



Product Bulletin:

X1129A-R5 & X1136A-R5 iSCSI Target, X2028A-R6 SCSI Tape, X2054A-R6 & X2054B-R6 4-port FC HBAs

Revision History

December 8, 2006 – Initial Version

March 2, 2007 - Adding the X2054A-R6 card

April 18, 2007 - Adding loop information for X2054A-R6

July 17, 2007 - Add X2054B-R6 & show X2054A-R6 MetroCluster support

November 29, 2007 - Add X1129A-R5, X1136A-R5, X2054A-R6 & X2028A-R6 support for FAS2050

February 28, 2008 – V6040/80 support for X20540A

August 25, 2008 – Add X2054A-R6 V-series support

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This PRODUCT bulletin informs NetApp sales and NetApp partners about new or changed NetApp™ products or services.

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1. Summary

X1129A-R5 & X1136A-R5 iSCSI Target, X2028A-R6 SCSI Tape, X2054A-R6 & X2054B-R6 4-port FC HBAs

This product bulletin announces the availability of the PCI-Express version of the iSCSI Target and SCSI Tape HBAs for Data ONTAP® for **First Customer Ship**.

The **X1129A-R5** card is an RoHS5-compliant PCIe 2-port copper 1Gbps iSCSI target HBA. The **X1136A-R5** is an RoHS5-compliant PCIe 2-port optical 1Gbps iSCSI target HBA:

- Supported on: FAS2050, FAS3040, V3040, FAS3070, V3070, FAS6000 and V6000 series platforms.

The **X2028A-R6** card is an RoHS6-compliant PCIe 2-port copper UltraSCSI (320MB/s) Low Voltage Differential/Single Ended (LVD/SE) SCSI Tape HBA:

- Supported on: FAS2050, FAS3040, V3040, FAS3070, V3070, FAS6000, and V6000 series platforms.

The **X2054A-R6** is an RoHS-compliant quad-port FC Initiator PCIe HBA for use with either disk or tape:

- Supported on: FAS2050, FAS3040, FAS3070, and FAS6000 series platforms (supported on Fabric MetroCluster).
- Supported on: V3040, V3070, V3140, V3170, V6030, V6070, V6040, V6080

The **X2054B-R6** is an RoHS-compliant quad-port FC Initiator PCIe HBA for use with either disk or tape:

- Supported on: FAS2050, FAS3040, FAS3070, and FAS6000 series platforms except for Fabric MetroCluster and V-Series.

Like the previously released PCI-X iSCSI Target HBA, the PCI-Express (PCIe) iSCSI Target HBA provides a performance boost to target mode iSCSI processing by off-loading some iSCSI protocol processing from the controller CPU.

Like the previously released PCI-X SCSI Tape HBA (X2027B-R5), the X2028A-R6 PCIe SCSI Tape HBA supports either Low Voltage Differential or Single Ended Tape drives. Two copper 2 meter 68 pin LVD cables are included. The copper cables have Very High Density Cable Interconnect (VHDCI) connectors typically found on LVD Tape Drives.

Like the previously released PCI-X quad-port FC Initiator HBA (X2052A-R5), the X2054A-R6 PCIe enables customers to use fewer slots to reach the desired number of FC ports. It also allows pairs of ports to be attached to tape SANs, so customers need not purchase a dedicated tape FC HBA. [The X2054B-R6 is a dual sourced \(LSI & QLogic\) version of the X2054A-R6.](#)

2. What's New?

The iSCSI Target HBAs accelerate iSCSI protocol processing in Data ONTAP by off-loading certain functions to the HBA, rather than using host CPU. It provides the same iSCSI functionality as the Data ONTAP software iSCSI target, but handles packet staging / reassembly, and header & data digests on the HBA. The PCIe iSCSI Target HBAs (X1129A-R5 & X1136A-R5) introduce compatibility with PCIe capable platforms. They use the identical chipset and provide the same functions to the PCI-X version of the iSCSI Target HBA (X1029B-R5 & X1036B-R5) released previously. Installation, management, & user interface to these cards are identical to the PCI-X iSCSI Target HBAs.

The X2028A-R6 uses similar chipset, firmware, and functions as the X2027B-R5 but is compatible with storage controllers that have PCIe slots.

The X2054A-R6 uses similar chipset, firmware, and functions as the X2053A-R6 and X2055A-R6 but has 4 ports rather than two. You will be able to put a maximum of 5 HBAs in the 6000 series platforms. You will have maximum of 28 ports, but we always dual path each loop so you can put a max of 14 disk shelf loops. When you multi-path you will be able to support 7 local and 7 partner shelf loops. The spindle limits are still in effect. Please consult the NOW site Config guide for current spindle and capacity limits for all platforms:

<http://now.netapp.com/NOW/knowledge/docs/hardware/NetApp/syscfg/>

The X2054B-R6 is either an LSI or a QLogic HBA. It has the same functions as the X2054A-R6, however it requires different drivers for the LSI version and therefore is not supported in as many configurations as the X2054A-R6. The X2054B-R6 requires a minimum ONTAP revision of 7.2.3.

3. Sales Tools (Sales Guides, Training Presentations, SE Presentations)

None Available at this time.

4. Customer-Ready Tools (Customer Presentations, Datasheets)

None Available at this time.

5. System Requirements

Supported platforms

The following table lists the platforms supporting the various iSCSI Target HBAs

Part #	Description	Category	Platform Support	Data ONTAP Support
X1129A-R5	ADPT, iSCSI, 1 Gbps, 2-Port, Cu, R5, PCI-e	A	FAS6000, V6000, FAS3070, V3070, FAS3040, V3040, FAS2050	7.2.1 and higher
X1129A-R5-C	ADPT, iSCSI, 1 Gbps, 2-Port, Cu, R5, PCI-e	A	FAS6000, V6000, FAS3070, V3070, FAS3040, V3040, FAS2050	7.2.1 and higher
X1136A-R5	ADPT, iSCSI, 1 Gbps, 2-Port, Fi, R5, PCI-e	A	FAS6000, V6000, FAS3070, V3070, FAS3040, V3040, FAS2050	7.2.1 and higher
X1136A-R5-C	ADPT, iSCSI, 1 Gbps, 2-Port, Fi, R5, PCI-e	A	FAS6000, V6000, FAS3070, V3070, FAS3040, V3040, FAS2050	7.2.1 and higher
X1029B-R5	ADPT, iSCSI, 1 Gbps, 2-Port, Cu, R5, PCI-X	A	FAS920, GF920, FAS940, GF940, FAS960, GF960, FAS980, GF980, FAS3020, V3020, FAS3050, V3050, FAS6000, V6000, R200, R210, R230	7.1.1, 7.1.1.1, 7.2, 7.2.1, and higher
X1029B-R5-C	ADPT, iSCSI, 1 Gbps, 2-Port, Cu, R5, PCI-X	A	FAS3020, V3020, FAS3050, V3050, FAS6000, V6000, R200, R210, R230	7.1.1, 7.1.1.1, 7.2, 7.2.1, and higher
X1036B-R5	ADPT, iSCSI, 1 Gbps, 2-Port, Fi, R5, PCI-X	A	FAS920, GF920, FAS940, GF940, FAS960, GF960, FAS980, GF980, FAS3020, V3020, FAS3050, V3050, FAS6000, V6000, R200, R210, R230	7.1.1, 7.1.1.1, 7.2, 7.2.1, and higher
X1036B-R5-C	ADPT, iSCSI, 1 Gbps, 2-Port, Fi, R5, PCI-X	A	FAS3020, V3020, FAS3050, V3050, FAS6000, V6000, R200, R210, R230	7.1.1, 7.1.1.1, 7.2, 7.2.1, and higher
X2028A-R6	HBA, SCSI, 2-CHNL, 320MB, Copper, PCIe, R6	A	FAS6000, V6000, FAS3040, V3040, FAS3070, V3070, FAS2050	7.2.1 and higher
X2028A-R6-C	HBA, SCSI, 2-CHNL, 320MB, Copper, PCIe, -C, R6	A	FAS6000, V6000, FAS3040, V3040, FAS3070, V3070, FAS2050	7.2.1 and higher

X2054A-R6	HBA,FC,Disk,4-port,PCIe,4Gb,R6	A	FAS6000, FAS3040,FAS3070,FAS2050, V3040, V3070, V3140, V3170, V6030, V6070, V6040, V6080	7.2.2 and higher for FAS systems. V-Series 6040/6080 requires 7.2.4, 7.2.5.1, 7.3 and higher. V-Series 6030/6070 requires 7.2.5.1. V-Series 3140/3170 requires 7.2.5.1, 7.3 and higher. V-Series 3040/3070 requires 7.2.5.1
X2054A-R6-C	HBA,FC,Disk,4-port,PCIe,4Gb,-C,R6	A	FAS6000, FAS3040,FAS3070,FAS2050, V3040, V3070, V3140, V3170, V6030, V6070, V6040, V6080	7.2.2 and higher for FAS systems. V-Series 6040/6080 requires 7.2.4, 7.2.5.1, 7.3 and higher. V-Series 6030/6070 requires 7.2.5.1. V-Series 3140/3170 requires 7.2.5.1, 7.3 and higher. V-Series 3040/3070 requires 7.2.5.1
X2054B-R6	HBA,FC,4-port,PCIe,4Gb,R6	A	FAS6000, FAS3040,FAS3070	7.2.3 and higher
X2054B-R6-C	HBA,FC,4-port,PCIe,4Gb,-C,R6	A	FAS6000, FAS3040,FAS3070	7.2.3 and higher

The PCIe iSCSI Target HBA requires Data ONTAP 7.2.1 or higher except for FAS2050 which requires 7.2.4L1 or higher.

The X2028A-R6 PCIe SCSI Tape HBA requires Data ONTAP 7.2.1 or higher except for FAS2050 which requires 7.2.4L1 or higher.

The X2054A-R6 PCIe quad port Initiator HBA requires Data ONTAP 7.2.2 or higher except for FAS2050 which requires 7.2.4L1 or higher. V-Series 6040/6080 requires 7.2.4, other V-Series platforms not supported

The X2054B-R6 PCIe quad port Initiator HBA requires Data ONTAP 7.2.3 or higher.

The PCI-X iSCSI Target HBA requires Data ONTAP 7.1.1 or higher.

The iSCSI Target HBAs, both PCI-X and PCIe, support:

- Jumbo Frames (up to 9K)
- IPv4
- VLAN tagged interface
- vFiler™
- CFO

iSCSI features supported by the iSCSI Target HBA include:

- Multiple Connection Sessions (MCS)
- Error Recovery Level > 0 (ERL>0)
- Challenge Handshake Authentication Protocol (CHAP)
- Header & Data Digests
- Immediate Data

The following features are not supported with either PCI-X or PCIe Target HBA:

- Unsolicited Data Out
- VIFS / Link Aggregation (802.3ad)
- IPv6
- IPsec

6. Product Information

These iSCSI Target HBA cards can dramatically save controller CPU utilization when processing iSCSI protocol, by off-loading iSCSI processing to this card. This, in turn, potentially provides for greater total aggregated I/O processing of a controller, by allowing controller CPU cycles to process other protocols & operations, at a price / performance ratio unmatched by other iSCSI protocol processing options. Compared to a Gigabit Ethernet network interface card in Data ONTAP, the iSCSI Target HBA off-loads both TCP/IP processing and iSCSI protocol processing. Compared to a TCP/IP Off-Load Engine (TOE) card (PN X1005A-R5 or X1006A-R5) in Data ONTAP, the iSCSI Target HBA off-loads TCP/IP processing, like the TOE cards, but also off-loads iSCSI processing. Performance boost for iSCSI processing using the iSCSI Target HBA is greater than when using the Data ONTAP iSCSI software Target with an equivalent number of 1Gbps TOE ports, and significantly greater than when using the Data ONTAP software Target with an equivalent number of 1Gbps NIC ports.

No new software license is needed to utilize this iSCSI Target HBA. The same software license used by the Data ONTAP iSCSI software Target (ISWT) is used by the iSCSI Target HBA. The iSCSI software Target and the iSCSI Target HBA can be used simultaneously in the same

controller. The port to which the initiator connects determines which iSCSI Target implementation is used by Data ONTAP. An iSCSI session is capable of spanning ports on different iSCSI Target HBAs, but cannot span iSCSI Target HBA ports and NIC ports simultaneously.

Relative to any Data ONTAP NIC or TOE, the iSCSI Target HBAs only handle iSCSI I/Os. While the HBA has and leverages a TOE, it only allows incoming TCP connections to port 3260, ICMP, and ARP. All other upper-level protocols (i.e., CIFS, NFS, FTP, HTTP, etc.) are not permitted over the ports of the iSCSI Target HBA cards, providing a mechanism to physically isolate iSCSI traffic to particular ports on a controller. The iSCSI Target HBA is capable of off-loading iSCSI digest calculation from the controller processor(s).

Product Availability

The PCIe iSCSI Target HBAs (X1129A-R5 and X1136A-R5) have been available to quote in the **November 2006** Quote Tool release in Add Parts and for Configuration for the FAS3070 & V3070 platforms only. The PCIe SCSI Tape HBA (X2028A-R6) was available in the **December 2006** Quote Tool release in Add Parts only. With the **February 2007** Quote Tool release, these HBAs were also available for the FAS6000 and V6000-Series platforms, for both Add Parts and Configuration. With **December 2007** Quote Tool release these were also available for FAS2050 Series platforms, for both Add Parts and Configuration. The PCIe quad-port Initiator HBA (X2054A-R6) was available in the **March 2007** Quote tool release in Add Parts only. With the **May 2007** Quote Tool release it was available for both Add Parts and Configured systems. With **December 2007** Quote Tool release these were also available for FAS2050 Series platforms, for both Add Parts and Configuration. The PCIe quad-port Initiator HBA (X2054B-R6) was available in the **August 2007** Quote tool release for both Add Parts and Configured systems.

7. Regulatory Compliance

Products need to be validated against the NetApp Safety/EMI Regulatory Compliance List prior to order submission. This is required to ensure that products are being sold only in the countries in which NetApp has received regulatory compliance certification.

8. Warranty and Service

Standard 3-year warranty period starts/ends with the warranty of the platform the card is plugged into.

9. Additional Information

Contact Information: Please contact your NetApp sales or channel partner representative with questions concerning this bulletin.