

Interrupt storm on an MS-1029 (AMD64)

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 - *Date:* Wed, 23 May 2007 21:18:50 GMT
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I posted this question some month ago, got no replies. I recently repeated the installation with FreeBSD 6.2 and got the same results.

—Robert Johnson, robbie_3@xxxxxxxxxxxx

STATEMENT OF PROBLEM

=====

FreeBSD 6.1 runs very slowly out of the box on my MS-1029 AMD Turion notebook computer. The first line from the output of 'ps -aux' tells that interrupt 19, in use by the ohci and cardbus systems, is consuming 80% of the CPU time:

```
USER PID %CPU %MEM VSZ RSS TT STAT STARTED TIME COMMAND
```

```
root 21 79.1 0.0 0 16 ?? LL 11:52AM 25:48.51 [irq19:
cbb0 ohci
```

ATTEMPTED RESOLUTIONS

=====

I attempted to disable the affected devices in the boot configuration file "/boot/device.hints." In all cases my 'hints' were ignored and the device drivers were loaded as normal. I also tried to do the equivalent with sysctls, also to no avail (though I might be doing the Wrong Thing):

```
hint.ohci.0.disabled="1"
```

```
hint.usb.0.disabled="1"
```

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```
hint.cardbus.0.disabled="1"
```

```
hint.pccard.0.disabled="1"
```

Booting in safe mode and with ACPI disabled did not help.

I rebuilt the kernel with the cardbus driver disabled. This caused the cardbus to disappear from the problem interrupt but the ohci driver was still using irq19 and was having an interrupt storm. In the compromised state of my computer it takes 48 hours to compile a kernel, I don't have access to another computer and anyways I need USB support, so I don't want to recompile again without USB support.

I installed FreeBSD 6.0 and the problem was the same. I installed FreeBSD 5.3 and there was no problem (except that I needed to disable ACPI), nor was there a problem with NetBSD 3.0, nor Linux 2.4 or 2.6. OpenBSD 3.9 also appears to suffer from an interrupt problem.

DETAILED INFORMATION

```
=====
```

The computer is a Microstar MS-1029 with an AMD MT-37 Turion processor running at 2.0ghz.

The Motherboard uses an ATI Radeon Xpress 200P Chipset (North Bridge RX480M, South Bridge SB400).

The Graphics Card is an ATI Mobility Radeon X700 with 128 MB of dedicated RAM.

The system has 1024 MB of memory. The BIOS is "A1029AMS v2.70"

I used the minimal installation from 6.1-RELEASE-amd64-disc1.iso

```
# uname -a
```

```
FreeBSD 6.1-RELEASE FreeBSD 6.1-RELEASE #0: Sun May 7 04:04:14 UTC
```

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using the holographic shell; there was no interrupt storm.

When I tried booting my system using the install disk as a rescue disk, the system suffered from the same interrupt storm (perhaps there is a significant difference between the "install configuration" and the "rescue configuration")?

I noticed in the boot process that the computer appears to run fine through the initial boot, but at around the point that it begins processing the rc files it slows down. The slowdown appears to begin between "module_register_init: MOD_LOAD (amr_linux, 0xffffffff806205d0, 0) error 6" and "Entropy Harvesting: "; in particular, the slowdown first appears noticeable when the ATA devices were probed (but this may just be due to waiting for devices to respond). Following up on this observation, I disabled entropy harvesting of interrupts but this did not help. Windows reports this about the IDE/ATA system:

Name Standard Dual Channel PCI IDE Controller

Manufacturer (Standard IDE ATA/ATAPI controllers)

Status OK

PNP Device ID PCI\VEN_1002&DEV_4376&SUBSYS_02911462&REV_00\3&267A616A&0&A1

I/O Port 0x0000FF00-0x0000FF0F

Driver c:\windows\system32\drivers\pciide.sys (5.1.2600.0 (XPClient.010817-1148), 3.25 KB (3,328 bytes), 8/3/2004 9:07 PM)

Windows also reports an occasional error from the ACPI hardware:

\Device\ACPIEC: The embedded controller (EC) hardware didn't respond within the timeout period. This may indicate an error in the EC hardware or firmware, or possibly a poorly designed BIOS which accesses the EC in an unsafe manner. The EC driver will retry the failed transaction if possible.

This is all the headway I've been able to make, sorry I wasn't able to

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pinpoint the problem.

```
# dmesg -a
```

```
Copyright (c) 1992-2006 The FreeBSD Project.
```

```
Copyright (c) 1979, 1980, 1983, 1986, 1988, 1989, 1991, 1992, 1993, 1994
```

```
The Regents of the University of California. All rights reserved.
```

```
FreeBSD 6.1-RELEASE #0: Sun May 7 04:04:14 UTC 2006
```

```
root@xxxxxxxxxxxxxxxxxxxxxx:/usr/obj/usr/src/sys/GENERIC
```

```
Timecounter "i8254" frequency 1193182 Hz quality 0
```

```
CPU: AMD Turion(tm) 64 Mobile Technology MT-37 (1989.82-MHz K8-class CPU)
```

```
Origin = "AuthenticAMD" Id = 0x20f42 Stepping = 2
```

```
Features=0x78bfbff<FPU,VME,DE,PSE,TSC,MSR,PAE,MCE,CX8,APIC,SEP,MTRR,PGE,MCA,CMOV,PAT,PSE3
```

```
Features2=0x1<SSE3>
```

```
AMD Features=0xe2500800<SYSCALL,NX,MMX+,FFXSR,LM,3DNow+,3DNow>
```

```
AMD Features2=0x1<LAHF>
```

```
real memory = 536084480 (511 MB)
```

```
avail memory = 505630720 (482 MB)
```

```
ACPI APIC Table: <MSI OEMAPIC >
```

```
ioapic0: Changing APIC ID to 1
```

```
ioapic0 <Version 2.1> irqs 0-23 on motherboard
```

```
kbd1 at kbdmux0
```

```
acpi0: <MSI 1029> on motherboard
```

```
acpi0: Overriding SCI Interrupt from IRQ 9 to IRQ 21
```

```
acpi0: Power Button (fixed)
```

```
acpi_ec0: <Embedded Controller: GPE 0x6> port 0x62,0x66 on acpi0
```

```
Timecounter "ACPI-fast" frequency 3579545 Hz quality 1000
```

```
acpi_timer0: <32-bit timer at 3.579545MHz> port 0x4008-0x400b on acpi0
```

```
cpu0: <ACPI CPU> on acpi0
```

```
acpi_perf0: invalid _PSS package
```

```
acpi_throttle0: <ACPI CPU Throttling> on cpu0
```

```
acpi_throttle0: CLK_VAL field overlaps THT_EN bit
```

```
device_attach: acpi_throttle0 attach returned 6
```

```
pcib0: <ACPI Host-PCI bridge> port 0xcf8-0xcff on acpi0
```

```
pci0: <ACPI PCI bus> on pcib0
```

```
pcib1: <ACPI PCI-PCI bridge> at device 2.0 on pci0
```

```
pci1: <ACPI PCI bus> on pcib1
```

```
pci1: <display, VGA> at device 0.0 (no driver attached)
```

```
ohci0: <ATI SB400 USB Controller> mem 0xfbdfd000-0xfbdfdf00 irq 19 at device 19.0 on pci0
```

```
ohci0: [GIANT-LOCKED]
```

```
usb0: OHCI version 1.0, legacy support
```

```
usb0: <ATI SB400 USB Controller> on ohci0
```

```
usb0: USB revision 1.0
```

```
uhub0: ATI OHCI root hub, class 9/0, rev 1.00/1.00, addr 1
```

```
uhub0: 4 ports with 4 removable, self powered
```

```
ohci1: <ATI SB400 USB Controller> mem 0xfbdfef00-0xfbdfef00 irq 19 at
```

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device 19.1 on pci0
ohci1: [GIANT-LOCKED]
usb1: OHCI version 1.0, legacy support
usb1: <ATI SB400 USB Controller> on ohci1
usb1: USB revision 1.0
uhub1: ATI OHCI root hub, class 9/0, rev 1.00/1.00, addr 1
uhub1: 4 ports with 4 removable, self powered
ehci0: <ATI SB400 USB 2.0 controller> mem 0xfbdfff00-0xfbdfffff irq 19
at device 19.2 on pci0
ehci0: [GIANT-LOCKED]
usb2: EHCI version 1.0
usb2: companion controllers, 4 ports each: usb0 usb1
usb2: <ATI SB400 USB 2.0 controller> on ehci0
usb2: USB revision 2.0
uhub2: ATI EHCI root hub, class 9/0, rev 2.00/1.00, addr 1
uhub2: 8 ports with 8 removable, self powered
pci0: <serial bus, SMBus> at device 20.0 (no driver attached)
atapci0: <ATI IXP400 UDMA133 controller> port
0x1f0-0x1f7,0x3f6,0x170-0x177,0x376,0xff00-0xff0f at device 20.1 on pci0
ata0: <ATA channel 0> on atapci0
ata1: <ATA channel 1> on atapci0
isab0: <PCI-ISA bridge> at device 20.3 on pci0
isa0: <ISA bus> on isab0
pcib2: <ACPI PCI-PCI bridge> at device 20.4 on pci0
pci2: <ACPI PCI bus> on pcib2
rl0: <RealTek 8139 10/100BaseTX> port 0xe800-0xe8ff mem
0xfbfff00-0xfbfff0ff irq 18 at device 3.0 on pci2
miibus0: <MII bus> on rl0
rphy0: <RealTek internal media interface> on miibus0
rphy0: 10baseT, 10baseT-FDX, 100baseTX, 100baseTX-FDX, auto
rl0: Ethernet address: 00:13:d3:af:0a:b0
cbb0: <RF5C476 PCI-CardBus Bridge> irq 19 at device 4.0 on pci2
cardbus0: <CardBus bus> on cbb0
pccard0: <16-bit PCCard bus> on cbb0
cbb1: <RF5C476 PCI-CardBus Bridge> irq 20 at device 4.1 on pci2
cardbus1: <CardBus bus> on cbb1
pccard1: <16-bit PCCard bus> on cbb1
fwohci0: <Ricoh R5C552> mem 0xfbfff000-0xfbfff7ff irq 21 at device 4.2
on pci2
fwohci0: OHCI version 1.0 (ROM=1)
fwohci0: No. of Isochronous channels is 4.
fwohci0: EUI64 00:10:dc:00:00:d9:2b:8b
fwohci0: Phy 1394a available S400, 2 ports.
fwohci0: Link S400, max_rec 2048 bytes.
firewire0: <IEEE1394(FireWire) bus> on fwohci0
fwe0: <Ethernet over FireWire> on firewire0
if_fwe0: Fake Ethernet address: 02:10:dc:d9:2b:8b
fwe0: Ethernet address: 02:10:dc:d9:2b:8b
fwe0: if_start running deferred for Giant
sbp0: <SBP-2/SCSI over FireWire> on firewire0
fwohci0: Initiate bus reset

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```
fwohci0: node_id=0xc800ffc0, gen=1, CYCLEMASTER mode
firewire0: 1 nodes, maxhop <= 0, cable IRM = 0 (me)
firewire0: bus manager 0 (me)
ral0: <Ralink Technology RT2500> mem 0xfbffc000-0xfbffdf00 irq 16 at
device 9.0 on pci2
ral0: MAC/BBP RT2560 (rev 0x04), RF RT2525
ral0: Ethernet address: 00:11:09:2a:ae:b0
pci0: <multimedia, audio> at device 20.5 (no driver attached)
pci0: <simple comms, generic modem> at device 20.6 (no driver attached)
acpi_lid0: <Control Method Lid Switch> on acpi0
acpi_button0: <Sleep Button> on acpi0
acpi_button1: <Power Button> on acpi0
acpi_tz0: <Thermal Zone> on acpi0
atkbd0: <Keyboard controller (i8042)> port 0x60,0x64 irq 1 on acpi0
atkbd0: <AT Keyboard> flags 0x1 irq 1 on atkbd0
kbd0 at atkbd0
atkbd0: [GIANT-LOCKED]
psm0: <PS/2 Mouse> irq 12 on atkbd0
psm0: [GIANT-LOCKED]
psm0: model IntelliMouse, device ID 3
acpi_acad0: <AC Adapter> on acpi0
battery0: <ACPI Control Method Battery> on acpi0
orm0: <ISA Option ROM> at iomem 0xce800-0xcf7ff on isa0
ppc0: cannot reserve I/O port range
sc0: <System console> at flags 0x100 on isa0
sc0: VGA <16 virtual consoles, flags=0x300>
sio0: configured irq 4 not in bitmap of probed irqs 0
sio0: port may not be enabled
sio0 at port 0x3f8-0x3ff irq 4 flags 0x10 on isa0
sio0: type 8250 or not responding
sio1: configured irq 3 not in bitmap of probed irqs 0
sio1: port may not be enabled
vga0: <Generic ISA VGA> at port 0x3c0-0x3df iomem 0xa0000-0xbffff on isa0
Timecounter "TSC" frequency 1989818882 Hz quality 800
Timecounters tick every 1.000 msec
module_register_init: MOD_LOAD (amr_linux, 0xffffffff806205d0, 0) error 6
ad0: 95396MB <HTS541010G9AT00 MBZOA60A> at ata0-master UDMA100
acd0: DVDR <HL-DT-ST DVD-RW GWA-4082N/CB03> at ata1-master UDMA33
Trying to mount root from ufs:/dev/ad0s2a
Loading configuration files.
Entropy harvesting:
interrupts
ethernet
point_to_point
kickstart
.
swapon: adding /dev/ad0s2b as swap device
Starting file system checks:
/dev/ad0s2a: FILE SYSTEM CLEAN; SKIPPING CHECKS
/dev/ad0s2a: clean, 2638932 free (9300 frags, 328704 blocks, 0.3%
fragmentation)
```

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```
Setting hostname: .
lo0: flags=8049<UP,LOOPBACK,RUNNING,MULTICAST> mtu 16384
inet6 ::1 prefixlen 128
inet6 fe80::1%lo0 prefixlen 64 scopeid 0x4
inet 127.0.0.1 netmask 0xff000000
Additional routing options:
.
Starting devd.
hw.acpi.cpu.cx_lowest:
C1
->
C1

Mounting NFS file systems:
.
Creating and/or trimming log files:
.
Starting syslogd.
ELF ldconfig path: /lib /usr/lib /usr/lib/compat
32-bit compatibility ldconfig path: /usr/lib32
ldconfig:
warning: /usr/lib32
:
No such file or directory
Initial amd64 initialization:
.
Additional ABI support:
.
Starting usbd.
Starting local daemons:
.
Updating motd
.
Configuring syscons:
blanktime
.
Starting cron.
Local package initialization:
.
Additional TCP options:
.
Starting background file system checks in 60 seconds.

Wed Aug 16 12:24:38 UTC 2006
Aug 16 12:25:08 login: ROOT LOGIN (root) ON ttyv0
```

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