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Contents

The Smart Array Advantage: Upgrading the Integrated Smart Array Controller to the Smart Array 431 Controller

Abstract: The purpose of this paper is to communicate the benefits of upgrading from the Compaq Integrated Smart Array Controller to the Compaq Smart Array 431 Controller.

The disk array controller in your ProLiant ML370 or DL380 server is key to managing data, providing fault tolerance and availability for your business critical data. Because the Smart Array product line offers integrated, entry-level, workgroup, and departmental storage solutions, as storage requirements grow, the upgradable family of Smart Array controllers will provide the key component to increase capacity, increase availability, and improve performance with data compatibility and consistent software tools.

Upgrading to the Smart Array 431 Controller provides distinct advantages over the Integrated Smart Array Controller.

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The Smart Array Advantage: Upgrading the Integrated Smart Array Controller to the Smart Array 431 Controller
White Paper prepared by Storage Products Division

First Edition (January 2000)

Upgrading to the Smart Array 431 Controller

Why customers should upgrade

Trends in today's business environment have generated data storage requirements that include:

? High capacity growth

? Availability

? Performance

For this reason, Compaq offers the Smart Array 431 Controller to give Integrated Smart Array customers the following advantages:

? Increase in capacity – supports up to 14 Ultra2 or Ultra3 HDDs

? Higher availability and flexibility with a standard, removable PCI array controller

? Higher performance from a 64-bit Ultra3 controller

? Delivers the same Smart Array Family Advantages (data compatibility, unique upgradability, and reduced cost of ownership) as all Smart Array Controllers

Distinctions and benefits of the Smart Array 431 Controller and the Integrated Smart Array Controller are illustrated in the following comparison table:

Table 1. Comparison Chart.

Comparison of the Integrated Smart Array Controller and the Smart Array 431 Controller			
	Integrated Smart Array Controller	**Smart Array 431 Controller**	**Benefits of upgrading**
Channels	1	1	
SCSI ports (internal/external)	1/0	1/1	External storage support
64-bit Performance		✍	Higher Performance
Wide Ultra2 SCSI Support	✍	✍	Compatibility
Wide Ultra3 SCSI Support	✍	✍	Investment Protection for Ultra2 and Ultra 3 products
Total Channel Transfer Rate (peak)	80 MB/s	160 MB/s	Faster file transfer rates
Number of drives supported	6 Internal	14[1]	Higher capacity
Read/Write Cache	8 MB (Read Only)	16 MB RAID engine	Higher performance

Note: Upgrading for maximum capacity, availability, or performance

For customers who need to maximize performance and/or even greater capacity, Compaq recommends upgrading
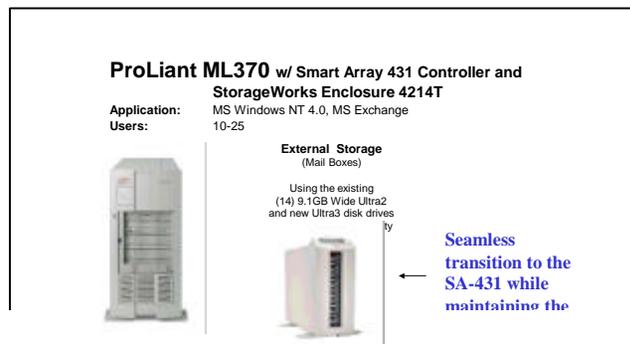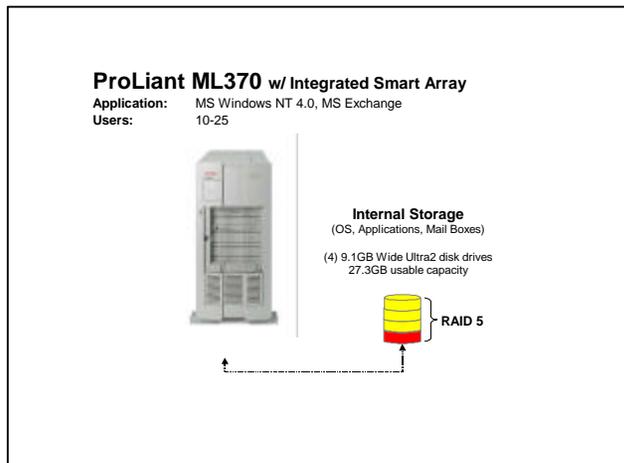
When to Upgrade to the Smart Array 431 Controller

Compaq recommends an upgrade to the Smart Array 431 Controller for Integrated Smart Array Controller customers who have the following requirements for:

? Increased storage capacity needed for growing storage needs

? Higher performance due to increasing network traffic

? Investment Protection for their Ultra2 and Ultra3 products

Upgrading Example

The following scenario illustrates the benefits of upgrading from the Integrated Smart Array Controller to the Smart Array 431 Controller:

ProLiant ML370 w/ Integrated Smart Array
Application: MS Windows NT 4.0, MS Exchange
Users: 10-25

Internal Storage
(OS, Applications, Mail Boxes)

(4) 9.1GB Wide Ultra2 disk drives
27.3GB usable capacity

RAID 5

ProLiant ML370 w/ Smart Array 431 Controller and StorageWorks Enclosure 4214T
Application: MS Windows NT 4.0, MS Exchange
Users: 10-25

External Storage
(Mail Boxes)

Using the existing
(14) 9.1GB Wide Ultra2
and new Ultra3 disk drives

Seamless transition to the SA-431 while maintaining the

Business I.T. Problem:

A Corporate Branch office currently utilizes a Compaq ProLiant ML370 server for its office email operations. The Integrated Smart Array is the current controller in use. This company has realized that they need higher capacity and higher performance, due an increase in staff and subsequent increase in email traffic.

Storage Solution:

Upgrading to the Smart Array 431 Controller allows the customer to increase capacity and achieve higher performance over the Integrated Smart Array Controller as well as allowing them to "mix and match" Ultra2 and Ultra3 products.

This customer realized the following benefits:

1) The company was able to expand to 14 HDDs, utilizing a Compaq StorageWorks Enclosure 4214T, in order to accommodate the need for increased capacity.

2) The customer also takes advantage of the 64-bit,

Steps to Upgrading to the Smart Array 431

Upon reaching the limitation of the Integrated Smart Array Controller, the Smart Array 431 Controller can be easily transitioned from the existing integrated controller.[2]

To upgrade your system by replacing the Integrated Smart Array Controller, customers need to perform the following steps:

1. **Perform a normal shutdown and turn OFF the server.[3]**

2. **Install new Smart Array 431 Controller board in an available PCI slot.**

3. **Reboot the server; run system configuration utility and set the controller order for the Smart Array 431 Controller to 1st.**

4. **Perform a normal shutdown and turn OFF the server.[3]**

5. **Attach SCSI cable orginally used for the Integrated Smart Array Controller to the Smart Array 431 Controller from the hotplug drive backplane.**

6. **Reboot the server and run the SmartStart disk to update drivers and the Array Configuration Utility (ACU). Data will seamlessly be recognized!**

Conclusion

With the Smart Array 431 Controller, Compaq further establishes its Smart Array Family Advantages that include software consistency, data compatibility, and the unique advantage of seamless upgradability from generation to generation. The Smart Array 431 Controller is a powerful, intelligent, I/O solution for today's entry-level data storage requirements.

For customers who require exceptional performance results and even more capacity, Compaq recommends upgrading to the Smart Array 4200 Controller.