

Install Ubuntu / Linux on a HP / Compaq CQ71 - 103EF

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<https://www.bortzmeyer.org/compaq-cq71-103ef.html>

I installed the operating system Ubuntu on a Compaq Presario CQ71 - 103EF <<http://link.foryou.hp.com/r/JU3V2Q/KJJ34/LV6DYJ/SLXBTW/VO6U8/LE/t?a=fr&b=fr&c=fr&d=fr&e=hho&f=VB305EA&g=fr&h=fr&i=hho>> 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. The version of Ubuntu is 9.04 (Jaunty Jackalope).

Here are some of the hardware components :

- Graphics card Mobile Intel 4 Express. Worked immediately, at 1600x900 resolution.
- "5-in-1" memory card reader. Worked immediately.
- Wired network : Ethernet Realtek RTL8102E/8103E. Worked immediately (tested only at 100 Mb/s).
- Wireless : Wifi Atheros AR5007. Worked immediately, but with a non-free driver. It stopped working after a while. The hardware button (blue when On, orange when off) seems to be unreliable <<http://www.tomshardware.co.uk/forum/23832-18-wireless-button-working-connect-anyway>> on Compaqs.
- Sound : Intel 82801I (ICH9). Requires some work and does not work perfectly (see later).
- ACPI : hibernation works fine but sleeping does not : the machine goes to sleep but waking up crashes it (typically with kernel panic).
- CD-ROM. Worked immediately. Untested for burning and for DVDs.

The sound card does not work perfectly. Following <<https://bugs.launchpad.net/ubuntu/+source/linux/+bug/274424>>, I had to add this in `/etc/modprobe.d/alsa-base.conf` :

```
options snd-hda-intel enable_msi=1
options snd-hda-intel single_cmd=1
```

Now, there is sound, but only in the headphones, not in the internal loudspeaker of the machine (external loudspeakers work). `aplay` shows :

**** Liste des PLAYBACK périphériques ****

carte 0: Intel [HDA Intel], périphérique 0 : STAC92xx Analog [STAC92xx Analog]
 Sous-périphériques: 0/1
 Sous-périphérique: #0: subdevice #0

and lswb:

```
*-multimedia
  description: Audio device
  product: 82801I (ICH9 Family) HD Audio Controller
  vendor: Intel Corporation
  physical id: 1b
  bus info: pci@0000:00:1b.0
  version: 03
  width: 64 bits
  clock: 33MHz
  capabilities: pm msi pciexpress bus_master cap_list
  configuration: driver=HDA Intel latency=0 module=snd_hda_intel
```

The result of lspci -v is:

```
00:00.0 Host bridge: Intel Corporation Mobile 4 Series Chipset Memory Controller Hub (rev 07)
Subsystem: Hewlett-Packard Company Device 306b
Flags: bus master, fast devsel, latency 0
Capabilities: [e0] Vendor Specific Information <?>
Kernel driver in use: agpgart-intel
Kernel modules: intel-agp
```

```
00:02.0 VGA compatible controller: Intel Corporation Mobile 4 Series Chipset Integrated Graphics Controller
Subsystem: Hewlett-Packard Company Device 306b
Flags: bus master, fast devsel, latency 0, IRQ 2298
Memory at d0000000 (64-bit, non-prefetchable) [size=4M]
Memory at c0000000 (64-bit, prefetchable) [size=256M]
I/O ports at 4110 [size=8]
Capabilities: [90] Message Signalled Interrupts: Mask- 64bit- Queue=0/0 Enable+
Capabilities: [d0] Power Management version 3
```

```
00:02.1 Display controller: Intel Corporation Mobile 4 Series Chipset Integrated Graphics Controller (rev 07)
Subsystem: Hewlett-Packard Company Device 306b
Flags: bus master, fast devsel, latency 0
Memory at d2400000 (64-bit, non-prefetchable) [size=1M]
Capabilities: [d0] Power Management version 3
```

```
00:1a.0 USB Controller: Intel Corporation 82801I (ICH9 Family) USB UHCI Controller #4 (rev 03)
Subsystem: Hewlett-Packard Company Device 306b
Flags: bus master, medium devsel, latency 0, IRQ 16
I/O ports at 40e0 [size=32]
Capabilities: [50] PCIe advanced features <?>
Kernel driver in use: uhci_hcd
```

```
00:1a.1 USB Controller: Intel Corporation 82801I (ICH9 Family) USB UHCI Controller #5 (rev 03)
Subsystem: Hewlett-Packard Company Device 306b
Flags: bus master, medium devsel, latency 0, IRQ 21
I/O ports at 40c0 [size=32]
Capabilities: [50] PCIe advanced features <?>
Kernel driver in use: uhci_hcd
```

```
00:1a.7 USB Controller: Intel Corporation 82801I (ICH9 Family) USB2 EHCI Controller #2 (rev 03) (prog-if 20)
Subsystem: Hewlett-Packard Company Device 306b
Flags: bus master, medium devsel, latency 0, IRQ 19
Memory at d4505c00 (32-bit, non-prefetchable) [size=1K]
```

Capabilities: [50] Power Management version 2
Capabilities: [58] Debug port: BAR=1 offset=00a0
Capabilities: [98] PCIe advanced features <?>
Kernel driver in use: ehci_hcd

00:1b.0 Audio device: Intel Corporation 82801I (ICH9 Family) HD Audio Controller (rev 03)
Subsystem: Hewlett-Packard Company Device 306b
Flags: bus master, fast devsel, latency 0, IRQ 2299
Memory at d4500000 (64-bit, non-prefetchable) [size=16K]
Capabilities: [50] Power Management version 2
Capabilities: [60] Message Signalled Interrupts: Mask- 64bit+ Queue=0/0 Enable+
Capabilities: [70] Express Root Complex Integrated Endpoint, MSI 00
Capabilities: [100] Virtual Channel <?>
Capabilities: [130] Root Complex Link <?>
Kernel driver in use: HDA Intel
Kernel modules: snd-hda-intel

00:1c.0 PCI bridge: Intel Corporation 82801I (ICH9 Family) PCI Express Port 1 (rev 03)
Flags: bus master, fast devsel, latency 0
Bus: primary=00, secondary=02, subordinate=02, sec-latency=0
I/O behind bridge: 00003000-00003fff
Memory behind bridge: d3500000-d44fffff
Prefetchable memory behind bridge: 00000000d0400000-00000000d13fffff
Capabilities: [40] Express Root Port (Slot+), MSI 00
Capabilities: [80] Message Signalled Interrupts: Mask- 64bit- Queue=0/0 Enable+
Capabilities: [90] Subsystem: Hewlett-Packard Company Device 306b
Capabilities: [a0] Power Management version 2
Capabilities: [100] Virtual Channel <?>
Capabilities: [180] Root Complex Link <?>
Kernel driver in use: pcieport-driver
Kernel modules: shpchp

00:1c.1 PCI bridge: Intel Corporation 82801I (ICH9 Family) PCI Express Port 2 (rev 03)
Flags: bus master, fast devsel, latency 0
Bus: primary=00, secondary=03, subordinate=03, sec-latency=0
I/O behind bridge: 00002000-00002fff
Memory behind bridge: d2500000-d34fffff
Prefetchable memory behind bridge: 00000000d1400000-00000000d23fffff
Capabilities: [40] Express Root Port (Slot+), MSI 00
Capabilities: [80] Message Signalled Interrupts: Mask- 64bit- Queue=0/0 Enable+
Capabilities: [90] Subsystem: Hewlett-Packard Company Device 306b
Capabilities: [a0] Power Management version 2
Capabilities: [100] Virtual Channel <?>
Capabilities: [180] Root Complex Link <?>
Kernel driver in use: pcieport-driver
Kernel modules: shpchp

00:1d.0 USB Controller: Intel Corporation 82801I (ICH9 Family) USB UHCI Controller #1 (rev 03)
Subsystem: Hewlett-Packard Company Device 306b
Flags: bus master, medium devsel, latency 0, IRQ 20
I/O ports at 40a0 [size=32]
Capabilities: [50] PCIe advanced features <?>
Kernel driver in use: uhci_hcd

00:1d.1 USB Controller: Intel Corporation 82801I (ICH9 Family) USB UHCI Controller #2 (rev 03)
Subsystem: Hewlett-Packard Company Device 306b
Flags: bus master, medium devsel, latency 0, IRQ 19
I/O ports at 4080 [size=32]
Capabilities: [50] PCIe advanced features <?>
Kernel driver in use: uhci_hcd

00:1d.2 USB Controller: Intel Corporation 82801I (ICH9 Family) USB UHCI Controller #3 (rev 03)
Subsystem: Hewlett-Packard Company Device 306b
Flags: bus master, medium devsel, latency 0, IRQ 16
I/O ports at 4060 [size=32]
Capabilities: [50] PCIe advanced features <?>
Kernel driver in use: uhci_hcd

00:1d.3 USB Controller: Intel Corporation 82801I (ICH9 Family) USB UHCI Controller #6 (rev 03)

Subsystem: Hewlett-Packard Company Device 306b
Flags: bus master, medium devsel, latency 0, IRQ 18
I/O ports at 4040 [size=32]
Capabilities: [50] PCIe advanced features <?>
Kernel driver in use: uhci_hcd

00:1d.7 USB Controller: Intel Corporation 82801I (ICH9 Family) USB2 EHCI Controller #1 (rev 03) (prog-if 20)
Subsystem: Hewlett-Packard Company Device 306b
Flags: bus master, medium devsel, latency 0, IRQ 20
Memory at d4505800 (32-bit, non-prefetchable) [size=1K]
Capabilities: [50] Power Management version 2
Capabilities: [58] Debug port: BAR=1 offset=00a0
Capabilities: [98] PCIe advanced features <?>
Kernel driver in use: ehci_hcd

00:1e.0 PCI bridge: Intel Corporation 82801 Mobile PCI Bridge (rev 93) (prog-if 01)
Flags: bus master, fast devsel, latency 0
Bus: primary=00, secondary=04, subordinate=04, sec-latency=32
Capabilities: [50] Subsystem: Hewlett-Packard Company Device 306b

00:1f.0 ISA bridge: Intel Corporation ICH9M LPC Interface Controller (rev 03)
Subsystem: Hewlett-Packard Company Device 306b
Flags: bus master, medium devsel, latency 0
Capabilities: [e0] Vendor Specific Information <?>
Kernel modules: iTCO_wdt

00:1f.2 SATA controller: Intel Corporation ICH9M/M-E SATA AHCI Controller (rev 03) (prog-if 01)
Subsystem: Hewlett-Packard Company Device 306b
Flags: bus master, 66MHz, medium devsel, latency 0, IRQ 2301
I/O ports at 4108 [size=8]
I/O ports at 411c [size=4]
I/O ports at 4100 [size=8]
I/O ports at 4118 [size=4]
I/O ports at 4020 [size=32]
Memory at d4505000 (32-bit, non-prefetchable) [size=2K]
Capabilities: [80] Message Signalled Interrupts: Mask- 64bit- Queue=0/4 Enable+
Capabilities: [70] Power Management version 3
Capabilities: [a8] SATA HBA <?>
Capabilities: [b0] PCIe advanced features <?>
Kernel driver in use: ahci

00:1f.3 SMBus: Intel Corporation 82801I (ICH9 Family) SMBus Controller (rev 03)
Subsystem: Hewlett-Packard Company Device 306b
Flags: medium devsel, IRQ 11
Memory at d4506000 (64-bit, non-prefetchable) [size=256]
I/O ports at 4000 [size=32]
Kernel modules: i2c-i801

00:1f.6 Signal processing controller: Intel Corporation 82801I (ICH9 Family) Thermal Subsystem (rev 03)
Subsystem: Hewlett-Packard Company Device 306b
Flags: fast devsel, IRQ 11
Memory at d4504000 (64-bit, non-prefetchable) [size=4K]
Capabilities: [50] Power Management version 3

02:00.0 Ethernet controller: Atheros Communications Inc. AR242x 802.11abg Wireless PCI Express Adapter (rev 01)
Subsystem: Hewlett-Packard Company Device 137b
Flags: bus master, fast devsel, latency 0, IRQ 16
Memory at d3500000 (64-bit, non-prefetchable) [size=64K]
Capabilities: [40] Power Management version 2
Capabilities: [50] Message Signalled Interrupts: Mask- 64bit- Queue=0/0 Enable-
Capabilities: [60] Express Legacy Endpoint, MSI 00
Capabilities: [90] MSI-X: Enable- Mask- TabSize=1
Capabilities: [100] Advanced Error Reporting <?>
Capabilities: [140] Virtual Channel <?>
Kernel driver in use: ath5k_pci
Kernel modules: ath_pci, ath5k

03:00.0 Ethernet controller: Realtek Semiconductor Co., Ltd. RTL8101E/RTL8102E PCI Express Fast Ethernet controller
Subsystem: Hewlett-Packard Company Device 306b

```

Flags: bus master, fast devsel, latency 0, IRQ 2300
I/O ports at 2000 [size=256]
Memory at d1410000 (64-bit, prefetchable) [size=4K]
Memory at d1400000 (64-bit, prefetchable) [size=64K]
Expansion ROM at d1420000 [disabled] [size=64K]
Capabilities: [40] Power Management version 3
Capabilities: [50] Message Signalled Interrupts: Mask- 64bit+ Queue=0/0 Enable+
Capabilities: [70] Express Endpoint, MSI 01
Capabilities: [ac] MSI-X: Enable- Mask- TabSize=2
Capabilities: [cc] Vital Product Data <?>
Capabilities: [100] Advanced Error Reporting <?>
Capabilities: [140] Virtual Channel <?>
Capabilities: [160] Device Serial Number 00-00-00-00-00-00-00-00
Kernel driver in use: r8169
Kernel modules: r8169

```

while dmesg shows (en ligne sur <https://www.bortzmeyer.org/files/compaq-cq71-103ef-boot>).

Here is the result of `xpdyinfo`, to see the graphics capabilities :

```

name of display:      :20.0
version number:      11.0
vendor string:       The X.Org Foundation
vendor release number: 10600000
X.Org version: 1.6.0
maximum request size: 16777212 bytes
motion buffer size: 256
bitmap unit, bit order, padding: 32, LSBFirst, 32
image byte order:    LSBFirst
number of supported pixmap formats: 7
supported pixmap formats:
    depth 1, bits_per_pixel 1, scanline_pad 32
    depth 4, bits_per_pixel 8, scanline_pad 32
    depth 8, bits_per_pixel 8, scanline_pad 32
    depth 15, bits_per_pixel 16, scanline_pad 32
    depth 16, bits_per_pixel 16, scanline_pad 32
    depth 24, bits_per_pixel 32, scanline_pad 32
    depth 32, bits_per_pixel 32, scanline_pad 32
keycode range:      minimum 8, maximum 255
focus: window 0x1200004, revert to Parent
number of extensions: 27
...
default screen number: 0
number of screens: 1

screen #0:
dimensions: 1600x900 pixels (382x215 millimeters)
resolution: 106x106 dots per inch
depths (7): 24, 1, 4, 8, 15, 16, 32
root window id: 0x12b
depth of root window: 24 planes
number of colormaps: minimum 1, maximum 1
default colormap: 0x20
default number of colormap cells: 256
preallocated pixels: black 0, white 16777215
options: backing-store NO, save-unders NO
largest cursor: 64x64
current input event mask: 0xfa8033
    KeyPressMask           KeyReleaseMask           EnterWindowMask
    LeaveWindowMask        ExposureMask              StructureNotifyMask
    SubstructureNotifyMask SubstructureRedirectMask FocusChangeMask
    PropertyChangeMask     ColormapChangeMask
number of visuals: 64

```

```
default visual id: 0x21
visual:
  visual id: 0x21
  class: TrueColor
  depth: 24 planes
  available colormap entries: 256 per subfield
  red, green, blue masks: 0xff0000, 0xff00, 0xff
  significant bits in color specification: 8 bits
...
```