

IBM System Storage™ DS4000 Interoperability Matrix

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Important Disclaimer Information:

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To take full advantage of the constant improvements in the DS4000 code and firmware, you should upgrade to the latest code levels as soon as it is available. This is recommended, to ensure current and comprehensive DS4000 support. Ongoing support for operating systems and software is at the major version level and sub-release noted, plus the next most recent supported sub-release within the major version level noted.

The latest code levels are available by selecting the Product Support link from the appropriate DS4000 model page at:
<http://www-1.ibm.com/servers/storage/disk/ds4000/index.html>

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DS4800 - Models 80A/H, 82A/H, 84A/H, and 88A/H
Supported Operating Systems with Expansion Units*

	IBM xSeries	Intel & AMD IBM	BladeCenter Power IBM	BladeCenter	IBM pSeries	HP Proliant (Netserver)	HP Integrity	Dell PowerEdge	HP 9000 (PA-RISC)	Sun Fire & Netra (SPRAC)	Notes	EXP100 and EXP710 ⁴	EXP710 and EXP810 ⁷
Windows Server 2003 w/SP1, R2, and x64	✓	✓				✓	✓	✓			1	✓	✓
Windows 2000 Server & Adv. Server w/SP4	✓	✓				✓		✓				✓	✓
Novell NetWare 6.5 w/SP5	✓	✓				✓		✓				✓	✓
Red Hat Enterprise Linux 3.8	✓	✓	✓	✓	✓	✓	✓	✓			5	✓	✓
Red Hat Enterprise Linux 4.4	✓	✓	✓	✓	✓	✓	✓	✓			5, 6	✓	✓
SuSE Linux Enterprise Server 8 SP4	✓	✓				✓	✓	✓				✓	✓
SuSE Linux Enterprise Server 9 SP3	✓	✓	✓	✓	✓	✓	✓	✓			5, 6	✓	✓
VMWare ESX 2.5.3, and 3.0	✓	✓				✓		✓			2	✓	✓
AIX 5.1, 5.2, 5.3			✓ ^{3,1}	✓							3,2, 5	✓	✓
HP-UX 11.0, 11i and 11.23 with PVLinks									✓		9	✓	✓
Solaris 8, 9, 10										✓	8	✓	✓

* - This chart includes the following DS4000 series with DS4000 Storage Manager (SM) levels:

DS4800 Models 80A/H, 82A/H, 84A/H, 88A/H - SMv9.19 with firmware 06.16.82.00 or later within 06.16.xx, for attachment of EXP810 and EXP710 (DS4800 not supported within 06.19.xx firmware at this time).

DS4800 Models 82A/H, 84A/H, 88A/H - SMv9.19 with firmware 06.15 for attachment of EXP100 and EXP710.

Note: DS4800 configurations with EXP100 and EXP810 are not supported at this time.

Note: EXP810 enclosure may contain only one drive type, Fibre Channel or SATA, at this time.

Footnotes:

1. Microsoft Windows Server 2003 w/SP1, R2, and x64 – Enterprise, Standard, Web, and Storage Server editions, 32bit and 64bit versions of the operating system (see chart on page 14, section DS4000 with Storage Manager - Intel/AMD Hardware Platform & Operating System Support, for details regarding 32bit and 64bit versions of supported server hardware).
2. Windows guests using MSCS or VMotion (but not guests using MSCS and VMotion concurrently) are supported with VMware ESX 2.5.3 and 3.0. (ESX 3.0 supports 4Gb FC speeds)
ESX Server Clusters support applies to Windows 2000, its service packs, and Windows 2003 RTM, but not Windows 2003 SP1. Please refer to KB article 2021 for the latest information.
http://kb.vmware.com/vmtknkb/search.do?cmd=displayKC&docType=kc&externalId=2021&sliceId=SAL_Public
3. Note 3.1 - BladeCenter JS20 support with AIX 5.2 and 5.3. Note 3.2 - AIX 5.1, 5.2, 5.3 supported within AIX Partition (LPAR) hosted on i5 iSeries servers.
4. When a EXP700 is upgraded with fc#3501 or pn:25R0166, it is supported in the same manner as a EXP710, Also, when attaching both EXP710s and EXP100s, the FC/SATA Enclosure Intermix Premium Feature is required, (feature code #7306, PN: 22R4248).
5. pSeries support for AIX and LoP also includes an AIX or LoP partition on an i5 iSeries server.
6. Linux on Power on RHEL4 and SLES9 kernels - Emulex HBA driver 8.0.16.21 or greater with required DS4800 firmware 6.16..
7. Firmware version 06.16 and later provides support for DS4800 attachment to EXP810 and EXP710; please refer to Appendix A for details on supported EXP810 attachment configurations and cable guidelines. When a EXP700 is upgraded with fc#3501 or pn:25R0166, it is supported in the same manner as a EXP710.
8. Veritas DMP and Sun's MPXIO multipathing driver are supported with Solaris 8,9,10.
9. Support for HP-Itanium based servers with HP-UX 11.23 may be requested via RPO process.

General Notes:

- Please refer to the README files for additional configuration details and limitations found at:
<http://www-03.ibm.com/servers/storage/disk/ds4000/ds4800/index.html>
- JS20 blades must not have the following Fibre Channel Expansion card FRU number installed in certain JS20 blade model numbers. FRU number 13N2208 (or Option PN 13N2203) and JS20 8842-21X MT/MN are not compatible. This combination is not supported for Linux on Power releases. Possible intermittent problems are Fibre Channel Expansion card NVRAM corruption symptoms. (CMVC 279060.) Please refer to README files.
- Support based on Minimum Server Requirements, shown later in this document.
- Refer to Storage Manager Operating System Support & Advanced Features page, shown later in this document, for additional details.
- pSeries support includes Open Power series servers.
- Intel and AMD support includes servers manufactured by Sun.
- GPFS and HACMP are supported on DS4800 model controllers, with supported expansion and drives.

DS4700 - Models 70A/H and 72A/H Supported Operating Systems with Expansion Units*

	IBM xSeries	Intel & AMD IBM BladeCenter	Power IBM BladeCenter	IBM pSeries	HP Proliant (Netserver)	HP Integrity	Dell PowerEdge	HP 9000 (PA- RISC)	Sun Fire & Netra (SPRAC)	Notes	EXP710 ³ and EXP810
Windows Server 2003 w/SP1, R2, and x64	✓	✓			✓	✓	✓			1	✓
Windows 2000 Server & Adv.Server w/SP4	✓	✓			✓		✓				✓
Novell NetWare 6.5 w/SP5	✓	✓			✓		✓				✓
Red Hat Enterprise Linux 3.8	✓	✓	✓	✓	✓	✓	✓			4	✓
Red Hat Enterprise Linux 4.4	✓	✓	✓	✓	✓	✓	✓			4	✓
SuSE Linux Enterprise Server 8 SP4	✓	✓			✓	✓	✓				✓
SuSE Linux Enterprise Server 9 SP3	✓	✓	✓	✓	✓	✓	✓			4	✓
VMWare ESX 2.5.3 and 3.0	✓	✓			✓		✓			7	✓
AIX 5.1, 5.2, 5.3			✓ ^{2.1}	✓						2.2, 4	✓
HP-UX 11.0, 11i and 11.23 with PVLinks								✓		6	✓
Solaris 8, 9, 10									✓	5	✓

* - This chart includes the following DS4000 series with DS4000 Storage Manager (SM) levels:

DS4700 - SMv9.19 with firmware 06.16.82.00 or later within 06.16.xx, for attachment of EXP810 and EXP710 (DS4700 not supported within 06.19.xx firmware at this time).

Note: DS4700 configurations with EXP100 and EXP810 are not supported at this time.

Note: DS4700 or EXP810 enclosure may contain only one drive type, Fibre Channel or SATA, at this time.

Footnotes:

1. Microsoft Windows Server 2003 w/SP1, R2, x64 – Enterprise, Standard, Web, and Storage Server editions, 32bit and 64bit versions of the operating system (see chart on page 14, section DS4000 with Storage Manager - Intel/AMD Hardware Platform & Operating System Support, for details regarding 32bit and 64bit versions of supported server hardware).
2. Note 2.1 - BladeCenter JS20 support with AIX 5.2 and 5.3. Note 2.2 - AIX 5.1, 5.2, 5.3 supported within AIX Partition (LPAR) hosted on i5 iSeries servers.
3. When a EXP700 is upgraded with fc#3501 or pn:25R0166, it is supported in the same manner as a EXP710,
4. pSeries support for AIX and LoP also includes an AIX or LoP partition on an i5 iSeries server.
5. Veritas DMP and Sun's MPXIO multipathing driver are supported with Solaris 8,9,10.
6. Support for HP-Itanium based servers with HP-UX 11.23 may be requested via RPO process.
7. Windows guests using MSCS or VMotion (but not guests using MSCS and VMotion concurrently) are supported with VMware ESX 2.5.3 and 3.0. (ESX 3.0 supports 4Gb FC speeds)
ESX Server Clusters support applies to Windows 2000, its service packs, and Windows 2003 RTM, but not Windows 2003 SP1. Please refer to KB article 2021 for the latest information.
http://kb.vmware.com/vmtknkb/search.do?cmd=displayKC&docType=kc&externalId=2021&sliceId=SAL_Public

General Notes:

- a. Please refer to the README files for additional configuration details and limitations: <http://www-03.ibm.com/servers/storage/disk/ds4000/ds4700/index.html>
- b. JS20 blades must not have the following Fibre Channel Expansion card FRU number installed in certain JS20 blade model numbers. FRU number 13N2208 (or Option PN 13N2203) and JS20 8842-21X MT/MN are not compatible. This combination is not supported for Linux on Power releases. Possible intermittent problems are Fibre Channel Expansion card NVRAM corruption symptoms. (CMVC 279060.) Please refer to README files.
- c. Support based on Minimum Server Requirements, shown later in this document.
- d. Refer to Storage Manager Operating System Support & Advanced Features page, shown later in this document, for additional details.
- e. pSeries support includes Open Power series servers.
- f. Intel and AMD support includes servers manufactured by Sun.
- g. GPFS and HACMP are supported on DS4700 model controllers, with supported expansion and drives.

DS4200 - Models 7VA/H and 7VA/H Supported Operating Systems with Expansion Units*

	IBM xSeries	Intel & AMD IBM BladeCenter	Power IBM BladeCenter	IBM pSeries	HP Proliant (Netserver)	HP Integrity	Dell PowerEdge	HP 9000 (PA- RISC)	Sun Fire & Netra (SPRAC)	Notes	EXP420 Only
Windows Server 2003 w/SP1, R2, and x64	✓	✓			✓	✓	✓			1	✓
Windows 2000 Server & Adv.Server w/SP4	✓	✓			✓		✓				✓
Novell NetWare 6.5 w/SP5	✓	✓			✓		✓				✓
Red Hat Enterprise Linux 3.8	✓	✓	✓	✓	✓	✓	✓			3	✓
Red Hat Enterprise Linux 4.4	✓	✓	✓	✓	✓	✓	✓			3	✓
SuSE Linux Enterprise Server 8 SP4	✓	✓			✓	✓	✓			3	✓
SuSE Linux Enterprise Server 9 SP3	✓	✓	✓	✓	✓	✓	✓			3	✓
VMWare ESX 2.5.3 and 3.0	✓	✓			✓		✓			7	✓
AIX 5.1, 5.2, 5.3			✓ ^{2.1}	✓						2.2, 3	✓
HP-UX 11.0, 11i and 11.23 with PVLlinks								✓		5	✓
Solaris 8, 9, 10									✓	4	✓

* - This chart includes the following DS4000 series with DS4000 Storage Manager (SM) levels:

DS4200 - SMv9.19 with firmware 06.16.88.00 or later within 06.16.xx (DS4200 not supported within 06.19.xx firmware at this time).

Note - DS4200 only supports attachment to EXP420.

Note - Both DS4200 and EXP420 only use "DS4200 500GB SATA EV-DDM" drive.

Note - DS4200 with EXP420 and "DS4200 500GB SATA EV-DDM" provides SATA-Only Value Solution.

Footnotes:

1. Microsoft Windows Server 2003 w/SP1, R2, x64 – Enterprise, Standard, Web, and Storage Server editions, 32bit and 64bit versions of the operating system (see chart on page 14, section DS4000 with Storage Manager - Intel/AMD Hardware Platform & Operating System Support, for details regarding 32bit and 64bit versions of supported server hardware).
2. Note 2.1 - BladeCenter JS20 support with AIX 5.2 and 5.3. Note 2.2 - AIX 5.1, 5.2, 5.3 supported within AIX Partition (LPAR) hosted on i5 iSeries servers.
3. pSeries support for AIX and LoP also includes an AIX or LoP partition on an i5 iSeries server.
4. Veritas DMP and Sun's MPXIO multipathing driver are supported with Solaris 8,9,10.
5. Support for HP-Itanium based servers with HP-UX 11.23 may be requested via RPQ process.
6. Windows guests using MSCS or VMotion (but not guests using MSCS and VMotion concurrently) are supported with VMware ESX 2.5.3 and 3.0. (ESX 3.0 supports 4Gb FC speeds)
ESX Server Clusters support applies to Windows 2000, its service packs, and Windows 2003 RTM, but not Windows 2003 SP1. Please refer to KB article 2021 for the latest information.
http://kb.vmware.com/vmtnkb/search.do?cmd=displayKC&docType=kc&externalId=2021&sliceId=SAL_Public
- 7.

General Notes:

- h. Please refer to the README files for additional configuration details and limitations:
<http://www-03.ibm.com/servers/storage/disk/ds4000/ds4200/index.html>
- i. JS20 blades must not have the following Fibre Channel Expansion card FRU number installed in certain JS20 blade model numbers. FRU number 13N2208 (or Option PN 13N2203) and JS20 8842-21X MT/MN are not compatible. This combination is not supported for Linux on Power releases. Possible intermittent problems are Fibre Channel Expansion card NVRAM corruption symptoms. (CMVC 279060.) Please refer to README files.
- j. Support based on Minimum Server Requirements, shown later in this document.
- k. Refer to Storage Manager Operating System Support & Advanced Features page, shown later in this document, for additional details.
- l. pSeries support includes Open Power series servers.
- m. Intel and AMD support includes servers manufactured by Sun.
- n. GPFS and HACMP are supported on DS4200 model controllers, with supported expansion and drives.

DS4300 - Models (FASTT600) Dual / Single Controller, and DS4300 with Turbo Supported Operating Systems with Expansion Units*

	IBM xSeries	Intel & AMD IBM BladeCenter	Power IBM BladeCenter	IBM pSeries	HP Proliant (Netserver)	HP Integrity	Dell PowerEdge	HP 9000 (PA- RISC)	Sun Fire & Netra (SPRAC)	Notes	EXP100 ^{4,5}	EXP700 ⁴ & EXP710 ⁶	EXP810 ¹²
Windows Server 2003 w/SP1, R2, and x64	✓	✓			✓	✓	✓			1	✓	✓	✓
Windows 2000 Server & Adv. Server w/SP4	✓	✓			✓		✓				✓	✓	✓
Novell NetWare 6.5 w/SP5	✓	✓			✓		✓				✓	✓	✓
Red Hat Enterprise Linux 3.8	✓	✓	✓	✓	✓	✓	✓			7	✓	✓	✓
Red Hat Enterprise Linux 4.4	✓	✓	✓	✓	✓	✓	✓			9	✓	✓	✓
SuSE Linux Enterprise Server 8 SP4	✓	✓			✓	✓	✓				✓	✓	✓
SuSE Linux Enterprise Server 9 SP3	✓	✓		✓	✓	✓	✓			8, 9	✓	✓	✓
VMWare ESX 2.5.3 and 3.0 (DS4300 Dual Controller or Turbo)	✓	✓			✓		✓			2	✓	✓	✓
AIX 5.1, 5.2, 5.3 (DS4300 Dual Controller or Turbo)			✓ ^{3.1}	✓						3.2	✓	✓	✓
HP-UX 11.0, 11i and 11.23 with PVLinks							✓			11	✓	✓	✓
Solaris 8, 9, 10								✓		10	✓	✓	✓

* - This chart includes the following DS4000 series with DS4000 Storage Manager (SM) levels:

- DS4300 (single controller) – SMv9.19 (firmware level 05.34)
- DS4300 (dual controller) – SMv9.19 (firmware level 06.19)
- DS4300 with Turbo – SMv9.19 (firmware level 06.19)

Footnotes:

1. Microsoft Windows Server 2003 w/SP1, R2 and x64 – Enterprise, Standard, Web, and Storage Server editions, 32bit and 64bit versions of the operating system (see chart on page 14, section DS4000 with Storage Manager - Intel/AMD Hardware Platform & Operating System Support, for details regarding 32bit and 64bit versions of supported server hardware).
2. Windows guests using MSCS or VMotion (but not guests using MSCS and VMotion concurrently) are supported with VMware ESX 2.5.3 and 3.0. (ESX 3.0 supports 4Gb FC speeds)
ESX Server Clusters support applies to Windows 2000, its service packs, and Windows 2003 RTM, but not Windows 2003 SP1. Please refer to KB article 2021 for the latest information.
http://kb.vmware.com/vmtknk/search.do?cmd=displayKC&docType=kc&externalId=2021&sliceId=SAL_Public
3. Note 3.1 - BladeCenter JS20 support with AIX 5.2 and 5.3. Note 3.2 - AIX 5.1, 5.2, 5.3 supported within AIX Partition (LPAR) hosted on i5 iSeries servers.
4. When a EXP700 is upgraded with fc#3501 or pn:25R0166, it is supported in the same manner as a EXP710, Also, when attaching EXP100s to the DS4300 dual controller, the optional FC/SATA Enclosure Intermix feature is required to use fibre channel disks within the DS4300 enclosure, and to attach EXP710 and EXP700 enclosures. Firmware level 06.12 or later is required.
5. DS4000 EXP expansion units can not attach to single controller DS4300 without the upgrade to dual or Turbo.
6. EXP710 attachment requires upgrading to firmware level 06.10 or later.
7. Linux RedHat Advanced Server 3 Update 4 / 5 with RDAC support on Power pServers and Linux Partition (LPAR) hosted on i5 iSeries servers.
8. SuSe Linux Enterprise Server 9 SP1 with RDAC support on Power pServers, and Linux Partition (LPAR) hosted on i5 iSeries servers.
9. Note, for Linux on Power (LoP), Red Hat 4 RDAC support starts at RH4 U1, Note: U1 is required. Also, for SUSE 9, RDAC support starts at SLES9 SP1. Note: SP1 is required.
10. Veritas DMP and Sun's MPXIO multipathing driver are supported with Solaris 8,9,10.
11. Support for HP-Itanium based servers with HP-UX 11.23 may be requested via RPO process.
12. See configuration and cabling diagrams in this documents appendix when using EXP810's with EXP710 and EXP100. When running a mix of expansion chassis', like expansions should be grouped together, and 810's next to 710's when possible.

General Notes:

- Please refer to the README files for additional configuration details and limitations found at <http://www-03.ibm.com/servers/storage/disk/ds4000/ds4300/index.html>
- JS20 blades must not have the following Fibre Channel Expansion card FRU number installed in certain JS20 blade model numbers. FRU number 13N2208 (or Option PN 13N2203) and JS20 8842-21X MT/MN are not compatible. This combination is not

supported for Linux on Power releases. Possible intermittent problems are Fibre Channel Expansion card NVRAM corruption symptoms. (CMVC 279060.) Please refer to README files.

- Support based on Minimum Server Requirements, shown later in this document.
- Refer to Storage Manager Operating System Support & Advanced Features page, shown later in this document, for additional details.
- pSeries support includes Open Power series servers.
- Intel and AMD support includes servers manufactured by Sun.
- GPFS and HACMP are supported on DS4300 model controllers, with supported expansion and drives.
-

DS4500 - Models (FAStT900)

Supported Operating Systems with Expansion Units*

	IBM xSeries	Intel & AMD IBM BladeCenter	Power IBM BladeCenter	IBM pSeries	HP ProLiant (Netserver)	HP Integrity	Dell PowerEdge	HP 9000 (PA- RISC)	Sun Fire & Netra (SPRAC)	Notes	EXP100 ⁴	EXP500 ⁴	EXP710 & EXP700 ⁴	EXP810 ⁹
Windows Server 2003 w/SP1, R2 and x64	✓	✓			✓	✓	✓			1	✓	✓	✓	✓
Windows 2000 Server & Adv. Server w/SP4	✓	✓			✓		✓				✓	✓	✓	✓
Novell NetWare 6.5 w/SP5	✓	✓			✓		✓				✓	✓	✓	✓
Red Hat Enterprise Linux 3.8	✓	✓	✓	✓	✓	✓	✓			5	✓	✓	✓	✓
Red Hat Enterprise Linux 4.4	✓	✓	✓	✓	✓	✓	✓			7	✓	✓		✓
SuSE Linux Enterprise Server 8 SP4	✓	✓			✓	✓	✓				✓	✓	✓	✓
SuSE Linux Enterprise Server 9 SP3	✓	✓	✓	✓	✓	✓	✓			6, 7	✓	✓	✓	✓
VMWare ESX 2.5.3 and 3.0	✓	✓			✓		✓			2	✓	✓	✓	✓
AIX 5.1, 5.2, 5.3			✓ ^{3.1}	✓						3.2	✓	✓	✓	✓
HP-UX 11.0, 11i and 11.23 with PVLinks								✓		9	✓	✓	✓	✓
Solaris 8, 9, 10									✓	8	✓	✓	✓	✓

* - This chart includes the following DS4000 series with DS4000 Storage Manager (SM) levels:
DS4500 - SMv9.19 with firmware level = 06.19.

Footnotes:

1. Microsoft Windows Server 2003 w/SP1, R2 and x64 – Enterprise, Standard, Web, and Storage Server editions, 32bit and 64bit versions of the operating system (see chart on page 14, section DS4000 with Storage Manager - Intel/AMD Hardware Platform & Operating System Support, for details regarding 32bit and 64bit versions of supported server hardware).
2. Windows guests using MSCS or VMotion (but not guests using MSCS and VMotion concurrently) are supported with VMware ESX 2.5.3 and 3.0. (ESX 3.0 supports 4Gb FC speeds)
ESX Server Clusters support applies to Windows 2000, its service packs, and Windows 2003 RTM, but not Windows 2003 SP1. Please refer to KB article 2021 for the latest information.
http://kb.vmware.com/vmtknkb/search.do?cmd=displayKC&docType=kc&externalId=2021&sliceId=SAL_Public
3. Note 3.1 - BladeCenter JS20 support with AIX 5.2 and 5.3. Note 3.2 - AIX 5.1, 5.2, 5.3 supported within AIX Partition (LPAR) hosted on i5 iSeries servers.
4. When an EXP700 is upgraded with fc#3501 or pn:25R0166, it is supported in the same manner as a EXP710. Also, when attaching both EXP700 and EXP500 to the same DS4500 or DS4400 (FAStT900/700), the EXP700 must be set to 1Gb mode. When attaching both EXP710/700 and EXP100 to the DS4500 or DS4400, firmware level 06.10 or later and the optional FC/SATA Enclosure Intermix feature is required with the enclosures set to 2Gb mode. EXP500 can not be used when connecting EXP100, or EXP710.
5. Linux RedHat Advanced Server 3 Update 4 / 5 with RDAC support on Power pServers and Linux Partition (LPAR) hosted on i5 iSeries servers.
6. SuSe Linux Enterprise Server 9 SP1 with RDAC support on Power pServers, and Linux Partition (LPAR) hosted on i5 iSeries servers.
7. Note, for Linux on Power (LoP), Red Hat 4 RDAC support starts at RH4 U1, Note: U1 is required. Also for SUSE 9 RDAC support starts at SLES9 SP1. Note: SP1 is required.
8. Veritas DMP and Sun's MPXIO multipathing driver are supported with Solaris 8,9,10.
9. Support for HP-Itanium based servers with HP-UX 11.23 may be requested via RPO process.
10. See configuration and cabling diagrams in this documents appendix when using EXP810's with EXP710 and EXP100. When running a mix of expansion chassis', like expansions should be grouped together, and 810's next to 710's when possible. Reference the web page where the doc is on web site

General Notes:

- Please refer to the README files for additional configuration details and limitations found at <http://www-03.ibm.com/servers/storage/disk/ds4000/ds4500/index.html>
- JS20 blades must not have the following Fibre Channel Expansion card FRU number installed in certain JS20 blade model numbers. FRU number 13N2208 (or Option PN 13N2203) and JS20 8842-21X MT/MN are not compatible. This combination is not supported for Linux on Power releases. Possible intermittent problems are Fibre Channel Expansion card NVRAM corruption symptoms. (CMVC 279060.) Please refer to README files.
- Support based on Minimum Server Requirements, shown later in this document.
- Refer to Storage Manager Operating System Support & Advanced Features page, shown later in this document, for pSeries support includes Open Power series servers.
- Intel and AMD support includes servers manufactured by Sun.
- GPFS and HACMP are supported on DS4500 model controllers, with supported expansion and drives. .

DS4400 - Models (FAStT700)

Supported Operating Systems with Expansion Units*

	IBM xSeries	Intel & AMD IBM BladeCenter	Power IBM BladeCenter	IBM pSeries	HP ProLiant (Netserver)	HP Integrity	Dell PowerEdge	HP 9000 (PA- RISC)	Sun Fire & Netra (SPRAC)	Notes	EXP100 ⁴	EXP500 ⁴	EXP710 & EXP700 ⁴
Windows Server 2003 w/SP1, R2 and x64	✓	✓			✓	✓	✓			1	✓	✓	✓
Windows 2000 Server & Adv.Server w/SP4	✓	✓			✓		✓				✓	✓	✓
Novell NetWare 6.5 w/SP5	✓	✓			✓		✓				✓	✓	✓
Red Hat Enterprise Linux 3.0 U7	✓	✓	✓	✓	✓	✓	✓			5	✓	✓	✓
Red Hat Enterprise Linux 4.0 U3	✓	✓	✓	✓	✓	✓	✓			7	✓	✓	
SuSE Linux Enterprise Server 8 SP4	✓	✓			✓	✓	✓				✓	✓	✓
SuSE Linux Enterprise Server 9 SP3	✓	✓	✓	✓	✓	✓	✓			6, 7	✓	✓	✓
VMWare ESX 2.5.3 and 3.0	✓	✓			✓		✓			2	✓	✓	✓
AIX 5.1, 5.2, 5.3			✓ ^{3.1}	✓						3.2	✓	✓	✓
HP-UX 11.0, 11i and 11.23 with PVLinks								✓		9	✓	✓	✓
Solaris 8, 9, 10									✓	8	✓	✓	✓

* - This chart includes the following DS4000 series with DS4000 Storage Manager (SM) levels:
DS4400 - SMv9.19 with firmware level = 06.12.

Footnotes:

1. Microsoft Windows Server 2003 w/SP1, R2 and x64 – Enterprise, Standard, Web, and Storage Server editions, 32bit and 64bit versions of the operating system (see chart on page 14, section DS4000 with Storage Manager - Intel/AMD Hardware Platform & Operating System Support, for details regarding 32bit and 64bit versions of supported server hardware).
2. Windows guests using MSCS or VMotion (but not guests using MSCS and VMotion concurrently) are supported with VMware ESX 2.5.3 and 3.0. (ESX 3.0 supports 4Gb FC speeds)
ESX Server Clusters support applies to Windows 2000, its service packs, and Windows 2003 RTM, but not Windows 2003 SP1. Please refer to KB article 2021 for the latest information.
http://kb.vmware.com/vmtknkb/search.do?cmd=displayKC&docType=kc&externalId=2021&sliceId=SAL_Public
3. Note 3.1 - BladeCenter JS20 support with AIX 5.2 and 5.3. Note 3.2 - AIX 5.1, 5.2, 5.3 supported within AIX Partition (LPAR) hosted on i5 iSeries servers.
4. When a EXP700 is upgraded with fc#3501 or pn:25R0166, it is supported in the same manner as a EXP710. Also, when attaching both EXP700 and EXP500 to the same DS4500 or DS4400 (FAStT900/700), the EXP700 must be set to 1Gb mode. When attaching both EXP710/700 and EXP100 to the DS4500 or DS4400, firmware level 06.10 or later and the optional FC/SATA Enclosure Intermix feature is required with the enclosures set to 2Gb mode. EXP500 can not be used when connecting EXP100, or EXP710.
5. Linux RedHat Advanced Server 3 Update 4 / 5 with RDAC support on Power pServers and Linux Partition (LPAR) hosted on i5 iSeries servers.
6. SuSe Linux Enterprise Server 9 SP1 with RDAC support on Power pServers, and Linux Partition (LPAR) hosted on i5 iSeries servers.
7. Note, for Linux on Power (LoP), Red Hat 4 RDAC support starts at RH4 U1, Note: U1 is required. Also for SUSE 9 RDAC support starts at SLES9 SP1. Note: SP1 is required.
8. Veritas DMP and Sun's MPXIO multipathing driver are supported with Solaris 8,9,10.
9. Support for HP-Itanium based servers with HP-UX 11.23 may be requested via RPQ process.

General Notes:

- Please refer to the README files for additional configuration details and limitations found at <http://www-03.ibm.com/servers/storage/disk/ds4000/ds4500/index.html>
- JS20 blades must not have the following Fibre Channel Expansion card FRU number installed in certain JS20 blade model numbers. FRU number 13N2208 (or Option PN 13N2203) and JS20 8842-21X MT/MN are not compatible. This combination is not supported for Linux on Power releases. Possible intermittent problems are Fibre Channel Expansion card NVRAM corruption symptoms. (CMVC 279060.) Please refer to README files.
- Support based on Minimum Server Requirements, shown later in this document.
- Refer to Storage Manager Operating System Support & Advanced Features page, shown later in this document, for additional details
- pSeries support includes Open Power series servers.
- Intel and AMD support includes servers manufactured by Sun.

DS4100 - Models (FAStT100) Dual / Single Controller Supported Operating Systems with Expansion Unit*

	IBM xSeries	Intel & AMD IBM BladeCenter	Power IBM BladeCenter	IBM pSeries	HP Proliant (Netserver)	HP Integrity	Dell PowerEdge	HP 9000 (PA- RISC)	Sun Fire & Netra (SPRAC)	Notes	EXP100 ⁴
Windows Server 2003 w/SP1, R2 and x64	✓	✓			✓	✓	✓			1	✓
Windows 2000 Server & Adv. Server w/SP4	✓	✓			✓		✓				✓
Novell NetWare 6.5 w/SP5	✓	✓			✓		✓				✓
Red Hat Enterprise Linux 3.0 U7	✓	✓	✓	✓	✓	✓	✓			5	✓
Red Hat Enterprise Linux 4.0 U3	✓	✓	✓	✓	✓	✓	✓			7	✓
SuSE Linux Enterprise Server 8 SP4	✓	✓			✓	✓	✓				✓
SuSE Linux Enterprise Server 9 SP3	✓	✓	✓	✓	✓	✓	✓			6, 7	✓
VMWare ESX 2.5.3 and 3.0 (DS4100 Dual Controller)	✓	✓			✓		✓			2	✓
AIX 5.1, 5.2, 5.3 (DS4100 Dual Controller)			✓ ^{3.1}	✓						3,2	✓
HP-UX 11.0, 11i and 11.23 with PVLinks								✓		9	✓
Solaris 8, 9, 10									✓	8	✓

* - This chart includes the following DS4000 series with DS4000 Storage Manager (SM) levels:
 DS4100 (dual controller) – SMv9.19 with firmware level = 06.12,
 DS4100 (single controller) – SMv9.19 with firmware level = 06.12.

Footnotes:

- Microsoft Windows Server 2003 w/SP1, R2 and x64 – Enterprise, Standard, Web, and Storage Server editions, 32bit and 64bit versions of the operating system (see chart on page 14, section DS4000 with Storage Manager - Intel/AMD Hardware Platform & Operating System Support, for details regarding 32bit and 64bit versions of supported server hardware).
- Windows guests using MSCS or VMotion (but not guests using MSCS and VMotion concurrently) are supported with VMware ESX 2.5.3 and 3.0. (ESX 3.0 supports 4Gb FC speeds)
ESX Server Clusters support applies to Windows 2000, its service packs, and Windows 2003 RTM, but not Windows 2003 SP1. Please refer to KB article 2021 for the latest information.
http://kb.vmware.com/vmtknkb/search.do?cmd=displayKC&docType=kc&externalId=2021&sliceId=SAL_Public
- Note 4.1 - AIX BladeCenter JS20 support with AIX 5.2 and 5.3. Note 4.2 - AIX 5.1, 5.2, 5.3 supported within AIX Partition (LPAR) hosted on i5 iSeries servers.
- EXP100 ESM firmware must be at level 9554 or later.
- Linux RedHat Advanced Server 3 Update 4 / 5 with RDAC support on Power pServers and Linux Partition (LPAR) hosted on i5 iSeries servers.
- SuSe Linux Enterprise Server 9 SP1 with RDAC support on Power pServers, and Linux Partition (LPAR) hosted on i5 iSeries servers.
- Note, for Linux on Power (LoP), Red Hat 4 RDAC support starts at RH4 U1, Note: U1 is required. Also for SUSE 9 RDAC support starts at SLES9 SP1. Note: SP1 is required.
- Veritas DMP and Sun's MPXIO multipathing driver are supported with Solaris 8,9,10.
- Support for HP-Itanium based servers with HP-UX 11.23 may be requested via RPQ process.

General Notes:

- Please refer to the README files for additional configuration details and limitations found at <http://www-03.ibm.com/servers/storage/disk/ds4000/ds4100/index.html>
- JS20 blades must not have the following Fibre Channel Expansion card FRU number installed in certain JS20 blade model numbers. FRU number 13N2208 (or Option PN 13N2203) and JS20 8842-21X MT/MN are not compatible. This combination is not supported for Linux on Power releases. Possible intermittent problems are Fibre Channel Expansion card NVRAM corruption symptoms. (CMVC 279060.) Please refer to README files.
- Support based on Minimum Server Requirements, shown later in this document.
- Refer to Storage Manager Operating System Support & Advanced Features, shown later in this document, for additional details.
- pSeries support includes Open Power series servers.
- Intel and AMD support includes servers manufactured by Sun.
- GPFS and HACMP are supported on DS4100 model controllers, with supported expansion and drives.

Supported HBAs - DS4800, DS4700, DS4200, DS4500, and DS4400

	IBM xSeries	IBM BladeCenter	IBM pSeries	HP Proliant (Netserver)	HP Integrity	Dell PowerEdge	HP 9000 (PA-RISC)	Sun Fire & Netra (SPRAC)
IBM FC - 00N6881/fc#2102	✓			✓	✓	✓		
IBM FC2/66-19K1246/fc#2103	✓			✓	✓	✓		
IBM FC2/133-24P0960/fc#2104	✓			✓	✓	✓		
IBM FC 4Gbps PCI-X Single Port HBA (39M5894/fc#2105) and Dual Port HBA (39M5895/fc#2106)	✓			✓	✓	✓		
IBM BladeCenter 48P7061, 13N2203 (HS20-8678/8832/8843, LS20-8850, HS40-8839)		✓						
IBM BladeCenter 26K4841 (HS20-8843, LS20-8850)		✓						
IBM BladeCenter 73P6112 (JS20-8842)		✓						
IBM BladeCenter 26R0884 ⁴ (HS20-8678/8832/8843, LS20-8850, HS40-8839, JS20-8842)		✓						
IBM BladeCenter 26R0890 ⁴ (HS20-8843, LS20-8850)		✓						
IBM BladeCenter Emulex LP1005DC (HS20-8832/8843, LS20-8850, HS40-8839, JS20-8842)		✓						
IBM pSeries fc#6227/6228			✓					
IBM pSeries fc#6239			✓					
IBM pSeries fc#5716, 1957, 1977			✓					
IBM pSeries fc#1905, 5758, 1910, 5759			✓					
HP D8602B				✓				
HP A3740, A5158A							✓	
HP A3591B, A6795A, A6826A							✓	
JNI FCE-6410, FCE-6460, FCE2-6412								✓ ³
JNI FCX-6562, FCX2-6562,								✓ ³
JNI FCC-6562, FCC2-6562								✓ ³
Qlogic QLA2200F ¹	✓			✓	✓	✓		
Qlogic QLA2300F ²	✓			✓	✓	✓		✓
Qlogic QLA2310F ²	✓			✓	✓	✓		✓
Qlogic QLA2340 and QLA2342L ²	✓			✓	✓	✓		✓
Qlogic QLA2460, QLA2462 Single and Dual Port HBAs ²	✓			✓	✓	✓		
IBM 39R6525 (QLE2460)	✓							
IBM 39R6527 (QLE2462)	✓							
Emulex LP9002, LP9402, LP9802, LP10000, LP1050	✓			✓	✓	✓		✓
Emulex LP11000, LP11002	✓			✓	✓	✓		
Emulex LPE11000, LPE11002	✓				✓	✓		
IBM 42C2069 (LPE11000)	✓							
IBM 42C2071 (LPE11002)	✓							
IBM 42D0405 (LP11000)	✓							
IBM 42D0407 (LP11002)	✓							
Sun SG-XPCI2FC-QF4 (QLA2462)								✓
Sun SG-XPCIE2FC-QF4 (QLE2462)								✓
Sun SG-XPCI1FC-EM2 (LP10000-S)								✓
Sun SG-XPCI2FC-EM2 (LP10000DC-S)								✓

Footnotes:

1. Qlogic adapters are only supported if used in conjunction with IBM FASTt BIOS and Device Driver, plus the QLA2202F is only supported in the IBM NAS 300G.
2. Qlogic adapters are only supported if used in conjunction with IBM FASTt FC-2/133 BIOS and Device Driver.
3. JNI adapters on SUN servers with Solaris 7, 8 and 9 only. JNI adapters are not supported on solaris 10.
4. IBM BladeCenter 26R0884 and 26R0890 not supported with Red Hat Enterprise Linux 3.0

Note:

1Gb HBA will operate at 1Gb speed when attached to 2Gb devices. When attaching 1Gb HBAs directly to a 2Gb FASTt controller the ports on the DS4000 controller must be manually set to 1Gb to allow the HBA to see the DS4000 controller. For information on configurations with IBM eServer BladeCenter refer to:

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

Supported HBAs - DS4300, DS4100 (dual / single ctrl), DS4300 w/Turbo

	IBM xSeries	IBM BladeCenter	IBM pSeries	HP Proliant (Netserver)	HP Integrity	Dell PowerEdge	HP 9000 (PA-RISC)	Sun Fire & Netra (SPRAC)
IBM FC - 00N6881/fc#2102	✓			✓	✓	✓		
IBM FC2/66-19K1246/fc#2103	✓			✓	✓	✓		
IBM FC2/133-24P0960/fc#2104	✓			✓	✓	✓		
IBM FC 4Gbps PCI-X Single Port HBA (39M5894/fc#2105) and Dual Port HBA (39M5895/fc#2106)	✓			✓	✓	✓		
IBM BladeCenter 48P7061, 13N2203 (HS20-8678/8832/8843, LS20-8850, HS40-8839)		✓						
IBM BladeCenter 26K4841 (HS20-8843, LS20-8850)		✓						
IBM BladeCenter 73P6112 (JS20-8842)		✓						
IBM BladeCenter 26R0884 ⁶ (HS20-8678/8832/8843, LS20-8850, HS40-8839, JS20-8842)		✓						
IBM BladeCenter 26R0890 ⁶ (HS20-8843, LS20-8850)		✓						
IBM BladeCenter Emulex LP1005DC (HS20-8832/8843, LS20-8850, HS40-8839, JS20-8842)		✓						
IBM pSeries fc#6227/6228			✓ ⁵					
IBM pSeries fc#6239			✓ ⁵					
IBM pSeries fc#5716, 1957, 1977			✓ ⁵					
IBM pSeries fc#1905, 5758, 1910, 5759			✓ ⁵					
HP A5158A							✓	
HP A6795A, A6826A							✓	
JNI FCE-6410, FCE-6460, FCE2-6412								✓ ⁴
JNI FCX-6562, FCX2-6562,								✓ ⁴
JNI FCC-6562, FCC2-6562								✓ ⁴
Qlogic QLA2200F ^{1,2}	✓			✓	✓	✓		
Qlogic QLA2300F ^{1,3}	✓			✓	✓	✓		✓
Qlogic QLA2310F ^{1,3}	✓			✓	✓	✓		✓
Qlogic QLA2340 and QLA2342L ^{1,3}	✓			✓	✓	✓		✓
Qlogic QLA2460, QLA2462 Single and Dual Port HBAs ^{1,3}	✓			✓	✓	✓		
IBM 39R6525 (QLE2460)	✓							
IBM 39R6527 (QLE2462)	✓							
Emulex LP9002, LP9402, LP9802, LP10000, LP1050,	✓			✓	✓	✓		✓
Emulex LP11000, LP11002	✓			✓	✓	✓		
Emulex LPE11000, LPE11002	✓				✓	✓		
IBM 42C2069 (LPE11000)	✓							
IBM 42C2071 (LPE11002)	✓							
IBM 42D0405 (LP11000)	✓							
IBM 42D0407 (LP11002)	✓							
Sun SG-XPCI2FC-QF2 (QLA2342)								✓
Sun SG-XPCI2FC-QF4 (QLA2462)								✓
Sun SG-XPCIE2FC-QF4 (QLE2462)								✓
Sun SG-XPCI1FC-EM2 (LP10000-S)								✓
Sun SG-XPCI2FC-EM2 (LP10000DC-S)								✓

Notes:

DS4300 (FASTt600, dual, single and Turbo) supports 1/2Gb host and fabric connections. The DS43000 dual and single controller models must be at firmware level 05.34 or later.

- Please refer to the README files for supported versions of these adapters and additional configuration details and limitations found at: <http://www-03.ibm.com/servers/storage/support/disk/ds4300/hbadrivers1.html>
- Qlogic adapters are only supported if used in conjunction with IBM FASTt BIOS and Device Driver.
- Qlogic adapters are only supported if used in conjunction with IBM FASTt FC-2/133 and IBM FC 4Gbps PCI-X BIOS and Device Drivers.
- JNI adapters on SUN servers with Solaris 7, 8 and 9 only. JNI adapters are not supported on solaris 10.
- pSeries/AIX support with single controller DS4300 model requires the upgrade to dual or Turbo; single controller DS4100 model is not supported.
- IBM BladeCenter 26R0884 and 26R0890 not supported with Red Hat Enterprise Linux 3.0

For information on configurations with IBM eServer BladeCenter refer to:

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

Supported SAN Fabrics, Routers, and Gateways ²

	DS4100 (FAStT100)	FAStT200	DS4300 (FAStT600)	FAStT500	DS4400 (FAStT700)	DS4500 (FAStT900)	DS4200	DS4700	DS4800
IBM System Storage SAN Switch									
IBM System Storage SAN10Q-2 (6918-10X) ³	✓		✓			✓	✓	✓	✓
IBM TotalStorage SAN Switches and Director									
IBM 3534-F08	✓	✓	✓	✓	✓	✓	✓	✓	✓
IBM 2005-B16/B32/B64/H08/H16/R18	✓	✓	✓	✓	✓	✓	✓	✓	✓
IBM 2006L10	✓		✓			✓	✓	✓	✓
IBM 2109-F16/F32	✓	✓	✓	✓	✓	✓	✓	✓	✓
IBM 2109-S08/S16	✓	✓	✓	✓	✓	✓	✓	✓	✓
IBM 2109-M12/M14/M48	✓	✓	✓	✓	✓	✓	✓	✓	✓
IBM 2109-A16	✓		✓			✓	✓	✓	✓
McDATA Switches and Directors									
2026-416/432	✓	✓	✓	✓	✓	✓	✓	✓	✓
2027-140/256	✓	✓	✓	✓	✓	✓	✓	✓	✓
2027-R04/R16	✓		✓			✓	✓	✓	✓
2031-016/032	✓	✓	✓	✓	✓	✓	✓	✓	✓
2031-216/232, 2027-232	✓	✓	✓	✓	✓	✓	✓	✓	✓
2031-224, 2026-224	✓	✓	✓	✓	✓	✓	✓	✓	✓
2032-064	✓	✓	✓	✓	✓	✓	✓	✓	✓
2032-140,	✓	✓	✓	✓	✓	✓	✓	✓	✓
2034-212, 2026-E12/12E	✓	✓	✓	✓	✓	✓	✓	✓	✓
CNT FC/9000 (Inrange) Directors									
2042-001	✓	✓	✓	✓	✓	✓	✓	✓	✓
2042-128	✓	✓	✓	✓	✓	✓	✓	✓	✓
2042-256	✓	✓	✓	✓	✓	✓	✓	✓	✓
2042-N16, 2045-N16	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cisco MDS 9000 Switches									
2061-020, 2061-040 (MDS 9120, 9140), 2061-420 (MDS 9020)	✓	✓	✓	✓	✓	✓	✓	✓	✓
2062-D1A (MDS 9216A), 2062-D1H (MDS 9216i)	✓	✓	✓	✓	✓	✓	✓	✓	✓
2062-D04/T04 (MDS9506)	✓	✓	✓	✓	✓	✓	✓	✓	✓
2062-E11 (MDS9513)									
2062-D07/T07 (MDS9509)	✓	✓	✓	✓	✓	✓	✓	✓	✓
IBM System Storage N series Gateways									
N5200 (2864-G10/G20) N5500 (2865-G10/G20)								✓ ⁴	✓ ⁴
N7600 N7800								✓ ⁴	✓ ⁴
FC Managed Hub									
IBM 3534-1RU		✓		✓	✓				

Notes:

1. DS4300 (FAStT600) Single and Dual Controller models, require firmware level 05.34 or later for auto sense 1 or 2Gb host connections.
2. More detailed SAN Fabric info is available at: <http://www.storage.ibm.com/ibmsan/index.html>
3. IBM System Storage SAN10Q is not supported if exists with Brocade switches on same SAN.
4. DS4800 and DS4700 supported only at fw level, 06.15.24.00 06.16.92

See next page for IBM eServer BladeCenter support.

Supported SAN Fabrics, with IBM eServer BladeCenter

With one of the Fibre Channel Switch modules ¹ listed installed in the BladeCenter chassis, the following external Fibre Channel switches are supported when connected to the DS4000 storage devices listed at right:	DS4100 (FAStT100)	FAStT200	DS4300 (FAStT600)	FAStT500	DS4400 (FAStT700)	DS4500 (FAStT900)	DS4200	DS4700	DS4800
1) IBM eServer BladeCenter 2-port FC Switch Module (48P7062)									
2) QLogic 6-port Enterprise FC Switch Module (26K6477)									
3) Brocade Entry SAN Switch Module (26K5601)									
4) Brocade Enterprise SAN Switch Module (90P0165)									
5) McDATA 6-port Fibre Channel Switch Module (32R1790)									
6) IBM eServer BladeCenter Optical Pass-thru Module (02R9080)									
7) BladeCenter 4Gbps Fibre Channel Switch Modules (note 2 below)									
IBM TotalStorage SAN Switches and Director									
IBM 3534-F08	X	X	X	X	X	X	X	X	X
IBM 2005-B16/B32/B64/H08/H16/R18	X	X	X	X	X	X	X	X	X
IBM 2006-L10									
IBM 2109-F16/F32	X	X	X	X	X	X	X	X	X
IBM 2109-S08/S16		X		X	X	X	X	X	X
IBM 2109-M12/M14/M48	X	X	X	X	X	X	X	X	X
2109-A16	X		X		X	X	X	X	X
McDATA Switches and Directors									
2026-416/432	X	X	X	X	X	X	X	X	X
2027-140/256	X	X	X	X	X	X	X	X	X
2027-R04/R16	X		X		X	X	X	X	X
2031-016/032	X	X	X	X	X	X	X	X	X
2031-216/232, 2027-232	X	X	X	X	X	X	X	X	X
2031-224, 2026-224	X	X	X	X	X	X	X	X	X
2032-064	X	X	X	X	X	X	X	X	X
2032-140, 2027-140	X	X	X	X	X	X	X	X	X
2034-212, 2026-E12/12E	X	X	X	X	X	X	X	X	X
CNT FC/9000 (INRANGE) Directors									
2042-001	X	X	X	X	X	X	X	X	X
2042-128	X	X	X	X	X	X	X	X	X
2042-256	X	X	X	X	X	X	X	X	X
2042-N16, 2045-N16	X	X	X	X	X	X	X	X	X
Cisco MDS 9000 Switches									
2061-020, 2061-040 (MDS 9120, 9140), 2061-420 (MDS 9020)	X	X	X	X	X	X	X	X	X
2062-D1A (MDS 9216A), 2062-D1H (MDS 9216) (MDS 9216i)	X	X	X	X	X	X	X	X	X
2062-E11 (MDS9513)									
2062-D04/T04 (MDS9506)	X	X	X	X	X	X	X	X	X
2062-D07/T07 (MDS9509)	X	X	X	X	X	X	X	X	X

Refer to:

- For additional details on configuring BladeCenter with DS4000 series storage refer to the BladeCenter Interoperability Guide at: <http://www-03.ibm.com/servers/eserver/serverproven/compat/us/>

Footnotes:

- Refer to the necessary BladeCenter Server hba prerequisites for attachment to the BladeCenter Switch Modules.
- QLogic (10-port) 32R1904, QLogic (20-port) 26R0881, McDATA (10-port) 32R1905, McDATA (20-port) 32R1833, Brocade (10-port) 32R1813, and Brocade (20-port) 32R1812.

DS4000 (FAStT) series - Clustering Support

	DS4100	FAStT200	DS4300 single	DS4300 dual	DS4300 w/ Turbo feature	FAStT500	DS4400	DS4500	DS4200	DS4700	DS4800
IBM SAN Volume Controller (SVC) 3.1.0 and 4.10	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
Microsoft Cluster Services (1)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Novell Cluster Services	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
IBM HACMP (3, 4)	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
PSSP, GPFS/RVSD Support (3, 4)	✓			✓	✓	✓	✓	✓	✓	✓	✓
Continuous Availability solutions (7)	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
SteelEye – Lifekeeper 5.3, 6.0 2	✓		✓	✓	✓		✓	✓	✓	✓	✓
GPFS for Linux v1.3 (3, 4)	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
Veritas Cluster Server – (See Veritas support section for details)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
HP MC/Service Guard 11.16	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Notes:

1. Multiple Windows Cluster configurations are supported with DS4000 (FAStT) Windows Server 2003 SP1 RDAC level 08403500 or later
2. Refer to the specific DS4000 series support for RedHat Enterprise Linux 3.0, and SuSE Linux Enterprise Server 8 . SteelEye's Lifekeeper support of a certain Linux Distribution level requires DS4000(FAStT) series support of that distribution.
3. GPFS and HACMP supported on DS4800 controller firmware version 06.16.92.00
4. GPFS and HACMP supported on DS4700 and DS4200 controller firmware version 06.16.88.00 and later .
5. GPFS and HACMP supported on DS4500, DS4300, and DS4100 controller firmware version 6.12 and earlier.
6. GPFS for Linux supported on selected xSeries and BladeCenter servers. Refer to the IBM Linux and eServer Cluster support pages.
 - o <http://www-1.ibm.com/servers/eserver/clusters/software/gpfs.html>
 - o <http://www.ibm.com/servers/eserver/clusters>
 - o <http://www.ibm.com/linux>
7. IBM Continuous availability solutions, http://www-03.ibm.com/servers/storage/solutions/business_continuity/continuous_availability/technical_details.html#windows

DS4000 Storage Manager Operating System Support & Advanced Feature

4

	Microsoft Windows	Novell Netware	RedHat Enterprise Linux	SuSE Linux Enterprise Server	United Linux	VMware	AIX	RHEL / SLES for Power	SAN Volume Controller	NAS Gateway 500	HP-UX	HP-UX Itanium	Solaris
DS4100 single controller (fw: 06.12)													
Storage Manager 9.19	✓	✓	✓	✓	✓						✓	5	✓
FlashCopy	✓	✓	✓	✓	✓						✓	✓	✓
DS4100 (dual) with EXP100 (fw: 06.12)													
Storage Manager 9.19	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	5	✓
FlashCopy	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓
VolumeCopy	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓
Enhanced Remote Mirror ²	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓
DS4300 single controller (fw: 05.34)													
Storage Manager 9.19	✓	✓	✓	✓	✓					✓	✓	5	✓
FlashCopy ¹	✓	✓	✓	✓	✓					✓	✓	✓	✓
DS4300 (dual controller) (fw: 06.12)													
Storage Manager 9.19	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	5	✓
FlashCopy	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
VolumeCopy	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
Intermix (FC & SATA enclosures)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
DS4300 with Turbo (fw: 06.12)													
Storage Manager 9.19	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	5	✓
FlashCopy	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
VolumeCopy	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
Enhanced Remote Mirror ²	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
Intermix (FC & SATA enclosures)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
DS4400 (fw: 06.12)													
Storage Manager 9.19	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	5	✓
FlashCopy	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
VolumeCopy	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
Enhanced Remote Mirror ²	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
Intermix (FC & SATA enclosures)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
DS4500 (fw: 06.12)													
Storage Manager 9.19	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	5	✓
FlashCopy	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
VolumeCopy	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
Enhanced Remote Mirror ²	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
Intermix (FC & SATA enclosures)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
DS4200 (fw: 06.16)													
Storage Manager 9.19	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	5	✓
FlashCopy	✓	✓	✓	✓	✓		✓	✓		✓	✓	✓	✓
VolumeCopy	✓	✓	✓	✓	✓		✓	✓		✓	✓	✓	✓
Enhanced Remote Mirror ²	✓	✓	✓	✓	✓		✓	✓		✓	✓	✓	✓
DS4700 (fw: 06.16)													
Storage Manager 9.19	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	5	✓
FlashCopy	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
VolumeCopy	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
Enhanced Remote Mirror ²	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
Intermix (FC & SATA enclosures) ³	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
DS4800 (fw: 06.16)													
Storage Manager 9.19	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	5	✓
FlashCopy	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
VolumeCopy	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
Enhanced Remote Mirror ²	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
Intermix (FC & SATA enclosures) ³	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Notes:

1. DS4300 (FAST600), dual controller model, require firmware level 06.10 or later to enable FlashCopy.
2. Enhanced Remote Mirror feature provides Metro Mirror, Global Copy, and Global Mirror capabilities
3. DS4700 and/or EXP810 enclosure may contain only one drive type, Fibre Channel or SATA, at this time .
4. SAN Boot support is via the RPO process. A support matrix is being developed and will be released soon.

5. Storage Manager is not supported on HP-UX Itanium servers

DS4000 with Storage Manager v9.19 – Intel / AMD HW Platform & O/S Support

HW Platform	IA-32	IA-64	EM64T	AMD64
Windows Server 2003	Y ¹ /na	na/Y ²	Y/Y ³	Y/Y ³
RDAC Multipath Drvr	Y/na	na/Y	Y/Y ³	Y/Y ³
RHEL 3 and 4	Y/na	na/Y	Y/Y	Y/Y
RDAC Multipath Drvr	Y/na	na/Y	Y/Y	Y/Y
Qlogic Multipath Drvr (4)	N/na	na/N	N/N	N/N
SLES 8	Y/na	na/Y	Y/N	Y/N
RDAC Multipath Drvr	Y/na	na/Y	Y/N	Y/N
Qlogic Multipath Drvr (4)	N/na	na/N	N/N	N/N
SLES 9	Y/na	na/Y	Y/Y	Y/Y
RDAC Multipath Drvr	Y/na	na/Y	Y/Y	Y/Y
Qlogic Multipath Drvr (4)	N/na	na/N	N/N	N/N

Legend: 32 bit OS version / 64 bit OS version

Y=supported, N=not supported, n/a=not applicable

Notes:

- For x86 (IA-32) Intel/AMD Platforms, Windows Server 2003 with Service Pack 1, Enterprise, Standard Web and Storage Server Editions, and Windows Server 2003 R2, Enterprise and Standard Editions are supported.
- For IA-64 (Itanium), Windows Server 2003 for Itanium, Enterprise Edition is supported.
- Support for Windows Server 2003 x64 edition requires StorPort Hot Fix KB916048, which is identified in the most recent README (applies to DS4100, DS4300, DS4400, DS4500, DS4200, DS4700, and DS4800). The DS4800 and DS4700 with firmware code level 6.16.82.00 and DS4200 with firmware code level 6.16.88.00 or later attached to EXP810/EXP710 is now supported with Windows 2003 w/SP1, R2 and x64 editions for the EM64T and AMD64 processor systems. The DS4800 with firmware code level 06.15.20.55 attached to EXP710/EXP100 is also supported with Windows 2003 w/SP1, R2 and x64 editions for the EM64T and AMD64 processor systems. The DS4100, with firmware code level 6.12.23.00 or later attached to EXP100, and DS4300, DS4400, and DS4500 with firmware code level 6.12.27.00 or later attached to EXP710/EXP100 is also supported with Windows 2003 w/SP1, R2 and x64 editions for the EM64T and AMD64 processor systems.
- The Qlogic multipath driver (also know as the fail over driver) is no longer tested as of 6.19

DS4000 series – Dynamic Functions

- o **DSS – Dynamic Segment Sizing**
- o **DRM – Dynamic RAID Migration**
- o **DCE – Dynamic Capacity Expansion**
- o **DVE – Dynamic Volume Expansion**

DS4000 Dynamic Functions are supported in the operating environments listed with the following exceptions. Refer to the specific DS4000 models support matrix above for additional details on supported platforms and operating system levels. Exceptions are:

- DVE support for AIX requires AIX 5.2 or later.
- DVE is not supported by SUN Solaris or HP-UX operating systems.
- Dynamic function support is not available for SUSE Linux Enterprise Server 8 for pSeries.
- DVE is not supported by SAN Volume Controller

Minimum Server Hardware Requirements

	Processor	Memory
Intel Compatible Servers	Pentium II 450MHz and ABOVE	512MB
SUN	250MHz SPARC	1GB
HP PA-RISC	440 MHz	1GB
IBM pSeries	All pSeries, RS/6000, RS/6000 SP servers with fc #5716, #1957, #1977, #6239, #6228 #6227, 1905, 5758, 1910, or 5759.	

Note:

Refer to the IBM Server Proven web site for the latest compatibility information for xSeries servers:

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

- Standard IBM xSeries servers (xSeries 206, 226, 346 and HS20 blade) are supported with Microsoft Windows 2003 w/ SP1 Storage Server edition.
- pSeries support includes Open Power series servers.
- Intel and AMD support includes servers manufactured by Sun.

DS4000 Downloadable Product Code Updates

To be notified of DS4000 code updates, you can register for automatic notifications via the IBM Support and Download web site at:

<http://www.ibm.com/servers/storage/support/disk>

In the "Personalized Support" box, click on "My Support."

Next, enter your IBM Registration ID and Password; or if necessary, register for this service.

On the Welcome page, select "Computer Storage" on the pull down menu, and click on "Go." Scroll down to "Disk Storage Systems" category and select the DS4000/FAST product(s) of interest. At bottom of the page, select "Save and Return."

On the main page select your mail preferences. It is recommended that you select "Flashes" and "Downloadable files to receive important product information, select "Submit."

You should receive a confirmation indicating that "Your profile was successfully updated."

Veritas Storage Solution Products (from Symantec) and DS4000 Interoperability

DS4800 - Models 80A/H , 82A/H, 84A/H, and 88A/H

Windows Server 2003

Windows 2000 Server & Adv.Server w/SP4

Veritas Volume Manager 4.2/4.3 are supported with Windows Server 2003 and Windows 2000. Veritas Cluster Server 4.2/4.3 are supported with Windows Server 2003 and Windows 2000.

Solaris 7, 8, 9 and 10

Veritas Volume Manager 4.0/4.1 are supported with Solaris 8 and 9; 4.1 is supported with Solaris 10; Veritas Cluster Server 4.0/4.1 and Storage Foundation 4.0/4.1 for Oracle RAC are supported with Solaris 8 and 9; 4.1 with Solaris 10. VCS 4.1 with fencing is not supported.

AIX 5.1, 5.2, 5.3

Veritas Volume Manager 4.0 is supported with AIX 5.1, 5.2 and 5.3 (TL5 or later only). RDAC multipathing required for multipath configurations. Veritas Cluster Server 4.0 and Storage Foundation 4.0 for Oracle RAC are supported with AIX 5.2 and 5.3 (TL5 or later only).

Linux: Red Hat 4.3 and SUSE 9 SP3

Veritas Volume Manager 4.1 is supported with Red Hat 4.3 and SUSE 9 SP3; Veritas Cluster Server 4.1 is supported Red Hat 4.3 and SUSE 9 SP3.

DS4700 - Models 70A/H , 72A/H

Windows Server 2003

Veritas Volume Manager 4.3 is supported with Windows Server 2003. Veritas Cluster Server 4.3 is supported with Windows Server 2003.

Solaris 8, 9 and 10

Veritas Volume Manager 4.0/4.1 are supported with Solaris 8 and 9; 4.1 is supported with Solaris 10; Veritas Cluster Server 4.0/4.1 and Storage Foundation 4.0/4.1 for Oracle RAC are supported with Solaris 8 and 9; 4.1 with Solaris 10. VCS 4.1 with fencing is not supported.

AIX 5.2, 5.3

Veritas Volume Manager 4.0 is supported with AIX 5.2 and 5.3 (TL5 or later only). RDAC multipathing required for multipath configurations. Veritas Cluster Server 4.0 is supported with AIX 5.2 and 5.3 (TL5 or later only).

Linux: Red Hat 4.3 and SUSE 9 SP3

Veritas Volume Manager 4.1 is supported with Red Hat 4.3 and SUSE 9 SP3; Veritas Cluster Server 4.1 is supported Red Hat 4.3 and SUSE 9 SP3.

DS4200 - Models 7VA/H and 7VA/H

Windows Server 2003

Veritas Volume Manager 4.3 is supported with Windows Server 2003. Veritas Cluster Server 4.3 is supported with Windows Server 2003.

Solaris 8, 9 and 10

Veritas Volume Manager 4.0/4.1 are supported with Solaris 8 and 9; 4.1 is supported with Solaris 10; Veritas Cluster Server 4.0/4.1 and Storage Foundation 4.0/4.1 for Oracle RAC are supported with Solaris 8 and 9; 4.1 with Solaris 10. VCS 4.1 with fencing is not supported.

AIX 5.2, 5.3

Veritas Volume Manager 4.0 is supported with AIX 5.2 and 5.3 (TL5 or later only). RDAC multipathing required for multipath configurations. Veritas Cluster Server 4.0 is supported with AIX 5.2 and 5.3 (TL5 or later only).

Linux: Red Hat 4.3 and SUSE 9 SP3

Veritas Volume Manager 4.1 is supported with Red Hat 4.3 and SUSE 9 SP3; Veritas Cluster Server 4.1 is supported Red Hat 4.3 and SUSE 9 SP3.

DS4300 (FAStT600) Dual Controller, Single Controller, and DS4300 Turbo

Windows Server 2003

Windows 2000 Server & Adv.Server w/SP4

Veritas Volume Manager 4.2 is supported with Windows Server 2003 and Windows 2000. For DS4300 Single Controller firmware level 05.3x and prior, please refer to document <http://www-1.ibm.com/support/docview.wss?uid=psg1MIGR-57485&rs=555> for details. Veritas Cluster Server 4.2 is supported with Windows Server 2003 and Windows 2000.

Solaris 7, 8, 9 and 10

Veritas Volume Manager 3.5 is supported with Solaris 7, 8, and 9; Veritas Volume Manager 4.0/4.1 are supported with Solaris 8 and 9; 4.1 is supported with Solaris 10; Veritas Cluster Server 4.0/4.1 and Storage Foundation 4.0/4.1 for Oracle RAC are supported with Solaris 8 and 9; 4.1 with 10. VCS 4.1 with fencing is not supported. For DS4300 Single Controller firmware level 05.3x and prior, please refer to document: <http://www-1.ibm.com/support/docview.wss?uid=psg1MIGR-57485&rs=555> for details.

AIX 5.1, 5.2, 5.3

Veritas Volume Manager 4.0 is supported with AIX 5.1, 5.2 and 5.3 (TL5 or later only). RDAC multipathing required for multipath configurations. Veritas Cluster Server 4.0 and Storage Foundation 4.0 for Oracle RAC are supported with AIX 5.2 and 5.3 (TL5 or later only).

Linux: Red Hat 4.3 and SUSE 9 SP3

Veritas Volume Manager 4.1 is supported with Red Hat 4.3 and SUSE 9 SP3; Veritas Cluster Server 4.1 is supported Red Hat 4.3 and SUSE 9 SP3.

DS4500 (FAStT900) and DS4400 (FAStT700)**Windows Server 2003****Windows 2000 Server & Adv. Server w/SP4**

Veritas Volume Manager 4.2 is supported with Windows Server 2003 and Windows 2000. Veritas Cluster Server 4.2 is supported with Windows Server 2003 and Windows 2000.

Solaris 7, 8, 9 and 10

Veritas Volume Manager 3.5 is supported with Solaris 7, 8, and 9; Veritas Volume Manager 4.0/4.1 are supported with Solaris 8 and 9; 4.1 is supported with Solaris 10; Veritas Cluster Server 4.0/4.1 and Storage Foundation 4.0/4.1 for Oracle RAC are supported with Solaris 8 and 9; 4.1 with 10. VCS 4.1 with fencing is not supported.

AIX 5.1, 5.2, 5.3

Veritas Volume Manager 4.0 is supported with AIX 5.1, 5.2 and 5.3 (TL5 or later only). RDAC multipathing required for multipath configurations. Veritas Cluster Server 4.0 and Storage Foundation 4.0 for Oracle RAC are supported with AIX 5.2 and 5.3 (TL5 or later only).

Linux: Red Hat 4.3 and SUSE 9 SP3

Veritas Volume Manager 4.1 is supported with Red Hat 4.3 and SUSE 9 SP3; Veritas Cluster Server 4.1 is supported Red Hat 4.3 and SUSE 9 SP3.

DS4100 (FAStT100) Dual Controller and Single Controller**Windows Server 2003****Windows 2000 Server & Adv. Server w/SP4**

Veritas Volume Manager 4.2 is supported with Windows Server 2003 and Windows 2000. Veritas Cluster Server 4.2 is supported with Windows Server 2003 and Windows 2000.

Solaris 7, 8, 9 and 10

Veritas Volume Manager 3.5 is supported with Solaris 7, 8, and 9; Veritas Volume Manager 4.0/4.1 are supported with Solaris 8 and 9; 4.1 is supported with Solaris 10; Veritas Cluster Server 4.0/4.1 and Storage Foundation 4.0/4.1 for Oracle RAC are supported with Solaris 8 and 9; 4.1 with 10. VCS 4.1 with fencing is not supported.

AIX 5.1, 5.2, 5.3

Veritas Volume Manager 4.0 is supported with AIX 5.1, 5.2 and 5.3 (TL5 or later only). RDAC multipathing required for multipath configurations. Veritas Cluster Server 4.0 and Storage Foundation 4.0 for Oracle RAC are supported with AIX 5.2 and 5.3 (TL5 or later only).

Linux: Red Hat 4.3 and SUSE 9 SP3

Veritas Volume Manager 4.1 is supported with Red Hat 4.3 and SUSE 9 SP3; Veritas Cluster Server 4.1 is supported Red Hat 4.3 and SUSE 9 SP3.

Appendix A: DS4000 Supported Enclosure Attachment Configurations and Cable Guidelines:

[Link to Enclosure configuration and cabling guidelines diagrams](#)

Reference this document, [DS4000 Fibre Channel and Serial ATA Intermix premium feature installation overview](#) at <http://www-03.ibm.com/servers/storage/support/disk/ds4500/installing.html>

DS4200 Enclosure Limits and Combination Guide:

DS4200 supports up to six EXP420 storage expansion units (up to maximum of 112 DS4200 500GB SATA EV-DDMs).

DS4200 only supports attachment to EXP420 expansion trays.

Both DS4200 and EXP420 only use "DS4200 500GB SATA EV-DDM" drive.

DS4200 with EXP420 and "DS4200 500GB SATA EV-DDM" provides a SATA-Only Value Solution.

DS4300 Enclosure Limits and Combination Guide:

DS4300 with FW 06.19 now supports attachment of EXP810, EXP710 and/or EXP100 .

Note: each EXP810 enclosure must contain only one drive type, Fibre Channel E-DDM or SATA E-DDM, at this time. Separate EXP810 enclosures may contain Fibre Channel E-DDMs or SATA E-DDMs. The DS4300 Intermix feature must be applied, when the DS4300 system contains both Fibre Channel DDM/E-DDM drive type and SATA DDM/E-DDM drive type, at the same time.

DS4300 with FW 06.19 Supported enclosure limits and combinations

DS4300 supports up to
seven (7) EXP100s

DS4300 supports up to
seven (7) EXP710s

DS4300 supports
combinations of up to
seven (7) EXP100s and/or EXP710s

DS4300 supports up to
six (6) EXP810s

DS4300 supports
combinations of up to
six (6) EXP810s, EXP100s, and/or EXP710s

Supported number of drives per DS4300 System

Maximum of 112 drives
(may require intermix feature)

Maximum of 112 drives

Maximum of 112 drives
(requires intermix feature)

Maximum of 112 drives
(may require intermix feature)

Dependent upon number
of EXP810, EXP100, and/or EXP710
enclosures attached
(requires intermix feature)

DS4500 Enclosure Limits and Combination Guide:

DS4500 with FW 06.19 now supports attachment of EXP810, EXP710 and/or EXP100 .

Note: each EXP810 enclosure must contain only one drive type, Fibre Channel E-DDM or SATA E-DDM, at this time. Separate EXP810 enclosures may contain Fibre Channel E-DDMs or SATA E-DDMs. The DS4500 Intermix feature must be applied, when the DS4500 system contains both Fibre Channel DDM/E-DDM drive type and SATA DDM/E-DDM drive type, at the same time.

DS4500 with FW 06.19 Supported enclosure limits and combinations

Supported number of drives per DS4500 System

DS4500 supports up to sixteen (16) EXP100s

Maximum of 224 drives

DS4500 supports up to sixteen (16) EXP710s

Maximum of 224 drives

DS4500 supports combinations of up to sixteen (16) EXP100s and/or EXP710s

Maximum of 224 drives
(requires intermix feature)

DS4500 supports up to fourteen (14) EXP810s

Maximum of 224 drives
(may require intermix feature)

DS4500 supports combinations of up to fourteen (14) EXP810s, EXP100s, and/or EXP710s

Dependent upon number of EXP810, EXP100, and/or EXP710 enclosures attached
(requires intermix feature)

DS4700 Enclosure Limits and Combination Guide:

DS4700 with FW 06.16 supports up to six EXP810 and/or EXP710 storage expansion units.

Note: DS4700 configurations with both EXP100 and EXP810 are not supported at this time.

Note: DS4700 or EXP810 enclosure may contain only one drive type, Fibre Channel or SATA, at this time.

DS4700 with FW 06.16 Supported enclosure limits and combinations

Supported number of drives per DS4700 System

DS4700 supports up to six (6) EXP710s

Maximum of 100 drives

DS4700 supports up to six (6) EXP810s

Maximum of 112 drives
(may require intermix feature)

DS4700 supports combinations of up to six (6) EXP810s and/or EXP710s

Dependent upon number of EXP810 and EXP710 enclosures attached
(may require intermix feature)

DS4800 Enclosure Limits and Combination Guide:

DS4800 with FW 06.16 supports up to eight (8) EXP710 and/or EXP100 on each drive channel pair.

Note: DS4800 configurations with both EXP100 and EXP810 are not supported at this time.

Note: EXP810 enclosure may contain only one drive type, Fibre Channel or SATA, at this time.

DS4800 with FW 06.16 Supported enclosure limits and combinations -----	Supported number of drives per drive channel pair -----	Supported number of drives per DS4800 -----
DS4800 supports up to eight (8) EXP100s on each drive channel pair.	Maximum of 112 drives per drive channel pair.	Maximum 224 drives per DS4800 system.
DS4800 supports up to eight (8) EXP710s on each drive channel pair.	Maximum of 112 drives per drive channel pair.	Maximum 224 drives per DS4800 system.
DS4800 supports combinations up to eight (8) EXP710s and or EXP100s on each drive channel pair.	Maximum of 112 drives per drive channel pair.	Maximum 224 drives per DS4800 system. (requires intermix feature)
DS4800 supports up to seven (7) EXP810s on each drive channel pair.	Maximum of 112 drives per drive channel pair.	Maximum 224 drives per DS4800 system. (may require intermix feature)
DS4800 supports combinations of up to seven (7) EXP810s and/or EXP710s mixed on each drive channel pair.	Dependent upon number of EXP810 and EXP710 enclosures attached to each drive channel pair.	Dependent on number of EXP810 and EXP710 enclosures per DS4800 system. (may require intermix feature)

Appendix B: DS4000 Legacy Product Reference Information

The IBM TotalStorage FAST family of storage products has been renamed. IBM renamed and aligned its full range of disk products to the IBM TotalStorage DS Family to help small to large-size enterprises select the right solutions for their needs. This renaming included the FAST products and future IBM storage products. This was a name change only with no change in functionality or warranty. These products remain functionally equivalent and (other than announced enhancements) fully interoperable. The mapping of DS names to previous FAST names is:

DS4000	FAST
DS4100	FAST100
DS4300	FAST600
DS4300 with Turbo	FAST600 with Turbo
DS4400	FAST700
DS4500	FAST900
DS4700	na
DS4800	na

FAST200, and FAST500 Supported Operating Systems with Expansion Units*

	IBM xSeries	IBM BladeCenter	IBM pSeries	HP Proliant (Netserver)	HP Integrity	Dell PowerEdge	HP 9000 (PA-RISC)	Sun Fire & Netra (SPRAC)	EXP500 ¹	EXP700 ¹
Windows Server 2003 1	✓	✓		✓	✓	✓			✓	✓
Windows 2000 Server & Adv. Server w/SP4	✓	✓		✓		✓			✓	✓
Novell NetWare 6.0 w/SP4 & 6.5 w/SP2	✓	✓		✓		✓			✓	✓
Red Hat Enterprise Linux 3.0	✓	✓	✓	✓	✓	✓			✓	✓
SuSE Linux Enterprise Server 8	✓	✓	✓	✓	✓	✓			✓	✓
SuSE Linux Enterprise Server 9 2	✓	✓	✓	✓	✓	✓			✓	✓
AIX 5.1, 5.2, 5.3 3		✓	✓						✓	✓
HP-UX 11, 11i							✓		✓	✓
Solaris 7, 8, 9								✓	✓	✓

* - This chart includes the following DS4000 (FAST) series with DS4000 (FAST) Storage Manager (SM) levels:

FAST500 - SMv9.16 with firmware level = 05.30.

FAST200 - SMv9.16 with firmware level = 05.30.

Footnotes:

1. Microsoft Windows Server 2003 SP1 and R2 – Enterprise, Standard and Web editions, 32bit and 64bit (Itanium-based IA64 edition only)
2. SLES 9 support on Intel-based servers (including HS20 and HS40) and the JS20 blade requires the Qlogic driver. On pSeries, only the Emulex single-path driver is supported for SLES 9.
3. AIX support with single controller FAST200 model requires the upgrade to dual controllers. BladeCenter JS20 support with AIX 5.2 and 5.3.
4. When attaching both EXP700 and EXP500 to the same FAST500 or FAST200, the EXP700 must be set to 1Gb mode.

General Notes:

- Dynix 4.4.10, 4.5.3, 4.6.1 support only with FAST200 Series using hba: IOC-2010-54.
- Support based on Minimum Server Requirements, shown later in this document.
- Refer to Storage Manager Operating System Support & Advanced Features pages, shown later in this document, for additional details.

FAST200 and FAST500 Supported HBAs

	IBM xSeries	IBM pSeries	HP Proliant (Netserver)	HP Integrity	Dell PowerEdge	HP 9000 (PA-RISC)	Sun Fire & Netra (SPRAC)
IBM FC - 00N6881/fc#2102	✓		✓	✓	✓		
IBM FC2/66-19K1246/fc#2103	✓		✓	✓	✓		
IBM FC2/133-24P0960/fc#2104	✓		✓	✓	✓		
IBM pSeries fc#6227/6228		✓					
IBM pSeries fc#6239		✓					
IBM pSeries fc#5716, 1957, 1977		✓					
HP D8602B			✓				
HP A3740, A5158A						✓	
HP A3591B, A6795A, A6826A						✓ ⁴	
JNI FCE-6410, FCE-6460, FCE2-6412							✓
JNI FCX-6562, FCX2-6562, FCE2-6412							✓
JNI FCC-6562, FCC2-6562							✓
Qlogic QLA2200F1	✓		✓	✓	✓		
Qlogic QLA2300F2	✓		✓	✓	✓		✓ ³
Qlogic QLA2310F2	✓		✓	✓	✓		✓ ³
Qlogic QLA23402	✓		✓	✓	✓		✓ ³
Emulex LP9002, LP9402, LP9802, LP10000	✓		✓	✓	✓		

Footnotes:

1. Qlogic adapters are only supported if used in conjunction with IBM FASTT BIOS and Device Driver, plus the QLA2202F is only supported in the IBM NAS 300G.
2. Qlogic adapters are only supported if used in conjunction with IBM FASTT FC-2/133 BIOS and Device Driver.
3. Qlogic adapters on SUN servers with Solaris 7, 8 and 9 only.
4. FAST500 only.

Note:

- 2Gb HBAs will operate at 1Gb speed when attached to 1Gb devices. The FAST200 and FAST500 are 1Gb fibre channel devices.

For information on configurations with IBM eServer BladeCenter refer to:

<http://www-03.ibm.com/servers/eserver/serverproven/compat/u>

DS4000 Storage Manager - Operating System Support & Advanced Features

	Microsoft Windows	Novell Netware	RedHat Enterprise Linux	SuSE Linux Enterprise Server	United Linux	VMware ESX	AIX	RHEL / SLES for Power	SAN Volume Controller	NAS Gateway 500	HP-UX	Solaris
FAStT200 (fw: 05.30)												
Storage Manager 9.16	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
FlashCopy	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓
FAStT500 (fw: 05.30)												
Storage Manager 9.16	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
FlashCopy	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓
Remote Mirroring	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓

Refer to the specific DS4000 (FAStT) models support matrix on Appendix B for additional details on supported platforms and operating system levels.

Notes:

- Attachment of DS4000 (FAStT) EXP500 also supported, with 1Gb FC disk throughput. EXP500 can not be attached with EXP100 using the Intermix feature.
- Enhanced Remote Mirror feature provides Metro Mirror, Global Copy, and Global Mirror capabilities. Async Enhanced Remote Mirror support with installations having extended distance line speeds of 10Mbytes or higher.

Veritas Storage Solution Products (from Symantec) and DS4000 Interoperability

FAStT200, and FAStT500

Windows Server 2003

Windows 2000 Server & Adv. Server w/SP4

Veritas Volume Manager (DMP) 3.1 is supported with Windows 2000. Refer to document <http://www-1.ibm.com/support/docview.wss?uid=psg1MIGR-57485&rs=555> for details.

Veritas Cluster Server is supported with Windows Server 2003 and Windows 2000.

Solaris 7, 8, 9

Veritas Volume Manager (DMP) 3.5 is supported with Solaris 7, 8, and 9; Veritas Volume Manager (DMP) 4.0/4.1 are supported with Solaris 8 and 9; DMP is required for greater than 32 logical drives per storage partition; Veritas Cluster Server 4.0/4.1 and Storage Foundation 4.0/4.1 for Oracle RAC are supported with Solaris 8 and 9. Refer to document <http://www-1.ibm.com/support/docview.wss?uid=psg1MIGR-57485&rs=555> for details.