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Overhaul your laptop

Like desktops, notebooks start off guns ablaze, ready to take on any imaginable computing task, but eventually lose their get up and go. Brad Jackson and Emma Northam show you how to reinvigorate a lacklustre laptop with a combination of hardware and software upgrades

When you went out and spent your hard-earned cash on a fantastic new laptop, for a while it could do anything. You played the most demanding games on it, wrote up reports containing flashy 3D pie charts, sent and received hundreds of emails, downloaded tons of great software and played soothing tunes on it at night to help you sleep.

But now, perhaps a few months or years later, it feels like everything is an effort. Windows takes ages to load, mysterious errors crop up, the hitherto unfillable hard drive is awash with rubbish you are sure you never put there and the whole

Upgrading the Vaio's memory

If you're installing non-Sony memory, follow the instructions below for removing the cover and readying for the upgrade. Look at your RAM module – you should find a notch halfway along one of its long edges. Insert the chip at a 45-degree angle in the slot, aligning the notch with the locator lug in the RAM slot. Snap it into place and then carefully replace the notebook cover.



1 Before you begin, ensure you have the notebook's manual to hand. You'll need to refer to it since individual instructions will vary depending on your notebook model and the memory you install. Turn off the machine and disconnect its power cord. Notebooks that can be upgraded usually have a neat panel on the back which is easy to remove – one screw is all that's holding it. Find this panel and open it up



2 With the notebook switched off, the case open and wearing an antistatic wriststrap, hold the memory module by its edges, taking care not to touch the gold connectors on the chip itself. Fit the row of pins on the chip to the row on the motherboard, then press it firmly into place

experience is slow, tricky and teeth-grindingly annoying. It's just no fun anymore. Something must be done.

You could simply buy a new laptop and forget about the whole thing. Go for it if your budget allows, but if you're after a more economical way of making things better join us as we take control of a used-and-abused Sony Vaio PCG-C1XD to try and breathe new life into it.

Bought by PC Advisor editor Andrew Charlesworth in May 00, the Vaio has a 400MHz processor, 12GB hard disk and just 64MB of SDRAM. It's the RAM we're going to upgrade as this is the biggest hindrance to the Vaio's ability to cope with everyday tasks. Just ask Andrew who regularly tears at what's left of his hair as he tries to remotely access our server and his Lotus Notes email account.

"When I chose the Sony Vaio two-and-a-half years ago, my specification was based on a minimum functionality and with the emphasis on portability. I needed to write copy for the magazine then email it, probably from a hotel room or other remote location, so it had to be a portable that would run my Notes client. But I didn't want a machine that dislocated my shoulder when I had to lug it around an

airport and the battery needed to last for at least four hours. I really didn't care what else the machine did.

"The PCG-C1XD has a Pentium II mobile processor running at 400MHz and 64MB memory, but I'm not asking it to do much. And what it does do, it never does quickly. In fact I can – and have – taken a shower in less time than it takes to boot up.

"But once it's fired up, how fast can I type? Around 40 words a minute tops and it keeps up with that. And when I'm emailing performance is limited by the dialup line through the hotel's switchboard that seems deliberately designed to slow data traffic, thus racking up my phone bill at an iniquitous rate. Would I like it to be faster? Of course I would."

No entry for laptops

The desktop PC user has the edge as far as upgrading and overhauling goes. The modular component setup lends itself to having the cover whipped off, cards and memory modules replaced and rearranged. PC users can even totally rebuild it if they so desire.

In contrast, there is precious little that can be physically upgraded in a laptop – the one and only possible recommended

internal hardware upgrade is adding more memory. And watch out if you're a born tinkerer – the warranty may be rendered invalid if something goes wrong as a result of your meddling. If you do go ahead with an upgrade, proceed with caution.

If in doubt, get the manufacturer to perform the task for you or employ a third-party expert to do so. You'll find a list of companies that provide this service on Print plus (www.pcadvisor.co.uk/printplus).

Finally, if your notebook's a particularly elderly model you may find you can't upgrade it at all, so read the manual first before breaking out the screwdriver.

Back to the ed's machine

Sony's Vaio website sells accessories such as carry bags, mice, external floppy disk drives and kits to connect your mobile phone, but internally we're stuck with a mere 64MB memory expansion for our particular model.

After trying several shops (some of them Sony specialists) to no avail, we finally tracked down a 64MB module at Shahsonic on Tottenham Court Road. You could also try Buffalo's website at www.buffalo-technology.com. But be warned, it isn't cheap: at £140, we're

Adding external storage

The Sony Vaio is only equipped with a 12GB hard drive, so the extra 20GB afforded by the PocketDrive proves mighty useful, providing additional space, a means of moving files about without a network and somewhere to back up important files.



1 Ensure you have the right type of connector. You can attach the PocketDrive with a FireWire cable. If you're using a Sony device as we are, you'll need a cable with a four-pin iLink connection (left) rather than a standard six-pin FireWire connection (right). Install any necessary software and then attach the PocketDrive to the notebook



2 To back up all the files on your C drive, right-click the C drive icon in My Computer under Windows 98 and choose Backup or select Tools, Backup from the Sharing menu. In Windows XP, right-click the hard drive and choose Properties, then the Tools tab and click Backup Now (shown left). Follow the prompts from the wizard that appears, specifying that you want your files to be backed up to the PocketDrive by browsing to its icon. We copied and verified a little over 1GB of files inside 30 minutes

hoping for speed enhancements to justify the expense. Typically our editor has chosen the one Vaio model that costs an arm and a leg to upgrade; he could have had 128MB memory modules for other Vaios for around £40 ex VAT.

Vaio la difference

So, did doubling the RAM make much difference? Andrew says: "Before upgrading the Vaio scored 42 on WorldBench 4. That's 42 percent of the performance of WorldBench's reference PC – a Gateway desktop with a 1.2GHz Athlon processor, 128MB memory and 20GB hard drive.

"After upgrading the Vaio's memory to 128MB, the WorldBench 4 rating crept up to 46. This doesn't look much, but the score is averaged across applications that require a higher degree of processor-intensive graphics handling than I ever demand of my feeble machine.

"So now Word opens more quickly, having more than one application open at a time doesn't feel like a such a struggle and the boot time is less than a morning's ablutions. All of which makes using the Vaio slightly less frustrating."

Our Acer's memory cost over £100 less, but was the Vaio's upgrade worth £140 to Andrew? "No. The improvement is too marginal. But that's the fault of Sony's proprietary memory."

The Acer spades

As a comparison, in the dark depths of our Test Centre we uncovered a two-year-old Windows Me-based Acer laptop with a 700MHz processor and 64MB of RAM; it managed a WorldBench score of 56. A 128MB RAM upgrade for this notebook set us back a far more reasonable mere £28 plus VAT from memory specialist Offtek (www.offtek.co.uk).

But how did the Acer fare? With the extra memory module installed, taking the total to 192MB, it achieved a WorldBench score of 61 – just six more points, which is not a vast improvement.

Get plugged in

While internally your upgrade options are limited, there's quite a bit of scope for improving a laptop externally to provide extra storage space and free up some room on the internal hard disk. Depending

on the slots provided with your notebook you can attach peripherals via USB and FireWire connections. USB and FireWire fulfil different functions. For one thing FireWire is more expensive than USB, so if cost is a factor USB might be a better option. FireWire has greater bandwidth, though, and is recommended for high-speed peripherals and tasks such as external hard drives or video streams.

Sony users need to be aware that iLink (Sony's proprietary connection) is not identical to FireWire as it has four pins to the latter's six. Vaio owners therefore have to use the supplied power adapter to work the PocketDrive whereas FireWire can be powered by our Acer laptop. You also have to specify iLink connectivity in order to be supplied the correct lead by La Cie and this incurs an extra charge.

Brand-new computers are now shipping with USB 2.0 but older computers, such as our test machine, have only USB 1.1 technology. A USB 1.1-equipped system will run USB 2.0 peripherals, but more slowly. The best example is for the PocketDrive – if connected via FireWire then data transfer speeds of 50MBps

Backing up and transferring data

CD-ROM drive interfaces tend to be USB, which means that you can transfer your most important files for backup simply by plugging in the external device and dragging and dropping the files to be copied. Alternatively, you could go for a Jadetec Pen Drive (www.jadetec.co.uk), which also plugs in to the USB port and has the advantage of being tiny and very lightweight. This handy little gadget comes in various

capacities, from 64MB to 1GB, with prices starting at a reasonable £39 for the 64MB version.

A further option is to back up to a web server from which you can access your files no matter where you are without having to lug around any additional peripherals. It's not particularly efficient if you're stuck with a dialup internet connection but with broadband it's a practical, secure solution.



1 To back up to a USB device such as Jadetec's Pen Drive, install its accompanying software and then connect it via the USB port. Once installed, the Pen Drive appears in Windows Explorer as another drive. Select all the files to be copied and then drag and drop them into the drive's pane



2 If you don't have a backup drive and have no budget to buy one you can back up as much as 30MB of data to Yahoo's online storage facility, Briefcase (<http://uk.briefcase.yahoo.com>). To do this, register with the service and log in. To store files, choose Add Files and then browse your hard drive for the documents to be backed up

(megabytes per second) are achieved. This increases to 60MBps for USB 2.0, but goes right down to 1.5MBps for USB 1.1.

Adding external devices

We tried the La Cie (www.lacie.co.uk) PocketDrive (£139 ex VAT for the 20GB unit) – a FireWire device that is so useful it is hard to imagine how we managed without one. Many other peripherals could be connected to your laptop to extend its potential. A cheap, reliable USB printer and scanner would enable you to set up a mobile office in a spare room within minutes and an external CD writer could prove invaluable.

Alternatively, turn your notebook into a desktop machine by adding a full-sized keyboard, mouse and monitor. Though these hamper the portability aspect of the laptop, they can be unplugged and the laptop freed to travel when required.

Free up more space

Adding external storage is one way to increase your notebook's available space. But running regular maintenance checks

will also squeeze a few more inches of drive space – perhaps megabytes if you're lucky – from your PC.

It doesn't matter even if you are of a tidy disposition, with everything nicely organised into folders – it's how that data is stored that matters. You might have a wonderful filing system but Windows is not so careful of your strict regime, scattering bits and pieces across the disk. Thus more time is wasted when you need the file again as Windows has to reassemble the jigsaw.

Regular defragmenting of the hard drive can greatly help this situation. In Windows 98 or XP, go to Start, Programs (All Programs in XP), Accessories, System Tools, Disk Defragmenter. Make sure you shut all your other programs and then leave Defrag to run overnight or at some other convenient juncture when you don't need the PC. You should also run ScanDisk once in a while to check for and fix errors on your drive. You'll find it in the System Tools folder with Defrag.

Under Disk Cleanup, (again, you'll find this in the System Tools folder) you can

help eliminate further file build-up by trashing Temporary Internet Files, removing files and applications you no longer use and, of course, emptying the Recycle Bin.

And if you have Windows XP you can set up these maintenance tasks to run automatically at intervals so you don't have to think about them.

Should you upgrade?

Our tests showed that upgrading the RAM in a notebook provides minimal WorldBench performance improvements. But that doesn't make it a pointless exercise. The extra RAM will have benefits in everyday tasks and, when you make heavy demands on RAM and Windows needs more swap file space to manage the workload, the extra RAM will help out there too, avoiding the need to use slower hard disk memory.

If you're unconvinced, we'd advise you to free up hard disk space by spending your money on some of the other external storage options mentioned here. Hard disk maintenance will also make space for swap-file activity so it's worth running Defrag and ScanDisk regularly. ■