

Re: USB2.0 throughput

Source:

<http://www.tech-archive.net/Archive/WindowsCE/microsoft.public.windowsce.embedded/2004-09/0004.html>

From: Joost Sannen (*Sannen_at_discussions.microsoft.com*)

Date: 08/31/04

Date: Tue, 31 Aug 2004 04:49:07 -0700

Hi Paul,

Thanks for helping me. I really need to solve this issue.

I think caching cannot be the causing the problems I have. Nor do I think it is the cause for the difference in speeds between my two setups. Let me explain why:

Both my setups are reading a file from the USB HDD device. And the reading of the file is slower on my windows CE setup. I believe that, in my case, reading speed cannot be speed-up by a cache. Harddisks can only do some pre-fetching, but at rates of over 35MB/s the bus should be able to drain the drives cache entirely. (The disk is limiting the speed). Of course I have started my tests with a freshly booted system and hot plugged the HDD well before starting the test. (without accessing it further). This should prevent that the 200MB worth of data is already cached by windows.

Of course writing of the copied file can be cached. Both my windows2000 and wince will do this. Both systems have proven to be able to reach transferrates >33MB/s when writing to the PATA drives. To rule out that writing the copied file could be an issue I have written a program that just reads the file and throws the data away.

This yields the same results. The windows CE setup is still about 5 times slower.

While reading the file I can see that the activity LED on the USB2.0 casing is much more active while connected to the desktop than when connected to the wince system. It seems that the wince system is not fully loading the USB bus, while the CPU load is not even 100%. Is the wince implementation doing some sort of transfer rate adjustment?

Best regards,
Joost Sannen

"Paul L" wrote:

> *Are you sure that all the data was actually written to the disk on Win2K and
> not still in the cache? Were the caches flushed before you made your end of
> transfer measurement.*
>
> *Paul L*
> *www.codetelligence.com*
> *"Joost Sannen" <Joost.Sannen@discussions.microsoft.com> wrote in message
> news:43782371-88B5-4792-AB12-E2DB4F4E7D6A@microsoft.com...*
> *>I am evaluating winCE 5.0 for use in our digital video recorders. I have
> >some
> > questions regarding the speed of the newly added
> > USB2.0 support in wince5.0.*
> >
> > *Background:*
> > *I am doing CPU load measurements on the main tasks of the video recording
> > system. Currently, I am evaluating the speed of USB2.0 flash devices,
> > USB2.0
> > harddisks and USB2.0 DVD-writers.*
> >
> > *Tests:*
> > *My testsetup consists of:*
> > *Proc: Via C3 1.1GHz*
> > *Via CN400 Northbridge*
> > *Via 8237 Southbridge*
> > *GDDR 256Mb PC2700 333Mhz FSB*
> > *ATAPI Maxtor HDD, 4g160j8, 160 GB, 5400rpm*
> > *ATAPI Maxtor HDD, 300 GB, ATA133, 5400rpm connected via a Sitecom USB2.0
> > ext. HDD case.*
> >
> > *I am reading a 200Mb file from the USB2.0 connected HDD to the other HDD.
> > This takes around 60 (!) seconds. That is a rate of under 3.3 MB/s.
> > The harddisk which is being copied to has shown recording rates exceeding
> > 35MB/s.*
> >
> > *If I repeat the test on my desktop windows 2000 machine then the test only
> > needs 6 seconds.*
> >
> > *Another test shows that just reading data from the same HDD yields 5.5MB/s
> > transferrate. During this time the CPU load is no higher than 34%.*
> >
> > *Questions:*
> > ** Is the USB2.0 driver implementation (EHCI) using DMA to transfer the
> > data?*
> > *I think 34% CPU load is quite high for 5.5MB/s if DMA is used.*
> > ** If DMA is not used, why is the transferrate not limited by the available
> > CPU bandwidth (i.o.w.: why is the load not reaching 100%) ?*
> > ** What are my options when I want the transferrate to go up to at least
> > 30MB/s?*
> >
> > *Thanks in advance,*
> >

microsoft.public.windowsce.embedded: Re: USB2.0 throughput

- > > *Joost Sannen*
- > > *Bosch Security Systems*
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