

Re: Newbie to WCE!

Source:

<http://www.tech-archive.net/Archive/WindowsCE/microsoft.public.windowsce.embedded/2007-10/msg00269.html>

- *From:* voidcoder <voidcoder@xxxxxxxxx>
 - *Date:* Tue, 30 Oct 2007 09:43:11 +0000
-

BSPs are not CPU specific, they are board specific ("B" stands for Board). But yes, it is worth asking the chip maker for the BSP if they have one (there may be some development kits or reference design boards based on the same CPU) cause it normally includes a good bunch of code for the CPU itself which can be ported to your own BSP, e.g. various drivers for the on chip peripherals etc. Some manufacturers also provide so-called CPU Support Package, a platform independent library that can be used when developing for this particular CPU.

But still you are far away from the BSP for your custom board! See Dean and Paul replies, depending on your experience it may take you many man/months to get the job done ...

I'd suggest you installing the evaluation version of Platform Builder and have a look at one of the included BSPs, e.g. Mainstone (PXA based). This will give you a general idea on what the BSP is and amount of work needed to build one. Look through the following dirs:

```
....\WINCE600\PLATFORM\MAINSTONEIII\*  
....\WINCE600\PLATFORM\COMMON\SRC\SOC\PXA27X_MS_V1\*
```

—
Oleg

Robert wrote:

Hello Paul,

Re: Newbie to WCE!

Okay, you made it clear! And I see how Dean is right also!

So this so called BSP, should I ask the specific chip maker of the processor to provide me one?

Roberto

"Paul G. Tobey [eMVP]" wrote:

Dean is saying that you can build whatever you want *but*, in order for Windows CE, which is a full-blown operating system, just like Windows XP, etc., you have to write a board support package for your board. This is not a 1-day operation and, unless there is a sample BSP for your type of processor, it will take you *months* to accomplish it, given your level of experience.

If all you want to do is blink an LED, it would, further, be stupid to port an entire operating system, with support for filesystems, registry, various buses like USB and PCMCIA, etc. However, in order to flash the LED with Windows CE in the picture, you still have to build a BSP for it. Windows CE tools do not build simple programs that you can somehow just flash into your processor and run without the underlying operating system. So, yes, no matter what your hardware does you have to port Windows CE to it to do anything, even blink one stupid LED. Since no one in their right mind would create an entire operating system to do such a trivial task, there's no Windows CE-based shortcut.

You can use some tools specifically for your target processor, maybe to write just a program to blink your LED, but that is absolutely, positively NOT Windows CE. Windows CE is a full operating system and, regardless what you want a program to run in that operating system to do, porting the operating system is complex.

Your understanding is certainly flawed. A BSP is *NOT* a little program that makes the board do something. It's a complete layer of system code which provides services that the Windows CE kernel needs to configure your specific processor, etc., and provides drivers for each and every device and bus that your hardware supports. The OS, for example, requires a periodic timer for scheduling of the multiple tasks that Windows CE supports. Your BSP has to program the processor to provide that timer interrupt. That is one out of about 150 things that the BSP has to do.

Paul T.

"Robert" <Robert@xxxxxxxxxxxxxxxxxxxxxxxxxxxx> wrote in message news:9CDB98CB-5BA9-4F7C-A14C-B4BCE2CB2A5E@xxxxxxxxxxxxxxxxxxxx

Hello Dean, thankyou for you post!

Re: Newbie to WCE!

I am a newbie to this, so I appreciate your patients!

I am sorry, I don't think I understand. I am really not referencing my question to an already made board. I don't really care about any commercial board that exists in today's market place. All I want to do is build my own board and its entire hardware platform which would consist of *one* LED that blinks. That's all! I mean I should be allowed to have a module composed of an ARM microcontroller with WCE in it that blinks *one* LED. No!

A BSP is not a function that blinks an LED. It is a complete package of software that controls the entire hardware platform,

So if my entire hardware platform is one led, (a resistor and a led, that's it!) Then my complete package of software (BSP) would be the C code to blink the led!
No!

Creating a BSP for custom hardware is a very difficult task.

In my case it wouldn't it be a 2 liner C code blinking a led? I know that WCE is a complex world which is a complete package of software that controls the entire hardware platform, and exposes it to the upper level operating system software, but I would like to understand the fundamentals of this. I don't want to control rs232/USB ports, complex VGA controllers or IRDA components right now. I can do these things now with PICS and so I know that I really don't need WCE to do these things!

All I want to know is can I buy a microcontroller chip (One of the chips supported by WCE), solder it on a board, connect a led to one of its outputs.

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Create a simple C program that can be downloaded in the controller chip via the chip makers compiler. Test to see if it works. Then call this little C program a BSP (my little BSP!!!!). Then somehow which I haven't looked into yet, incorporate this little BSP in platform builder so my WCE operating system can call it. Then Create a small eVC++ program and download it on my board along with WCE and execute it.

Perhaps I am completely unrealistic with my understanding of the mechanics of WCE. If so, then I am sorry to have wasted your time. If not then I can be greatfull and look into this further.

With great regards
Roberto

"Dean Ramsier" wrote:

Running CE on a custom hardware design is light years different from programming controllers from Microchip. If you're expecting it to be at all similar, don't even think about going there. No, you can't just install CE on the platform, it doesn't work that way. A BSP is not a function that blinks an LED. It is a complete package of software that controls the entire hardware platform, and exposes it to the upper level operating system software. Creating a BSP for custom hardware is a very difficult task. If you have no experience, and you can't start from something close, then expect many man months of effort.

If you purchase a board from a vendor who *already* has created the BSP, then you can write your program that blinks the LED. It won't be two lines long though. Remember, you're going from something that has no operating system to one that has a very complex, high level operating system. You

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have to live in that environment, and you have to program in that environment. The flexibility that comes with OS support also comes with complexity. You don't get one without the other...

--
Dean Ramsier – eMVP
BSQUARE Corporation

"Robby"

<Robby@xxxxxxxxxxxxxxxxxxxxxxxxxxxx>

wrote in message

news:C40AF474-F252-4BA2-94C6-623B5DDDC671@xxxxxxxxxxxxxxxxxxxx

Hello voidcoder, thankyou for taking the time to answer my post!

I have a real dilema in my hands.

You see, most pre-made boards on the market are too big in size for my application ! I have to work with 1.5" x 2.5" max in dimensions. Also most commercial boards draw too much power (1 to 3 A) which is unacceptable for my project. Therefore I need to build the whole system from the ground up.

But really don't need much, maybe one fifth of what full fledged commercial boards offer.

Therefore I need to purchase a microcontroller like this one perhaps:
AT91SAM9260, please view its specs at the following links:

http://www.atmel.com/dyn/products/product_card.asp?part_id=3870
<http://www.linuxdevices.com/news/NS8107946385.html>

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to build my own board from there. I have lots of experience with electronic chips and I can program in C and VC++ (not an expert at VC++ though!).

You see, my dilemma is this, if I can run WCE on a microcontroller like the one I mentioned above without any other extra hardware required then it would be worthed for me, else, I may as well stick to my current microcontrollers from Microchip because it would turn out to be cheaper this way.

Right now I have a microcontroller from Microchip (PIC18F4520) and it is driving a 176 x 132 pixel TFT LCD (The controller of the LCD is embeded in the TFT LCD!). All I am doing is sending data from the PIC to the LCD via the LCD's 8 bit interface. Simple! You would amazed on the nice pictures I can paint on this LCD for a total cost of 6\$

However, if one day my application needs to read a WORD file... ha! I have a problem!

So for now all I would require is a microcontroller that can support WCE in

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the event I need to go in the
WCE direction. For now I
don't need the
power
of WCE. I would do all my
drivers in C in the
AT91SAM9260
microcontroller
just as I am doing in the
current PIC microcontroller.

So in brief: Would I be able
to buy a microcontroller
which is supported
by
WCE and and if I someday
need WCE I would
download WCE in this
controller.

Thereafter I can run a
simple eVC++ program to
lets say "blink a led". I
think my eVC++ program
would call a function I
would of written in C (I
think
this is what you guys call a
BSP: the little C program
that actually
blinks
the led would be my own
BSP.... right!) and thats it,
nothing more.

I hope I am not confusing
you or anyone else that
reads this post. If I am
please let me know and I
will try to be clearer in my
explanations.

With greatest regrds
Roberto

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Best regards
Robert

Re: Newbie to WCE!

"voidcoder" wrote:

It might be not as easy as you think. In theory, you should be able to run CE on any ARM9 target (thanks to the MMU support) but it is definitely not as simply as just creating an image in PB. There is plenty of work to get the OS running on a generic ARM9 target, unless it is a retail board (or your board is based on some existing reference design) featuring Windows CE support, i.e. has Windows CE Board Support Package for it...

What

Re: Newbie to WCE!

exactly
CPU/board
is it?

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Oleg

Robert
wrote:

Hello,

I
am
very
new
to
the
winCE
world
so
please
bare
with
me
if
I
ask
silly
questions!

I
would
like
to
know
in
terms
of
hardware,
if
I
use
say
the
ARM9
microcontroller,
can
I

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simply
create
my
image
in
platform
builder
and
download
it
in
the
microcontroller
and
connect
my
circuitry
to
the
microcontroller?

I
mean
if
I
simply
wanted
to
blink
an
LED
connected
to
one
of
the
outputs
of
my
microcontroller,
then
I
would
make
a
two
line
program
in
VC++
and

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download
it
in
the
microcontroller
and
run
it
on
WCE
right?
No
other
hardware
would
be
required..
right?

Any
advice
or
feedback
is
appreciated!

Robert