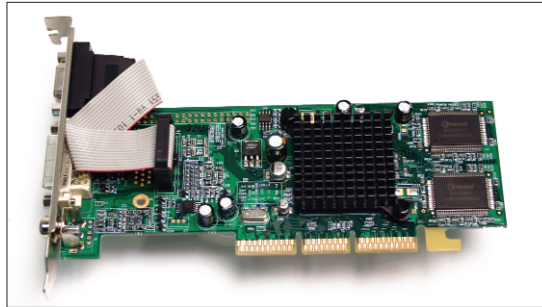


If you do not need the performance of an nVidia Geforce 4, or ATI Radeon 9600, you can save yourself a fan, and a lot of money. Graphics adapters with the slightly ancient ATI Radeon 7000 graphics chip can do without active cooling, and are easily powerful enough for Parsec, Quake, and Tuxracer at 1024x768 pixel resolution. The 32 MByte version shown in Figure 3 (and available from [9]) costs about £20, US\$ 20, EUR 35, a fraction of the price for a high-performance modern adapter, but still offers features such as DVI or TV output. Additionally, all of today's modern distributions support the ATI Radeon 7000 chipset out of the box.

Of course, a graphics adapter with 3D hardware acceleration support only makes sense if you will be using the computer for gaming. If not, a motherboard with an integrated graphics chipset may be more interesting, such as Intel's i845G or i865G, or even Via's Epia range of motherboards. Most integrated graphics chips are not very powerful, but you can run them as framebuffer devices under Linux, which is perfectly okay for word processing, and surfing the Internet.

## Noisy Disks

Hard disks with high rotational speeds, such as 7200 or even 10,000 rpm, are not suited for use in living room PCs. You can easily hear them against the back-



**Figure 3:** 3D graphics adapters with ATI's Radeon 7000 chipset can be passively cooled, are well-supported under Linux, and offer a range of connectors, including VGA, DVI, and TV out.

ground of a normal PC with noisy fans. Two disks by Samsung, the 160 GByte SV1604N, and the 80 GByte SV0802N, are both quiet and cheap. Both of these drives run at 5400 rpm, and they cost £100, US\$ 130, EUR 115, and £50, US\$ 82, EUR 60 respectively. Their temperature tends not to rise above body heat, even when subjected to a Bonnie endurance test, thus removing the need for hard disk cooling systems or additional fans.

Normal IDE hard disks with 80 pin flat cables tend to cause trouble in fanless PCs, or even in systems with slow running fans. They block the airflow, which is typically fairly restricted anyway. Serial ATA might be a solution, if only one could find a quiet hard disk to fit the bill. The only approach at present is a SATA-PATA adapter for the Samsung hard disk, assuming that your choice of motherboard has a chipset that supports Serial ATA connectors.

## Quiet DVD Drives

Although slot drives provide perfect handling, they are hardly suitable for small footprint devices in noise sensitive environments. For example, the Pioneer Slot Load (DVD-120SZ) at around £33, US\$ 44, EUR 40 is louder than most tray-based drives. Tray-based slimline drives, such as those used in laptops, are preferable. In the case of slimline drives, the medium is directly attached to the drive hub.

Normal slot or tray-based drives use springs to clamp the DVD between the hub motor and the bearings, and this can lead to vibration, especially if the medium is out of balance.

It is worth fitting a DVD ROM drive, even if you do not want to play DVDs. DVD ROM drive speeds are slower than 52x CD drives, and that makes them a lot quieter. You can also try `hdparm -E speed device` to restrict the drive to the desired speed, however, some drives will not respond to this command.

If you intend to burn CDs, or even DVDs, our recommendations are the GSA-4081B or GSA-4082B DVD burners by LG. Both of these drives can handle all of today's DVD standards, from DVD RAM to DVD + RW, and achieve 8x DVD burning speeds, depending on your choice of media. The GSA-4081B is an affordable drive, with a selling price of around £70, US\$ 100, EUR 120. This model is gradually being replaced by the GSA-4082B.

## Info for a living room PC



| Name        | Elito-Epox   | Casetronic  | Via  | Ready made   | Silentmaxx   | Silentmaxx   |
|-------------|--|---|--|--|--|--|
| Model       | EX5-300S   | Travla c137   | Epia ME-6000   | IrDA receiver  | ST11   | Fanless 350 PSU  |
| Description | Barebones system with a P4 motherboard. Front panel LCD display can play CDs and MP3 discs when machine is shutdown.   | Mini-ITX case with heat dissipation vents.  | Mini-ITX motherboard with multiple interfaces and PCI riser card.  | Serial connecting InfraRed receiver.   | Noise dampened midi tower case. Contains a temperature regulated 12cm fan.   | Fanless PC power supply unit at 350Watt.   |
| URL         | <a href="http://www.komplett.co.uk">www.komplett.co.uk</a> ,<br><a href="http://www.epox.com">www.epox.com</a> ,<br><a href="http://www.directron.com">www.directron.com</a> | <a href="http://www.mini-itx.com">www.mini-itx.com</a> ,<br><a href="http://shop.store">http://shop.store</a> ,<br><a href="http://yahoo.com/kmexpress/">yahoo.com/kmexpress/</a> ,<br><a href="http://www.myelectronics.nl">www.myelectronics.nl</a> | <a href="http://www.mini-itx.com">www.mini-itx.com</a> ,<br><a href="http://www.axiontech.com">www.axiontech.com</a> ,<br><a href="http://www.myelectronics.nl">www.myelectronics.nl</a> | <a href="http://www.intolect.com">www.intolect.com</a> ,<br><a href="http://www.evation.com">www.evation.com</a> ,<br><a href="http://www.zapway.de">www.zapway.de</a> | <a href="http://www.kustompcs.co.uk/">www.kustompcs.co.uk/</a> ,<br><a href="http://www.silentmaxx.net">www.silentmaxx.net</a> ,<br><a href="http://www.silentmaxx.de">www.silentmaxx.de</a> | <a href="http://www.kustompcs.co.uk/">www.kustompcs.co.uk/</a> ,<br><a href="http://www.silentmaxx.net">www.silentmaxx.net</a> ,<br><a href="http://www.silentmaxx.de">www.silentmaxx.de</a> |
| Price       | £176.25,<br>US\$ 299.99,<br>EUR 250  | £89,<br>US\$ 144.39,<br>EUR 149   | £99.88,<br>US\$ 133.95,<br>EUR 103   | £25.47,<br>US\$ 35,<br>EUR 17.40   | £99,<br>US\$ 135,<br>EUR 135   | £170,<br>US\$ 235,<br>EUR 199.95   |