

Re: USB host controller and client driver

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<http://www.tech-archive.net/Archive/WindowsCE/microsoft.public.windowsce.platbuilder/2007-01/msg01074.html>

- *From:* "Henrik Viklund" <henrik.viklund@xxxxxxxxxx>
 - *Date:* 24 Jan 2007 04:07:10 -0800
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On Jan 24, 11:34 am, "aman" <amitjob...@xxxxxxxxxx> wrote:

Henrik

Really appreciate your reply on Host controller and Function controller Drivers.

Well I am absolutely clear now with host controller driver

What I have understood USB function drivers from your reply:–
"The USB function controller drivers come into picture only if your WinCE ported processor (PXA27X) is to act as a client.

Correct.

so the driver will load during boot time but since the USB protocol is host centric , all the communications will be initiated by host so "function controller client drivers" in client(WinCE ported processor (PXA27X))doesn't make sense – although I am not sure about it. "Function controller client drivers" should be in host only I suppose

Kindly validate the above statement if I am correct.

Um, No? There is no such thing as a "function controller client driver", at least not in CE. There's the "function controller driver" and there's the "function client driver" (sometimes referred to as the function class driver). The same goes for CE's USB host – "host controller driver" and "host client driver".

controller driver – abstracts hardware

client driver – adds useful functionality (MSD, RNDIS, HID etc.).

Also would appreciate if you could make me available USB-OTG code for

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Intel PXA27X processor for WinCE 5.0.

Please tell me about it since I have just started of with USB OTG device driver development.

AFAIK there is no OTG available. USB OTG is not supported by CE5 or earlier so you're pretty much on your own I guess.

Henrik Viklund
<http://www.addlogic.se>

Thanks & Regards

Aman

On Jan 24, 2:46 pm, "Henrik Viklund" <henrik.vikl...@xxxxxxxxxx> wrote:

On Jan 24, 9:53 am, "aman" <amitjob...@xxxxxxxxxx> wrote:

What I can assume that you are referring to client driver – that in mine case will be a dll named – usbmsfn.dll which will actually be available by building code corrspeing to client driver. So then how can you diferentiate b/w Client driver and function drivers. There are host client drivers and there are function client drivers:

If we start with USB host. The USB host controller driver is responsible for handling and abstracting the USB host controller hardware into a well defined generic interface (in your case OHCI compliant hardware controller). The host controller driver is loaded at startup and is set up to detect any activity from the USB host controller. When you plug in a usb device into the host connector the host controller driver detects that something has been plugged in and start to enumerate the device (figure out what device was plugged in). Once it has figured that out it checks the registry for a suitable *host* client driver and loads it. the client driver uses the host controller driver's generic interface to communicate with the device.

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In the case of USB function, the function controller driver is responsible for handling and abstracting the USB function controller hardware into a well defined generic interface. The USB function controller driver loads at startup and also immediately load a *function* client driver so that when plugged into a host it can respond to the host's enumeration requests through the generic interface exposed by the function controller driver.

Henrik Viklund <http://www.addlogic.se>

Also I would be grateful if you can validate my other statements :-

1. Always, during the boot time the USB host controller driver DLL – ohci2.dll gets loaded. It is taken care by device manager.

2. This means that although my ohci2.dll gets loaded during boot time but it starts its job only after device is attached . During this time , control is given by device manager to HcdPdd_Init inbul_ohci.cpp (C:\WINCE500\PUBLIC\COMMON\OAK\CSP\ARM\INTEL\PXA27X\HCD)which then initializes the OHCI card within host controller and then configures the device.

Now I am not sure what exactly configuration check takes place ??
Whether its device id , vendor id only or subinterface class also ??

3. Then once this configuration check is over , Device ?Manager actually loads the correponding client driver – ie maybe usbmsfn.dll by

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means of ActivateDeviceex().

Thanks & Regards

Aman

On Jan 24, 12:36 pm, "Henrik Viklund"
<henrik.vikl...@xxxxxxxxxx>
wrote:

On Jan 24, 5:47 am, "aman"
<amitjob...@xxxxxxxxxx> wrote:

What is the role of function
drivers ?? Are client drivers
and host
drivers enough to handle all
situations ??As you might
know the USB protocol is
asymetric –on one side you
have

the USB host and to that you connect USB
functions (in your case the
USB function is the USB mass storage
device, and the host is your WinCE
device).

Now, due to the asymetry of the protocol
(the host polls the
functions), if you want your device to be the
USB function (think PDA
connecting to PC) you'd use the USB
function drivers and special usb
function hardware rather than USB host
drivers and hardware.

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Henrik Viklund <http://www.addlogic.se>

Thanks & Regards

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