

# Re: Fast Start-up

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<http://www.tech-archive.net/Archive/WindowsCE/microsoft.public.windowsce.embedded/2007-05/msg00107.html>

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- *From:* "<ctacke/>" <ctacke[at]opennetcf[dot]com>
  - *Date:* Fri, 11 May 2007 11:30:25 -0400
- 

"Everything off but RAM" really is a suspend, not an "off" condition (yes, this is what WM PDAs do). Restoring from that state is measured in milliseconds. Exactly how long depends on what drivers you have and what they do on power up.

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Chris Tacke, Embedded MVP  
OpenNETCF Consulting  
Managed Code in an Embedded World  
[www.OpenNETCF.com](http://www.OpenNETCF.com)

"Bage" <Bage Mk at hotamil dot com> wrote in message  
[news:um48BC%23kHHA.3484@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx](mailto:news:um48BC%23kHHA.3484@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx)

No. This is an extremely low power device – it will have built in, very light batteries and they must operate without replacement or recharge for weeks.

This isn't a PDA, a phone, a media player or a sat-nav system. Unfortunately, if I said what it was – I wouldn't be working on it any longer!

It genuinely has valid requirements for the power issues. I can satisfy the power requirements with a small embedded RTOS. However, CE will make a lot of the other development easier. But there are doubts about the power requirements of CE.

I've looked at the MSDN docs – but would like clarification. Does the CE definition of suspend allow switching everything off except RAM?

If it does; has anyone any experience of how long it takes to come back?  
To give me some idea – Is the CE suspend state the same as used by a WM5 PDA in it's "off" state?

Bage

"Bruce Eitman [eMVP]" <beitman.nospam@xxxxxxxxxxxxxxxxxxxxxxxx> wrote in message [news:uIMqcz8kHHA.4960@xxxxxxxxxxxxxxxxxxxxxxxx](mailto:news:uIMqcz8kHHA.4960@xxxxxxxxxxxxxxxxxxxxxxxx)

If you can keep the RAM live, then why can't you just suspend? That is the whole reason for suspend. This sounds like a hardware problem that someone wants you to solve in software. I assume that you are running on something like a car battery, and nobody wants your device to accidentally drain that battery. So why not put in a backup battery that allows you to suspend?

—  
Bruce Eitman (eMVP)  
Senior Engineer  
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Microsoft WEP Gold-level Member

"Bage" <Bage Mk at hotamil dot com> wrote in message [news:ud1TI07kHHA.4852@xxxxxxxxxxxxxxxxxxxxxxxx](mailto:news:ud1TI07kHHA.4852@xxxxxxxxxxxxxxxxxxxxxxxx)

I've a similar problem.

In the device we're building, to keep the power down the CPU will be off most of the time. As soon as the operator presses a button, it will start the CPU (an ARM). Then we have to get our app responding at a human-expectation speed (<1s). I can do this with a simple RTOS. But Windows CE includes a significant number of other benefits.

We can keep the RAM live, if that helps.

Can someone advise as to whether such a fast start from a "cold" CPU is possible with Windows CE.

Thanks,

Bage

Re: Fast Start-up

"Paul G. Tobey [eMVP]" <p space tobey no spam AT no instrument no spam DOT com> wrote in message [news:eLeYDDykHHA.596@xxxxxxxxxxxxxxxxxxxxxxxxxxxxx](mailto:news:eLeYDDykHHA.596@xxxxxxxxxxxxxxxxxxxxxxxxxxxxx)

Fast I/O or no I/O for loading the OS. If RAM access on your hardware is very fast, copying the OS from flash or where ever you have it stored might result in faster boot than executing directly in flash (you'll have to test). If you're going to be copying the image from some storage device (like a hard disk), to RAM, you want that device to be as fast as possible and your code to configure and operate it (yes, it's in the bootloader; you have to write it), needs to be as optimized as possible. If you're copying from persistent storage to RAM, make the OS image as small as possible.

If you're executing directly out of flash, make sure that your processor settings for the flash region are as optimized as you can make them without sacrificing reliability.

Faster processors generally boot faster.

Again, though, without a specification that everyone in your team is willing to commit to as far as how long the battery has to last, there's a reasonable chance that you're wasting time. Suspend works very well on a lot of the hardware that CE runs on and buying a bigger battery is a lot cheaper than spending 6 months hacking 0.5 seconds off of your cold boot time...

Paul T.

"Steady"  
<Steady@xxxxxxxxxxxxxxxxxxxxxxxxxxxxx>  
wrote in message  
[news:FAD4E635-E550-4D70-8B88-215DD21D89DA@xxxxxxxxxxxxxxxxxxxxx](mailto:news:FAD4E635-E550-4D70-8B88-215DD21D89DA@xxxxxxxxxxxxxxxxxxxxx)

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Thanks,

I will check with the device vendor.

What do you recommend to improve the boot speed?

"Paul G. Tobey [eMVP]" wrote:

You need to be or know well the device vendor to know what is possible with respect to power management. Trying to do something good without knowing is likely to be a big waste of time. Pocket PC devices, even phones, which are essentially never off, have battery lives measured in days with relatively small batteries. You need to decide on a specification for how long

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the  
device is  
going to  
live; that  
will guide  
you when  
you decide  
what  
happens  
when you  
"hibernate".

You can  
improve  
boot speed,  
but it's still  
going to be  
seconds, not  
milliseconds.

Paul T.

"Steady"

<Steady@xxxxxxxxxxxxxxxxxxxxxxxxxxxx>

wrote in  
message

[news:9D069B17-4EB0-444C-B55F-DEED83E013A2@xxxxxxxxxx](mailto:news:9D069B17-4EB0-444C-B55F-DEED83E013A2@xxxxxxxxxx)

I  
need  
to  
be  
very  
careful  
with  
the  
power  
consumption,  
and  
therefore  
need  
to  
power  
down  
the  
processor  
and  
peripherals.  
So  
I'm  
guessing

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I  
need  
to  
either  
use  
a  
power  
down  
and  
re-boot  
or  
some  
kind  
of  
hibernate?

In  
addition

I  
have  
had  
some  
previous  
bad  
experiences  
with  
things  
such  
as  
bluetooth  
drivers  
restarting,  
and  
thought  
a  
full  
boot  
might  
be  
safer  
option.

I  
have  
access  
to  
platform  
builder  
and  
have  
made  
small

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changes  
before.  
I  
have  
read  
somewhere  
that  
faster  
full  
boot  
times  
should  
be  
possible.

"Paul  
G.  
Tobey  
[eMVP]"  
wrote:

You  
haven't  
told  
us  
anything  
that  
would  
help  
us  
there.  
The  
"shutdown"  
could  
mean  
anything.  
It  
might  
be  
suspended,  
like  
what  
a  
Pocket  
PC  
does  
after  
a  
few  
minutes.

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When  
you  
press  
the  
power  
button,  
it's  
back  
on  
very  
quickly,  
as  
the  
RAM  
was  
maintained,  
etc.  
and  
the  
processor  
simply  
has  
to  
be  
started  
up  
where  
it  
stopped.  
It  
might  
literally  
be  
off,  
though,  
in  
which  
case,  
you're  
doing  
a  
full  
boot  
of  
Windows  
CE  
and  
7  
seconds  
is  
fantastic.

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If  
this  
is  
not  
a  
device  
that  
you  
build,  
there's  
nothing  
you  
can  
do  
from  
an  
application  
program  
to  
change  
the  
power-down  
states  
provided  
by  
the  
device.

Paul  
T.

"Steady"  
<Steady@xxxxxxxxxxxxxxxxxxxxxxxxxxxx>

wrote  
in  
message

[news:C5357105-DA57-4581-B423-F887F4BFDA9](mailto:C5357105-DA57-4581-B423-F887F4BFDA9)

I'm  
a  
relative  
newbie  
on  
wince  
so  
sorry  
if  
this  
is  
obvious.

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I  
have  
a  
low  
power  
mobile  
application  
which  
requires  
the  
O/S  
to  
shutdown  
and  
then  
a  
later  
time  
restart  
quickly.  
Does  
anyone  
have  
any  
suggestions  
on  
how  
I  
can  
improve  
my  
start-up  
time  
(typically  
about  
7  
seconds  
at  
the  
moment).

Thanks.

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