Re: Suspend to memory is freezing my machine

Source: http://linux.derkeiler.com/Mailing−Lists/Kernel/2008−05/msg01837.html

- *From*: Robert Hancock <hancockr@xxxxxxx>
- *Date*: Sun, 04 May 2008 15:06:04 −0600

Jacek Luczak wrote:

> Jacek Luczak pisze:
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> > Robert Hancock pisze:
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> > > > > Jacek Luczak wrote:
> > > > >
> > > > > > Rafael J. Wysocki pisze:
> > > > > >
> > > > > > > On Sunday, 4 of May 2008, Zdenek Kabelac wrote:
> > > > > > >
> > > > > > > > Hello
> > > > > > >
> > > > > > > Hi,
> > > > > > >
> > > > > > > > With recent 2.6.25 & 2.6.26−rc1 git (around 1

week) I get occasionally complete freeze of my T61 during suspend. (dual core, 2GB).

How reproducible is this?

I'm running kernel with no_console_suspend – but all I can see is blinking cursor on an empty screen – thus even when I run kernel with most debug options turned

on, I can't pass more details so far. I run suspend with with SD card in – so maybe some update in the MMC driver might be responsible for this ?

Also – I think that option no_console_suspend doens't work correctly – as many times with suspend I do not

see
any
log
message
on
my
console
screen.
However
sometimes
the
log
is
shown.

It
would
be
helpful
if
you
could
verify
if:

(1)
The
problem
occurs
without
no_console_suspend.
(2)
The
problem
occurs
without
the
SD
card.

Hi Rafael,

same
problem
here,
although I
was able to
resume
system (it's
basically

Intel
machine) ,
but it was
unusable − I
was able to
switch
between
terminals
and see
output from
kernel. So
there was:
− Disabling
irq #19;
− some kind
of lock
spinning on
disk:
IDE
interface:
Intel
Corporation
82801GBM/GHM
(ICH7
Family)
Serial ATA
Storage
Controller
IDE (rev
02)
but I can't
provide
more output
of that lock
now − no
sign in logs.

I've made
some
successful
suspend/resume
all without
sound card
active
without
problem.
Those
appear with
sound card
active, but I
must take

> > closer
> > look − will
> > send info
> > later.
>
> Can you post your dmesg
> and /proc/interrupts output
> from normal bootup ?

Sure I can ;)

1) /proc/interrupts

CPU0 CPU1
0: 11846981 0 IO−APIC−edge timer
1: 30098 0 IO−APIC−edge i8042
8: 3 0 IO−APIC−edge rtc
9: 13 0 IO−APIC−fasteoi acpi
12: 1776540 0 IO−APIC−edge i8042
14: 39 0 IO−APIC−edge ata_piix
15: 0 0 IO−APIC−edge ata_piix
16: 54570 44642 IO−APIC−fasteoi
i915@pci:0000:00:02.0
17: 0 0 IO−APIC−fasteoi uhci_hcd:usb3
18: 0 0 IO−APIC−fasteoi uhci_hcd:usb4
19: 98243 0 IO−APIC−fasteoi ata_piix,
uhci_hcd:usb5
21: 1650574 0 IO−APIC−fasteoi HDA Intel
23: 0 0 IO−APIC−fasteoi ehci_hcd:usb1,
uhci_hcd:usb2
220: 14263 0 PCI−MSI−edge iwl3945
221: 1166041 1333296 PCI−MSI−edge eth0
NMI: 0 0 Non−maskable interrupts
LOC: 1104887 7534969 Local timer
interrupts
RES: 633378 701351 Rescheduling
interrupts
CAL: 16 28315 function call interrupts
TLB: 1721 2620 TLB shootdowns
TRM: 0 0 Thermal event interrupts
SPU: 0 0 Spurious interrupts
ERR: 0
MIS: 0

2) dmesg can here −>
http://212.109.128.251/~difrost/linux−next/dmesg.log
3) Kernel:
Linux difrost 2.6.25−07422−gb66e1f1−dirty
#14 SMP Fri May 2 22:04:17
CEST 2008
i686 i686 i386 GNU/Linux

> It's marked dirty because due to
> http://lkml.org/lkml/2008/5/2/405
> patch applied.
>
> −Jacek

> Well, if IRQ 19 got disabled, that's your SATA controller, so resume
> likely isn't going to work. Could be a libata problem? CCing linux−ide.

Yep, I know, that's why I pointed that out. Irq was disabled somehow in suspend
or resume process.

> BTW, if your BIOS offers an option to enable AHCI on your SATA
> controller then that would be a more optimal configuration (could get
> NCQ support), but that is an aside.

With AHCI I've got pretty bad timings (and I don't really know why!):

[root|20:49|~]$ cat sda_ahci_t

/dev/sda:
Timing cached reads: 1560 MB in 2.00 seconds = 780.51 MB/sec
Timing buffered disk reads: 102 MB in 3.02 seconds = 33.74 MB/sec
[root|20:49|~]$ cat sda_piix_t

/dev/sda:
Timing cached reads: 1544 MB in 2.00 seconds = 772.35 MB/sec
Timing buffered disk reads: 134 MB in 3.04 seconds = 44.05 MB/sec

Here's the latest report (all on latest git):
1) I've switched to AHCI mode and suspend/resume works OK (because SATA controller irq is not disabled).

2) now /proc/interrupts look like that:
CPU0 CPU1
0: 110708 0 IO−APIC−edge timer
1: 4008 0 IO−APIC−edge i8042
8: 3 0 IO−APIC−edge rtc
9: 15091 0 IO−APIC−fasteoi acpi
12: 77467 0 IO−APIC−edge i8042
14: 44 0 IO−APIC−edge ata_piix
15: 0 0 IO−APIC−edge ata_piix
16: 0 0 IO−APIC−fasteoi i915@pci:0000:00:02.0

17: 0 0 IO−APIC−fasteoi uhci_hcd:usb3
18: 0 0 IO−APIC−fasteoi uhci_hcd:usb4
19: 100001 0 IO−APIC−fasteoi uhci_hcd:usb5
21: 282 0 IO−APIC−fasteoi HDA Intel
23: 1 0 IO−APIC−fasteoi ehci_hcd:usb1, uhci_hcd:usb2
219: 858 0 PCI−MSI−edge iwl3945
220: 8616 0 PCI−MSI−edge eth0
221: 6423 0 PCI−MSI−edge ahci
NMI: 0 0 Non−maskable interrupts
LOC: 15777 64510 Local timer interrupts
RES: 9045 24560 Rescheduling interrupts
CAL: 30 28255 function call interrupts
TLB: 341 145 TLB shootdowns
TRM: 0 0 Thermal event interrupts
SPU: 0 0 Spurious interrupts
ERR: 0
MIS: 0

3) The IRQ #19 remains disabled after resume and produce:
irq 19: nobody cared (try booting with the "irqpoll" option)
Pid: 13, comm: kacpi_notify Not tainted 2.6.26−rc1−07561−gafa26be−dirty #16
[<c013ea27>] __report_bad_irq+0x24/0x69
[<c013ea2e>] __report_bad_irq+0x2b/0x69
[<c013ec25>] note_interrupt+0x1b9/0x210
[<c013e36c>] handle_IRQ_event+0x1a/0x3f
[<c013f195>] handle_fasteoi_irq+0x84/0xa2
[<c0104fde>] do_IRQ+0x4f/0x65
[<c01034ff>] common_interrupt+0x23/0x28
[<c013007b>] timekeeping_resume+0x9b/0x127
[<c020b090>] acpi_os_read_port+0x29/0x44
[<c02177c9>] acpi_hw_register_read+0x61/0x119
[<c020f76e>] acpi_ev_fixed_event_detect+0x2a/0xa0
[<c021001a>] acpi_ev_sci_xrupt_handler+0x9/0x17
[<c020b053>] acpi_irq+0xb/0x1f
[<c013e36c>] handle_IRQ_event+0x1a/0x3f
[<c013f181>] handle_fasteoi_irq+0x70/0xa2
[<c0104fde>] do_IRQ+0x4f/0x65
[<c020b623>] acpi_os_execute_deferred+0x0/0x25
[<c01034ff>] common_interrupt+0x23/0x28
[<c020b623>] acpi_os_execute_deferred+0x0/0x25
[<c020b0b8>] acpi_os_write_port+0xd/0x2c
[<c020b640>] acpi_os_execute_deferred+0x1d/0x25
[<c01290fa>] run_workqueue+0x69/0xda
[<c0129221>] worker_thread+0xb6/0xc2
[<c012bca6>] autoremove_wake_function+0x0/0x2d
[<c012916b>] worker_thread+0x0/0xc2
[<c012ba42>] kthread+0x38/0x5d
[<c012ba0a>] kthread+0x0/0x5d
[<c010370f>] kernel_thread_helper+0x7/0x10
=======================
handlers:

> [<c027d100>] (usb_hcd_irq+0x0/0x53)
> Disabling IRQ #19

Hmm, so either it's the SATA controller still generating that IRQ even when it's in AHCI mode, or else it's USB that's the real problem..

> This might happen due to "ACPI: EC: GPE storm detected, disabling EC GPE", but here it should revert to polling mode (which is done during boot, but not during resume). I'm not expert here.

That does seem unusual, but it doesn't seem directly related (ACPI is on IRQ9).

> Full dmesg here −> http://212.109.128.251/~difrost/linux−next/dmesg_ahci.log
>
> −Jacek
>
> PS: Site note: Why there's such big difference on hdparm timings with PATA and AHCI mode?

You can narrow that down by doing this with AHCI in use:

echo 1 > /sys/block/sda/device/queue_depth

which will disable NCQ but keep AHCI. If that brings the performance back up, then quite likely your drive's NCQ implementation isn't really optimized for sequential reads..

−−
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