



I/O Compatibility Guide for ESX Server 3.0 RC

VMware ESX Server Software delivers high performance I/O for PCI-based SCSI, RAID, Fibre Channel, and Ethernet controllers. To achieve high performance, these devices are accessed directly through device drivers in the ESX Server host, and not through a host operating system as with VMware Workstation and GSX Server products.

VMware certifies that specific systems and components are compatible with ESX Server software. Through the VMware Preferred Hardware Partner Program, ESX Server software works with leading server vendors to ensure that appropriate configurations of their current and future server products are certified.

This document includes:

- [Storage I/O Drivers and Devices on page 2](#)
- [Network I/O Drivers and Devices on page 10](#)

Linux Driver Compatibility

While ESX Server software itself is not derived from Linux, it includes a Linux compatibility module to allow Linux storage and networking drivers to be adapted and recompiled for ESX Server hosts. This enables VMware to more easily support a wide range of high-performance devices and eases the driver porting effort on the storage and networking device vendors. VMware typically modifies these drivers for one or more of the following reasons:

- To make the driver compatible with the ESX Server host
- To tune the driver for performance
- To add I/O resource governing or QoS support to the driver
- To fix generic bugs in the driver

It is not possible to directly load existing, precompiled, Linux device driver binaries onto an ESX Server host.

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Storage I/O Drivers and Devices

This section discusses storage I/O devices in the following sections

- [Storage I/O Driver Versions](#)
- [Storage I/O Device and Model Information](#)

Storage I/O Driver Versions

The following table summarizes the driver versions shipped with the current release of ESX Server software. The following table lists the device models and driver versions in the following sections:

This section lists devices planned for ESX Server 3.0 support. The devices are not guaranteed to be supported in this release candidate.

Driver Version

Class	Vendor	Driver	ESX Server 3.0
SCSI	Adaptec	aic7xxx	6.3.9
	Adaptec	aic79xx	2.0.12
	Adaptec	adp94xx	1.0.7-11
	LSI Logic	mptscsi ¹	2.05.16
	LSI Logic	mptscsi_2xx ¹	2.06.34.01
iSCSI	Qlogic	qla4010	3.10 ²
RAID	Dell/Adaptec	aacraid ³	1.1-5-2372
	IBM/Adaptec	aacraid_esx30 ³	1.1.5-2415
	Dell/LSI Logic	megaraid2 ⁴	2.10.7
	Dell/LSI Logic	megaraid_sas ⁴	00.00.02.00
	HP	cciss	2.4.54-14VMS
	IBM/Adaptec	ips	7.10.17
	Mylex	dac960	2.4.11
Fibre Channel	Emulex	lpfcdd_7xx	7.1.14
	Qlogic	qla2x00_7xx	7.04.00

¹You cannot simultaneously run devices using the mptscsi driver and ones using the mptscsi_2xx driver.

²QLogic 4010 iSCSI adapter requires BIOS v1.09 and firmware v02.00.00.05, or later. In ESX Server 3.0, qla4010 is considered an experimental driver. VMware will provide limited support for devices using this driver.

³You cannot simultaneously run devices using the aacraid driver and ones using the aacraid_esx30 driver.

⁴You cannot simultaneously run devices using the megaraid2 driver and ones using the megaraid_sas driver.

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Storage I/O Device and Model Information

The detailed list below shows actual vendor chip sets and adapters that VMware believes are compatible with the currently supported drivers. Although we have been careful in compiling the list, we have not tested all of these devices and cannot warrant that they all work. There may also be devices that are not listed but that do work with these device drivers.

Please contact VMware with any questions about current and planned device support.

This section lists devices planned for ESX Server 3.0 support. The devices are not guaranteed to be supported in this release candidate.

- [Adaptec Storage IO Devices on page 3](#)
- [Dell Storage IO Devices \(LSI OEM\) on page 5](#)
- [Emulex Storage IO Devices on page 6](#)
- [Hewlett Packard Storage IO Devices on page 6](#)
- [IBM Storage IO Devices \(Adaptec OEM\) on page 7](#)
- [LSILogic Storage IO Devices on page 8](#)
- [Qlogic Storage IO Devices - Fiber Channel HBA on page 8](#)

Adaptec Storage IO Devices

Device Model	Driver	Version
1480A Ultra SCSI	aic7xxx	6.3.9
SCSI RAID 2200S PCI SCSI 2ch	aacraid	1.1.5-2372
2902/04/10/15/20/30C	aic7xxx	6.3.9
29160 Ultra160 SCSI	aic7xxx	6.3.9
29160B Ultra160 SCSI	aic7xxx	6.3.9
29160C Ultra160 SCSI	aic7xxx	6.3.9
29160N Ultra160 SCSI	aic7xxx	6.3.9
2930 Ultra SCSI	aic7xxx	6.3.9
2930 Ultra2 SCSI	aic7xxx	6.3.9
2930C Ultra SCSI	aic7xxx	6.3.9
2930CU SCSI adapter	aic7xxx	6.3.9
2940 Pro Ultra	aic7xxx	6.3.9
2940 SCSI	aic7xxx	6.3.9
2940 Ultra SCSI	aic7xxx	6.3.9
2940 Ultra2 SCSI	aic7xxx	6.3.9
2940/CN Ultra SCSI	aic7xxx	6.3.9
2940/DUAL Ultra SCSI	aic7xxx	6.3.9
2940A Ultra SCSI	aic7xxx	6.3.9
2940A/CN Ultra SCSI	aic7xxx	6.3.9
2940B Ultra2 SCSI	aic7xxx	6.3.9

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Adaptec Storage IO Devices

Device Model	Driver	Version
2944 SCSI	aic7xxx	6.3.9
2944 Ultra SCSI	aic7xxx	6.3.9
2950 Ultra2 SCSI	aic7xxx	6.3.9
3230S	aacraid	1.1.5-2372
3240S	aacraid	1.1.5-2372
3940 SCSI	aic7xxx	6.3.9
3940 Ultra SCSI	aic7xxx	6.3.9
3940A Ultra SCSI	aic7xxx	6.3.9
3944 SCSI	aic7xxx	6.3.9
3944 Ultra SCSI	aic7xxx	6.3.9
3944A Ultra SCSI	aic7xxx	6.3.9
3950B Ultra2 SCSI	aic7xxx	6.3.9
3950D Ultra2 SCSI	aic7xxx	6.3.9
3960D Ultra160 SCSI	aic7xxx	6.3.9
398X SCSI RAID	aic7xxx	6.3.9
398X Ultra SCSI	aic7xxx	6.3.9
4944 SCSI adapter	aic7xxx	6.3.9
4944 Ultra SCSI	aic7xxx	6.3.9
5400S	aacraid	1.1.5-2372
AAA-131 Ultra2 RAID	aic7xxx	6.3.9
AIC-7810 RAID memory	aic7xxx	6.3.9
AIC-7815 RAID memory	aic7xxx	6.3.9
AIC-7850 SCSI adapter	aic7xxx	6.3.9
AIC-7855 SCSI adapter	aic7xxx	6.3.9
AIC-7859 SCSI adapter	aic7xxx	6.3.9
AIC-7860 Ultra SCSI	aic7xxx	6.3.9
AIC-7870 SCSI adapter	aic7xxx	6.3.9
AIC-7880 Ultra SCSI	aic7xxx	6.3.9
AIC-7890/91 Ultra2 SCSI	aic7xxx	6.3.9
AIC-7892 Ultra160 SCSI	aic7xxx	6.3.9
AIC-7895 Ultra SCSI	aic7xxx	6.3.9
AIC-7896/97 Ultra2 SCSI	aic7xxx	6.3.9
AIC-7899 Ultra160 SCSI	aic7xxx	6.3.9
AIC-7901W SCSI Controller	aic79xx	2.0.12
29160 Ultra160 SCSI	aic7xxx	6.3.9
ASC-29320ALP-R Ultra320 SCSI	aic79xx	2.0.12
29160 Ultra160 SCSI	aic7xxx	6.3.9
29320A Ultra320 SCSI	aic79xx	2.0.12

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Adaptec Storage IO Devices

Device Model	Driver	Version
29320LP Ultra320 SCSI	aic79xx	2.0.12
AHA29320LP_IROC	aic79xx	2.0.12
39320 Ultra320 SCSI	aic79xx	2.0.12
39320A Ultra320 SCSI	aic79xx	2.0.12
39320B Ultra320 SCSI	aic79xx	2.0.12
39320D Ultra320 SCSI	aic79xx	2.0.12
39320DB Ultra320 SCSI	aic79xx	2.0.12
AIC-7901A_IROC	aic79xx	2.0.12
AIC-7901B Ultra320 SCSI	aic79xx	2.0.12
AIC-7902 Ultra320 SCSI	aic79xx	2.0.12
AIC-7902	aic79xx	2.0.12
AIC-7902 (Dual Ultra320 SCSI)	aic79xx	2.0.12
AIC-7902_B_IROC	aic79xx	2.0.12
AIC-7902_IROC	aic79xx	2.0.12
AIC-7902W Ultra320 SCSI	aic79xx	2.0.12
AIC-9410W SAS	adp94xx.o	0.0.5-7
19160B Ultra160 SCSI	aic7xxx	6.3.9
SCSI RAID 2120S	aacraid	1.1.5-2372

Dell Storage IO Devices (LSI OEM)

Device Model	Driver	Version
AIC-7899P U160/m (PowerEdge 1750)	mptscsi	2.05.16
AIC-7899P U160/m (PowerEdge 2600)	mptscsi	2.05.16
Dell DISCOVERY	megaraid2	2.10.7
PERC4 DI	megaraid2	2.10.7
PERC4E SE/DI	megaraid2	2.10.7
PERC4E DC/SC	megaraid2	2.10.7
PERC4E QC VERDE	megaraid2	2.10.7
PERC 3/Di	aacraid	1.1.5-2372
PERC 3/Di (Boxster/PERC3DiB)	aacraid	1.1.5-2372
PERC 3/Di (Dagger/PERC3DiD)	aacraid	1.1.5-2372
PERC 3/Di (Iguana FlipChip/PERC3DiF)	aacraid	1.1.5-2372
PERC 3/Di (Jaguar/PERC3DiJ)	aacraid	1.1.5-2372
PERC 3/Di (Lexus/PERC3DiL)	aacraid	1.1.5-2372
PERC 3/Di (Opal/PERC3Di)	aacraid	1.1.5-2372
PERC 3/Di (Viper/PERC3DiV)	aacraid	1.1.5-2372
PERC = PowerEdge Raid Controller		

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Dell Storage IO Devices (LSI OEM)

Device Model	Driver	Version
PERC 3/Si	aacraid	1.1.5-2372
PERC 320/DC	aacraid	1.1.5-2372
PERC 4/DC, U320, 128MB	megaraid2	2.10.7
PERC 4e/DC	megaraid2	2.10.7
PERC 4e/Di	megaraid2	2.10.7
PERC 4e/Si	megaraid2	2.10.7
PERC4_DI_YSTONE	megaraid2	2.10.7
PERC = PowerEdge Raid Controller		

Emulex Storage IO Devices

Device Model	Driver	Version
LP 9802	lpfcdd_7xx	7.1.14
LP10000	lpfcdd_7xx	7.1.14
LP10000DC	lpfcdd_7xx	7.1.14
LP1050	lpfcdd_7xx	7.1.14
LP1050DC	lpfcdd_7xx	7.1.14
LP1050Ex	lpfcdd_7xx	7.1.14
LP9000/LP9002	lpfcdd_7xx	7.1.14
LP952	lpfcdd_7xx	7.1.14
LP982	lpfcdd_7xx	7.1.14
Emulex HBAs directly connected to an AX100 should be using firmware version 1.91a1 and BootBIOS version 1.70a3 for Boot-From-SAN. VMware supports only direct-connect topology for the AX100, so this does not apply to other arrays.		

Hewlett Packard Storage IO Devices

Device Model	Driver	Version
HP NetRAID-4M	aacraid	1.1.5-2372
Smart Array 6422	cciss	2.4.54
Smart Array V100	cciss	2.4.54
Smart Array 5300	cciss	2.4.54
Smart Array 5312	cciss	2.4.54
Smart Array 532	cciss	2.4.54
Smart Array 5i	cciss	2.4.54
Smart Array 6400	cciss	2.4.54
Smart Array 6400 EM	cciss	2.4.54
Smart Array 641	cciss	2.4.54
Smart Array 642	cciss	2.4.54

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Hewlett Packard Storage IO Devices

Device Model	Driver	Version
Smart Array 6i	cciss	2.4.54
Smart Array V100	cciss	2.4.54
Smart Array P600	cciss	2.4.54
Smart Array E200i	cciss	2.4.54
Smart Array E200	cciss	2.4.54
Smart Array P400	cciss	2.4.54
Smart Array P400i	cciss	2.4.54
A7560A	lpfcdd_7xx	7.1.14
AB466A	lpfcdd_7xx	7.1.14
A7387A	lpfcdd_7xx	7.1.14
AB467A	lpfcdd_7xx	7.1.14
A7388A	lpfcdd_7xx	7.1.14
FCA2408	lpfcdd_7xx	7.1.14
A7298A	lpfcdd_7xx	7.1.14
FCA2404	lpfcdd_7xx	7.1.14
FCA2404DC	lpfcdd_7xx	7.1.14
FCA2384	lpfcdd_7xx	7.1.14
AB232A	lpfcdd_7xx	7.1.14

IBM Storage IO Devices (Adaptec OEM)

Device Model	Driver	Version
IBM ServeRAID 4Lx Ultra 160 SCSI Controller	ips	7.10.17
IBM ServeRAID 4Mx Ultra 160 SCSI Controller	ips	7.10.17
IBM ServeRAID 5i Integrated RAID Controller	ips	7.10.17
IBM ServeRAID 6i (Sebring refresh)	ips	7.10.17
IBM ServeRAID 6i+ Integrated RAID Cont.	ips	7.10.17
IBM ServeRAID 6M (128MB Cache)	ips	7.10.17
IBM ServeRAID 6M Ultra 320 SCSI Controller (256MB Cache)	ips	7.10.17
IBM ServeRAID 7k	ips	7.10.17
IBM ServeRAID 8i	aacraid	1.1.5-2372
IBM Dual-port U320 SCSI Controller	mptscsi	2.05.16
IBM ServeRAID 7x	ips	7.10.17
IBM ServeRAID 8k	aacraid_esx30	1.1.5-2415
IBM ServeRAID 8k-L	aacraid_esx30	1.1.5-2415

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LSILogic Storage IO Devices

Device Model	Driver	Version
53c1030 PCI-X Fusion-MPT Dual Ultra320 SCSI	mptscsi	2.05.16
53c1035 PCI-X Fusion-MPT Dual Ultra320 SCSI	mptscsi	2.05.16
AMI MEGARAID	megaraid2	2.10.7
AMI MEGARAID2	megaraid2	2.10.7
AMI MEGARAID3	megaraid2	2.10.7
DISCOVERY	megaraid2	2.10.7
LSI MegaRAID 320-2	megaraid2	2.10.7
LSI MegaRAID 320-2x	megaraid2	2.10.7
LSI MegaRAID 320-4x	megaraid2	2.10.7
LSI MEGARAID3	megaraid2	2.10.7
LSI U320 SCSI Controller	mptscsi	2.05.16
LSI53C1030	megaraid2	2.10.7
LSI53C1030 (MegaRAID)	mptscsi	2.05.16
LSISAS3041E	mptscsi_2xx	2.06.18
LSISAS3041x	mptscsi_2xx	2.06.18
LSISAS3080x	mptscsi_2xx	2.06.18
LSISASS3442E	mptscsi_2xx	2.06.18
MegaRAID SCSI 320-1 (Elite 1700)	megaraid2	2.10.7
MegaRAID SCSI 320-2X (Elite 1700 Series518)	megaraid2	2.10.7
SAS3442x	mptscsi_2xx	2.06.18

Qlogic Storage IO Devices - Fiber Channel HBA

Device Model	Driver	Version
QLA200	qla2300_7xx	7.04.00
QLA210	qla2300_7xx	7.04.00
QLA2200, QLA2202	qla2300_7xx	7.04.00
QLA2300	qla2300_7xx	7.04.00
QLA231x, QLA234x	qla2300_7xx	7.04.00
QLA236x	qla2300_7xx	7.04.00
Qlogic 2362M	qla2300_7xx	7.04.00
Qlogic QLA2340	qla2300_7xx	7.04.00
Qlogic QLA2342	qla2300_7xx	7.04.00
Qlogic QLE2360	qla2300_7xx	7.04.00
Qlogic QLE2360 (Guad.)	qla2300_7xx2	7.04.00
Qlogic QLE2360 (SIOM)	qla2300_7xx	7.04.00
<i>* Requires firmware version 3.00.00.04.</i>		

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Qlogic Storage Devices - iSCSI

Device Model	Driver	Version
Qlogic QLA4010	qla4010	3.10

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Network I/O Drivers and Devices

This section discusses network I/O devices and drivers in the following sections

- [Network I/O Drivers and Versions on page 10](#)
- [Network I/O Device and Model Information on page 10](#)

Network I/O Drivers and Versions

The following table summarizes the driver versions shipped with the current release of ESX Server software, listing the device models and driver versions.

This section lists devices planned for ESX Server version 3.0 support. The devices are not guaranteed to be supported in this release candidate.

Class	Vendor	Driver	3.0
Network	Broadcom	tg3	3.43b
	Broadcom	bnx2	1.3.22
	Intel	e100	2.3.40
	Intel	e1000	7.0.33

Network I/O Device and Model Information

The detailed list below shows actual vendor chip sets and adapters that VMware believes are compatible with the currently supported drivers. Although we have been careful in compiling the list, we have not tested all of these devices and cannot warrant that they all work. There may also be devices that are not listed but that do work with these device drivers.

Please contact VMware with any questions about current and planned device support.

This section lists devices planned for ESX Server 3.0 Support. The devices are not guaranteed to be supported in this release candidate.

Devices from the following vendors are expected to be supported and listed immediately below:

- [Broadcom Networking Devices on page 10](#)
- [Dell Networking Devices \(Intel OEM\) on page 11](#)
- [Hewlett Packard Networking Devices \(Intel or Broadcomm OEM\) on page 11](#)
- [IBM Networking Devices \(Intel OEM\) on page 12](#)
- [Intel Networking Devices on page 12](#)

Broadcom Networking Devices

Device model	Driver	Version
BCM 5703C	tg3	3.43b
BCM 5703S	tg3	3.43b

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Broadcom Networking Devices

Device model	Driver	Version
BCM 5704	tg3	3.43b
BCM 5704C	tg3	3.43b
BCM 5704C - Dual port	tg3	3.43b
BCM 5704S	tg3	3.43b
BCM 5706	bnx2	1.3.22
BCM 5706 based Server Adapter	bnx2	1.3.22
BCM 5708S PCI-X to PIB Bridge	bnx2	1.3.22
BCM5701	tg3	3.43b
BCM5702	tg3	3.43b
BCM5703	tg3	3.43b
BCM5704	tg3	3.43b
BCM5704S	tg3	3.43b
BCM5705	tg3	3.43b
BCM5705F	tg3	3.43b
BCM5705M	tg3	3.43b
BCM5782	tg3	3.43b
BCM5788	tg3	3.43b
BCM5901	tg3	3.43b

Do not use Broadcom 5700 Rev 14 or 5701 Rev 15 for heavy traffic, VMotion, or Service Console on ESX Server 2.x and 3.x.
Please update your BCM5700 firmware.

Dell Networking Devices (Intel OEM)

Device model	Driver	Version
Dell PRO/100 server connections	e100	2.3.40

Hewlett Packard Networking Devices (Intel or Broadcomm OEM)

Device model	Driver	Version
HP PRO/100 Server Adapters	e100	2.3.40
HP Gigabit Ethernet Server Adapter	e1000	7.0.33
HP Gigabit Ethernet Server Adapter	e1000	7.0.33
HP Gigabit Ethernet Server Adapter	e1000	7.0.33
HP NC6134 Gigabit NIC	e1000	7.0.33
HP NC6136 Gigabit Server Adapter	e1000	7.0.33
HP NC7131 Gigabit Server Adapter	e1000	7.0.33
HP NC7132 Gigabit Server Adapter	e1000	7.0.33

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Hewlett Packard Networking Devices (Intel or Broadcom OEM)

Device model	Driver	Version
HP NC 7170 Dual PCI-X 1000-T Server Adapter	e1000	7.0.33
HP NC6170 Dual PCI-X 1000-SX Server Adapter	e1000	7.0.33
HP ProLiant NC310F PCI-X Gigabit Server Adapter	e1000	7.0.33
HP NC340T PCI-X Quad-port Gigabit Server Adapter	e1000	7.0.33
NC7770	tg3	3.43b
NC7780	tg3	3.43b
NC7771	tg3	3.43b
NC7781 LOM	tg3	3.43b
NC7760 LOM	tg3	3.43b
NC7782 LOM	tg3	3.43b
NC7783 LOM	tg3	3.43b
NC7761 LOM	tg3	3.43b
NC1020	tg3	3.43b
NC370T Dalhart-Lite	bnx2	1.3.22
NC370i Integrated NIC	bnx2	1.3.22
HP NC380T	bnx2	1.3.22
HP NC373i	bnx2	1.3.22
HP NC373m	bnx2	1.3.22
HP NC272F	bnx2	1.3.22

IBM Networking Devices (Intel OEM)

Device model	Driver	Version
IBM Netfinity Gigabit Ethernet SX Adapter	e1000	7.0.33
IBM Gigabit Ethernet SX Server Adapter	e1000	7.0.33
IBM Total Storage Gigabit Ethernet Copper Adapter	e1000	7.0.33
IBM PRO/100 server adapters	e100	2.3.40

Intel Networking Devices

Device model	Driver	Version
Intel 82562 based Fast Ethernet Connection	e100	2.3.40
Intel 8255xER based Network Connection	e100	2.3.40
Intel PRO/100+ Management Adapter with Alert on LAN* G Server	e100	2.3.40
Intel PRO/100 server adapters	e100	2.3.40
Intel Pro/1000 GT Server Adapter	e1000	7.0.33
Intel Pro/1000 GT Dual Port Server Adapter	e1000	7.0.33
Intel PRO/1000 GT Quad Port Server Adapter	e1000	7.0.33

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Intel Networking Devices

Device model	Driver	Version
Intel PRO/1000 MB Dual Port Server Connection	e1000	7.0.33
Intel PRO/1000 MF Server Adapter	e1000	7.0.33
Intel PRO/1000 MF Server Adapter (LX)	e1000	7.0.33
Intel PRO/1000 MF Dual Port Server Adapter	e1000	7.0.33
Intel PRO/1000 MT Network Connection	e1000	7.0.33
Intel PRO/1000 MT Server Connection	e1000	7.0.33
Intel Pro/1000 MT Server Adapter	e1000	7.0.33
Intel Pro/1000 MT Dual Port Server Adapter	e1000	7.0.33
Intel PRO/1000 MT Dual Port Network Connection	e1000	7.0.33
Intel PRO/1000 MT Quad Port Server Adapter	e1000	7.0.33
Intel Pro/1000 P Dual Port Server Adapter	e1000	7.0.33
Intel Pro/1000 PF Server Adapter	e1000	7.0.33
Intel Pro/1000 PF Dual Port Server Adapter	e1000	7.0.33
Intel PRO/1000 PT Server Adapter	e1000	7.0.33
Intel PRO/1000 PT Dual Port Server Adapter	e1000	7.0.33
Intel PRO/1000 XF Server Adapter	e1000	7.0.33
Intel PRO/1000 XT Network Connection	e1000	7.0.33
Intel PRO/1000 XT Server Adapter	e1000	7.0.33

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