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Subject: 64bit DMA in i2o\_block  
Posted by [vaverin](#) on Fri, 22 Sep 2006 09:10:23 GMT  
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Markus,

I've found that your driver does not work correctly with following options:

```
CONFIG_I2O_EXT_ADAPTEC=y  
# CONFIG_I2O_EXT_ADAPTEC_DMA64 is not set
```

I've checked it on 2.6.18 kernel on x86\_64 node with 4Gb memory.

I would note that I've not noticed any bugs on x86 kernels, but x86\_64 does not work at all.

The behaviors of x86\_64 kernels can differ:  
sometimes driver can not find partition table:  
i2o/hda: unknown partition table

sometimes it find not all partition:  
i2o/hda: i2o/hda1 i2o/hda2 i2o/hda3 i2o/hda4 < >

in other cases it detects devices well but corrupt the memory and filesystem:

```
Sep 21 16:46:09 ts10 block-osm: registered device at major 80  
Sep 21 16:46:09 ts10 i2o/hda: i2o/hda1 i2o/hda2 i2o/hda3 i2o/hda4 < i2o/hda5 >  
Sep 21 16:46:09 ts10 block-osm: device added (TID: 207): i2o/hda  
Sep 21 16:46:09 ts10 kjournald starting. Commit interval 5 seconds  
Sep 21 16:46:09 ts10 EXT3-fs: mounted filesystem with ordered data mode.  
Sep 21 16:46:10 ts10 Freeing unused kernel memory: 236k freed  
Sep 21 16:46:10 ts10 hotplug[961]: segfault at 0000000000000008 rip  
00000032411088cf rsp 00007fff5b189050 error 4
```

When I enabled CONFIG\_I2O\_EXT\_ADAPTEC\_DMA64 -- all the troubles went away.

I've tried to investigate this issue, but I've not found and documentation described format of Adaptec's private messages.

I would like to ask you, is this behavior specific for my hardware (Adaptec ASR-2010S I2O Zero Channel)? If not, I believe it makes sense to enable CONFIG\_I2O\_EXT\_ADAPTEC\_DMA64 in Kconfig by default for 64-bit kernels.

Thank you,  
Vasily Averin

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Subject: Re: 64bit DMA in i2o\_block  
Posted by [Markus Lidel](#) on Fri, 22 Sep 2006 10:14:27 GMT

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Hello,

Vasily Averin wrote:

> I've found that your driver does not work correctly with following options:

> CONFIG\_I2O\_EXT\_ADAPTEC=y

> # CONFIG\_I2O\_EXT\_ADAPTEC\_DMA64 is not set

> I've checked it on 2.6.18 kernel on x86\_64 node with 4Gb memory.

That could be the reason for the problems. I've only tried it on x86\_64 machines with < 4 GB memory...

> I would note that I've not noticed any bugs on x86 kernels, but x86\_64 does not work at all.

> The behaviors of x86\_64 kernels can differ:

> sometimes driver can not find partition table:

> i2o/hda: unknown partition table

> sometimes it find not all partition:

> i2o/hda: i2o/hda1 i2o/hda2 i2o/hda3 i2o/hda4 < >

> in other cases it detects devices well but corrupt the memory and filesystem:

> Sep 21 16:46:09 ts10 block-osm: registered device at major 80

> Sep 21 16:46:09 ts10 i2o/hda: i2o/hda1 i2o/hda2 i2o/hda3 i2o/hda4 < i2o/hda5 >

> Sep 21 16:46:09 ts10 block-osm: device added (TID: 207): i2o/hda

> Sep 21 16:46:09 ts10 kjournald starting. Commit interval 5 seconds

> Sep 21 16:46:09 ts10 EXT3-fs: mounted filesystem with ordered data mode.

> Sep 21 16:46:10 ts10 Freeing unused kernel memory: 236k freed

> Sep 21 16:46:10 ts10 hotplug[961]: segfault at 0000000000000008 rip

> 00000032411088cf rsp 00007fff5b189050 error 4

> When I enabled CONFIG\_I2O\_EXT\_ADAPTEC\_DMA64 -- all the troubles went away.

> I've tried to investigate this issue, but I've not found and documentation

> described format of Adaptec's private messages.

> I would like to ask you, is this behavior specific for my hardware (Adaptec

> ASR-2010S I2O Zero Channel)? If not, I believe it makes sense to enable

> CONFIG\_I2O\_EXT\_ADAPTEC\_DMA64 in Kconfig by default for 64-bit kernels.

I believe it's a driver issue. Do you have a testing-system where you could try out the appended patch?

Thank you very much.

Best regards,

Markus Lidel

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Subject: Re: 64bit DMA in i2o\_block  
Posted by [Andi Kleen](#) on Fri, 22 Sep 2006 10:54:29 GMT  
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Markus Lidel <Markus.Lidel@shadowconnect.com> writes:

>  
> I believe it's a driver issue. Do you have a testing-system where you  
> could try out the appended patch?

So it would bug instead?

Can you please just get rid of that CONFIG? Such things shouldn't be CONFIGs, but have a suitable default. In particular drivers running under 64bit should always support 64bit DMA.

-Andi

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Subject: Re: 64bit DMA in i2o\_block  
Posted by [vaverin](#) on Fri, 22 Sep 2006 11:39:53 GMT  
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Markus Lidel wrote:

> Hello,  
>  
> Vasily Averin wrote:  
>> I've found that your driver does not work correctly with following  
>> options:  
>> CONFIG\_I2O\_EXT\_ADAPTEC=y  
>> # CONFIG\_I2O\_EXT\_ADAPTEC\_DMA64 is not set  
>> I've checked it on 2.6.18 kernel on x86\_64 node with 4Gb memory.  
>  
> I believe it's a driver issue. Do you have a testing-system where you  
> could try out the appended patch?

Done. troubles are present, BUG\_ON did not trigger.

thank you,  
Vasily Averin

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Subject: Re: 64bit DMA in i2o\_block  
Posted by [Markus Lidel](#) on Fri, 22 Sep 2006 11:47:56 GMT  
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Hello,

Andi Kleen wrote:

> Markus Lidel <Markus.Lidel@shadowconnect.com> writes:  
>> I believe it's a driver issue. Do you have a testing-system where you  
>> could try out the appended patch?  
> So it would bug instead?

Yes, because ATM i don't know why it doesn't work. It's just for debugging.

> Can you please just get rid of that CONFIG? Such things shouldn't  
> be CONFIGs, but have a suitable default. In particular drivers  
> running under 64bit should always support 64bit DMA.

The 64-bit DMA is only available on Adaptec controllers, all other I2O controllers only work with 32-bit DMA. Although the 64-bit DMA is (as far as i can remember) slower then the 32-bit DMA and is therefore only useful on systems which run out of memory.

Best regards,

Markus Lidel

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Subject: Re: 64bit DMA in i2o\_block  
Posted by [vaverin](#) on Wed, 04 Oct 2006 09:42:34 GMT  
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Markus,

Thank you very much for your help!

Vasily Averin

Markus Lidel wrote:

> Hello,  
>  
> OK, i'm done now. I've tested all i thought it could cause the failure.  
> But unfortunately without success. So i'll submit an patch which set the  
> 64-bit DMA as default.  
>  
> Thank you very much again for your help!  
>  
>  
>  
> Best regards,  
>  
>  
> Markus Lidel  
> -----  
> Markus Lidel (Senior IT Consultant)  
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