

Re: Adaptec Storage Manager reports "No controllers were found in this system"

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- *From:* Aragorn <aragorn@xxxxxxxxxxxxxxxxxxxxxx>
 - *Date:* Sat, 17 May 2008 02:05:24 +0200
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Rob wrote:

Hello Aragorn,

You know your storage pretty well!

Ehm... I'm just a SCSI fan. ;-)

[...]

I thought I had done enough research when I purchaed my Dell Precision and this Adaptec card. I had assumed that the card would run at 100Mhz (it should considering it cost almost \$700).

Oh, I know all about the pricetag. :-) I'm currently setting up a machine with Xen and Gentoo, which has an Adaptec SAS RAID PCIe controller in it, with four Hitachi UltraStar 15 k 147 GB SAS drives in RAID 5. ;-)

Yet, the mistake you've made is one I had almost made myself, with regard to a PCI-X SATA controller I intended to buy, and which would only work at 133 MHz PCI-X – so not even in legacy 66 MHz PCI mode.

Anyway, the only systems Dell sells with 133Mhz PCI-X slots are their rack mount systems. I don't have a rack and putting a 1U box on a destop looks retarded so I opted for the Dell Precision tower instead. Looks like I made a bad call.

I've stopped purchasing brandname computers for myself a long time ago. Now I just scout the internet for components that I like and then I have someone build me the system I want with those components. At least, everything will then be made to **my** preferences, and in addition I won't get any Microsoft license shoved down my throat. ;-)

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This said, our organization does use (second-hand) Dell equipment. A PowerEdge, to be precise – we had another PowerEdge earlier but it was given a glass of Coca-Cola to drink by a careless admin and it didn't appear to like that. :p

The motivation for this purchase was to improve my current NFS performance. I've currently got a Dell Precision 490 (2P Xeon@3Ghz, 1GB RAM, Open SuSE 10.2) with a Dell PERC320 SCSI Controller (64Mb, 2 Channel, PCI-X) connected to a PowerVault 221S.

If my memory serves me right, then the Dell PERC320 is actually a Dell-branded Adaptec, LSI or QLogic controller.

In this configuration, the PERC320 is also running at 66Mhz. The storage is currently configured for RAID50 utilizing 10 drives (10k RPM), 5 drives in each bay (with the storage tray setup in a 2x7 configuration, instead of a 1x14). I can only hope that the system is concatenating two 4+1 strips with each stripe contained in each bay. In this configuration I'm getting 56Mbps. I'm getting this number using:

```
time dd if=/dev/zero of=/root/file.out bs=1MB count=1000
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By comparison, my internal 7,200 RPM SATA drives (software mirrored with LVM) are getting 80Mbps. Over the Gig-E LAN, using NFS v3, I'm getting about 10Mbps on the NFS exported PowerVault.

My hope with this new Dell Precision T5400 and Adaptec 2230SLP controller card was that I'd get more performance by having a faster bus speed, 100Mhz, and better write caching with it's 128Mb. Reading through your post, I'm probably not going to much if any performance improvement out of this new box. Does that sound about right?

As I wrote in my other post – in reply to the poster dubbed Whoever – RAID performance depends a lot on the number of disks involved, the RAID type, the intended usage – e.g. small files versus large streams or databases – and even on the filesystem used. /ext3/ is not exactly the best performer among Linux filesystems – in fact, it's about the worst.

The bigger cache on your RAID device will add somewhat to your performance, and of course having the device operate at 133 MHz and PCI-X specification would yield better performance than when operating at 66 MHz PCI specs.

Everything depends on your budget and on how far you want to push this, but if you have any PCIe slots available and you have the cash to spend, then I would recommend buying a PCIe RAID adapter – from Adaptec, why not? – and

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then you would really be getting good performance out of your gear.

However, there's also one other thing to keep in mind. SAS and SATA are advertised as allowing 3.0 Gbit/sec transfer – that's 384 MB/sec – per attached disk, while Ultra 320 SCSI advertises 320 MB/sec per SCSI channel. Quite a bit lower (since it concerns the combined transfer of information from all devices per channel), but still fairly impressive.

What most people overlook however is that no single hard disk can ever give you that performance simply because of the way a hard disk works. The SAS disks I have are about the fastest disks available today, and still their sustained throughput per disk is only about 120–130 MB/sec – I'm not sure on the exact numbers, but that should be close enough.

If you do go hunting for a PCIe SCSI RAID controller, then I would recommend a SAS controller. SAS disks are not the same as parallel SCSI disks, but a SAS controller allows you to connect both SAS disks and the much more affordable SATA disks, and mix them into a single RAID array.

Of course, all of the above depends on how far you want to push it, as I've already said. ;-) Your mileage and bank account balance may vary... ;-)

—

Aragorn

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