The HP Compaq NC4200 with Ubuntu Linux

DESIGNED TO FIT

Linux often requires several kernel patches, or even Windows drivers, to work properly on a portable computer. HP originally intended to market their NC4200 notebook with Ubuntu, so they went the extra mile to get the system working with Linux. **BY MIRKO DÖLLE**

Linux users often suffer several rounds of patching, tweaking, and troubleshooting to install Linux on the highly specialized and under-documented hardware of a portable computer. If you've ever put Linux on a laptop, you've probably dreamed of the day when vendors will simply solve all the problems for you and sell you a ready-made, Linux-compatible system.

Figure 1: HP considered shipping the Compaq NC4200 with Ubuntu Linux instead of Windows XP. The hardware support for the NC4200 under Linux is excellent.

Veterans of these late-night notebook configuration sessions will be pleased to know that Hewlett Packard has already invested many testing hours in trying out their NC4200 notebook with Linux. HP originally had planned to market the European version of the NC4200 with Ubuntu, and though it now appears that they won't build Linux into the box, the fact that HP has tooled and tested the system for Ubuntu will make the NC4200 an easy fit for users who wish to migrate.

Linux Magazine's Hardware Competence Center managed to get hold of a pre-production sample of the HP NC4200. We found much to like about this small and Linux-ready notebook when we took it for a test drive.

Introducing the NC4200

The Centrino-certified NC4200 notebook, which is about the size of a standard sheet of metric A4 paper, is equipped with a Pentium Mobile 1.73 GHz, 512 MByte RAM, and a 40 GByte hard disk. Travelers will appreciate the relatively small size of the NC4200, but one disadvantage of the compact dimensions is the lack of space for extras. Neither an optical drive nor a simple drive bay are enclosed in the notebook. The US version of the display can be rotated by 180 degrees and placed face up onto the keyboard, turning the notebook into a tablet PC with a touchscreen and some additional buttons on the rim of the display. The European variant has a standard display with 12.1 inches square and a resolution of 1024x768 pixels.

An External CD Drive

If you do decide to put Linux on your NC4200, your first problem will be the lack of a built-in CD-ROM drive. Without an external USB CD drive, there is no way to install Linux. Luckily, the brand of the CD drive doesn't matter; a standard DVD writer in a cheap USB 2.0 housing will work without fuss and save you some money in comparison with a simple CD-ROM drive from the notebook vendor.

First and Further Contacts

While there is no optical drive, the notebook is equipped with a complete set of

Figure 2: The button with the antenna symbol on the left of the USB connector disables and re-enables WLAN and Bluetooth without rebooting the system. The info button between the power switch and the USB connector produces a scan code and will start the Gnome help browser by default.

connectors. Along with three USB 2.0 ports, a PCMCIA slot, and a SD/MMC flash slot, the HP NC4200 has a modem connector, an ethernet port, and a VGA and PS/2 socket on the rear side. In line with the Centrino standard, the HP notebook has a 54Mbps Intel WLAN adapter and an IrDA interface for wireless connections. The Bluetooth module, which was installed in our test notebook, is available as an optional extra. Both the WLAN adapter and Bluetooth can be disabled and re-enabled by pressing a small button on the left side of the notebook (Figure 2) without rebooting.

The battery, which can hold about 50 Wh energy, lasted for more than three hours during the test. Because the battery used with our test system was about a year old, we did not run the normal runtime test – a new notebook should run for about three or four hours without a power cable.

The notebook was reasonably well built – there was no rattling or oversized parts. The keyboard comes with an action point and, as a mouse replacement, HP enclosed a track point with two mouse buttons along with a touchpad.

Special keys

For cell phone connections, HP installed a Bluetooth adapter, along with an IrDA interface. Both are ready for operation. The notebook comes with special buttons on the left side. You'll find buttoms for volume and mute. Another button known as the info button starts the Gnome help browser every time it is pressed. The only problem with the info button is that it tends to jam from time to time, which causes Gnome to launch more and more help browsers until the machine runs out of memory.

You can map the special keys to individual commands because every key produces normal scan codes, which can be re-mapped via *System* | *Settings* | *Macros*.

Third Mouse Button

The touchpad is a very good mouse replacement: along with the sensitive area and the two mouse buttons below it, it has a groove pattern on the right (see Figure 3) that emulates a scrolling wheel. Additionally, the grooved area is capable of serving as the middle mouse button of a three button mouse, which should eliminate the problem of having to press the left and right mouse buttons simultaneously to emulate the middle button. Unfortunately, a right-handed person might touch the scroll area unintentionally by simply dragging some icons around.

Intel's Penium Mobile power saving modes are accessible following a standard Ubuntu installation. The only mode not working with the pre-production notebook was suspend to RAM (S3). When we tried forcing the notebook to the S3 state, which is listed as available in */proc/acpi/sleep*, the notebook went to sleep but failed to wake up again. According to HP, this feature should be available with the next Ubuntu release which will include more improvements and better support for HP portables.

Summary

From the widely used Centrino components to lovely details like the programmable special keys, the hardware of the HP Compaq NC4200 is well supported by Ubuntu Linux. Other Linux distributions will probably also work with the NC4200, but there could be some minor problems with the hardware support. The sources and kernel patches will probably be released in July.

Due to its small size, the NC4200 has some limitations – the unit has no internal optical drives, a second battery pack has to be connected externally, and the system only supports small displays of 12.1 inches square with a resolution of 1024x768 pixels.

If HP can get the suspend to RAM feature or the SD/MMC flash reader working under Linux, the NC4200 would nevertheless be an excellent Linux notebook. ■

Table 1: HP Compaq NC4200

Vendor:	Hewlett Packard: *http://www.hewlett-packard.com*
CPU:	Pentium-M, 1.73 GHz
Memory:	512 MB DDR (max. 2 GB)
Drives:	Harddisk 40 GB, 2.5 inch
Display:	TFT, 12.1 inch, 1024 x 768 Pixel
Accu:	Lilo, 10.8 Volts, 4,500 mAh (48.6 Wh)
Pointing Devices:	Track point, Touchpad with scrolling wheel and third mouse button
Network Devices:	Intel Pro Wireless 2200BG WLAN Adapter (802.11b/g), Ethernet 10/100/1000 MBit/s (Broadcom), 56k Smartlink Modem, Bluetooth (optional)
Interfaces:	3 x USB 2.0, Modem, Ethernet, external Monitor, PS/2, Phones/Microphone, PCMCIA, SD/MMC
Size/Weight:	28.5 cm x 23.5 cm x 3 cm / 1.8 kg
Price:	approx. EUR 1,500

Figure 3: HP equips the NC4200 with both a track point and a touchpad, supporting users with the two most preferred mouse replacements. The grooved area on the right side of the touchpad works as a scrolling wheel and third mouse button.