11
V2.0L11 (Jul / 2005)	- Added support for Windows Server 2003 x64 - Included the GR Multipath Driver V1.0L14 - Added mpio 1.12

V2.0L12
(Jun / 2006)
	- Added support for the ETERNUS4000 and ETERNUS8000
	- Added support for the QLogic Storport Miniport driver
	- Added support for load balancing in the MSCS environment
	  (added a function to convert SCSI2 Reserve to Persistent Reserve)
	- Added a function to collect an event log for the following sense information:
	    06/fb80 (Sense key = 0x06, ASC = 0xfb, ASCQ = 0x80)
	- Added mpio 1.16

V2.0L13 (Aug / 2007)	- Added support for the ETERNUS2000 - Added mpio 1.18

V2.0L14
(Apr / 2008)
	- Added support for Windows Server 2008
	- Added support for SAS
	- Added event log ID=305
	  (detection of no controller redundancy in the storage system)
	- Added mpio 1.20
	  (mpio 1.20 is used for Windows Server 2003.
	    OS standard mpio is used for Windows Server 2008.)

V2.0L15
(Jun / 2009)
	- Added support for the ETERNUS DX series
	- Discontinued the client version package that was included in the product
	- Discontinued the HTML version user's guide
	- Added mpio 1.23
	  (mpio 1.23 is used for Windows Server 2003.
	    OS standard mpio is used for Windows Server 2008.)

V2.0L16
(Oct / 2009)
	- Added support for Windows Server 2008 R2
	- Improved the path switching process when path failures occur
	- Added a function to collect an event log for the following sense information:
	    06/fb8x (Sense key = 0x06, ASC = 0xfb, ASCQ = 0x8x)
	- Added mpio 1.23
	  (mpio 1.23 is used for Windows Server 2003.
	    OS standard mpio is used for Windows Server 2008 and
	    Windows Server 2008 R2.)

V2.0L17
(Oct / 2010)
	- Added a function to set timeout information of the Emulex Storport Miniport driver
	- Added a function to monitor I/O response time
	- Added a function to monitor the recurrence of path reconnection errors
	- Added a function to scan devices
	- Added the following event logs
	  ID=203, 204, 306, 308, 310, 311, 1014, 2000, 2002, 2004, 2012, 2022, 2032,2100
	- Changed some parts of character strings that are displayed in the description column of the following event logs:
	  ID=201, 202, 301, 304, 305, 401, 402, 403, 1010, 1020, 1030, 1040, 1050,1051,
	      1100, 1200
	- Added mpio 1.23
	  (mpio 1.23 is used for Windows Server 2003.
	    OS standard mpio is used for Windows Server 2008 and
	    Windows Server 2008 R2.)

Version No.	Detail

V2.0L18
(June / 2011)
	- Added support for the ETERNUS DX80 S2, DX90 S2, and DX400 S2 series.
	- Added the function the warning status remains for six minutes.
	- Added mpio 1.23
	 (mpio 1.23 is used for Windows Server 2003.
	  OS standard mpio is used for Windows Server 2008 and
	  Windows Server 2008 R2.)

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