

# Install Ubuntu / Linux on a Dell Latitude D430

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<http://www.bortzmeyer.org/dell-latitude-d430-linux.html>

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I installed the operating system Ubuntu/Linux on a Dell Latitude D430 laptop machine. This article is to share the information that I obtained during the process. While the basic functions are OK, there are problems. As often with laptops, especially very recent machines, a lot of things do not work, or do not work out of the box.

I hope I used only free software but I did not check thoroughly the licences.

This machine has the following hardware and, for each one, I indicate if it worked out of the box, or after manipulations :

- Broadcom Corporation NetXtreme BCM5752 Gigabit Ethernet network controller. Works out of the box. Tested at 100 Mb/s.
- Intel Corporation Mobile 945GM/GMS/940GM graphics card. Works out of the box at low resolution and at full resolution after.
- Wireless controller. Works, but only with a very recent kernel. It is an Intel Wireless WiFi 4965AGN, a very recent chipset.
- Sound card. Worked after a few mistakes.
- Ricoh R5C822 SD/SDIO/MMC/MS/MSPPro memory card reader. Works with some extra (non-free ?) kernel modules.
- An external CD/DVD reader/writer. Works out of the box.
- Power management system. Reporting from the battery works but suspend is highly unreliable when Wifi is running.
- PCMCIA. Not tested yet.
- Bluetooth controller, not tested yet

Under Windows Vista, the System Information program (alias `msinfo32`) allows to gather all the hardware information about the machine. If you have such a legacy operating system on your hard disk, it is always a good idea to save it (the Export menu allows to save it as a text file) before the installation.

I put the Ubuntu 7.04 « feisty » CD-ROM in the external hard disk. Pressing F12 at startup gives access to the boot menu. Ubuntu starts, displays a graphical screen with an Install button. The questions are straightforward. I appreciate that, when you go back in the installation process, the answers you gave are remembered so you don't need to retype when restarting forward.

Here are some details about the machine, as seen by Linux. First, the hardware as seen by `lspci` :

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```
00:00.0 Host bridge: Intel Corporation Mobile 945GM/PM/GMS/940GML and 945GT Express Memory Controller Hub (1
00:02.0 VGA compatible controller: Intel Corporation Mobile 945GM/GMS/940GML Express Integrated Graphics Controller
00:02.1 Display controller: Intel Corporation Mobile 945GM/GMS/940GML Express Integrated Graphics Controller
00:1b.0 Audio device: Intel Corporation 82801G (ICH7 Family) High Definition Audio Controller (rev 01)
00:1c.0 PCI bridge: Intel Corporation 82801G (ICH7 Family) PCI Express Port 1 (rev 01)
00:1c.1 PCI bridge: Intel Corporation 82801G (ICH7 Family) PCI Express Port 2 (rev 01)
00:1c.2 PCI bridge: Intel Corporation 82801G (ICH7 Family) PCI Express Port 3 (rev 01)
00:1d.0 USB Controller: Intel Corporation 82801G (ICH7 Family) USB UHCI #1 (rev 01)
00:1d.1 USB Controller: Intel Corporation 82801G (ICH7 Family) USB UHCI #2 (rev 01)
00:1d.2 USB Controller: Intel Corporation 82801G (ICH7 Family) USB UHCI #3 (rev 01)
00:1d.3 USB Controller: Intel Corporation 82801G (ICH7 Family) USB UHCI #4 (rev 01)
00:1d.7 USB Controller: Intel Corporation 82801G (ICH7 Family) USB2 EHCI Controller (rev 01)
00:1e.0 PCI bridge: Intel Corporation 82801 Mobile PCI Bridge (rev e1)
00:1f.0 ISA bridge: Intel Corporation 82801GBM (ICH7-M) LPC Interface Bridge (rev 01)
00:1f.1 IDE interface: Intel Corporation 82801G (ICH7 Family) IDE Controller (rev 01)
00:1f.3 SMBus: Intel Corporation 82801G (ICH7 Family) SMBus Controller (rev 01)
02:01.0 CardBus bridge: Ricoh Co Ltd RL5c476 II (rev b4)
02:01.1 FireWire (IEEE 1394): Ricoh Co Ltd R5C552 IEEE 1394 Controller (rev 09)
02:01.2 Generic system peripheral [0805]: Ricoh Co Ltd R5C822 SD/SDIO/MMC/MS/MSPro Host Adapter (rev 18)
09:00.0 Ethernet controller: Broadcom Corporation NetXtreme BCM5752 Gigabit Ethernet PCI Express (rev 02)
0c:00.0 Network controller: Intel Corporation Unknown device 4229 (rev 61)
```

And the CPU information (yes, laptops have dual core, now). Do note that Ubuntu's installed kernel has no problems with SMP :

```
processor : 0
vendor_id : GenuineIntel
cpu family : 6
model : 15
model name : Intel(R) Core(TM)2 CPU          U7600 @ 1.20GHz
stepping : 2
cpu MHz : 800.000
cache size : 2048 KB
physical id : 0
siblings : 2
core id : 0
cpu cores : 2
fdiv_bug : no
hlt_bug : no
f00f_bug : no
coma_bug : no
fpu : yes
fpu_exception : yes
cpuid level : 10
wp : yes
flags : fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36 clflush dts acpi mmx fxsr sse
bogomips : 2397.11
clflush size : 64

processor : 1
vendor_id : GenuineIntel
cpu family : 6
model : 15
model name : Intel(R) Core(TM)2 CPU          U7600 @ 1.20GHz
stepping : 2
cpu MHz : 800.000
cache size : 2048 KB
physical id : 0
siblings : 2
core id : 1
cpu cores : 2
fdiv_bug : no
hlt_bug : no
f00f_bug : no
coma_bug : no
fpu : yes
```

```
fpu_exception : yes
cpuid level : 10
wp : yes
flags : fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36 clflush dts acpi mmx fxsr sse ss
bogomips : 2394.09
clflush size : 64
```

### And finally the boot messages :

```
% dmesg
[ 0.000000] Linux version 2.6.22-9-generic (buildd@palmer) (gcc version 4.1.3 20070718 (prerelease) (Ubuntu 4
[ 0.000000] BIOS-provided physical RAM map:
[ 0.000000] BIOS-e820: 0000000000000000 - 000000000009f000 (usable)
[ 0.000000] BIOS-e820: 000000000009f000 - 00000000000a0000 (reserved)
[ 0.000000] BIOS-e820: 0000000000100000 - 000000007f681400 (usable)
[ 0.000000] BIOS-e820: 000000007f681400 - 0000000080000000 (reserved)
[ 0.000000] BIOS-e820: 00000000f0000000 - 00000000f4007000 (reserved)
[ 0.000000] BIOS-e820: 00000000f4008000 - 00000000f400c000 (reserved)
[ 0.000000] BIOS-e820: 00000000fec00000 - 00000000fec10000 (reserved)
[ 0.000000] BIOS-e820: 00000000fed20000 - 00000000feda0000 (reserved)
[ 0.000000] BIOS-e820: 00000000fee00000 - 00000000fee10000 (reserved)
[ 0.000000] BIOS-e820: 00000000ffb00000 - 0000000100000000 (reserved)
[ 0.000000] 1142MB HIGHMEM available.
[ 0.000000] 896MB LOWMEM available.
[ 0.000000] Entering add_active_range(0, 0, 521857) 0 entries of 256 used
[ 0.000000] Zone PFN ranges:
[ 0.000000]   DMA             0 ->      4096
[ 0.000000]   Normal          4096 ->   229376
[ 0.000000]   HighMem       229376 ->   521857
[ 0.000000] early_node_map[1] active PFN ranges
[ 0.000000]   0:             0 ->   521857
[ 0.000000] On node 0 totalpages: 521857
[ 0.000000]   DMA zone: 32 pages used for memmap
[ 0.000000]   DMA zone: 0 pages reserved
[ 0.000000]   DMA zone: 4064 pages, LIFO batch:0
[ 0.000000]   Normal zone: 1760 pages used for memmap
[ 0.000000]   Normal zone: 223520 pages, LIFO batch:31
[ 0.000000]   HighMem zone: 2285 pages used for memmap
[ 0.000000]   HighMem zone: 290196 pages, LIFO batch:31
[ 0.000000] DMI 2.4 present.
[ 0.000000] ACPI: RSDP 000FC0E0, 0014 (r0 DELL  )
[ 0.000000] ACPI: RSDT 7F681A0E, 0044 (r1 DELL  M07  27D70515 ASL  61)
[ 0.000000] ACPI: FACP 7F682800, 0074 (r1 DELL  M07  27D70515 ASL  61)
[ 0.000000] ACPI: DSDT 7F683400, 4BBE (r1 INT430 SYSFexxx 1001 INTL 20050624)
[ 0.000000] ACPI: FACS 7F691C00, 0040
[ 0.000000] ACPI: HPET 7F682F00, 0038 (r1 DELL  M07  1 ASL  61)
[ 0.000000] ACPI: APIC 7F683000, 0068 (r1 DELL  M07  27D70515 ASL  47)
[ 0.000000] ACPI: ASF! 7F682C00, 007E (r32 DELL  M07  27D70515 ASL  61)
[ 0.000000] ACPI: MCFG 7F682FC0, 003E (r16 DELL  M07  27D70515 ASL  61)
[ 0.000000] ACPI: SLIC 7F68309C, 0176 (r1 DELL  M07  27D70515 ASL  61)
[ 0.000000] ACPI: TCPA 7F683300, 0032 (r1 DELL  M07  27D70515 ASL  61)
[ 0.000000] ACPI: SSDT 7F681A95, 04DC (r1 PmRef  CpuPm  3000 INTL 20050624)
[ 0.000000] ACPI: PM-Timer IO Port: 0x1008
[ 0.000000] ACPI: Local APIC address 0xfee00000
[ 0.000000] ACPI: LAPIC (acpi_id[0x00] lapic_id[0x00] enabled)
[ 0.000000] Processor #0 6:15 APIC version 20
[ 0.000000] ACPI: LAPIC (acpi_id[0x01] lapic_id[0x01] enabled)
[ 0.000000] Processor #1 6:15 APIC version 20
[ 0.000000] ACPI: LAPIC_NMI (acpi_id[0x00] high edge lint[0x1])
[ 0.000000] ACPI: LAPIC_NMI (acpi_id[0x01] high edge lint[0x1])
[ 0.000000] ACPI: IOAPIC (id[0x02] address[0xfec00000] gsi_base[0])
[ 0.000000] IOAPIC[0]: apic_id 2, version 32, address 0xfec00000, GSI 0-23
[ 0.000000] ACPI: INT_SRC_OVR (bus 0 bus_irq 0 global_irq 2 dfl dfl)
[ 0.000000] ACPI: INT_SRC_OVR (bus 0 bus_irq 9 global_irq 9 high level)
[ 0.000000] ACPI: IRQ0 used by override.
[ 0.000000] ACPI: IRQ2 used by override.
```

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[ 0.000000] ACPI: IRQ9 used by override.
[ 0.000000] Enabling APIC mode: Flat. Using 1 I/O APICs
[ 0.000000] ACPI: HPET id: 0x8086a201 base: 0xfed00000
[ 0.000000] Using ACPI (MADT) for SMP configuration information
[ 0.000000] Allocating PCI resources starting at 88000000 (gap: 80000000:70000000)
[ 0.000000] Built 1 zonelists. Total pages: 517780
[ 0.000000] Kernel command line: root=UUID=4b646d54-dec9-4ce5-9e04-9dca80554725 ro quiet splash
[ 0.000000] mapped APIC to ffffd000 (fee00000)
[ 0.000000] mapped IOAPIC to ffffc000 (fec00000)
[ 0.000000] Enabling fast FPU save and restore... done.
[ 0.000000] Enabling unmasked SIMD FPU exception support... done.
[ 0.000000] Initializing CPU#0
[ 0.000000] PID hash table entries: 4096 (order: 12, 16384 bytes)
[ 0.000000] Detected 1197.027 MHz processor.
[ 7.823448] Console: colour VGA+ 80x25
[ 7.823800] Dentry cache hash table entries: 131072 (order: 7, 524288 bytes)
[ 7.824201] Inode-cache hash table entries: 65536 (order: 6, 262144 bytes)
[ 7.939703] Memory: 2058432k/2087428k available (2010k kernel code, 27720k reserved, 917k data, 364k init)
[ 7.939715] virtual kernel memory layout:
[ 7.939717]   fixmap   : 0xffff4d000 - 0xfffff000   ( 712 kB)
[ 7.939718]   pkmap   : 0xff8000000 - 0xffc00000   (4096 kB)
[ 7.939720]   vmalloc : 0xf88000000 - 0xff7fe000   ( 111 MB)
[ 7.939721]   lowmem  : 0xc00000000 - 0xf80000000   ( 896 MB)
[ 7.939723]     .init  : 0xc03e10000 - 0xc043c000   ( 364 kB)
[ 7.939724]     .data  : 0xc02f68060 - 0xc03dbe64   ( 917 kB)
[ 7.939726]     .text  : 0xc01000000 - 0xc02f6806   (2010 kB)
[ 7.939730] Checking if this processor honours the WP bit even in supervisor mode... Ok.
[ 7.939783] SLUB: Genslabs=22, HWalign=64, Order=0-1, MinObjects=4, CPUs=2, Nodes=1
[ 7.939819] hpet0: at MMIO 0xfed00000, IRQs 2, 8, 0
[ 7.939826] hpet0: 3 64-bit timers, 14318180 Hz
[ 8.020805] Calibrating delay using timer specific routine.. 2396.98 BogoMIPS (lpj=4793972)
[ 8.020837] Security Framework v1.0.0 initialized
[ 8.020846] SELinux: Disabled at boot.
[ 8.020865] Mount-cache hash table entries: 512
[ 8.021037] CPU: After generic identify, caps: bfebfbff 20100000 00000000 00000000 0000e3bd 00000000 0000
[ 8.021049] monitor/mwait feature present.
[ 8.021052] using mwait in idle threads.
[ 8.021058] CPU: L1 I cache: 32K, L1 D cache: 32K
[ 8.021061] CPU: L2 cache: 2048K
[ 8.021065] CPU: Physical Processor ID: 0
[ 8.021067] CPU: Processor Core ID: 0
[ 8.021070] CPU: After all inits, caps: bfebfbff 20100000 00000000 00003940 0000e3bd 00000000 00000001
[ 8.021082] Compat vDSO mapped to fffe0000.
[ 8.021102] Checking 'hlt' instruction... OK.
[ 8.036942] SMP alternatives: switching to UP code
[ 8.037530] Early unpacking initramfs... done
[ 8.468750] ACPI: Core revision 20070126
[ 8.468807] ACPI: Looking for DSDT in initramfs... error, file /DSDT.aml not found.
[ 8.472193] CPU0: Intel(R) Core(TM)2 CPU          U7600 @ 1.20GHz stepping 02
[ 8.472215] SMP alternatives: switching to SMP code
[ 8.472311] Booting processor 1/1 eip 3000
[ 10.409303] Initializing CPU#1
[ 10.488896] Calibrating delay using timer specific routine.. 2394.04 BogoMIPS (lpj=4788092)
[ 10.488904] CPU: After generic identify, caps: bfebfbff 20100000 00000000 00000000 0000e3bd 00000000 0000
[ 10.488911] monitor/mwait feature present.
[ 10.488914] CPU: L1 I cache: 32K, L1 D cache: 32K
[ 10.488917] CPU: L2 cache: 2048K
[ 10.488920] CPU: Physical Processor ID: 0
[ 10.488922] CPU: Processor Core ID: 1
[ 10.488924] CPU: After all inits, caps: bfebfbff 20100000 00000000 00003940 0000e3bd 00000000 00000001
[ 8.565208] CPU1: Intel(R) Core(TM)2 CPU          U7600 @ 1.20GHz stepping 02
[ 8.565236] Total of 2 processors activated (4791.03 BogoMIPS).
[ 8.565445] ENABLING IO-APIC IRQs
[ 8.565657] ..TIMER: vector=0x31 apic1=0 pin1=2 apic2=-1 pin2=-1
[ 8.712527] checking TSC synchronization [CPU#0 -> CPU#1]:
[ 8.732528] Measured 2304778923 cycles TSC warp between CPUs, turning off TSC clock.
[ 0.664000] Marking TSC unstable due to: check_tsc_sync_source failed.
[ 0.668000] Brought up 2 CPUs
[ 1.020000] migration_cost=4000
```



```
[ 1.268000] PCI: Bridge: 0000:00:1c.0
[ 1.268000]   IO window: disabled.
[ 1.268000]   MEM window: disabled.
[ 1.268000]   PREFETCH window: disabled.
[ 1.268000] PCI: Bridge: 0000:00:1c.1
[ 1.268000]   IO window: disabled.
[ 1.268000]   MEM window: efd00000-efdf0000
[ 1.268000]   PREFETCH window: disabled.
[ 1.268000] PCI: Bridge: 0000:00:1c.2
[ 1.268000]   IO window: disabled.
[ 1.268000]   MEM window: efc00000-efcf0000
[ 1.268000]   PREFETCH window: disabled.
[ 1.268000] PCI: Bus 3, cardbus bridge: 0000:02:01.0
[ 1.268000]   IO window: 00002000-000020ff
[ 1.268000]   IO window: 00002400-000024ff
[ 1.268000]   PREFETCH window: 88000000-8bffff00
[ 1.268000]   MEM window: 8c000000-8ffff000
[ 1.268000] PCI: Bridge: 0000:00:1e.0
[ 1.268000]   IO window: 2000-2fff
[ 1.268000]   MEM window: efb00000-efbf0000
[ 1.268000]   PREFETCH window: 88000000-8bffff00
[ 1.268000] ACPI: PCI Interrupt 0000:00:1c.0[A] -> GSI 16 (level, low) -> IRQ 16
[ 1.268000] PCI: Setting latency timer of device 0000:00:1c.0 to 64
[ 1.268000] ACPI: PCI Interrupt 0000:00:1c.1[B] -> GSI 17 (level, low) -> IRQ 17
[ 1.268000] PCI: Setting latency timer of device 0000:00:1c.1 to 64
[ 1.268000] ACPI: PCI Interrupt 0000:00:1c.2[C] -> GSI 18 (level, low) -> IRQ 18
[ 1.268000] PCI: Setting latency timer of device 0000:00:1c.2 to 64
[ 1.268000] PCI: Setting latency timer of device 0000:00:1e.0 to 64
[ 1.268000] PCI: Enabling device 0000:02:01.0 (0000 -> 0003)
[ 1.268000] ACPI: PCI Interrupt 0000:02:01.0[A] -> GSI 19 (level, low) -> IRQ 19
[ 1.268000] NET: Registered protocol family 2
[ 1.312000] IP route cache hash table entries: 32768 (order: 5, 131072 bytes)
[ 1.312000] TCP established hash table entries: 131072 (order: 8, 1572864 bytes)
[ 1.312000] TCP bind hash table entries: 65536 (order: 7, 524288 bytes)
[ 1.312000] TCP: Hash tables configured (established 131072 bind 65536)
[ 1.312000] TCP reno registered
[ 1.328000] checking if image is initramfs... it is
[ 2.180000] Freeing initrd memory: 6669k freed
[ 2.180000] audit: initializing netlink socket (disabled)
[ 2.180000] audit(1186557911.744:1): initialized
[ 2.180000] highmem bounce pool size: 64 pages
[ 2.180000] VFS: Disk quotas dquot_6.5.1
[ 2.184000] Dquot-cache hash table entries: 1024 (order 0, 4096 bytes)
[ 2.184000] io scheduler noop registered
[ 2.184000] io scheduler anticipatory registered
[ 2.184000] io scheduler deadline registered
[ 2.184000] io scheduler cfq registered (default)
[ 2.184000] Boot video device is 0000:00:02.0
[ 2.184000] PCI: Setting latency timer of device 0000:00:1c.0 to 64
[ 2.184000] assign_interrupt_mode Found MSI capability
[ 2.184000] Allocate Port Service[0000:00:1c.0:pcie00]
[ 2.184000] Allocate Port Service[0000:00:1c.0:pcie02]
[ 2.184000] PCI: Setting latency timer of device 0000:00:1c.1 to 64
[ 2.184000] assign_interrupt_mode Found MSI capability
[ 2.184000] Allocate Port Service[0000:00:1c.1:pcie00]
[ 2.184000] Allocate Port Service[0000:00:1c.1:pcie02]
[ 2.184000] PCI: Setting latency timer of device 0000:00:1c.2 to 64
[ 2.184000] assign_interrupt_mode Found MSI capability
[ 2.184000] Allocate Port Service[0000:00:1c.2:pcie00]
[ 2.184000] Allocate Port Service[0000:00:1c.2:pcie02]
[ 2.184000] isapnp: Scanning for PnP cards...
[ 2.536000] isapnp: No Plug & Play device found
[ 2.568000] Real Time Clock Driver v1.12ac
[ 2.568000] hpet_resources: 0xfed00000 is busy
[ 2.568000] Serial: 8250/16550 driver $Revision: 1.90 $ 4 ports, IRQ sharing enabled
[ 2.568000] RAMDISK driver initialized: 16 RAM disks of 65536K size 1024 blocksize
[ 2.568000] input: Macintosh mouse button emulation as /class/input/input0
[ 2.568000] PNP: PS/2 Controller [PNP0303:KBC,PNP0f13:PS2M] at 0x60,0x64 irq 1,12
[ 2.576000] serio: i8042 KBD port at 0x60,0x64 irq 1
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[ 2.576000] serio: i8042 AUX port at 0x60,0x64 irq 12
[ 2.576000] mice: PS/2 mouse device common for all mice
[ 2.576000] EISA: Probing bus 0 at eisa.0
[ 2.576000] EISA: Cannot allocate resource for mainboard
[ 2.576000] Cannot allocate resource for EISA slot 1
[ 2.576000] Cannot allocate resource for EISA slot 2
[ 2.576000] EISA: Detected 0 cards.
[ 2.576000] TCP cubic registered
[ 2.576000] NET: Registered protocol family 1
[ 2.576000] Using IPI No-Shortcut mode
[ 2.576000]   Magic number: 3:726:419
[ 2.576000] Freeing unused kernel memory: 364k freed
[ 2.584000] input: AT Translated Set 2 keyboard as /class/input/input1
[ 3.852000] Capability LSM initialized
[ 3.892000] ACPI: SSDT 7F6821BC, 01C0 (r1 PmRef Cpu0Ist      3000 INTL 20050624)
[ 3.892000] ACPI: SSDT 7F681F71, 01C6 (r1 PmRef Cpu0Cst      3001 INTL 20050624)
[ 3.892000] ACPI: CPU0 (power states: C1[C1] C2[C2] C3[C3])
[ 3.892000] ACPI: Processor [CPU0] (supports 8 throttling states)
[ 3.896000] ACPI: SSDT 7F68237C, 00C4 (r1 PmRef Cpu1Ist      3000 INTL 20050624)
[ 3.896000] ACPI: SSDT 7F682137, 0085 (r1 PmRef Cpu1Cst      3000 INTL 20050624)
[ 3.896000] ACPI: CPU1 (power states: C1[C1] C2[C2] C3[C3])
[ 3.896000] ACPI: Processor [CPU1] (supports 8 throttling states)
[ 3.900000] ACPI: Thermal Zone [THM] (31 C)
[ 4.456000] usbcore: registered new interface driver usbfs
[ 4.456000] usbcore: registered new interface driver hub
[ 4.456000] usbcore: registered new device driver usb
[ 4.456000] USB Universal Host Controller Interface driver v3.0
[ 4.456000] ACPI: PCI Interrupt 0000:00:1d.0[A] -> GSI 20 (level, low) -> IRQ 20
[ 4.456000] PCI: Setting latency timer of device 0000:00:1d.0 to 64
[ 4.456000] uhci_hcd 0000:00:1d.0: UHCI Host Controller
[ 4.456000] uhci_hcd 0000:00:1d.0: new USB bus registered, assigned bus number 1
[ 4.456000] uhci_hcd 0000:00:1d.0: irq 20, io base 0x0000bf80
[ 4.456000] usb usb1: configuration #1 chosen from 1 choice
[ 4.456000] hub 1-0:1.0: USB hub found
[ 4.456000] hub 1-0:1.0: 2 ports detected
[ 4.512000] SCSI subsystem initialized
[ 4.528000] libata version 2.21 loaded.
[ 4.560000] ACPI: PCI Interrupt 0000:00:1d.1[B] -> GSI 21 (level, low) -> IRQ 21
[ 4.560000] PCI: Setting latency timer of device 0000:00:1d.1 to 64
[ 4.560000] uhci_hcd 0000:00:1d.1: UHCI Host Controller
[ 4.560000] uhci_hcd 0000:00:1d.1: new USB bus registered, assigned bus number 2
[ 4.560000] uhci_hcd 0000:00:1d.1: irq 21, io base 0x0000bf60
[ 4.560000] usb usb2: configuration #1 chosen from 1 choice
[ 4.560000] hub 2-0:1.0: USB hub found
[ 4.560000] hub 2-0:1.0: 2 ports detected
[ 4.668000] ACPI: PCI Interrupt 0000:00:1d.2[C] -> GSI 22 (level, low) -> IRQ 22
[ 4.668000] PCI: Setting latency timer of device 0000:00:1d.2 to 64
[ 4.668000] uhci_hcd 0000:00:1d.2: UHCI Host Controller
[ 4.668000] uhci_hcd 0000:00:1d.2: new USB bus registered, assigned bus number 3
[ 4.668000] uhci_hcd 0000:00:1d.2: irq 22, io base 0x0000bf40
[ 4.668000] usb usb3: configuration #1 chosen from 1 choice
[ 4.668000] hub 3-0:1.0: USB hub found
[ 4.668000] hub 3-0:1.0: 2 ports detected
[ 4.772000] ACPI: PCI Interrupt 0000:00:1d.3[D] -> GSI 23 (level, low) -> IRQ 23
[ 4.772000] PCI: Setting latency timer of device 0000:00:1d.3 to 64
[ 4.772000] uhci_hcd 0000:00:1d.3: UHCI Host Controller
[ 4.772000] uhci_hcd 0000:00:1d.3: new USB bus registered, assigned bus number 4
[ 4.772000] uhci_hcd 0000:00:1d.3: irq 23, io base 0x0000bf20
[ 4.772000] usb usb4: configuration #1 chosen from 1 choice
[ 4.772000] hub 4-0:1.0: USB hub found
[ 4.772000] hub 4-0:1.0: 2 ports detected
[ 4.804000] usb 1-2: new full speed USB device using uhci_hcd and address 2
[ 4.876000] ACPI: PCI Interrupt 0000:00:1d.7[A] -> GSI 20 (level, low) -> IRQ 20
[ 4.876000] PCI: Setting latency timer of device 0000:00:1d.7 to 64
[ 4.876000] ehci_hcd 0000:00:1d.7: EHCI Host Controller
[ 4.876000] ehci_hcd 0000:00:1d.7: new USB bus registered, assigned bus number 5
[ 4.876000] ehci_hcd 0000:00:1d.7: debug port 1
[ 4.876000] PCI: cache line size of 32 is not supported by device 0000:00:1d.7
[ 4.876000] ehci_hcd 0000:00:1d.7: irq 20, io mem 0xffffa80000
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[ 4.880000] ehci_hcd 0000:00:1d.7: USB 2.0 started, EHCI 1.00, driver 10 Dec 2004
[ 4.880000] usb usb5: configuration #1 chosen from 1 choice
[ 4.880000] hub 5-0:1.0: USB hub found
[ 4.880000] hub 5-0:1.0: 8 ports detected
[ 4.984000] ata_piix 0000:00:1f.1: version 2.11
[ 4.984000] ACPI: PCI Interrupt 0000:00:1f.1[A] -> GSI 16 (level, low) -> IRQ 16
[ 4.984000] PCI: Setting latency timer of device 0000:00:1f.1 to 64
[ 4.984000] scsi0 : ata_piix
[ 4.984000] scsi1 : ata_piix
[ 4.984000] ata1: PATA max UDMA/133 cmd 0x000101f0 ctl 0x000103f6 bmdma 0x0001bfa0 irq 14
[ 4.984000] ata2: PATA max UDMA/133 cmd 0x00010170 ctl 0x00010376 bmdma 0x0001bfa8 irq 15
[ 5.000000] Clocksource tsc unstable (delta = -236747866 ns)
[ 5.148000] ata1.00: ATA-6: TOSHIBA MK8009GAH, BS011G, max UDMA/100
[ 5.148000] ata1.00: 156301488 sectors, multi 8: LBA48
[ 5.156000] ata1.00: configured for UDMA/100
[ 5.156000] ata2: port disabled. ignoring.
[ 5.156000] scsi 0:0:0:0: Direct-Access    ATA            TOSHIBA MK8009GA BS01 PQ: 0 ANSI: 5
[ 5.160000] tg3.c:v3.77 (May 31, 2007)
[ 5.160000] ACPI: PCI Interrupt 0000:09:00.0[A] -> GSI 18 (level, low) -> IRQ 18
[ 5.160000] PCI: Setting latency timer of device 0000:09:00.0 to 64
[ 5.164000] sd 0:0:0:0: [sda] 156301488 512-byte hardware sectors (80026 MB)
[ 5.164000] sd 0:0:0:0: [sda] Write Protect is off
[ 5.164000] sd 0:0:0:0: [sda] Mode Sense: 00 3a 00 00
[ 5.164000] sd 0:0:0:0: [sda] Write cache: enabled, read cache: enabled, doesn't support DPO or FUA
[ 5.164000] sd 0:0:0:0: [sda] 156301488 512-byte hardware sectors (80026 MB)
[ 5.164000] sd 0:0:0:0: [sda] Write Protect is off
[ 5.164000] sd 0:0:0:0: [sda] Mode Sense: 00 3a 00 00
[ 5.164000] sd 0:0:0:0: [sda] Write cache: enabled, read cache: enabled, doesn't support DPO or FUA
[ 5.164000] sda:<6>eth0: Tigon3 [partno(BCM95752) rev 6002 PHY(5752)] (PCI Express) 10/100/1000Base-T ET
[ 5.176000] eth0: RXcsums[1] LinkChgREG[0] MIirq[0] ASF[0] WireSpeed[1] TSOcap[1]
[ 5.176000] eth0: dma_rwctrl[76180000] dma_mask[64-bit]
[ 5.180000] ACPI: PCI Interrupt 0000:02:01.1[B] -> GSI 17 (level, low) -> IRQ 17
[ 5.204000] sda1 sda2 sda3
[ 5.216000] sd 0:0:0:0: [sda] Attached SCSI disk
[ 5.232000] ohci1394: fw-host0: OHCI-1394 1.1 (PCI): IRQ=[17] MMIO=[efbff800-efbffff] Max Packet=[2048]
[ 5.240000] sd 0:0:0:0: Attached scsi generic sg0 type 0
[ 5.328000] usb 1-2: device not accepting address 2, error -71
[ 5.492000] Attempting manual resume
[ 5.492000] swsusp: Resume From Partition 8:2
[ 5.492000] PM: Checking swsusp image.
[ 5.492000] PM: Resume from disk failed.
[ 5.500000] swsusp: Basic memory bitmaps created
[ 5.512000] swsusp: Basic memory bitmaps freed
[ 5.564000] kjournald starting. Commit interval 5 seconds
[ 5.564000] EXT3-fs: mounted filesystem with ordered data mode.
[ 6.060000] usb 1-2: new full speed USB device using uhci_hcd and address 4
[ 6.212000] usb 1-2: configuration #1 chosen from 1 choice
[ 6.212000] hub 1-2:1.0: USB hub found
[ 6.216000] hub 1-2:1.0: 4 ports detected
[ 6.508000] ieee1394: Host added: ID:BUS[0-00:1023] GUID[444fc00011a70470]
[ 6.548000] usb 1-2.3: new full speed USB device using uhci_hcd and address 5
[ 6.660000] usb 1-2.3: configuration #1 chosen from 1 choice
[ 6.660000] hub 1-2.3:1.0: USB hub found
[ 6.664000] hub 1-2.3:1.0: 3 ports detected
[ 6.988000] usb 1-2.4: new full speed USB device using uhci_hcd and address 6
[ 7.144000] usb 1-2.4: configuration #1 chosen from 1 choice
[ 7.352000] usb 1-2.3.2: new full speed USB device using uhci_hcd and address 7
[ 7.468000] usb 1-2.3.2: configuration #1 chosen from 1 choice
[ 14.788000] PM: Writing back config space on device 0000:09:00.0 at offset c (was fe320000, writing 0)
[ 14.788000] PM: Writing back config space on device 0000:09:00.0 at offset 1 (was 100506, writing 100106)
[ 16.048000] Linux agpgart interface v0.102 (c) Dave Jones
[ 16.068000] agpgart: Detected an Intel 945GM Chipset.
[ 16.072000] agpgart: Detected 7932K stolen memory.
[ 16.088000] agpgart: AGP aperture is 256M @ 0xd0000000
[ 16.112000] pci_hotplug: PCI Hot Plug PCI Core version: 0.5
[ 16.116000] shpchp: Standard Hot Plug PCI Controller Driver version: 0.4
[ 16.468000] Yenta: CardBus bridge found at 0000:02:01.0 [1028:0201]
[ 16.492000] NET: Registered protocol family 17
[ 16.500000] input: PC Speaker as /class/input/input2
```

```
[ 16.536000] iTCO_vendor_support: vendor-support=0
[ 16.536000] iTCO_wdt: Intel TCO WatchDog Timer Driver v1.01 (21-Jan-2007)
[ 16.592000] sdhci: Secure Digital Host Controller Interface driver
[ 16.592000] sdhci: Copyright(c) Pierre Ossman
[ 16.596000] Yenta: ISA IRQ mask 0x0cb8, PCI irq 19
[ 16.596000] Socket status: 30000006
[ 16.596000] Yenta: Raising subordinate bus# of parent bus (#02) from #03 to #06
[ 16.596000] pcmcia: parent PCI bridge I/O window: 0x2000 - 0x2fff
[ 16.596000] cs: IO port probe 0x2000-0x2fff: clean.
[ 16.596000] pcmcia: parent PCI bridge Memory window: 0xefb00000 - 0xefbfffff
[ 16.596000] pcmcia: parent PCI bridge Memory window: 0x88000000 - 0x8bfffff
[ 16.596000] sdhci: SDHCI controller found at 0000:02:01.2 [1180:0822] (rev 18)
[ 16.596000] ACPI: PCI Interrupt 0000:02:01.2[C] -> GSI 18 (level, low) -> IRQ 18
[ 16.600000] mmc0: SDHCI at 0xefbfff700 irq 18 DMA
[ 16.912000] Bluetooth: Core ver 2.11
[ 16.912000] NET: Registered protocol family 31
[ 16.912000] Bluetooth: HCI device and connection manager initialized
[ 16.912000] Bluetooth: HCI socket layer initialized
[ 17.012000] iwl4965: Intel(R) Wireless WiFi Link 4965AGN driver for Linux, 1.0.0d
[ 17.012000] iwl4965: Copyright(c) 2003-2007 Intel Corporation
[ 17.012000] ACPI: PCI Interrupt 0000:0c:00.0[A] -> GSI 17 (level, low) -> IRQ 17
[ 17.012000] PCI: Setting latency timer of device 0000:0c:00.0 to 64
[ 17.012000] iwl4965: Detected Intel Wireless WiFi Link 4965AGN
[ 17.024000] input: PS/2 Mouse as /class/input/input3
[ 17.024000] Bluetooth: HCI USB driver ver 2.9
[ 17.044000] input: AlpsPS/2 ALPS GlidePoint as /class/input/input4
[ 17.048000] iTCO_wdt: Found a ICH7-M TCO device (Version=2, TCOBASE=0x1060)
[ 17.048000] iTCO_wdt: initialized. heartbeat=30 sec (nowayout=0)
[ 17.172000] intel_rng: FWH not detected
[ 17.252000] usbcore: registered new interface driver hci_usb
[ 17.252000] cs: IO port probe 0x100-0x3af: clean.
[ 17.256000] cs: IO port probe 0x3e0-0x4ff: clean.
[ 17.256000] cs: IO port probe 0x820-0x8ff: clean.
[ 17.256000] cs: IO port probe 0xc00-0xcf7: clean.
[ 17.256000] cs: IO port probe 0xa00-0xaff: clean.
[ 17.340000] ACPI: PCI Interrupt 0000:00:1b.0[A] -> GSI 21 (level, low) -> IRQ 21
[ 17.340000] PCI: Setting latency timer of device 0000:00:1b.0 to 64
[ 17.348000] iwl4965: Channel 14 [2.4GHz] is Tx only -- skipping.
[ 17.348000] iwl4965: Channel 183 [5.2GHz] is Tx only -- skipping.
[ 17.348000] iwl4965: Channel 184 [5.2GHz] is Tx only -- skipping.
[ 17.348000] iwl4965: Channel 185 [5.2GHz] is Tx only -- skipping.
[ 17.348000] iwl4965: Channel 187 [5.2GHz] is Tx only -- skipping.
[ 17.348000] iwl4965: Channel 188 [5.2GHz] is Tx only -- skipping.
[ 17.348000] iwl4965: Channel 189 [5.2GHz] is Tx only -- skipping.
[ 17.348000] iwl4965: Channel 192 [5.2GHz] is Tx only -- skipping.
[ 17.348000] iwl4965: Channel 196 [5.2GHz] is Tx only -- skipping.
[ 17.348000] iwl4965: Channel 7 [5.2GHz] is Tx only -- skipping.
[ 17.348000] iwl4965: Channel 8 [5.2GHz] is Tx only -- skipping.
[ 17.348000] iwl4965: Channel 11 [5.2GHz] is Tx only -- skipping.
[ 17.348000] iwl4965: Channel 12 [5.2GHz] is Tx only -- skipping.
[ 17.348000] iwl4965: Channel 16 [5.2GHz] is Tx only -- skipping.
[ 17.348000] iwl4965: Channel 34 [5.2GHz] is Tx only -- skipping.
[ 17.348000] iwl4965: Channel 38 [5.2GHz] is Tx only -- skipping.
[ 17.348000] iwl4965: Channel 42 [5.2GHz] is Tx only -- skipping.
[ 17.348000] iwl4965: Channel 46 [5.2GHz] is Tx only -- skipping.
[ 17.348000] iwl4965: Channel 145 [5.2GHz] is Tx only -- skipping.
[ 17.348000] iwl4965: Channel 149 [5.2GHz] is Tx only -- skipping.
[ 17.348000] iwl4965: Channel 153 [5.2GHz] is Tx only -- skipping.
[ 17.348000] iwl4965: Channel 157 [5.2GHz] is Tx only -- skipping.
[ 17.348000] iwl4965: Channel 161 [5.2GHz] is Tx only -- skipping.
[ 17.348000] iwl4965: Channel 165 [5.2GHz] is Tx only -- skipping.
[ 17.348000] iwl4965: Tunable channels: 13 802.11bg, 19 802.11a channels
[ 17.348000] wmaster0: Selected rate control algorithm 'iwl-4965-rs'
[ 17.436000] iwl4965: Unhandled INTA bits 0x04000000
[ 17.436000] iwl4965: Disabled INTA bits 0x04000000 were pending
[ 17.436000] iwl4965: with FH_INT = 0x00010000
[ 17.444000] iwl4965: REPLY_CT_KILL_CONFIG_CMD succeeded
[ 17.900000] fuse init (API version 7.8)
[ 17.968000] lp: driver loaded but no devices found
```

```

[ 17.996000] tg3: eth0: Link is up at 1000 Mbps, full duplex.
[ 17.996000] tg3: eth0: Flow control is off for TX and off for RX.
[ 18.016000] Adding 4586548k swap on /dev/disk/by-uuid/92562eb7-31e7-4607-aa16-0784008c926d. Priority:-1
[ 18.152000] EXT3 FS on sda1, internal journal
[ 18.416000] kjournald starting. Commit interval 5 seconds
[ 18.416000] EXT3 FS on sda3, internal journal
[ 18.416000] EXT3-fs: mounted filesystem with ordered data mode.
[ 18.784000] hda_intel: azx_get_response timeout, switching to polling mode...
[ 23.580000] ACPI: Battery Slot [BAT0] (battery present)
[ 23.596000] ACPI: ACPI Dock Station Driver
[ 23.636000] ACPI: Video Device [VID] (multi-head: yes rom: no post: no)
[ 23.636000] ACPI: Video Device [VID2] (multi-head: yes rom: no post: no)
[ 23.664000] input: Lid Switch as /class/input/input5
[ 23.664000] ACPI: Lid Switch [LID]
[ 23.668000] input: Power Button (CM) as /class/input/input6
[ 23.668000] ACPI: Power Button (CM) [PBTN]
[ 23.668000] input: Sleep Button (CM) as /class/input/input7
[ 23.668000] ACPI: Sleep Button (CM) [SBTN]
[ 23.788000] ACPI: AC Adapter [AC] (on-line)
[ 26.224000] NET: Registered protocol family 10
[ 26.224000] lo: Disabled Privacy Extensions
[ 26.224000] ADDRCONF(NETDEV_UP): wlan0: link is not ready
[ 30.112000] [drm] Initialized drm 1.1.0 20060810
[ 30.116000] ACPI: PCI Interrupt 0000:00:02.0[A] -> GSI 16 (level, low) -> IRQ 16
[ 30.116000] [drm] Initialized i915 1.6.0 20060119 on minor 0
[ 30.744000] ppdev: user-space parallel port driver
[ 42.048000] eth0: no IPv6 routers present
[ 42.148000] Bluetooth: L2CAP ver 2.8
[ 42.148000] Bluetooth: L2CAP socket layer initialized
[ 42.392000] Bluetooth: RFCOMM socket layer initialized
[ 42.392000] Bluetooth: RFCOMM TTY layer initialized
[ 42.392000] Bluetooth: RFCOMM ver 1.8

```

The network interface card has been tested on 100 Mb/s switches only. It should be capable of 1 Gb/s, but I did not find such a switch yet.

The external CD reader works fine. I did not test with DVD yet. The CD writers works fine with wodim / cdrecord from cdrkit. Here is a typical command-line :

```
wodim -eject speed=2 backup.iso
```

But the `-multi` option fails to produce usable CDs for me. To build the ISO image, I used genisoimage, again from cdrkit. Here is a typical invocation :

```
genisoimage -J -r -T -m '*' -m '#*' -m tmp -o backup.iso -V BackupEtc /etc
```

The wireless interface was a real pain. The driver was completed only recently (see <http://intellinuxwireless.org/?p=iwlfwifi&n=howto-iwlfwifi>). After the upgrade to Ubuntu Hardy 8.04 (and kernel 2.6.24), it worked. (Before that, I had to install the driver by hand and it froze the machine.) The Kill Switch on the right side of the PC works fine. Using it saves power and makes the system more reliable.

The sound card, an Intel 82801/ICH7 works with the `snd_hda_intel` ALSA driver. Everything goes through ALSA (I did not install a sound daemon.) `xmms` or `mplayer` are happy.

The internal Ricoh SD card reader works if you load the right kernel module, `sdhci`, with `modprobe` :

---

<http://www.bortzmeyer.org/dell-latitude-d430-linux.html>

```
# mount -t auto /dev/mmcblk0p1 /mnt
% ls -alt /mnt
total 52
drwxr-xr-x 21 root root 4096 Aug  6 23:40 ..
drwxr-xr-x  3 root root 16384 Apr 23 21:45 dcim
drwxr-xr-x  2 root root 16384 Apr 23 21:45 misc
drwxr-xr-x  4 root root 16384 Jan  1 1970 .
```

Power management is controlled by ACPI. The reporting of the battery state is correct and I can have a good idea of the time left in the battery.

However, power management with `powersave` is too unreliable to count on it. Suspend to RAM does not work at all and suspend to disk works... sometimes (the other times, the machine hangs or crashes). It seems related with Wifi : when the Wifi system is shut down completely (by the Kill Switch on the right side of the machine), suspend to disk is much more stable. CPU frequency stepping does not seem to work. Powersaved reports :

```
FATAL: Error inserting speedstep_centrino
(/lib/modules/2.6.22.1/kernel/arch/i386/kernel/cpu/cpufreq/speedstep-centrino.ko):
No such device
```

X11 works fine at 1024x768. Installing the Ubuntu package "915resolution", to tweak the Intel chipset, allows to go to 1280x800 (unlike what "Ubuntu 7.04 Festy Fawn on Dell Latitude D420" (<http://lamouroux.net/blog/?p=23>) says, I did not have to edit `/etc/default/915resolution`). Here are the X.org messages :

```
X Window System Version 7.2.0
Release Date: 22 January 2007
X Protocol Version 11, Revision 0, Release 7.2
Build Operating System: Linux Ubuntu
Current Operating System: Linux horcrux 2.6.22-9-generic #1 SMP Fri Aug 3 00:50:37 GMT 2007 i686
Build Date: 04 April 2007
Before reporting problems, check http://wiki.x.org
to make sure that you have the latest version.
Module Loader present
Markers: (--) probed, (**) from config file, (==) default setting,
(++) from command line, (!!) notice, (II) informational,
(WW) warning, (EE) error, (NI) not implemented, (??) unknown.
(==) Log file: "/var/log/Xorg.0.log", Time: Wed Aug  8 08:31:24 2007
(==) Using config file: "/etc/X11/xorg.conf"
(==) ServerLayout "Default Layout"
(**) |-->Screen "Default Screen" (0)
(**) |   |-->Monitor "Generic Monitor"
(**) |   |-->Device "Intel Corporation Mobile 945GM/GMS/940GML Express Integrated Graphics Controller"
(**) |-->Input Device "Generic Keyboard"
(**) |-->Input Device "Configured Mouse"
(**) |-->Input Device "stylus"
(**) |-->Input Device "cursor"
(**) |-->Input Device "eraser"
(**) |-->Input Device "Synaptics Touchpad"
(WW) The directory "/usr/share/fonts/X11/cyrillic" does not exist.
Entry deleted from font path.
(**) FontPath set to:
/usr/share/fonts/X11/misc,
/usr/share/fonts/X11/100dpi:unscaled,
/usr/share/fonts/X11/75dpi:unscaled,
/usr/share/fonts/X11/Type1,
/usr/share/fonts/X11/100dpi,
/usr/share/fonts/X11/75dpi,
```

```
/var/lib/defoma/x-ttcidfont-conf.d/dirs/TrueType,
/usr/share/fonts/X11/misc,
/usr/X11R6/lib/X11/fonts/misc,
/usr/share/fonts/X11/cyrillic,
/usr/share/fonts/X11/100dpi/:unscaled,
/usr/share/fonts/X11/75dpi/:unscaled,
/usr/share/fonts/X11/Type1,
/usr/X11R6/lib/X11/fonts/Type1,
/usr/share/fonts/X11/100dpi,
/usr/share/fonts/X11/75dpi,
/var/lib/defoma/x-ttcidfont-conf.d/dirs/TrueType
(==) RgbPath set to "/etc/X11/rgb"
(==) ModulePath set to "/usr/lib/xorg/modules"
(II) Open ACPI successful (/var/run/acpid.socket)
(II) Loader magic: 0x81c92e0
(II) Module ABI versions:
X.Org ANSI C Emulation: 0.3
X.Org Video Driver: 1.1
X.Org XInput driver : 0.7
X.Org Server Extension : 0.3
X.Org Font Renderer : 0.5
(II) Loader running on linux
(II) LoadModule: "pcidata"
(II) Loading /usr/lib/xorg/modules//libpcidata.so
(II) Module pcidata: vendor="X.Org Foundation"
compiled for 7.2.0, module version = 1.0.0
ABI class: X.Org Video Driver, version 1.1
(++) using VT number 7

(II) PCI: PCI scan (all values are in hex)
(II) PCI: 00:00:0: chip 8086,27a0 card 1028,0201 rev 03 class 06,00,00 hdr 00
(II) PCI: 00:02:0: chip 8086,27a2 card 1028,0201 rev 03 class 03,00,00 hdr 80
(II) PCI: 00:02:1: chip 8086,27a6 card 1028,0201 rev 03 class 03,80,00 hdr 80
(II) PCI: 00:1b:0: chip 8086,27d8 card 1028,0201 rev 01 class 04,03,00 hdr 00
(II) PCI: 00:1c:0: chip 8086,27d0 card 0000,0000 rev 01 class 06,04,00 hdr 81
(II) PCI: 00:1c:1: chip 8086,27d2 card 0000,0000 rev 01 class 06,04,00 hdr 81
(II) PCI: 00:1c:2: chip 8086,27d4 card 0000,0000 rev 01 class 06,04,00 hdr 81
(II) PCI: 00:1d:0: chip 8086,27c8 card 1028,0201 rev 01 class 0c,03,00 hdr 80
(II) PCI: 00:1d:1: chip 8086,27c9 card 1028,0201 rev 01 class 0c,03,00 hdr 00
(II) PCI: 00:1d:2: chip 8086,27ca card 1028,0201 rev 01 class 0c,03,00 hdr 00
(II) PCI: 00:1d:3: chip 8086,27cb card 1028,0201 rev 01 class 0c,03,00 hdr 00
(II) PCI: 00:1d:7: chip 8086,27cc card 1028,0201 rev 01 class 0c,03,20 hdr 00
(II) PCI: 00:1e:0: chip 8086,2448 card 0000,0000 rev e1 class 06,04,01 hdr 01
(II) PCI: 00:1f:0: chip 8086,27b9 card 1028,0201 rev 01 class 06,01,00 hdr 80
(II) PCI: 00:1f:1: chip 8086,27df card 1028,0201 rev 01 class 01,01,8a hdr 00
(II) PCI: 00:1f:3: chip 8086,27da card 1028,0201 rev 01 class 0c,05,00 hdr 00
(II) PCI: 02:01:0: chip 1180,0476 card 2000,0000 rev b4 class 06,07,00 hdr 82
(II) PCI: 02:01:1: chip 1180,0552 card 1028,0201 rev 09 class 0c,00,10 hdr 80
(II) PCI: 02:01:2: chip 1180,0822 card 1028,0201 rev 18 class 08,05,01 hdr 80
(II) PCI: 09:00:0: chip 14e4,1600 card 1028,0201 rev 02 class 02,00,00 hdr 00
(II) PCI: 0c:00:0: chip 8086,4229 card 8086,1121 rev 61 class 02,80,00 hdr 00
(II) PCI: End of PCI scan
(II) Intel Bridge workaround enabled
(II) Host-to-PCI bridge:
(II) Bus 0: bridge is at (0:0:0), (0,0,12), BCTRL: 0x0008 (VGA_EN is set)
(II) Bus 0 I/O range:
[0] -1 0 0x00000000 - 0x0000ffff (0x10000) IX[B]
(II) Bus 0 non-prefetchable memory range:
[0] -1 0 0x00000000 - 0xffffffff (0x0) MX[B]
(II) Bus 0 prefetchable memory range:
[0] -1 0 0x00000000 - 0xffffffff (0x0) MX[B]
(II) PCI-to-PCI bridge:
(II) Bus 11: bridge is at (0:28:0), (0,11,11), BCTRL: 0x0002 (VGA_EN is cleared)
(II) PCI-to-PCI bridge:
(II) Bus 12: bridge is at (0:28:1), (0,12,12), BCTRL: 0x0002 (VGA_EN is cleared)
(II) Bus 12 non-prefetchable memory range:
[0] -1 0 0xefd00000 - 0xefdfffff (0x100000) MX[B]
(II) PCI-to-PCI bridge:
(II) Bus 9: bridge is at (0:28:2), (0,9,9), BCTRL: 0x0002 (VGA_EN is cleared)
```

```
(II) Bus 9 non-prefetchable memory range:
[0] -1 0 0xefc00000 - 0xefcfffff (0x100000) MX[B]
(II) Subtractive PCI-to-PCI bridge:
(II) Bus 2: bridge is at (0:30:0), (0,2,6), BCTRL: 0x0002 (VGA_EN is cleared)
(II) Bus 2 I/O range:
[0] -1 0 0x00002000 - 0x00002fff (0x1000) IX[B]
(II) Bus 2 non-prefetchable memory range:
[0] -1 0 0xefb00000 - 0xefbfffff (0x100000) MX[B]
(II) Bus 2 prefetchable memory range:
[0] -1 0 0x88000000 - 0x8bfffff (0x4000000) MX[B]
(II) PCI-to-ISA bridge:
(II) Bus -1: bridge is at (0:31:0), (0,-1,-1), BCTRL: 0x0008 (VGA_EN is set)
(II) PCI-to-CardBus bridge:
(II) Bus 3: bridge is at (2:1:0), (2,3,6), BCTRL: 0x0580 (VGA_EN is cleared)
(II) Bus 3 I/O range:
[0] -1 0 0x00002000 - 0x000020ff (0x100) IX[B]
[1] -1 0 0x00002400 - 0x000024ff (0x100) IX[B]
(II) Bus 3 prefetchable memory range:
[0] -1 0 0x88000000 - 0x8bfffff (0x4000000) MX[B]
(-- PCI:* (0:2:0) Intel Corporation Mobile 945GM/GMS/940GML Express Integrated Graphics Controller rev 3, Mem @
(-- PCI: (0:2:1) Intel Corporation Mobile 945GM/GMS/940GML Express Integrated Graphics Controller rev 3, Mem @
(II) Addressable bus resource ranges are
[0] -1 0 0x00000000 - 0xffffffff (0x0) MX[B]
[1] -1 0 0x00000000 - 0x0000ffff (0x10000) IX[B]
(II) OS-reported resource ranges:
[0] -1 0 0x00100000 - 0x3fffffff (0x3ff00000) MX[B]E(B)
[1] -1 0 0x000f0000 - 0x000fffff (0x10000) MX[B]
[2] -1 0 0x000c0000 - 0x000effff (0x30000) MX[B]
[3] -1 0 0x00000000 - 0x0009ffff (0xa0000) MX[B]
[4] -1 0 0x0000ffff - 0x0000ffff (0x1) IX[B]
[5] -1 0 0x00000000 - 0x000000ff (0x100) IX[B]
(II) Active PCI resource ranges:
[0] -1 0 0xefdfe000 - 0xefdfffff (0x2000) MX[B]
[1] -1 0 0xefcf0000 - 0xefcfffff (0x10000) MX[B]
[2] -1 0 0xefbff700 - 0xefbff7ff (0x100) MX[B]
[3] -1 0 0xefbff800 - 0xefbfffff (0x800) MX[B]
[4] -1 0 0xffa80000 - 0xffa803ff (0x400) MX[B]
[5] -1 0 0xefebc000 - 0xefebffff (0x4000) MX[B]
[6] -1 0 0xeff80000 - 0xfffffff (0x80000) MX[B] (B)
[7] -1 0 0xefec0000 - 0xefefffff (0x40000) MX[B] (B)
[8] -1 0 0xd0000000 - 0xdfffffff (0x10000000) MX[B] (B)
[9] -1 0 0xeff00000 - 0xeff7ffff (0x80000) MX[B] (B)
[10] -1 0 0x000010c0 - 0x000010df (0x20) IX[B]
[11] -1 0 0x0000bfa0 - 0x0000bfaf (0x10) IX[B]
[12] -1 0 0x00000374 - 0x00000374 (0x1) IX[B]
[13] -1 0 0x00000170 - 0x00000177 (0x8) IX[B]
[14] -1 0 0x000003f4 - 0x000003f4 (0x1) IX[B]
[15] -1 0 0x000001f0 - 0x000001f7 (0x8) IX[B]
[16] -1 0 0x0000bf20 - 0x0000bf3f (0x20) IX[B]
[17] -1 0 0x0000bf40 - 0x0000bf5f (0x20) IX[B]
[18] -1 0 0x0000bf60 - 0x0000bf7f (0x20) IX[B]
[19] -1 0 0x0000bf80 - 0x0000bf9f (0x20) IX[B]
[20] -1 0 0x0000eff8 - 0x0000efff (0x8) IX[B] (B)
(II) Active PCI resource ranges after removing overlaps:
[0] -1 0 0xefdfe000 - 0xefdfffff (0x2000) MX[B]
[1] -1 0 0xefcf0000 - 0xefcfffff (0x10000) MX[B]
[2] -1 0 0xefbff700 - 0xefbff7ff (0x100) MX[B]
[3] -1 0 0xefbff800 - 0xefbfffff (0x800) MX[B]
[4] -1 0 0xffa80000 - 0xffa803ff (0x400) MX[B]
[5] -1 0 0xefebc000 - 0xefebffff (0x4000) MX[B]
[6] -1 0 0xeff80000 - 0xfffffff (0x80000) MX[B] (B)
[7] -1 0 0xefec0000 - 0xefefffff (0x40000) MX[B] (B)
[8] -1 0 0xd0000000 - 0xdfffffff (0x10000000) MX[B] (B)
[9] -1 0 0xeff00000 - 0xeff7ffff (0x80000) MX[B] (B)
[10] -1 0 0x000010c0 - 0x000010df (0x20) IX[B]
[11] -1 0 0x0000bfa0 - 0x0000bfaf (0x10) IX[B]
[12] -1 0 0x00000374 - 0x00000374 (0x1) IX[B]
[13] -1 0 0x00000170 - 0x00000177 (0x8) IX[B]
[14] -1 0 0x000003f4 - 0x000003f4 (0x1) IX[B]
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[15] -1 0 0x000001f0 - 0x000001f7 (0x8) IX[B]
[16] -1 0 0x0000bf20 - 0x0000bf3f (0x20) IX[B]
[17] -1 0 0x0000bf40 - 0x0000bf5f (0x20) IX[B]
[18] -1 0 0x0000bf60 - 0x0000bf7f (0x20) IX[B]
[19] -1 0 0x0000bf80 - 0x0000bf9f (0x20) IX[B]
[20] -1 0 0x0000eff8 - 0x0000efff (0x8) IX[B] (B)
(II) OS-reported resource ranges after removing overlaps with PCI:
[0] -1 0 0x00100000 - 0x3fffffff (0x3ff00000) MX[B]E(B)
[1] -1 0 0x000f0000 - 0x000fffff (0x10000) MX[B]
[2] -1 0 0x000c0000 - 0x000effff (0x30000) MX[B]
[3] -1 0 0x00000000 - 0x0009ffff (0xa0000) MX[B]
[4] -1 0 0x0000ffff - 0x0000ffff (0x1) IX[B]
[5] -1 0 0x00000000 - 0x000000ff (0x100) IX[B]
(II) All system resource ranges:
[0] -1 0 0x00100000 - 0x3fffffff (0x3ff00000) MX[B]E(B)
[1] -1 0 0x000f0000 - 0x000fffff (0x10000) MX[B]
[2] -1 0 0x000c0000 - 0x000effff (0x30000) MX[B]
[3] -1 0 0x00000000 - 0x0009ffff (0xa0000) MX[B]
[4] -1 0 0xefdfe000 - 0xefdfffff (0x2000) MX[B]
[5] -1 0 0xefcf0000 - 0xefcfffff (0x10000) MX[B]
[6] -1 0 0xefbff700 - 0xefbff7ff (0x100) MX[B]
[7] -1 0 0xefbff800 - 0xefbfffff (0x800) MX[B]
[8] -1 0 0xffa80000 - 0xffa803ff (0x400) MX[B]
[9] -1 0 0xefebc000 - 0xefebffff (0x4000) MX[B]
[10] -1 0 0xefff8000 - 0xefffffff (0x80000) MX[B] (B)
[11] -1 0 0xfefec0000 - 0xfefefffff (0x40000) MX[B] (B)
[12] -1 0 0xd0000000 - 0xdfffffff (0x10000000) MX[B] (B)
[13] -1 0 0xefff00000 - 0xefff7ffff (0x80000) MX[B] (B)
[14] -1 0 0x0000ffff - 0x0000ffff (0x1) IX[B]
[15] -1 0 0x00000000 - 0x000000ff (0x100) IX[B]
[16] -1 0 0x000010c0 - 0x000010df (0x20) IX[B]
[17] -1 0 0x0000bfa0 - 0x0000bfaf (0x10) IX[B]
[18] -1 0 0x00000374 - 0x00000374 (0x1) IX[B]
[19] -1 0 0x00000170 - 0x00000177 (0x8) IX[B]
[20] -1 0 0x000003f4 - 0x000003f4 (0x1) IX[B]
[21] -1 0 0x000001f0 - 0x000001f7 (0x8) IX[B]
[22] -1 0 0x0000bf20 - 0x0000bf3f (0x20) IX[B]
[23] -1 0 0x0000bf40 - 0x0000bf5f (0x20) IX[B]
[24] -1 0 0x0000bf60 - 0x0000bf7f (0x20) IX[B]
[25] -1 0 0x0000bf80 - 0x0000bf9f (0x20) IX[B]
[26] -1 0 0x0000eff8 - 0x0000efff (0x8) IX[B] (B)
(II) LoadModule: "i2c"
(II) Loading /usr/lib/xorg/modules//libi2c.so
(II) Module i2c: vendor="X.Org Foundation"
compiled for 7.2.0, module version = 1.2.0
ABI class: X.Org Video Driver, version 1.1
(II) LoadModule: "ddc"
(II) Loading /usr/lib/xorg/modules//libddc.so
(II) Module ddc: vendor="X.Org Foundation"
compiled for 7.2.0, module version = 1.0.0
ABI class: X.Org Video Driver, version 1.1
(II) LoadModule: "dri"
(II) Loading /usr/lib/xorg/modules/extensions//libdri.so
(II) Module dri: vendor="X.Org Foundation"
compiled for 7.2.0, module version = 1.0.0
ABI class: X.Org Server Extension, version 0.3
(II) Loading extension XFree86-DRI
(II) LoadModule: "extmod"
(II) Loading /usr/lib/xorg/modules/extensions//libextmod.so
(II) Module extmod: vendor="X.Org Foundation"
compiled for 7.2.0, module version = 1.0.0
Module class: X.Org Server Extension
ABI class: X.Org Server Extension, version 0.3
(II) Loading extension SHAPE
(II) Loading extension MIT-SUNDRY-NONSTANDARD
(II) Loading extension BIG-REQUESTS
(II) Loading extension SYNC
(II) Loading extension MIT-SCREEN-SAVER
(II) Loading extension XC-MISC
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(II) Loading extension XFree86-VidModeExtension
(II) Loading extension XFree86-Misc
(II) Loading extension XFree86-DGA
(II) Loading extension DPMS
(II) Loading extension TOG-CUP
(II) Loading extension Extended-Visual-Information
(II) Loading extension XVideo
(II) Loading extension XVideo-MotionCompensation
(II) Loading extension X-Resource
(II) LoadModule: "freetype"
(II) Loading /usr/lib/xorg/modules//fonts/libfreetype.so
(II) Module freetype: vendor="X.Org Foundation & the After X-TT Project"
compiled for 7.2.0, module version = 2.1.0
Module class: X.Org Font Renderer
ABI class: X.Org Font Renderer, version 0.5
(II) Loading font FreeType
(II) LoadModule: "glx"
(II) Loading /usr/lib/xorg/modules/extensions//libglx.so
(II) Module glx: vendor="X.Org Foundation"
compiled for 7.2.0, module version = 1.0.0
ABI class: X.Org Server Extension, version 0.3
(==) AIGLX enabled
(II) Loading extension GLX
(II) LoadModule: "int10"
(II) Loading /usr/lib/xorg/modules//libint10.so
(II) Module int10: vendor="X.Org Foundation"
compiled for 7.2.0, module version = 1.0.0
ABI class: X.Org Video Driver, version 1.1
(II) LoadModule: "vbe"
(II) Loading /usr/lib/xorg/modules//libvbe.so
(II) Module vbe: vendor="X.Org Foundation"
compiled for 7.2.0, module version = 1.1.0
ABI class: X.Org Video Driver, version 1.1
(II) LoadModule: "i810"
(II) Loading /usr/lib/xorg/modules/drivers//i810_drv.so
(II) Module i810: vendor="X.Org Foundation"
compiled for 7.2.0, module version = 1.7.4
Module class: X.Org Video Driver
ABI class: X.Org Video Driver, version 1.1
(II) LoadModule: "kbd"
(II) Loading /usr/lib/xorg/modules/input//kbd_drv.so
(II) Module kbd: vendor="X.Org Foundation"
compiled for 7.2.0, module version = 1.1.0
Module class: X.Org XInput Driver
ABI class: X.Org XInput driver, version 0.7
(II) LoadModule: "mouse"
(II) Loading /usr/lib/xorg/modules/input//mouse_drv.so
(II) Module mouse: vendor="X.Org Foundation"
compiled for 7.2.0, module version = 1.1.1
Module class: X.Org XInput Driver
ABI class: X.Org XInput driver, version 0.7
(II) LoadModule: "wacom"
(II) Loading /usr/lib/xorg/modules/input//wacom_drv.so
(II) Module wacom: vendor="X.Org Foundation"
compiled for 4.3.99.902, module version = 1.0.0
Module class: X.Org XInput Driver
ABI class: X.Org XInput driver, version 0.7
(II) Wacom driver level: 47-0.7.7-7 $
(II) LoadModule: "synaptics"
(II) Loading /usr/lib/xorg/modules/input//synaptics_drv.so
(II) Module synaptics: vendor="The XFree86 Project"
compiled for 4.2.0, module version = 1.0.0
Module class: XFree86 XInput Driver
ABI class: XFree86 XInput driver, version 0.3
(II) I810: Driver for Intel Integrated Graphics Chipsets: i810, i810-dc100,
i810e, i815, i830M, 845G, 852GM/855GM, 865G, 915G, E7221 (i915),
915GM, 945G, 945GM, 965G, 965G, 965Q, 946GZ
(II) Primary Device is: PCI 00:02:0
(WW) I810: No matching Device section for instance (BusID PCI:0:2:1) found
```

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(-- ) Chipset 945GM found
(II) resource ranges after xf86ClaimFixedResources() call:
[0] -1 0 0x00100000 - 0x3fffffff (0x3ff00000) MX[B]E(B)
[1] -1 0 0x000f0000 - 0x000fffff (0x10000) MX[B]
[2] -1 0 0x000c0000 - 0x000effff (0x30000) MX[B]
[3] -1 0 0x00000000 - 0x0009ffff (0xa0000) MX[B]
[4] -1 0 0xefdfe000 - 0xefdfffff (0x2000) MX[B]
[5] -1 0 0xefcf0000 - 0xefcfffff (0x10000) MX[B]
[6] -1 0 0xefbff700 - 0xefbff7ff (0x100) MX[B]
[7] -1 0 0xefbff800 - 0xefbfffff (0x800) MX[B]
[8] -1 0 0xffa80000 - 0xffa803ff (0x400) MX[B]
[9] -1 0 0xefebc000 - 0xefebffff (0x4000) MX[B]
[10] -1 0 0xeff80000 - 0xefffffff (0x80000) MX[B] (B)
[11] -1 0 0xefec0000 - 0xefefffff (0x40000) MX[B] (B)
[12] -1 0 0xd0000000 - 0xdfffffff (0x10000000) MX[B] (B)
[13] -1 0 0xeff00000 - 0xeff7ffff (0x80000) MX[B] (B)
[14] -1 0 0x0000ffff - 0x0000ffff (0x1) IX[B]
[15] -1 0 0x00000000 - 0x000000ff (0x100) IX[B]
[16] -1 0 0x000010c0 - 0x000010df (0x20) IX[B]
[17] -1 0 0x0000bfa0 - 0x0000bfaf (0x10) IX[B]
[18] -1 0 0x00000374 - 0x00000374 (0x1) IX[B]
[19] -1 0 0x00000170 - 0x00000177 (0x8) IX[B]
[20] -1 0 0x000003f4 - 0x000003f4 (0x1) IX[B]
[21] -1 0 0x000001f0 - 0x000001f7 (0x8) IX[B]
[22] -1 0 0x0000bf20 - 0x0000bf3f (0x20) IX[B]
[23] -1 0 0x0000bf40 - 0x0000bf5f (0x20) IX[B]
[24] -1 0 0x0000bf60 - 0x0000bf7f (0x20) IX[B]
[25] -1 0 0x0000bf80 - 0x0000bf9f (0x20) IX[B]
[26] -1 0 0x0000eff8 - 0x0000efff (0x8) IX[B] (B)
(II) resource ranges after probing:
[0] -1 0 0x00100000 - 0x3fffffff (0x3ff00000) MX[B]E(B)
[1] -1 0 0x000f0000 - 0x000fffff (0x10000) MX[B]
[2] -1 0 0x000c0000 - 0x000effff (0x30000) MX[B]
[3] -1 0 0x00000000 - 0x0009ffff (0xa0000) MX[B]
[4] -1 0 0xefdfe000 - 0xefdfffff (0x2000) MX[B]
[5] -1 0 0xefcf0000 - 0xefcfffff (0x10000) MX[B]
[6] -1 0 0xefbff700 - 0xefbff7ff (0x100) MX[B]
[7] -1 0 0xefbff800 - 0xefbfffff (0x800) MX[B]
[8] -1 0 0xffa80000 - 0xffa803ff (0x400) MX[B]
[9] -1 0 0xefebc000 - 0xefebffff (0x4000) MX[B]
[10] -1 0 0xeff80000 - 0xefffffff (0x80000) MX[B] (B)
[11] -1 0 0xefec0000 - 0xefefffff (0x40000) MX[B] (B)
[12] -1 0 0xd0000000 - 0xdfffffff (0x10000000) MX[B] (B)
[13] -1 0 0xeff00000 - 0xeff7ffff (0x80000) MX[B] (B)
[14] 0 0 0x000a0000 - 0x000affff (0x10000) MS[B]
[15] 0 0 0x000b0000 - 0x000b7fff (0x8000) MS[B]
[16] 0 0 0x000b8000 - 0x000bffff (0x8000) MS[B]
[17] -1 0 0x0000ffff - 0x0000ffff (0x1) IX[B]
[18] -1 0 0x00000000 - 0x000000ff (0x100) IX[B]
[19] -1 0 0x000010c0 - 0x000010df (0x20) IX[B]
[20] -1 0 0x0000bfa0 - 0x0000bfaf (0x10) IX[B]
[21] -1 0 0x00000374 - 0x00000374 (0x1) IX[B]
[22] -1 0 0x00000170 - 0x00000177 (0x8) IX[B]
[23] -1 0 0x000003f4 - 0x000003f4 (0x1) IX[B]
[24] -1 0 0x000001f0 - 0x000001f7 (0x8) IX[B]
[25] -1 0 0x0000bf20 - 0x0000bf3f (0x20) IX[B]
[26] -1 0 0x0000bf40 - 0x0000bf5f (0x20) IX[B]
[27] -1 0 0x0000bf60 - 0x0000bf7f (0x20) IX[B]
[28] -1 0 0x0000bf80 - 0x0000bf9f (0x20) IX[B]
[29] -1 0 0x0000eff8 - 0x0000efff (0x8) IX[B] (B)
[30] 0 0 0x000003b0 - 0x000003bb (0xc) IS[B]
[31] 0 0 0x000003c0 - 0x000003df (0x20) IS[B]
(II) Setting vga for screen 0.
(II) Loading sub module "int10"
(II) LoadModule: "int10"
(II) Reloading /usr/lib/xorg/modules//libint10.so
(II) Loading sub module "vbe"
(II) LoadModule: "vbe"
(II) Reloading /usr/lib/xorg/modules//libvbe.so

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(II) Loading sub module "vgahw"
(II) LoadModule: "vgahw"
(II) Loading /usr/lib/xorg/modules//libvgahw.so
(II) Module vgahw: vendor="X.Org Foundation"
compiled for 7.2.0, module version = 0.1.0
ABI class: X.Org Video Driver, version 1.1
(**) I810(0): Depth 24, (-- framebuffer bpp 32
(==) I810(0): RGB weight 888
(==) I810(0): Default visual is TrueColor
(II) Loading sub module "int10"
(II) LoadModule: "int10"
(II) Reloading /usr/lib/xorg/modules//libint10.so
(II) I810(0): initializing int10
(II) Loading sub module "vm86"
(II) LoadModule: "vm86"
(II) Loading /usr/lib/xorg/modules//libvm86.so
(II) Module vm86: vendor="X.Org Foundation"
compiled for 7.2.0, module version = 1.0.0
ABI class: X.Org Video Driver, version 1.1
(WW) I810(0): Bad V_BIOS checksum
(II) I810(0): Primary V_BIOS segment is: 0xc000
(II) I810(0): VESA BIOS detected
(II) I810(0): VESA VBE Version 3.0
(II) I810(0): VESA VBE Total Mem: 7872 kB
(II) I810(0): VESA VBE OEM: Intel(r) 82945GM Chipset Family Graphics Chip Accelerated VGA BIOS
(II) I810(0): VESA VBE OEM Software Rev: 1.0
(II) I810(0): VESA VBE OEM Vendor: Intel Corporation
(II) I810(0): VESA VBE OEM Product: Intel(r) 82945GM Chipset Family Graphics Controller
(II) I810(0): VESA VBE OEM Product Rev: Hardware Version 0.0
(II) I810(0): Integrated Graphics Chipset: Intel(R) 945GM
(-- I810(0): Chipset: "945GM"
(-- I810(0): Linear framebuffer at 0xD0000000
(-- I810(0): IO registers at addr 0xEFF00000
(II) I810(0): 2 display pipes available.
(II) I810(0): detected 7932 kB stolen memory.
(II) I810(0): Kernel reported 488960 total, 1 used
(II) I810(0): I830CheckAvailableMemory: 1955836 kB available
(II) I810(0): Will try to reserve 32768 kiB of AGP aperture space
for the DRM memory manager.
(II) I810(0): Monitoring connected displays enabled
(II) I810(0): Will attempt to tell the BIOS that there is 12288 kB VideoRAM
(II) Loading sub module "int10"
(II) LoadModule: "int10"
(II) Reloading /usr/lib/xorg/modules//libint10.so
(II) I810(0): initializing int10
(WW) I810(0): Bad V_BIOS checksum
(II) I810(0): Primary V_BIOS segment is: 0xc000
(II) I810(0): VESA BIOS detected
(II) I810(0): VESA VBE Version 3.0
(II) I810(0): VESA VBE Total Mem: 12288 kB
(II) I810(0): VESA VBE OEM: Intel(r) 82945GM Chipset Family Graphics Chip Accelerated VGA BIOS
(II) I810(0): VESA VBE OEM Software Rev: 1.0
(II) I810(0): VESA VBE OEM Vendor: Intel Corporation
(II) I810(0): VESA VBE OEM Product: Intel(r) 82945GM Chipset Family Graphics Controller
(II) I810(0): VESA VBE OEM Product Rev: Hardware Version 0.0
(II) I810(0): BIOS now sees 12288 kB VideoRAM
(-- I810(0): Pre-allocated VideoRAM: 7932 kByte
(==) I810(0): VideoRAM: 65536 kByte
(==) I810(0): video overlay key set to 0x101fe
(**) I810(0): page flipping disabled
(==) I810(0): Using gamma correction (1.0, 1.0, 1.0)
(II) I810(0): BIOS Build: 1343
(==) I810(0): Device Presence: disabled.
(==) I810(0): Display Info: enabled.
(II) I810(0): Broken BIOSes cause the system to hang here.
    If you encounter this problem please add
Option "DisplayInfo" "FALSE"
    to the Device section of your XF86Config file.
(II) I810(0): Display Info: CRT: attached: FALSE, present: TRUE, size: (720,400)
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(II) I810(0): Display Info: TV: attached: FALSE, present: TRUE, size: (1024,768)
(II) I810(0): Display Info: DFP (digital flat panel): attached: FALSE, present: TRUE, size: (1627,0)
(II) I810(0): Display Info: LFP (local flat panel): attached: TRUE, present: TRUE, size: (1280,800)
(II) I810(0): Display Info: Second (second CRT): attached: FALSE, present: FALSE, size: (0,2063)
(II) I810(0): Display Info: TV2 (second TV): attached: FALSE, present: FALSE, size: (0,2063)
(II) I810(0): Display Info: DFP2 (second digital flat panel): attached: FALSE, present: FALSE, size: (0,2063)
(II) I810(0): Display Info: LFP2 (second local flat panel): attached: FALSE, present: FALSE, size: (0,2063)
(II) I810(0): Size of device LFP (local flat panel) is 1280 x 800
(II) I810(0): No active displays on Pipe A.
(II) I810(0): Currently active displays on Pipe B:
(II) I810(0):  LFP (local flat panel)
(II) I810(0): Lowest common panel size for pipe B is 1280 x 800
(==) I810(0): Display is using Pipe B
(-- I810(0): Maximum framebuffer space: 65368 kByte
(II) I810(0): VESA VBE PanelID read successfully
(II) I810(0): PanelID returned panel resolution : 1280x800
(II) Loading sub module "ddc"
(II) LoadModule: "ddc"
(II) Reloading /usr/lib/xorg/modules//libddc.so
(II) I810(0): VESA VBE DDC supported
(II) I810(0): VESA VBE DDC Level 2
(II) I810(0): VESA VBE DDC transfer in appr. 1 sec.
(II) I810(0): VESA VBE DDC read successfully
(II) I810(0): Manufacturer: LCD Model: 3706 Serial#: 842478386
(II) I810(0): Year: 2007 Week: 24
(II) I810(0): EDID Version: 1.3
(II) I810(0): Digital Display Input
(II) I810(0): Max H-Image Size [cm]: horiz.: 26 vert.: 16
(II) I810(0): Gamma: 2.20
(II) I810(0): No DPMS capabilities specified; RGB/Color Display
(II) I810(0): First detailed timing is preferred mode
(II) I810(0): redX: 0.600 redY: 0.340 greenX: 0.310 greenY: 0.550
(II) I810(0): blueX: 0.150 blueY: 0.135 whiteX: 0.315 whiteY: 0.330
(II) I810(0): Manufacturer's mask: 0
(II) I810(0): Supported additional Video Mode:
(II) I810(0): clock: 68.5 MHz Image Size: 261 x 163 mm
(II) I810(0): h_active: 1280 h_sync: 1296 h_sync_end 1344 h_blank_end 1410 h_border: 0
(II) I810(0): v_active: 800 v_sync: 802 v_sync_end 804 v_blanking: 810 v_border: 0
...
(II) I810(0): EDID (in hex):
(II) I810(0): 00ffffffffffff003064063732333732
(II) I810(0): 18110103801a10780a87ae99574f8c26
(II) I810(0): 22505400000001010101010101010101
(II) I810(0): 010101010101c21a008250200a301030
(II) I810(0): 220005a3100000180000000000000000
(II) I810(0): 00000000000000000000000000fe0054
(II) I810(0): 4d313131a131323145573344000000fe
(II) I810(0): 002a3945507090b0ff01010a2020006d
(II) I810(0): Printing DDC gathered Modelines:
(II) I810(0): Modeline "1280x800" 68.50 1280 1296 1344 1410 800 802 804 810 -hsync -vsync
(-- I810(0): A non-CRT device is attached to pipe B.
No refresh rate overrides will be attempted.
(-- I810(0): Maximum space available for video modes: 12288 kByte
Mode: 30 (640x480)
ModeAttributes: 0x9b
WinAttributes: 0x7
WinBAttributes: 0x0
WinGranularity: 64
WinSize: 64
WinASegment: 0xa000
WinBSegment: 0x0
WinFuncPtr: 0xc0007843
BytesPerScanline: 640
XResolution: 640
YResolution: 480
XCharSize: 8
YCharSize: 16
NumberOfPlanes: 1
BitsPerPixel: 8
```

NumberOfBanks: 1  
MemoryModel: 4  
BankSize: 0  
NumberOfImages: 37  
RedMaskSize: 0  
RedFieldPosition: 0  
GreenMaskSize: 0  
GreenFieldPosition: 0  
BlueMaskSize: 0  
BlueFieldPosition: 0  
RsvdMaskSize: 0  
RsvdFieldPosition: 0  
DirectColorModeInfo: 0  
PhysBasePtr: 0xd0000000  
LinBytesPerScanLine: 640  
BnkNumberOfImagePages: 37  
LinNumberOfImagePages: 37  
LinRedMaskSize: 0  
LinRedFieldPosition: 0  
LinGreenMaskSize: 0  
LinGreenFieldPosition: 0  
LinBlueMaskSize: 0  
LinBlueFieldPosition: 0  
LinRsvdMaskSize: 0  
LinRsvdFieldPosition: 0  
MaxPixelClock: 230000000  
Mode: 32 (800x600)  
ModeAttributes: 0x9b  
WinAAttributes: 0x7  
WinBAttributes: 0x0  
WinGranularity: 64  
WinSize: 64  
WinASegment: 0xa000  
WinBSegment: 0x0  
WinFuncPtr: 0xc0007843  
BytesPerScanline: 832  
XResolution: 800  
YResolution: 600  
XCharSize: 8  
YCharSize: 16  
NumberOfPlanes: 1  
BitsPerPixel: 8  
NumberOfBanks: 1  
MemoryModel: 4  
BankSize: 0  
NumberOfImages: 23  
RedMaskSize: 0  
RedFieldPosition: 0  
GreenMaskSize: 0  
GreenFieldPosition: 0  
BlueMaskSize: 0  
BlueFieldPosition: 0  
RsvdMaskSize: 0  
RsvdFieldPosition: 0  
DirectColorModeInfo: 0  
PhysBasePtr: 0xd0000000  
LinBytesPerScanLine: 832  
BnkNumberOfImagePages: 23  
LinNumberOfImagePages: 23  
LinRedMaskSize: 0  
LinRedFieldPosition: 0  
LinGreenMaskSize: 0  
LinGreenFieldPosition: 0  
LinBlueMaskSize: 0  
LinBlueFieldPosition: 0  
LinRsvdMaskSize: 0  
LinRsvdFieldPosition: 0  
MaxPixelClock: 230000000  
Mode: 34 (1024x768)

ModeAttributes: 0x9b  
WinAAttributes: 0x7  
WinBAttributes: 0x0  
WinGranularity: 64  
WinSize: 64  
WinASegment: 0xa000  
WinBSegment: 0x0  
WinFuncPtr: 0xc0007843  
BytesPerScanline: 1024  
XResolution: 1024  
YResolution: 768  
XCharSize: 8  
YCharSize: 16  
NumberOfPlanes: 1  
BitsPerPixel: 8  
NumberOfBanks: 1  
MemoryModel: 4  
BankSize: 0  
NumberOfImages: 15  
RedMaskSize: 0  
RedFieldPosition: 0  
GreenMaskSize: 0  
GreenFieldPosition: 0  
BlueMaskSize: 0  
BlueFieldPosition: 0  
RsvdMaskSize: 0  
RsvdFieldPosition: 0  
DirectColorModeInfo: 0  
PhysBasePtr: 0xd0000000  
LinBytesPerScanLine: 1024  
BnkNumberOfImagePages: 15  
LinNumberOfImagePages: 15  
LinRedMaskSize: 0  
LinRedFieldPosition: 0  
LinGreenMaskSize: 0  
LinGreenFieldPosition: 0  
LinBlueMaskSize: 0  
LinBlueFieldPosition: 0  
LinRsvdMaskSize: 0  
LinRsvdFieldPosition: 0  
MaxPixelClock: 230000000  
Mode: 38 (0x0)  
ModeAttributes: 0x0  
WinAAttributes: 0x0  
WinBAttributes: 0x0  
WinGranularity: 0  
WinSize: 0  
WinASegment: 0x0  
WinBSegment: 0x0  
WinFuncPtr: 0x0  
BytesPerScanline: 0  
XResolution: 0  
YResolution: 0  
XCharSize: 0  
YCharSize: 0  
NumberOfPlanes: 0  
BitsPerPixel: 0  
NumberOfBanks: 0  
MemoryModel: 0  
BankSize: 0  
NumberOfImages: 0  
RedMaskSize: 0  
RedFieldPosition: 0  
GreenMaskSize: 0  
GreenFieldPosition: 0  
BlueMaskSize: 0  
BlueFieldPosition: 0  
RsvdMaskSize: 0  
RsvdFieldPosition: 0

```
DirectColorModeInfo: 0
PhysBasePtr: 0x0
LinBytesPerScanLine: 0
BnkNumberOfImagePages: 0
LinNumberOfImagePages: 0
LinRedMaskSize: 0
LinRedFieldPosition: 0
LinGreenMaskSize: 0
LinGreenFieldPosition: 0
LinBlueMaskSize: 0
LinBlueFieldPosition: 0
LinRsvdMaskSize: 0
LinRsvdFieldPosition: 0
MaxPixelClock: 0
Mode: 3a (0x0)
ModeAttributes: 0x0
WinAAttributes: 0x0
WinBAttributes: 0x0
WinGranularity: 0
WinSize: 0
WinASegment: 0x0
WinBSegment: 0x0
WinFuncPtr: 0x0
BytesPerScanline: 0
XResolution: 0
YResolution: 0
XCharSize: 0
YCharSize: 0
NumberOfPlanes: 0
BitsPerPixel: 0
NumberOfBanks: 0
MemoryModel: 0
BankSize: 0
NumberOfImages: 0
RedMaskSize: 0
RedFieldPosition: 0
GreenMaskSize: 0
GreenFieldPosition: 0
BlueMaskSize: 0
BlueFieldPosition: 0
RsvdMaskSize: 0
RsvdFieldPosition: 0
DirectColorModeInfo: 0
PhysBasePtr: 0x0
LinBytesPerScanLine: 0
BnkNumberOfImagePages: 0
LinNumberOfImagePages: 0
LinRedMaskSize: 0
LinRedFieldPosition: 0
LinGreenMaskSize: 0
LinGreenFieldPosition: 0
LinBlueMaskSize: 0
LinBlueFieldPosition: 0
LinRsvdMaskSize: 0
LinRsvdFieldPosition: 0
MaxPixelClock: 0
Mode: 3c (1280x800)
ModeAttributes: 0x9b
WinAAttributes: 0x7
WinBAttributes: 0x0
WinGranularity: 64
WinSize: 64
WinASegment: 0xa000
WinBSegment: 0x0
WinFuncPtr: 0xc0007843
BytesPerScanline: 1280
XResolution: 1280
YResolution: 800
XCharSize: 8
```

YCharSize: 16  
NumberOfPlanes: 1  
BitsPerPixel: 8  
NumberOfBanks: 1  
MemoryModel: 4  
BankSize: 0  
NumberOfImages: 11  
RedMaskSize: 0  
RedFieldPosition: 0  
GreenMaskSize: 0  
GreenFieldPosition: 0  
BlueMaskSize: 0  
BlueFieldPosition: 0  
RsvdMaskSize: 0  
RsvdFieldPosition: 0  
DirectColorModeInfo: 0  
PhysBasePtr: 0xd0000000  
LinBytesPerScanLine: 1280  
BnkNumberOfImagePages: 11  
LinNumberOfImagePages: 11  
LinRedMaskSize: 0  
LinRedFieldPosition: 0  
LinGreenMaskSize: 0  
LinGreenFieldPosition: 0  
LinBlueMaskSize: 0  
LinBlueFieldPosition: 0  
LinRsvdMaskSize: 0  
LinRsvdFieldPosition: 0  
MaxPixelClock: 230000000  
Mode: 41 (640x480)  
ModeAttributes: 0x9b  
WinAAttributes: 0x7  
WinBAttributes: 0x0  
WinGranularity: 64  
WinSize: 64  
WinASegment: 0xa000  
WinBSegment: 0x0  
WinFuncPtr: 0xc0007843  
BytesPerScanline: 1280  
XResolution: 640  
YResolution: 480  
XCharSize: 8  
YCharSize: 16  
NumberOfPlanes: 1  
BitsPerPixel: 16  
NumberOfBanks: 1  
MemoryModel: 6  
BankSize: 0  
NumberOfImages: 18  
RedMaskSize: 5  
RedFieldPosition: 11  
GreenMaskSize: 6  
GreenFieldPosition: 5  
BlueMaskSize: 5  
BlueFieldPosition: 0  
RsvdMaskSize: 0  
RsvdFieldPosition: 0  
DirectColorModeInfo: 0  
PhysBasePtr: 0xd0000000  
LinBytesPerScanLine: 1280  
BnkNumberOfImagePages: 18  
LinNumberOfImagePages: 18  
LinRedMaskSize: 5  
LinRedFieldPosition: 11  
LinGreenMaskSize: 6  
LinGreenFieldPosition: 5  
LinBlueMaskSize: 5  
LinBlueFieldPosition: 0  
LinRsvdMaskSize: 0

```
LinRsvdFieldPosition: 0
MaxPixelClock: 230000000
Mode: 43 (800x600)
ModeAttributes: 0x9b
WinAAttributes: 0x7
WinBAttributes: 0x0
WinGranularity: 64
WinSize: 64
WinASegment: 0xa000
WinBSegment: 0x0
WinFuncPtr: 0xc0007843
BytesPerScanline: 1600
XResolution: 800
YResolution: 600
XCharSize: 8
YCharSize: 16
NumberOfPlanes: 1
BitsPerPixel: 16
NumberOfBanks: 1
MemoryModel: 6
BankSize: 0
NumberOfImages: 11
RedMaskSize: 5
RedFieldPosition: 11
GreenMaskSize: 6
GreenFieldPosition: 5
BlueMaskSize: 5
BlueFieldPosition: 0
RsvdMaskSize: 0
RsvdFieldPosition: 0
DirectColorModeInfo: 0
PhysBasePtr: 0xd0000000
LinBytesPerScanLine: 1600
BnkNumberOfImagePages: 11
LinNumberOfImagePages: 11
LinRedMaskSize: 5
LinRedFieldPosition: 11
LinGreenMaskSize: 6
LinGreenFieldPosition: 5
LinBlueMaskSize: 5
LinBlueFieldPosition: 0
LinRsvdMaskSize: 0
LinRsvdFieldPosition: 0
MaxPixelClock: 230000000
Mode: 45 (1024x768)
ModeAttributes: 0x9b
WinAAttributes: 0x7
WinBAttributes: 0x0
WinGranularity: 64
WinSize: 64
WinASegment: 0xa000
WinBSegment: 0x0
WinFuncPtr: 0xc0007843
BytesPerScanline: 2048
XResolution: 1024
YResolution: 768
XCharSize: 8
YCharSize: 16
NumberOfPlanes: 1
BitsPerPixel: 16
NumberOfBanks: 1
MemoryModel: 6
BankSize: 0
NumberOfImages: 7
RedMaskSize: 5
RedFieldPosition: 11
GreenMaskSize: 6
GreenFieldPosition: 5
BlueMaskSize: 5
```

---

```
BlueFieldPosition: 0
RsvdMaskSize: 0
RsvdFieldPosition: 0
DirectColorModeInfo: 0
PhysBasePtr: 0xd0000000
LinBytesPerScanLine: 2048
BnkNumberOfImagePages: 7
LinNumberOfImagePages: 7
LinRedMaskSize: 5
LinRedFieldPosition: 11
LinGreenMaskSize: 6
LinGreenFieldPosition: 5
LinBlueMaskSize: 5
LinBlueFieldPosition: 0
LinRsvdMaskSize: 0
LinRsvdFieldPosition: 0
MaxPixelClock: 230000000
Mode: 49 (0x0)
ModeAttributes: 0x0
WinAAttributes: 0x0
WinBAttributes: 0x0
WinGranularity: 0
WinSize: 0
WinASegment: 0x0
WinBSegment: 0x0
WinFuncPtr: 0x0
BytesPerScanline: 0
XResolution: 0
YResolution: 0
XCharSize: 0
YCharSize: 0
NumberOfPlanes: 0
BitsPerPixel: 0
NumberOfBanks: 0
MemoryModel: 0
BankSize: 0
NumberOfImages: 0
RedMaskSize: 0
RedFieldPosition: 0
GreenMaskSize: 0
GreenFieldPosition: 0
BlueMaskSize: 0
BlueFieldPosition: 0
RsvdMaskSize: 0
RsvdFieldPosition: 0
DirectColorModeInfo: 0
PhysBasePtr: 0x0
LinBytesPerScanLine: 0
BnkNumberOfImagePages: 0
LinNumberOfImagePages: 0
LinRedMaskSize: 0
LinRedFieldPosition: 0
LinGreenMaskSize: 0
LinGreenFieldPosition: 0
LinBlueMaskSize: 0
LinBlueFieldPosition: 0
LinRsvdMaskSize: 0
LinRsvdFieldPosition: 0
MaxPixelClock: 0
Mode: 4b (0x0)
ModeAttributes: 0x0
WinAAttributes: 0x0
WinBAttributes: 0x0
WinGranularity: 0
WinSize: 0
WinASegment: 0x0
WinBSegment: 0x0
WinFuncPtr: 0x0
BytesPerScanline: 0
```

```
XResolution: 0
YResolution: 0
XCharSize: 0
YCharSize: 0
NumberOfPlanes: 0
BitsPerPixel: 0
NumberOfBanks: 0
MemoryModel: 0
BankSize: 0
NumberOfImages: 0
RedMaskSize: 0
RedFieldPosition: 0
GreenMaskSize: 0
GreenFieldPosition: 0
BlueMaskSize: 0
BlueFieldPosition: 0
RsvdMaskSize: 0
RsvdFieldPosition: 0
DirectColorModeInfo: 0
PhysBasePtr: 0x0
LinBytesPerScanLine: 0
BnkNumberOfImagePages: 0
LinNumberOfImagePages: 0
LinRedMaskSize: 0
LinRedFieldPosition: 0
LinGreenMaskSize: 0
LinGreenFieldPosition: 0
LinBlueMaskSize: 0
LinBlueFieldPosition: 0
LinRsvdMaskSize: 0
LinRsvdFieldPosition: 0
MaxPixelClock: 0
Mode: 4d (1280x800)
ModeAttributes: 0x9b
WinAAttributes: 0x7
WinBAttributes: 0x0
WinGranularity: 64
WinSize: 64
WinASegment: 0xa000
WinBSegment: 0x0
WinFuncPtr: 0xc0007843
BytesPerScanline: 2560
XResolution: 1280
YResolution: 800
XCharSize: 8
YCharSize: 16
NumberOfPlanes: 1
BitsPerPixel: 16
NumberOfBanks: 1
MemoryModel: 6
BankSize: 0
NumberOfImages: 5
RedMaskSize: 5
RedFieldPosition: 11
GreenMaskSize: 6
GreenFieldPosition: 5
BlueMaskSize: 5
BlueFieldPosition: 0
RsvdMaskSize: 0
RsvdFieldPosition: 0
DirectColorModeInfo: 0
PhysBasePtr: 0xd0000000
LinBytesPerScanLine: 2560
BnkNumberOfImagePages: 5
LinNumberOfImagePages: 5
LinRedMaskSize: 5
LinRedFieldPosition: 11
LinGreenMaskSize: 6
LinGreenFieldPosition: 5
```

---

```
LinBlueMaskSize: 5
LinBlueFieldPosition: 0
LinRsvdMaskSize: 0
LinRsvdFieldPosition: 0
MaxPixelClock: 230000000
*(II) I810(0): Not using mode "640x480" (vrefresh out of range)
(II) I810(0): Not using mode "640x480" (vrefresh out of range)
(II) I810(0): Not using mode "640x480" (vrefresh out of range)
Mode: 50 (640x480)
ModeAttributes: 0x9b
WinAAttributes: 0x7
WinBAttributes: 0x0
WinGranularity: 64
WinSize: 64
WinASegment: 0xa000
WinBSegment: 0x0
WinFuncPtr: 0xc0007843
BytesPerScanline: 2560
XResolution: 640
YResolution: 480
XCharSize: 8
YCharSize: 16
NumberOfPlanes: 1
BitsPerPixel: 32
NumberOfBanks: 1
MemoryModel: 6
BankSize: 0
NumberOfImages: 9
RedMaskSize: 8
RedFieldPosition: 16
GreenMaskSize: 8
GreenFieldPosition: 8
BlueMaskSize: 8
BlueFieldPosition: 0
RsvdMaskSize: 8
RsvdFieldPosition: 24
DirectColorModeInfo: 0
PhysBasePtr: 0xd0000000
LinBytesPerScanLine: 2560
BnkNumberOfImagePages: 9
LinNumberOfImagePages: 9
LinRedMaskSize: 8
LinRedFieldPosition: 16
LinGreenMaskSize: 8
LinGreenFieldPosition: 8
LinBlueMaskSize: 8
LinBlueFieldPosition: 0
LinRsvdMaskSize: 8
LinRsvdFieldPosition: 24
MaxPixelClock: 230000000
*(II) I810(0): Not using mode "800x600" (vrefresh out of range)
(II) I810(0): Not using mode "800x600" (vrefresh out of range)
(II) I810(0): Not using mode "800x600" (vrefresh out of range)
Mode: 52 (800x600)
ModeAttributes: 0x9b
WinAAttributes: 0x7
WinBAttributes: 0x0
WinGranularity: 64
WinSize: 64
WinASegment: 0xa000
WinBSegment: 0x0
WinFuncPtr: 0xc0007843
BytesPerScanline: 3200
XResolution: 800
YResolution: 600
XCharSize: 8
YCharSize: 16
NumberOfPlanes: 1
BitsPerPixel: 32
```

---

```
NumberOfBanks: 1
MemoryModel: 6
BankSize: 0
NumberOfImages: 5
RedMaskSize: 8
RedFieldPosition: 16
GreenMaskSize: 8
GreenFieldPosition: 8
BlueMaskSize: 8
BlueFieldPosition: 0
RsvdMaskSize: 8
RsvdFieldPosition: 24
DirectColorModeInfo: 0
PhysBasePtr: 0xd0000000
LinBytesPerScanLine: 3200
BnkNumberOfImagePages: 5
LinNumberOfImagePages: 5
LinRedMaskSize: 8
LinRedFieldPosition: 16
LinGreenMaskSize: 8
LinGreenFieldPosition: 8
LinBlueMaskSize: 8
LinBlueFieldPosition: 0
LinRsvdMaskSize: 8
LinRsvdFieldPosition: 24
MaxPixelClock: 230000000
*(II) I810(0): Not using mode "1024x768" (vrefresh out of range)
(II) I810(0): Not using mode "1024x768" (vrefresh out of range)
(II) I810(0): Not using mode "1024x768" (hsync out of range)
Mode: 54 (1024x768)
ModeAttributes: 0x9b
WinAAttributes: 0x7
WinBAttributes: 0x0
WinGranularity: 64
WinSize: 64
WinASegment: 0xa000
WinBSegment: 0x0
WinFuncPtr: 0xc0007843
BytesPerScanline: 4096
XResolution: 1024
YResolution: 768
XCharSize: 8
YCharSize: 16
NumberOfPlanes: 1
BitsPerPixel: 32
NumberOfBanks: 1
MemoryModel: 6
BankSize: 0
NumberOfImages: 3
RedMaskSize: 8
RedFieldPosition: 16
GreenMaskSize: 8
GreenFieldPosition: 8
BlueMaskSize: 8
BlueFieldPosition: 0
RsvdMaskSize: 8
RsvdFieldPosition: 24
DirectColorModeInfo: 0
PhysBasePtr: 0xd0000000
LinBytesPerScanLine: 4096
BnkNumberOfImagePages: 3
LinNumberOfImagePages: 3
LinRedMaskSize: 8
LinRedFieldPosition: 16
LinGreenMaskSize: 8
LinGreenFieldPosition: 8
LinBlueMaskSize: 8
LinBlueFieldPosition: 0
LinRsvdMaskSize: 8
```

LinRsvdFieldPosition: 24  
MaxPixelClock: 230000000  
Mode: 58 (0x0)  
ModeAttributes: 0x0  
WinAAttributes: 0x0  
WinBAttributes: 0x0  
WinGranularity: 0  
WinSize: 0  
WinASegment: 0x0  
WinBSegment: 0x0  
WinFuncPtr: 0x0  
BytesPerScanline: 0  
XResolution: 0  
YResolution: 0  
XCharSize: 0  
YCharSize: 0  
NumberOfPlanes: 0  
BitsPerPixel: 0  
NumberOfBanks: 0  
MemoryModel: 0  
BankSize: 0  
NumberOfImages: 0  
RedMaskSize: 0  
RedFieldPosition: 0  
GreenMaskSize: 0  
GreenFieldPosition: 0  
BlueMaskSize: 0  
BlueFieldPosition: 0  
RsvdMaskSize: 0  
RsvdFieldPosition: 0  
DirectColorModeInfo: 0  
PhysBasePtr: 0x0  
LinBytesPerScanLine: 0  
BnkNumberOfImagePages: 0  
LinNumberOfImagePages: 0  
LinRedMaskSize: 0  
LinRedFieldPosition: 0  
LinGreenMaskSize: 0  
LinGreenFieldPosition: 0  
LinBlueMaskSize: 0  
LinBlueFieldPosition: 0  
LinRsvdMaskSize: 0  
LinRsvdFieldPosition: 0  
MaxPixelClock: 0  
Mode: 5a (0x0)  
ModeAttributes: 0x0  
WinAAttributes: 0x0  
WinBAttributes: 0x0  
WinGranularity: 0  
WinSize: 0  
WinASegment: 0x0  
WinBSegment: 0x0  
WinFuncPtr: 0x0  
BytesPerScanline: 0  
XResolution: 0  
YResolution: 0  
XCharSize: 0  
YCharSize: 0  
NumberOfPlanes: 0  
BitsPerPixel: 0  
NumberOfBanks: 0  
MemoryModel: 0  
BankSize: 0  
NumberOfImages: 0  
RedMaskSize: 0  
RedFieldPosition: 0  
GreenMaskSize: 0  
GreenFieldPosition: 0  
BlueMaskSize: 0

---

```
BlueFieldPosition: 0
RsvdMaskSize: 0
RsvdFieldPosition: 0
DirectColorModeInfo: 0
PhysBasePtr: 0x0
LinBytesPerScanLine: 0
BnkNumberOfImagePages: 0
LinNumberOfImagePages: 0
LinRedMaskSize: 0
LinRedFieldPosition: 0
LinGreenMaskSize: 0
LinGreenFieldPosition: 0
LinBlueMaskSize: 0
LinBlueFieldPosition: 0
LinRsvdMaskSize: 0
LinRsvdFieldPosition: 0
MaxPixelClock: 0
*Mode: 5c (1280x800)
ModeAttributes: 0x9b
WinAAttributes: 0x7
WinBAttributes: 0x0
WinGranularity: 64
WinSize: 64
WinASegment: 0xa000
WinBSegment: 0x0
WinFuncPtr: 0xc0007843
BytesPerScanline: 5120
XResolution: 1280
YResolution: 800
XCharSize: 8
YCharSize: 16
NumberOfPlanes: 1
BitsPerPixel: 32
NumberOfBanks: 1
MemoryModel: 6
BankSize: 0
NumberOfImages: 2
RedMaskSize: 8
RedFieldPosition: 16
GreenMaskSize: 8
GreenFieldPosition: 8
BlueMaskSize: 8
BlueFieldPosition: 0
RsvdMaskSize: 8
RsvdFieldPosition: 24
DirectColorModeInfo: 0
PhysBasePtr: 0xd0000000
LinBytesPerScanLine: 5120
BnkNumberOfImagePages: 2
LinNumberOfImagePages: 2
LinRedMaskSize: 8
LinRedFieldPosition: 16
LinGreenMaskSize: 8
LinGreenFieldPosition: 8
LinBlueMaskSize: 8
LinBlueFieldPosition: 0
LinRsvdMaskSize: 8
LinRsvdFieldPosition: 24
MaxPixelClock: 230000000
Mode: 60 (0x0)
ModeAttributes: 0x0
WinAAttributes: 0x0
WinBAttributes: 0x0
WinGranularity: 0
WinSize: 0
WinASegment: 0x0
WinBSegment: 0x0
WinFuncPtr: 0x0
BytesPerScanline: 0
```

XResolution: 0  
YResolution: 0  
XCharSize: 0  
YCharSize: 0  
NumberOfPlanes: 0  
BitsPerPixel: 0  
NumberOfBanks: 0  
MemoryModel: 0  
BankSize: 0  
NumberOfImages: 0  
RedMaskSize: 0  
RedFieldPosition: 0  
GreenMaskSize: 0  
GreenFieldPosition: 0  
BlueMaskSize: 0  
BlueFieldPosition: 0  
RsvdMaskSize: 0  
RsvdFieldPosition: 0  
DirectColorModeInfo: 0  
PhysBasePtr: 0x0  
LinBytesPerScanLine: 0  
BnkNumberOfImagePages: 0  
LinNumberOfImagePages: 0  
LinRedMaskSize: 0  
LinRedFieldPosition: 0  
LinGreenMaskSize: 0  
LinGreenFieldPosition: 0  
LinBlueMaskSize: 0  
LinBlueFieldPosition: 0  
LinRsvdMaskSize: 0  
LinRsvdFieldPosition: 0  
MaxPixelClock: 0  
Mode: 61 (0x0)  
ModeAttributes: 0x0  
WinAAttributes: 0x0  
WinBAttributes: 0x0  
WinGranularity: 0  
WinSize: 0  
WinASegment: 0x0  
WinBSegment: 0x0  
WinFuncPtr: 0x0  
BytesPerScanline: 0  
XResolution: 0  
YResolution: 0  
XCharSize: 0  
YCharSize: 0  
NumberOfPlanes: 0  
BitsPerPixel: 0  
NumberOfBanks: 0  
MemoryModel: 0  
BankSize: 0  
NumberOfImages: 0  
RedMaskSize: 0  
RedFieldPosition: 0  
GreenMaskSize: 0  
GreenFieldPosition: 0  
BlueMaskSize: 0  
BlueFieldPosition: 0  
RsvdMaskSize: 0  
RsvdFieldPosition: 0  
DirectColorModeInfo: 0  
PhysBasePtr: 0x0  
LinBytesPerScanLine: 0  
BnkNumberOfImagePages: 0  
LinNumberOfImagePages: 0  
LinRedMaskSize: 0  
LinRedFieldPosition: 0  
LinGreenMaskSize: 0  
LinGreenFieldPosition: 0

LinBlueMaskSize: 0  
LinBlueFieldPosition: 0  
LinRsvdMaskSize: 0  
LinRsvdFieldPosition: 0  
MaxPixelClock: 0  
Mode: 62 (0x0)  
ModeAttributes: 0x0  
WinAAttributes: 0x0  
WinBAttributes: 0x0  
WinGranularity: 0  
WinSize: 0  
WinASegment: 0x0  
WinBSegment: 0x0  
WinFuncPtr: 0x0  
BytesPerScanline: 0  
XResolution: 0  
YResolution: 0  
XCharSize: 0  
YCharSize: 0  
NumberOfPlanes: 0  
BitsPerPixel: 0  
NumberOfBanks: 0  
MemoryModel: 0  
BankSize: 0  
NumberOfImages: 0  
RedMaskSize: 0  
RedFieldPosition: 0  
GreenMaskSize: 0  
GreenFieldPosition: 0  
BlueMaskSize: 0  
BlueFieldPosition: 0  
RsvdMaskSize: 0  
RsvdFieldPosition: 0  
DirectColorModeInfo: 0  
PhysBasePtr: 0x0  
LinBytesPerScanLine: 0  
BnkNumberOfImagePages: 0  
LinNumberOfImagePages: 0  
LinRedMaskSize: 0  
LinRedFieldPosition: 0  
LinGreenMaskSize: 0  
LinGreenFieldPosition: 0  
LinBlueMaskSize: 0  
LinBlueFieldPosition: 0  
LinRsvdMaskSize: 0  
LinRsvdFieldPosition: 0  
MaxPixelClock: 0  
Mode: 63 (0x0)  
ModeAttributes: 0x0  
WinAAttributes: 0x0  
WinBAttributes: 0x0  
WinGranularity: 0  
WinSize: 0  
WinASegment: 0x0  
WinBSegment: 0x0  
WinFuncPtr: 0x0  
BytesPerScanline: 0  
XResolution: 0  
YResolution: 0  
XCharSize: 0  
YCharSize: 0  
NumberOfPlanes: 0  
BitsPerPixel: 0  
NumberOfBanks: 0  
MemoryModel: 0  
BankSize: 0  
NumberOfImages: 0  
RedMaskSize: 0  
RedFieldPosition: 0

GreenMaskSize: 0  
GreenFieldPosition: 0  
BlueMaskSize: 0  
BlueFieldPosition: 0  
RsvdMaskSize: 0  
RsvdFieldPosition: 0  
DirectColorModeInfo: 0  
PhysBasePtr: 0x0  
LinBytesPerScanLine: 0  
BnkNumberOfImagePages: 0  
LinNumberOfImagePages: 0  
LinRedMaskSize: 0  
LinRedFieldPosition: 0  
LinGreenMaskSize: 0  
LinGreenFieldPosition: 0  
LinBlueMaskSize: 0  
LinBlueFieldPosition: 0  
LinRsvdMaskSize: 0  
LinRsvdFieldPosition: 0  
MaxPixelClock: 0  
Mode: 64 (0x0)  
ModeAttributes: 0x0  
WinAAttributes: 0x0  
WinBAttributes: 0x0  
WinGranularity: 0  
WinSize: 0  
WinASegment: 0x0  
WinBSegment: 0x0  
WinFuncPtr: 0x0  
BytesPerScanline: 0  
XResolution: 0  
YResolution: 0  
XCharSize: 0  
YCharSize: 0  
NumberOfPlanes: 0  
BitsPerPixel: 0  
NumberOfBanks: 0  
MemoryModel: 0  
BankSize: 0  
NumberOfImages: 0  
RedMaskSize: 0  
RedFieldPosition: 0  
GreenMaskSize: 0  
GreenFieldPosition: 0  
BlueMaskSize: 0  
BlueFieldPosition: 0  
RsvdMaskSize: 0  
RsvdFieldPosition: 0  
DirectColorModeInfo: 0  
PhysBasePtr: 0x0  
LinBytesPerScanLine: 0  
BnkNumberOfImagePages: 0  
LinNumberOfImagePages: 0  
LinRedMaskSize: 0  
LinRedFieldPosition: 0  
LinGreenMaskSize: 0  
LinGreenFieldPosition: 0  
LinBlueMaskSize: 0  
LinBlueFieldPosition: 0  
LinRsvdMaskSize: 0  
LinRsvdFieldPosition: 0  
MaxPixelClock: 0  
Mode: 65 (0x0)  
ModeAttributes: 0x0  
WinAAttributes: 0x0  
WinBAttributes: 0x0  
WinGranularity: 0  
WinSize: 0  
WinASegment: 0x0

WinBSegment: 0x0  
WinFuncPtr: 0x0  
BytesPerScanline: 0  
XResolution: 0  
YResolution: 0  
XCharSize: 0  
YCharSize: 0  
NumberOfPlanes: 0  
BitsPerPixel: 0  
NumberOfBanks: 0  
MemoryModel: 0  
BankSize: 0  
NumberOfImages: 0  
RedMaskSize: 0  
RedFieldPosition: 0  
GreenMaskSize: 0  
GreenFieldPosition: 0  
BlueMaskSize: 0  
BlueFieldPosition: 0  
RsvdMaskSize: 0  
RsvdFieldPosition: 0  
DirectColorModeInfo: 0  
PhysBasePtr: 0x0  
LinBytesPerScanLine: 0  
BnkNumberOfImagePages: 0  
LinNumberOfImagePages: 0  
LinRedMaskSize: 0  
LinRedFieldPosition: 0  
LinGreenMaskSize: 0  
LinGreenFieldPosition: 0  
LinBlueMaskSize: 0  
LinBlueFieldPosition: 0  
LinRsvdMaskSize: 0  
LinRsvdFieldPosition: 0  
MaxPixelClock: 0  
Mode: 66 (0x0)  
ModeAttributes: 0x0  
WinAAttributes: 0x0  
WinBAttributes: 0x0  
WinGranularity: 0  
WinSize: 0  
WinASegment: 0x0  
WinBSegment: 0x0  
WinFuncPtr: 0x0  
BytesPerScanline: 0  
XResolution: 0  
YResolution: 0  
XCharSize: 0  
YCharSize: 0  
NumberOfPlanes: 0  
BitsPerPixel: 0  
NumberOfBanks: 0  
MemoryModel: 0  
BankSize: 0  
NumberOfImages: 0  
RedMaskSize: 0  
RedFieldPosition: 0  
GreenMaskSize: 0  
GreenFieldPosition: 0  
BlueMaskSize: 0  
BlueFieldPosition: 0  
RsvdMaskSize: 0  
RsvdFieldPosition: 0  
DirectColorModeInfo: 0  
PhysBasePtr: 0x0  
LinBytesPerScanLine: 0  
BnkNumberOfImagePages: 0  
LinNumberOfImagePages: 0  
LinRedMaskSize: 0

LinRedFieldPosition: 0  
LinGreenMaskSize: 0  
LinGreenFieldPosition: 0  
LinBlueMaskSize: 0  
LinBlueFieldPosition: 0  
LinRsvdMaskSize: 0  
LinRsvdFieldPosition: 0  
MaxPixelClock: 0  
Mode: 67 (0x0)  
ModeAttributes: 0x0  
WinAAttributes: 0x0  
WinBAttributes: 0x0  
WinGranularity: 0  
WinSize: 0  
WinASegment: 0x0  
WinBSegment: 0x0  
WinFuncPtr: 0x0  
BytesPerScanline: 0  
XResolution: 0  
YResolution: 0  
XCharSize: 0  
YCharSize: 0  
NumberOfPlanes: 0  
BitsPerPixel: 0  
NumberOfBanks: 0  
MemoryModel: 0  
BankSize: 0  
NumberOfImages: 0  
RedMaskSize: 0  
RedFieldPosition: 0  
GreenMaskSize: 0  
GreenFieldPosition: 0  
BlueMaskSize: 0  
BlueFieldPosition: 0  
RsvdMaskSize: 0  
RsvdFieldPosition: 0  
DirectColorModeInfo: 0  
PhysBasePtr: 0x0  
LinBytesPerScanLine: 0  
BnkNumberOfImagePages: 0  
LinNumberOfImagePages: 0  
LinRedMaskSize: 0  
LinRedFieldPosition: 0  
LinGreenMaskSize: 0  
LinGreenFieldPosition: 0  
LinBlueMaskSize: 0  
LinBlueFieldPosition: 0  
LinRsvdMaskSize: 0  
LinRsvdFieldPosition: 0  
MaxPixelClock: 0  
Mode: 68 (0x0)  
ModeAttributes: 0x0  
WinAAttributes: 0x0  
WinBAttributes: 0x0  
WinGranularity: 0  
WinSize: 0  
WinASegment: 0x0  
WinBSegment: 0x0  
WinFuncPtr: 0x0  
BytesPerScanline: 0  
XResolution: 0  
YResolution: 0  
XCharSize: 0  
YCharSize: 0  
NumberOfPlanes: 0  
BitsPerPixel: 0  
NumberOfBanks: 0  
MemoryModel: 0  
BankSize: 0

NumberOfImages: 0  
RedMaskSize: 0  
RedFieldPosition: 0  
GreenMaskSize: 0  
GreenFieldPosition: 0  
BlueMaskSize: 0  
BlueFieldPosition: 0  
RsvdMaskSize: 0  
RsvdFieldPosition: 0  
DirectColorModeInfo: 0  
PhysBasePtr: 0x0  
LinBytesPerScanLine: 0  
BnkNumberOfImagePages: 0  
LinNumberOfImagePages: 0  
LinRedMaskSize: 0  
LinRedFieldPosition: 0  
LinGreenMaskSize: 0  
LinGreenFieldPosition: 0  
LinBlueMaskSize: 0  
LinBlueFieldPosition: 0  
LinRsvdMaskSize: 0  
LinRsvdFieldPosition: 0  
MaxPixelClock: 0  
Mode: 69 (0x0)  
ModeAttributes: 0x0  
WinAAttributes: 0x0  
WinBAttributes: 0x0  
WinGranularity: 0  
WinSize: 0  
WinASegment: 0x0  
WinBSegment: 0x0  
WinFuncPtr: 0x0  
BytesPerScanline: 0  
XResolution: 0  
YResolution: 0  
XCharSize: 0  
YCharSize: 0  
NumberOfPlanes: 0  
BitsPerPixel: 0  
NumberOfBanks: 0  
MemoryModel: 0  
BankSize: 0  
NumberOfImages: 0  
RedMaskSize: 0  
RedFieldPosition: 0  
GreenMaskSize: 0  
GreenFieldPosition: 0  
BlueMaskSize: 0  
BlueFieldPosition: 0  
RsvdMaskSize: 0  
RsvdFieldPosition: 0  
DirectColorModeInfo: 0  
PhysBasePtr: 0x0  
LinBytesPerScanLine: 0  
BnkNumberOfImagePages: 0  
LinNumberOfImagePages: 0  
LinRedMaskSize: 0  
LinRedFieldPosition: 0  
LinGreenMaskSize: 0  
LinGreenFieldPosition: 0  
LinBlueMaskSize: 0  
LinBlueFieldPosition: 0  
LinRsvdMaskSize: 0  
LinRsvdFieldPosition: 0  
MaxPixelClock: 0  
Mode: 6a (0x0)  
ModeAttributes: 0x0  
WinAAttributes: 0x0  
WinBAttributes: 0x0

WinGranularity: 0  
WinSize: 0  
WinASegment: 0x0  
WinBSegment: 0x0  
WinFuncPtr: 0x0  
BytesPerScanline: 0  
XResolution: 0  
YResolution: 0  
XCharSize: 0  
YCharSize: 0  
NumberOfPlanes: 0  
BitsPerPixel: 0  
NumberOfBanks: 0  
MemoryModel: 0  
BankSize: 0  
NumberOfImages: 0  
RedMaskSize: 0  
RedFieldPosition: 0  
GreenMaskSize: 0  
GreenFieldPosition: 0  
BlueMaskSize: 0  
BlueFieldPosition: 0  
RsvdMaskSize: 0  
RsvdFieldPosition: 0  
DirectColorModeInfo: 0  
PhysBasePtr: 0x0  
LinBytesPerScanLine: 0  
BnkNumberOfImagePages: 0  
LinNumberOfImagePages: 0  
LinRedMaskSize: 0  
LinRedFieldPosition: 0  
LinGreenMaskSize: 0  
LinGreenFieldPosition: 0  
LinBlueMaskSize: 0  
LinBlueFieldPosition: 0  
LinRsvdMaskSize: 0  
LinRsvdFieldPosition: 0  
MaxPixelClock: 0  
Mode: 6b (0x0)  
ModeAttributes: 0x0  
WinAAttributes: 0x0  
WinBAttributes: 0x0  
WinGranularity: 0  
WinSize: 0  
WinASegment: 0x0  
WinBSegment: 0x0  
WinFuncPtr: 0x0  
BytesPerScanline: 0  
XResolution: 0  
YResolution: 0  
XCharSize: 0  
YCharSize: 0  
NumberOfPlanes: 0  
BitsPerPixel: 0  
NumberOfBanks: 0  
MemoryModel: 0  
BankSize: 0  
NumberOfImages: 0  
RedMaskSize: 0  
RedFieldPosition: 0  
GreenMaskSize: 0  
GreenFieldPosition: 0  
BlueMaskSize: 0  
BlueFieldPosition: 0  
RsvdMaskSize: 0  
RsvdFieldPosition: 0  
DirectColorModeInfo: 0  
PhysBasePtr: 0x0  
LinBytesPerScanLine: 0

BnkNumberOfImagePages: 0  
LinNumberOfImagePages: 0  
LinRedMaskSize: 0  
LinRedFieldPosition: 0  
LinGreenMaskSize: 0  
LinGreenFieldPosition: 0  
LinBlueMaskSize: 0  
LinBlueFieldPosition: 0  
LinRsvdMaskSize: 0  
LinRsvdFieldPosition: 0  
MaxPixelClock: 0  
Mode: 6c (0x0)  
ModeAttributes: 0x0  
WinAAttributes: 0x0  
WinBAttributes: 0x0  
WinGranularity: 0  
WinSize: 0  
WinASegment: 0x0  
WinBSegment: 0x0  
WinFuncPtr: 0x0  
BytesPerScanline: 0  
XResolution: 0  
YResolution: 0  
XCharSize: 0  
YCharSize: 0  
NumberOfPlanes: 0  
BitsPerPixel: 0  
NumberOfBanks: 0  
MemoryModel: 0  
BankSize: 0  
NumberOfImages: 0  
RedMaskSize: 0  
RedFieldPosition: 0  
GreenMaskSize: 0  
GreenFieldPosition: 0  
BlueMaskSize: 0  
BlueFieldPosition: 0  
RsvdMaskSize: 0  
RsvdFieldPosition: 0  
DirectColorModeInfo: 0  
PhysBasePtr: 0x0  
LinBytesPerScanLine: 0  
BnkNumberOfImagePages: 0  
LinNumberOfImagePages: 0  
LinRedMaskSize: 0  
LinRedFieldPosition: 0  
LinGreenMaskSize: 0  
LinGreenFieldPosition: 0  
LinBlueMaskSize: 0  
LinBlueFieldPosition: 0  
LinRsvdMaskSize: 0  
LinRsvdFieldPosition: 0  
MaxPixelClock: 0  
Mode: 6d (0x0)  
ModeAttributes: 0x0  
WinAAttributes: 0x0  
WinBAttributes: 0x0  
WinGranularity: 0  
WinSize: 0  
WinASegment: 0x0  
WinBSegment: 0x0  
WinFuncPtr: 0x0  
BytesPerScanline: 0  
XResolution: 0  
YResolution: 0  
XCharSize: 0  
YCharSize: 0  
NumberOfPlanes: 0  
BitsPerPixel: 0

NumberOfBanks: 0  
MemoryModel: 0  
BankSize: 0  
NumberOfImages: 0  
RedMaskSize: 0  
RedFieldPosition: 0  
GreenMaskSize: 0  
GreenFieldPosition: 0  
BlueMaskSize: 0  
BlueFieldPosition: 0  
RsvdMaskSize: 0  
RsvdFieldPosition: 0  
DirectColorModeInfo: 0  
PhysBasePtr: 0x0  
LinBytesPerScanLine: 0  
BnkNumberOfImagePages: 0  
LinNumberOfImagePages: 0  
LinRedMaskSize: 0  
LinRedFieldPosition: 0  
LinGreenMaskSize: 0  
LinGreenFieldPosition: 0  
LinBlueMaskSize: 0  
LinBlueFieldPosition: 0  
LinRsvdMaskSize: 0  
LinRsvdFieldPosition: 0  
MaxPixelClock: 0  
Mode: 6e (0x0)  
ModeAttributes: 0x0  
WinAAttributes: 0x0  
WinBAttributes: 0x0  
WinGranularity: 0  
WinSize: 0  
WinASegment: 0x0  
WinBSegment: 0x0  
WinFuncPtr: 0x0  
BytesPerScanline: 0  
XResolution: 0  
YResolution: 0  
XCharSize: 0  
YCharSize: 0  
NumberOfPlanes: 0  
BitsPerPixel: 0  
NumberOfBanks: 0  
MemoryModel: 0  
BankSize: 0  
NumberOfImages: 0  
RedMaskSize: 0  
RedFieldPosition: 0  
GreenMaskSize: 0  
GreenFieldPosition: 0  
BlueMaskSize: 0  
BlueFieldPosition: 0  
RsvdMaskSize: 0  
RsvdFieldPosition: 0  
DirectColorModeInfo: 0  
PhysBasePtr: 0x0  
LinBytesPerScanLine: 0  
BnkNumberOfImagePages: 0  
LinNumberOfImagePages: 0  
LinRedMaskSize: 0  
LinRedFieldPosition: 0  
LinGreenMaskSize: 0  
LinGreenFieldPosition: 0  
LinBlueMaskSize: 0  
LinBlueFieldPosition: 0  
LinRsvdMaskSize: 0  
LinRsvdFieldPosition: 0  
MaxPixelClock: 0  
Mode: 6f (0x0)

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```
ModeAttributes: 0x0
WinAAttributes: 0x0
WinBAttributes: 0x0
WinGranularity: 0
WinSize: 0
WinASegment: 0x0
WinBSegment: 0x0
WinFuncPtr: 0x0
BytesPerScanline: 0
XResolution: 0
YResolution: 0
XCharSize: 0
YCharSize: 0
NumberOfPlanes: 0
BitsPerPixel: 0
NumberOfBanks: 0
MemoryModel: 0
BankSize: 0
NumberOfImages: 0
RedMaskSize: 0
RedFieldPosition: 0
GreenMaskSize: 0
GreenFieldPosition: 0
BlueMaskSize: 0
BlueFieldPosition: 0
RsvdMaskSize: 0
RsvdFieldPosition: 0
DirectColorModeInfo: 0
PhysBasePtr: 0x0
LinBytesPerScanLine: 0
BnkNumberOfImagePages: 0
LinNumberOfImagePages: 0
LinRedMaskSize: 0
LinRedFieldPosition: 0
LinGreenMaskSize: 0
LinGreenFieldPosition: 0
LinBlueMaskSize: 0
LinBlueFieldPosition: 0
LinRsvdMaskSize: 0
LinRsvdFieldPosition: 0
MaxPixelClock: 0
Mode: 70 (0x0)
ModeAttributes: 0x0
WinAAttributes: 0x0
WinBAttributes: 0x0
WinGranularity: 0
WinSize: 0
WinASegment: 0x0
WinBSegment: 0x0
WinFuncPtr: 0x0
BytesPerScanline: 0
XResolution: 0
YResolution: 0
XCharSize: 0
YCharSize: 0
NumberOfPlanes: 0
BitsPerPixel: 0
NumberOfBanks: 0
MemoryModel: 0
BankSize: 0
NumberOfImages: 0
RedMaskSize: 0
RedFieldPosition: 0
GreenMaskSize: 0
GreenFieldPosition: 0
BlueMaskSize: 0
BlueFieldPosition: 0
RsvdMaskSize: 0
RsvdFieldPosition: 0
```

```
DirectColorModeInfo: 0
PhysBasePtr: 0x0
LinBytesPerScanLine: 0
BnkNumberOfImagePages: 0
LinNumberOfImagePages: 0
LinRedMaskSize: 0
LinRedFieldPosition: 0
LinGreenMaskSize: 0
LinGreenFieldPosition: 0
LinBlueMaskSize: 0
LinBlueFieldPosition: 0
LinRsvdMaskSize: 0
LinRsvdFieldPosition: 0
MaxPixelClock: 0
Mode: 71 (0x0)
ModeAttributes: 0x0
WinAAttributes: 0x0
WinBAttributes: 0x0
WinGranularity: 0
WinSize: 0
WinASegment: 0x0
WinBSegment: 0x0
WinFuncPtr: 0x0
BytesPerScanline: 0
XResolution: 0
YResolution: 0
XCharSize: 0
YCharSize: 0
NumberOfPlanes: 0
BitsPerPixel: 0
NumberOfBanks: 0
MemoryModel: 0
BankSize: 0
NumberOfImages: 0
RedMaskSize: 0
RedFieldPosition: 0
GreenMaskSize: 0
GreenFieldPosition: 0
BlueMaskSize: 0
BlueFieldPosition: 0
RsvdMaskSize: 0
RsvdFieldPosition: 0
DirectColorModeInfo: 0
PhysBasePtr: 0x0
LinBytesPerScanLine: 0
BnkNumberOfImagePages: 0
LinNumberOfImagePages: 0
LinRedMaskSize: 0
LinRedFieldPosition: 0
LinGreenMaskSize: 0
LinGreenFieldPosition: 0
LinBlueMaskSize: 0
LinBlueFieldPosition: 0
LinRsvdMaskSize: 0
LinRsvdFieldPosition: 0
MaxPixelClock: 0
(II) I810(0): Generic Monitor: Using hsync range of 28.00-64.00 kHz
(II) I810(0): Generic Monitor: Using vrefresh range of 43.00-60.00 Hz
(II) I810(0): Increasing the scanline pitch to allow tiling mode (1280 -> 2048).
(-- ) I810(0): Virtual size is 1280x800 (pitch 2048)
(**) I810(0): *Built-in mode "1280x800"
(**) I810(0): Built-in mode "1024x768"
(**) I810(0): Built-in mode "800x600"
(**) I810(0): Built-in mode "640x480"
(**) I810(0): Display dimensions: (260, 160) mm
(**) I810(0): DPI set to (125, 126)
(II) Loading sub module "fb"
(II) LoadModule: "fb"
(II) Loading /usr/lib/xorg/modules//libfb.so
```

```
(II) Module fb: vendor="X.Org Foundation"
compiled for 7.2.0, module version = 1.0.0
ABI class: X.Org ANSI C Emulation, version 0.3
(II) Loading sub module "xaa"
(II) LoadModule: "xaa"
(II) Loading /usr/lib/xorg/modules//libxaa.so
(II) Module xaa: vendor="X.Org Foundation"
compiled for 7.2.0, module version = 1.2.0
ABI class: X.Org Video Driver, version 1.1
(II) Loading sub module "ramdac"
(II) LoadModule: "ramdac"
(II) Loading /usr/lib/xorg/modules//libramdac.so
(II) Module ramdac: vendor="X.Org Foundation"
compiled for 7.2.0, module version = 0.1.0
ABI class: X.Org Video Driver, version 1.1
(==) I810(0): VBE Restore workaround: enabled.
(II) Loading sub module "shadow"
(II) LoadModule: "shadow"
(II) Loading /usr/lib/xorg/modules//libshadow.so
(II) Module shadow: vendor="X.Org Foundation"
compiled for 7.2.0, module version = 1.1.0
ABI class: X.Org ANSI C Emulation, version 0.3
(==) Depth 24 pixmap format is 32 bpp
(II) do I need RAC? No, I don't.
(II) resource ranges after preInit:
[0] 0 0 0xefec0000 - 0xefefffff (0x40000) MS[B]
[1] 0 0 0xd0000000 - 0xdfffffff (0x10000000) MS[B]
[2] 0 0 0xeff00000 - 0xeff7ffff (0x80000) MS[B]
[3] -1 0 0x00100000 - 0x3fffffff (0x3ff00000) MX[B]E(B)
[4] -1 0 0x000f0000 - 0x000fffff (0x10000) MX[B]
[5] -1 0 0x000c0000 - 0x000effff (0x30000) MX[B]
[6] -1 0 0x00000000 - 0x0009ffff (0xa0000) MX[B]
[7] -1 0 0xefdfe000 - 0xefdfffff (0x2000) MX[B]
[8] -1 0 0xefcf0000 - 0xefcfffff (0x10000) MX[B]
[9] -1 0 0xefbff700 - 0xefbff7ff (0x100) MX[B]
[10] -1 0 0xefbff800 - 0xefbfffff (0x800) MX[B]
[11] -1 0 0xffa80000 - 0xffa803ff (0x400) MX[B]
[12] -1 0 0xefebc000 - 0xefebffff (0x4000) MX[B]
[13] -1 0 0xeff80000 - 0xefffffff (0x80000) MX[B] (B)
[14] -1 0 0xefec0000 - 0xefefffff (0x40000) MX[B] (B)
[15] -1 0 0xd0000000 - 0xdfffffff (0x10000000) MX[B] (B)
[16] -1 0 0xeff00000 - 0xeff7ffff (0x80000) MX[B] (B)
[17] 0 0 0x000a0000 - 0x000affff (0x10000) MS[B] (OprD)
[18] 0 0 0x000b0000 - 0x000b7fff (0x8000) MS[B] (OprD)
[19] 0 0 0x000b8000 - 0x000bffff (0x8000) MS[B] (OprD)
[20] 0 0 0x0000eff8 - 0x0000efff (0x8) IS[B]
[21] -1 0 0x0000ffff - 0x0000ffff (0x1) IX[B]
[22] -1 0 0x00000000 - 0x000000ff (0x100) IX[B]
[23] -1 0 0x000010c0 - 0x000010df (0x20) IX[B]
[24] -1 0 0x0000bfa0 - 0x0000bfaf (0x10) IX[B]
[25] -1 0 0x00000374 - 0x00000374 (0x1) IX[B]
[26] -1 0 0x00000170 - 0x00000177 (0x8) IX[B]
[27] -1 0 0x000003f4 - 0x000003f4 (0x1) IX[B]
[28] -1 0 0x000001f0 - 0x000001f7 (0x8) IX[B]
[29] -1 0 0x0000bf20 - 0x0000bf3f (0x20) IX[B]
[30] -1 0 0x0000bf40 - 0x0000bf5f (0x20) IX[B]
[31] -1 0 0x0000bf60 - 0x0000bf7f (0x20) IX[B]
[32] -1 0 0x0000bf80 - 0x0000bf9f (0x20) IX[B]
[33] -1 0 0x0000eff8 - 0x0000efff (0x8) IX[B] (B)
[34] 0 0 0x000003b0 - 0x000003bb (0xc) IS[B] (OprU)
[35] 0 0 0x000003c0 - 0x000003df (0x20) IS[B] (OprU)
(II) Loading sub module "int10"
(II) LoadModule: "int10"
(II) Reloading /usr/lib/xorg/modules//libint10.so
(II) I810(0): initializing int10
(WW) I810(0): Bad V_BIOS checksum
(II) I810(0): Primary V_BIOS segment is: 0xc000
(II) I810(0): VESA BIOS detected
(II) I810(0): VESA VBE Version 3.0
```

```
(II) I810(0): VESA VBE Total Mem: 7872 kB
(II) I810(0): VESA VBE OEM: Intel(r) 82945GM Chipset Family Graphics Chip Accelerated VGA BIOS
(II) I810(0): VESA VBE OEM Software Rev: 1.0
(II) I810(0): VESA VBE OEM Vendor: Intel Corporation
(II) I810(0): VESA VBE OEM Product: Intel(r) 82945GM Chipset Family Graphics Controller
(II) I810(0): VESA VBE OEM Product Rev: Hardware Version 0.0
(II) I810(0): Allocated 128 kB for the ring buffer at 0x0
(II) I810(0): Allocating at least 256 scanlines for pixmap cache
(II) I810(0): Initial framebuffer allocation size: 12288 kByte
(II) I810(0): Allocated 4 kB for HW cursor at 0xdfff000 (0x33128000)
(II) I810(0): Allocated 16 kB for HW (ARGB) cursor at 0xdffb000 (0x37a60000)
(II) I810(0): Allocated 4 kB for Overlay registers at 0xdffa000 (0x379f0000).
(II) I810(0): Allocated 64 kB for the scratch buffer at 0xdfea000
drmOpenDevice: node name is /dev/dri/card0
drmOpenDevice: open result is 8, (OK)
drmOpenDevice: node name is /dev/dri/card0
drmOpenDevice: open result is 8, (OK)
drmOpenByBusid: Searching for BusID pci:0000:00:02.0
drmOpenDevice: node name is /dev/dri/card0
drmOpenDevice: open result is 8, (OK)
drmOpenByBusid: drmOpenMinor returns 8
drmOpenByBusid: drmGetBusid reports pci:0000:00:02.0
(II) I810(0): [drm] DRM interface version 1.3
(II) I810(0): [drm] created "i915" driver at busid "pci:0000:00:02.0"
(II) I810(0): [drm] added 8192 byte SAREA at 0xf8bef000
(II) I810(0): [drm] mapped SAREA 0xf8bef000 to 0xb7a3c000
(II) I810(0): [drm] framebuffer handle = 0xd0020000
(II) I810(0): [drm] added 1 reserved context for kernel
(II) I810(0): Allocated 32 kB for the logical context at 0xdfe2000.
(II) I810(0): Allocated 6400 kB for the back buffer at 0xd000000.
(II) I810(0): Allocated 6400 kB for the depth buffer at 0xc800000.
(II) I810(0): Allocated 40192 kB for textures at 0xa0c0000
(II) I810(0): 0x81f6a70: Memory at offset 0x00020000, size 12288 kBytes
(II) I810(0): 0x81f7bf0: Memory at offset 0x0dfff000, size 4 kBytes
(II) I810(0): 0x81f7c18: Memory at offset 0x0dffb000, size 16 kBytes
(II) I810(0): 0x81f794c: Memory at offset 0x00000000, size 128 kBytes
(II) I810(0): 0x81f6ab0: Memory at offset 0x0dfea000, size 64 kBytes
(II) I810(0): 0x81f7d48: Memory at offset 0x0dffa000, size 4 kBytes
(II) I810(0): 0x81f6c48: Memory at offset 0x0dfe2000, size 32 kBytes
(II) I810(0): 0x81f6c68: Memory at offset 0x0d000000, size 6400 kBytes
(II) I810(0): 0x81f6c88: Memory at offset 0x0c800000, size 6400 kBytes
(II) I810(0): 0x81f6ca8: Memory at offset 0x0a0c0000, size 40192 kBytes
(II) I810(0): Activating tiled memory for the back buffer.
(II) I810(0): Activating tiled memory for the depth buffer.
(II) I810(0): [drm] Registers = 0xeff00000
(II) I810(0): [drm] ring buffer = 0xd0000000
(II) I810(0): [drm] init sarea width,height = 1280 x 800 (pitch 2048)
(II) I810(0): [drm] Mapping front buffer
(II) I810(0): [drm] Front Buffer = 0x2a004000
(II) I810(0): [drm] Back Buffer = 0xdd000000
(II) I810(0): [drm] Depth Buffer = 0xdc800000
(II) I810(0): [drm] textures = 0xda0c0000
(II) I810(0): [drm] Initialized kernel agp heap manager, 41156608
(II) I810(0): [dri] visual configs initialized
(==) I810(0): Write-combining range (0xd0000000,0x10000000)
(II) I810(0): vgaHWGetIOBase: hwp->IOBase is 0x03d0, hwp->PIOOffset is 0x0000
(WW) I810(0): Extended BIOS function 0x5f05 failed.
(II) I810(0): xf86BindGARTMemory: bind key 8 at 0x007bf000 (pgoffset 1983)
(II) I810(0): xf86BindGARTMemory: bind key 0 at 0x0dfff000 (pgoffset 57343)
(II) I810(0): xf86BindGARTMemory: bind key 1 at 0x0dffb000 (pgoffset 57339)
(II) I810(0): xf86BindGARTMemory: bind key 3 at 0x0dfea000 (pgoffset 57322)
(II) I810(0): xf86BindGARTMemory: bind key 2 at 0x0dffa000 (pgoffset 57338)
(II) I810(0): xf86BindGARTMemory: bind key 4 at 0x0dfe2000 (pgoffset 57314)
(II) I810(0): xf86BindGARTMemory: bind key 5 at 0x0d000000 (pgoffset 53248)
(II) I810(0): xf86BindGARTMemory: bind key 6 at 0x0c800000 (pgoffset 51200)
(II) I810(0): xf86BindGARTMemory: bind key 7 at 0x0a0c0000 (pgoffset 41152)
(--) I810(0): A non-CRT device is attached to pipe B.
No refresh rate overrides will be attempted.
(II) I810(0): Display plane A is disabled and connected to Pipe A.
```

```
(II) I810(0): Display plane B is enabled and connected to Pipe B.
(II) I810(0): Enabling plane B.
(II) I810(0): Display plane A is now disabled and connected to Pipe A.
(II) I810(0): Display plane B is now enabled and connected to Pipe B.
(II) I810(0): PIPEACONF is 0x00000000
(II) I810(0): PIPEBCONF is 0x80000000
(II) I810(0): Mode bandwidth is 61 Mpixel/s
(II) I810(0): maxBandwidth is 1152 Mbyte/s, pipe bandwidths are 912 Mbyte/s, 0 Mbyte/s
(II) I810(0): Using XFree86 Acceleration Architecture (XAA)
Screen to screen bit blits
Solid filled rectangles
8x8 mono pattern filled rectangles
Indirect CPU to Screen color expansion
Solid Horizontal and Vertical Lines
Offscreen Pixmaps
Setting up tile and stipple cache:
16 128x128 slots
4 256x256 slots
(==) I810(0): Backing store disabled
(==) I810(0): Silken mouse enabled
(II) I810(0): Initializing HW Cursor
(**) Option "dpms"
(**) I810(0): DPMS enabled
(II) I810(0): Set up overlay video
(II) I810(0): Set up textured video
(II) I810(0): X context handle = 0x1
(II) I810(0): [drm] installed DRM signal handler
(II) I810(0): [DRI] installation complete
(II) I810(0): [drm] dma control initialized, using IRQ 16
(II) I810(0): direct rendering: Enabled
(II) I810(0): RandR enabled, ignore the following RandR disabled message.
(II) I810(0): Rotating to 0 degrees
(-- RandR disabled
(II) Initializing built-in extension MIT-SHM
(II) Initializing built-in extension XInputExtension
(II) Initializing built-in extension XTEST
(II) Initializing built-in extension XKEYBOARD
(II) Initializing built-in extension XC-APPGROUP
(II) Initializing built-in extension XAccessControlExtension
(II) Initializing built-in extension SECURITY
(II) Initializing built-in extension XINERAMA
(II) Initializing built-in extension XFIXES
(II) Initializing built-in extension XFree86-Bigfont
(II) Initializing built-in extension RENDER
(II) Initializing built-in extension RANDR
(II) Initializing built-in extension COMPOSITE
(II) Initializing built-in extension DAMAGE
(II) Initializing built-in extension XEVIE
drmOpenDevice: node name is /dev/dri/card0
drmOpenDevice: open result is 9, (OK)
drmOpenByBusid: Searching for BusID pci:0000:00:02.0
drmOpenDevice: node name is /dev/dri/card0
drmOpenDevice: open result is 9, (OK)
drmOpenByBusid: drmOpenMinor returns 9
drmOpenByBusid: drmGetBusid reports pci:0000:00:02.0
(WW) AIGLX: 3D driver claims to not support visual 0x23
(WW) AIGLX: 3D driver claims to not support visual 0x24
(WW) AIGLX: 3D driver claims to not support visual 0x25
(WW) AIGLX: 3D driver claims to not support visual 0x26
(WW) AIGLX: 3D driver claims to not support visual 0x27
(WW) AIGLX: 3D driver claims to not support visual 0x28
(WW) AIGLX: 3D driver claims to not support visual 0x29
(WW) AIGLX: 3D driver claims to not support visual 0x2a
(WW) AIGLX: 3D driver claims to not support visual 0x2b
(WW) AIGLX: 3D driver claims to not support visual 0x2c
(WW) AIGLX: 3D driver claims to not support visual 0x2d
(WW) AIGLX: 3D driver claims to not support visual 0x2e
(WW) AIGLX: 3D driver claims to not support visual 0x2f
(WW) AIGLX: 3D driver claims to not support visual 0x30
```

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(WW) AIGLX: 3D driver claims to not support visual 0x31
(WW) AIGLX: 3D driver claims to not support visual 0x32
(II) AIGLX: Loaded and initialized /usr/lib/dri/i915_dri.so
(II) GLX: Initialized DRI GL provider for screen 0
(**) Option "CoreKeyboard"
(**) Generic Keyboard: Core Keyboard
(**) Option "Protocol" "standard"
(**) Generic Keyboard: Protocol: standard
(**) Option "AutoRepeat" "500 30"
(**) Option "XkbRules" "xorg"
(**) Generic Keyboard: XkbRules: "xorg"
(**) Option "XkbModel" "pc105"
(**) Generic Keyboard: XkbModel: "pc105"
(**) Option "XkbLayout" "fr"
(**) Generic Keyboard: XkbLayout: "fr"
(**) Option "XkbVariant" "oss"
(**) Generic Keyboard: XkbVariant: "oss"
(**) Option "CustomKeycodes" "off"
(**) Generic Keyboard: CustomKeycodes disabled
(**) Option "Protocol" "ImPS/2"
(**) Configured Mouse: Device: "/dev/input/mice"
(**) Configured Mouse: Protocol: "ImPS/2"
(**) Option "CorePointer"
(**) Configured Mouse: Core Pointer
(**) Option "Device" "/dev/input/mice"
(**) Option "Emulate3Buttons" "true"
(**) Configured Mouse: Emulate3Buttons, Emulate3Timeout: 50
(**) Option "ZAxisMapping" "4 5"
(**) Configured Mouse: ZAxisMapping: buttons 4 and 5
(**) Configured Mouse: Buttons: 9
(**) Option "SendCoreEvents"
(**) stylus: always reports core events
(**) stylus device is /dev/input/wacom
(**) stylus is in absolute mode
(**) stylus: forcing TabletPC ISD V4 protocol
(**) WACOM: suppress value is 2
(**) Option "BaudRate" "9600"
(**) stylus: serial speed 9600
(**) Option "SendCoreEvents"
(**) cursor: always reports core events
(**) cursor device is /dev/input/wacom
(**) cursor is in relative mode
(**) cursor: forcing TabletPC ISD V4 protocol
(**) WACOM: suppress value is 2
(**) Option "BaudRate" "9600"
(**) cursor: serial speed 9600
(**) Option "SendCoreEvents"
(**) eraser: always reports core events
(**) eraser device is /dev/input/wacom
(**) eraser is in absolute mode
(**) eraser: forcing TabletPC ISD V4 protocol
(**) WACOM: suppress value is 2
(**) Option "BaudRate" "9600"
(**) eraser: serial speed 9600
(II) Synaptics touchpad driver version 0.14.6 (1406)
(-- Synaptics Touchpad auto-dev sets device to /dev/input/event4
(**) Option "Device" "/dev/input/event4"
(**) Option "HorizScrollDelta" "0"
(-- Synaptics Touchpad touchpad found
(**) Option "SendCoreEvents" "true"
(**) Synaptics Touchpad: always reports core events
(II) XINPUT: Adding extended input device "Synaptics Touchpad" (type: MOUSE)
(II) XINPUT: Adding extended input device "eraser" (type: Wacom Eraser)
(II) XINPUT: Adding extended input device "cursor" (type: Wacom Cursor)
(II) XINPUT: Adding extended input device "stylus" (type: Wacom Stylus)
(II) XINPUT: Adding extended input device "Configured Mouse" (type: MOUSE)
(II) XINPUT: Adding extended input device "Generic Keyboard" (type: KEYBOARD)
(**) Option "Device" "/dev/input/wacom"
(EE) xf86OpenSerial: Cannot open device /dev/input/wacom
```

```
No such file or directory.
Error opening /dev/input/wacom : Invalid argument
(**) Option "Device" "/dev/input/wacom"
(EE) xf86OpenSerial: Cannot open device /dev/input/wacom
No such file or directory.
Error opening /dev/input/wacom : Invalid argument
(**) Option "Device" "/dev/input/wacom"
(EE) xf86OpenSerial: Cannot open device /dev/input/wacom
No such file or directory.
Error opening /dev/input/wacom : Invalid argument
Synaptics DeviceInit called
SynapticsCtrl called.
(II) Configured Mouse: ps2EnableDataReporting: succeeded
Synaptics DeviceOn called
(--) Synaptics Touchpad auto-dev sets device to /dev/input/event4
(**) Option "Device" "/dev/input/event4"
(--) Synaptics Touchpad touchpad found
Could not init font path element /usr/X11R6/lib/X11/fonts/misc, removing from list!
Could not init font path element /usr/share/fonts/X11/cyrillic, removing from list!
Could not init font path element /usr/X11R6/lib/X11/fonts/Type1, removing from list!
Synaptics DeviceOff called
(II) I810(0): [drm] removed 1 reserved context for kernel
(II) I810(0): [drm] unmapping 8192 bytes of SAREA 0xf8bef000 at 0xb7a3c000
(WW) I810(0): Successfully set original devices
(WW) I810(0): Setting the original video mode instead of restoring
the saved state
(--) I810(0): A non-CRT device is attached to pipe B.
No refresh rate overrides will be attempted.
(WW) I810(0): Extended BIOS function 0x5f05 failed.
(II) I810(0): BIOS call 0x5f05 not supported, setting refresh with VBE 3 method.
(II) I810(0): xf86UnbindGARTMemory: unbind key 8
(II) I810(0): xf86UnbindGARTMemory: unbind key 0
(II) I810(0): xf86UnbindGARTMemory: unbind key 1
(II) I810(0): xf86UnbindGARTMemory: unbind key 3
(II) I810(0): xf86UnbindGARTMemory: unbind key 2
(II) I810(0): xf86UnbindGARTMemory: unbind key 4
(II) I810(0): xf86UnbindGARTMemory: unbind key 5
(II) I810(0): xf86UnbindGARTMemory: unbind key 6
(II) I810(0): xf86UnbindGARTMemory: unbind key 7
(WW) I810(0): Successfully set original devices (2)
```

As seen in `/proc/cpuinfo` (the `vmx` flag), this machine has hardware virtualisation support. It needs to be enabled in the BIOS (it is off by default). After, you must load modules `kvm` and `kvm-intel`.