


**CD DRIVES AND DVD WRITERS**

CD drives		Last month's position	First reviewed	Price (ex VAT)	Warranty	Drive type	Interface type	Maximum storage	Data buffer size	CD average access time (milliseconds)	DVD average access time (milliseconds)	CD-RW read/write/rewrite speed	DVD read/write/rewrite speed	Mount Rainier (CD-MRW) support	Antibuffer underrun protection	Tray loading mechanism	Dimensions (width x depth x height) mm	Weight	Burning/packet writing software	Other software	Blank media included
	<b>1</b> Asus CRW-4816A 0870 429 3220 www.asus.com	<b>NEW</b>	Oct 02	£69	1-year	CD-RW	EIDE	650MB	2MB	100ms	N/A	48x/48x/16x	N/A	yes	yes	yes	149x198x42mm	0.9kg	Ahead Nero 5.5/InCD	none	yes
	<b>2</b> Teac CD-W540EK 020 8906 9111 www.microwarehouse.co.uk	1	Jul 02	£83	2-year	CD-RW	EIDE	650MB	8MB	72ms	N/A	48x/40x/12x	N/A	yes	yes	yes	146x192x42mm	1.2kg	Roxio Easy CD Creator/DirectCD	PhotoImpression, MusicMatch	yes
	<b>3</b> Cyber Drive CW078D 01256 707 070 www.cyberdrive.de	<b>NEW</b>	Oct 02	£70	1-year	CD-RW	EIDE	650MB	2MB	100ms	N/A	48x/40x/16x	N/A	CD-MRW ready	yes	yes	146x192x42mm	0.9kg	Ahead Nero 5.5/InCD	none	yes
	<b>4</b> LG GCE-8400B 0870 607 5544 www.lge.co.uk	2	Jul 02	£79	2-year	CD-RW	EIDE	650MB	2MB	100ms	N/A	40x/40x/12x	N/A	no	yes	yes	146x185x41mm	0.9kg	Ahead Nero 5.5/InCD	none	no
	<b>5</b> Cyber Drive CW058D 01256 707 070 www.cyberdrive.de	3	May 02	£62	1-year	CD-RW	EIDE	650MB	2MB	100ms	N/A	48x/32x/12x	N/A	CD-MRW ready	yes	yes	149x207x43mm	0.9kg	Ahead Nero 5.5/InCD	none	yes
DVD writers																					
	<b>1</b> Ricoh MP5125A-DP 020 8261 4031 www.ricoh-uk.com	<b>NEW</b>	Oct 02	£298	2-year	DVD+R/ DVD+RW/CD-RW	EIDE	4.7GB	2MB	120ms	140ms	32x/12x/10x	8x/2.4x/2.4x	N/A	yes	yes	146x196x42mm	1.2kg	Ahead Nero 5.5/no	WinProducer, NeoDVD, WinDVD	yes
	<b>2</b> Philips DVDRW228 0800 896 324 www.philips.com/pcstuff	<b>NEW</b>	Oct 02	£323	2-year	DVD+R/ DVD+RW/CD-RW	EIDE	4.7GB	2MB	120ms	140ms	32x/12x/10x	8x/2.5x/2.5x	N/A	yes	yes	146x196x42mm	0.98kg	Ahead Nero 5.5/no	Sonic Solution MyDVD	yes
	<b>3</b> Sony DRX-120L 0800 2623 7669 www.sonyisstorage.com	<b>NEW</b>	Oct 02	£347	1-year	DVD+R/ DVD+RW/CD-RW	external FireWire	4.7GB	2MB	120ms	140ms	32x/12x/10x	8x/2.4x/2.4x	N/A	yes	yes	164x247x53mm	1.85kg	BHA B Recorder Gold/no	PowerDVD, Dantz Retrospect Express, NeoDVD	yes
	<b>4</b> Pioneer DVR-A04 01753 789 500 www.pioneer-eur.com	<b>NEW</b>	Oct 02	£275	1-year	DVD-R/ DVD-RW/CD-RW	EIDE	4.7GB	2MB	180ms	200ms	24x/8x/4x	6x/2x/1x	N/A	no	yes	148x198x42mm	1.2kg	VOB Instant CD/DVD/no	Sonic Solution MyDVD, PowerDVD	yes
	<b>5</b> HP DVD200i 08705 474 747 www.hp.com/uk	<b>NEW</b>	Oct 02	£340	1-year	DVD+R/ DVD+RW/CD-RW	EIDE	4.7GB	2MB	125ms	125ms	32x/12x/10x	8x/2.4x/2.4x	N/A	yes	yes	148x197x42mm	0.95kg	HP RecordNow/no	HP Simple Backup, Sonic Solution MyDVD, PowerDVD	yes


**CD DRIVES**
**1** Asus CRW-4816A

This new drive from Asus is a treasure trove of unsurpassed speed and innovative hardware technology. Offering incredible 48-/48-/16-speed (read/write/rewrite) facilities, the CRW-4816A is easily the fastest drive we've seen to date. The superb burst of speed is partly because the drive writes to CD-R discs using the advanced Partial-CAV technology. Under the standard CAV (constant angular velocity) process, a CD is read at the same speed all the way across the disc. As the drive has to spin a lot faster on the inner tracks of the disc, errors tend to pile up as the speed increases. Partial-CAV technology avoids this problem by reading the outer part of the disc at a different speed to the inner.

With the emergence of high write speeds, advanced technology is required to keep a lid on the error rate. The Asus

duly obliges with FlextraSpeed, which adjusts the write speed to suit the media type. The almost obligatory buffer underrun technology

← Asus' CRW-4816A drive offers the highest burning speeds yet for an unbeatable price of £69



(FlextraLink in this case) is present, as is DDSS II (double dynamic suspension system), which cuts down on vibrations. Mount Rainier support is another welcome addition, and this should ensure that Asus' CD-RWs are compatible with a wide range of CD drives.

With such innovation on board, we expected the Asus to slice through previous records, especially as the software bundle consists of Ahead Software's blisteringly fast Nero Burning Rom. Not disappointing us, the Asus was able to burn a 350MB CD-R in two minutes one second – 13 seconds faster than the Teac. CD-RW performance was equally impressive, taking just under three and a half minutes. Considering this wealth of technology, you might expect the Asus to be expensive. However, at £69, the CRW-4816A is one of the best CD-RW deals yet.

**2** Teac CD-W540EK

The CD-W540EK combines high performance and quiet operating speed. Indeed, it's only the Teac's high price tag that prevents it from taking the top spot. So what is the secret of the Teac's success? Well it could be the Fine Focus control, an innovative feature that keeps the laser perfectly positioned despite the spinning speed. The Intelligent Speed Control is another candidate, keeping the success rate high by



← The Teac is still a competent drive, but its high price knocked it from the top spot

monitoring every CD to determine the quickest writing speed possible without risking errors, while the 8MB data buffer is still superior to anything found on the competition. In operation these measures work beautifully, and the Teac copied CD-Rs and CD-RWs without missing a beat – just two minutes 14 seconds were required to write 350MB of files to disc in CD-R mode. The Teac's CD-RW performance was almost as good, needing only four minutes nine seconds at 12-speed. The Asus has raised the bar on CD-R performance, and the Teac now looks overpriced considering its 40-/12-speed CD-R/RW facilities. However, it remains a supreme performer in real world testing and an ideal second choice.

**3** Cyber Drive CW078D

Like many of Cyber Drive's products, the CW078D is geared towards delivering performance on a budget. On paper this is the second fastest drive in the chart, matching the Teac's 40-speed CD-R facilities while bettering its rewrite capabilities to 16-speed.

In truth, though, this drive couldn't match the Teac's sophisticated technology. Buffer underruns are dealt with effectively by Cyber Drive's ExacLink technology, but it offers little else in the way of cutting-edge features.

The latest version of Nero Burning Rom is provided – this application is still top dog when it comes to raw performance and offers a consistent success rate. In real world CD-R testing, the Cyber Drive wasn't quite as fast as the well-heeled Asus or, indeed, the Teac, requiring a lengthy two minutes 48 seconds to produce a 350MB CD-R. CD-RW performance was better, though, taking a mere three minutes 36 seconds to produce a result – half a minute faster than the Teac.

For a no-frills performance, the Cyber Drive does a good job. But it's unlucky enough to be pitted against the almost flawless Asus CRW-4816A. At this price point, it's hard to justify buying the Cyber Drive when you can buy a superior drive for less.

→ Offering a no-frills performance at a low price, the Cyber Drive CW078D is a decent third choice





← Dropping two places to number four is the LG GCE-8400B, which is starting to look underspecified in the face of new contenders

#### 4 LG GCE-8400B

The LG GCE-8400B may have been a star in our July issue, but four months on faster Asus and Cyber Drive models are now in the ascendency. As much as anything, this is down to the natural ageing process of peripherals, and the LG's 40-speed CD-R and 12-speed CD-RW capabilities have now been surpassed. In addition, the GCE-8400B lacks some of the innovative features that would have pushed its technology further. There are no advanced writing controls or support for Mount Rainier (CD-MRW), for example, while the 2MB data buffer is standard. This amounts to moderate test results, turning out a 350MB CD-R in two minutes 41 seconds and a CD-RW in four minutes and 47 seconds.

The LG is a reliable and competent performer, but whereas the Teac can hold its own even when the competition upped the ante on write and rewrite speeds, the LG isn't as fortunate. Consequently, it looks a little overpriced and underspecified when compared to the leaner and meaner drives from Asus and Cyber Drive.

#### 5 Cyber Drive CW058D

The second of two Cyber Drive models to make the CD-RW chart, the CW058D is also the cheapest drive on offer. That its specifications fall short of its rivals' shouldn't deter anyone that places price above raw performance.

The Cyber Drive's 32-speed CD recording facilities may look long in the tooth compared to the 48- and 40-speed contenders, but elsewhere the CW058D manages to match the specifications of most of its rivals. You get 12-speed rewrite and 48-speed read facilities, for example, while the 2MB data buffer, ExacLink buffer underrun technology and 100ms (millisecond) access time satisfy expectations. The software bundle – Ahead Nero 5.5 – and sample media are good, and in our real world tests the CW058D managed to keep the other drives within sight without pushing up the error rate.

On paper the Cyber Drive may appear to be a laggard, but although there are undoubtedly faster drives available, the CW058D offers plenty of performance for a modest price tag.

→ The Cyber Drive CW058D may not be the fastest drive in the chart, but it's the cheapest



## DVD WRITERS

#### 1 Ricoh MP5125A-DP

In concept, DVD burning allows you to easily write and rewrite up to 4.7GB of data. In reality, a morass of competing standards and unstable software has hampered it. The fog may not have cleared, but this month sees a new breed of DVD writer that combines the versatility of the multiple-use DVD+RW format with the cheaper write-once facilities of DVD+R. The internal Ricoh MP5125A-DP is a prime example. Offering up to 2.4-speed write and rewrite facilities, the Ricoh can produce discs compatible with many standalone DVD players.

One difficulty of comparing DVD writers is that it's frequently the software that makes much of the difference in speed. Ahead Software's Nero package draws praise for its clear user interface, high success rate and unfettered speed. It's not surprising, therefore, that the top two chart performers are bundled with Nero. Although the Ricoh finished second to the ultra-fast Philips, the difference between the two rarely amounted to more than five seconds. Considering that it took close to 17 minutes and 46 seconds to burn over 3GB of data to DVD+RW, this gap is virtually insignificant. CD burning was also well tuned, taking less than four minutes 55 seconds to copy 350MB of files to a CD-RW.

The Ricoh's sub-£300 price tag, strong software bundle and top performance proves that it is the Best Buy for aspiring DVD writers.

← Our new Best Buy, the Ricoh MP5125-DP, combines a low price, top performance and strong software

→ Offering both the DVD+RW and DVD+R standards, the DVDRW228 from Philips claims an impressive write and rewrite rating of 2.5-speed

#### 2 Philips DVDRW228

This new drive from Philips takes the winning technology of the DVDRW208 (reviewed in the May 02 issue) DVD+RW drive and enhances it with the cheaper write-once DVD+R standard. On paper, its 2.5-speed rating should place it ahead of the glut of 2.4-speed drives. In practice, the actual speed advantage is minor, but it doesn't prevent the Philips from notching up the best times in our tests. The DVDRW228 was ruthlessly efficient, porting 3GB of data to DVD+RW in 17 minutes 41 seconds and generating a 350MB CD-RW in four minutes 53 seconds. Besides the standard buffer underrun protection, Philips keeps errors to a minimum with the help of Thermo-Balanced Writing, which adapts the method of burning to suit the type of media. This drive can't match the Ricoh's software bundle, but the video-authoring title MyDVD will give you enough to get cracking. Overall, the Philips misses out on the top spot as the Ricoh offers better value for money. However, for high performance and strong reliability the DVDRW228 stands as a first-class candidate.

#### 3 Sony DRX-120L

With so many new drives supporting DVD+R/+RW, it can be hard for a manufacturer to distinguish itself from the competition.



## DVD standards

The promise of a versatile and capacious recording medium has tantalised many a PC enthusiast over the last 18 months, but the rise of the DVD writer (offering over 4.7GB of storage) has been checked by the savage battle over standards. With drives being stamped with a variety of names and phrases (DVD-RAM, DVD-R/-RW, DVD-R/+RW), it's no wonder that users have been reluctant to embrace the DVD writer. The fight is by no means over, although one set of standards is now striding away from the competition.

Look to previous issues and you'll find many a drive aspiring to the DVD-R/-RW standard. The concept is broadly similar to that of CD-R/-RW drives so, in the case of DVD-R media, you can only write once. With DVD-RW, discs can be recorded to on multiple occasions in a similar fashion to a floppy disk. Speeds, however, are slower with DVD-RW topping out at single-speed as opposed to the double-speed of DVD-R.

DVD-R/-RW has, for the time being, been overtaken by DVD+R/+RW, a newer standard receiving support from such

high-profile manufacturers as Sony, HP, Philips and Ricoh. DVD+RW drives have been available for some time, but it's only now that we're seeing models also supporting the cheaper write-once DVD+R standard. Increasingly this is looking like the standard to aspire to, and its impressive 2.4-speed rating currently makes these the drives to buy.

One standard you definitely should be avoiding is DVD-RAM. Its high capacity may make it suitable for network backup, but the extremely limited compatibility with DVD players and drives means that this is unlikely to be embraced as the standard of the future.

It's still too early to say which set of standards will win out. If you must have the ability to record up to 4.7GB of data right now, DVD+R/+RW is currently in the driving seat and should extend its lead in the coming months. However, if you can afford to wait we would recommend doing so. The situation could easily change again and, at £300 a shot, DVD writers are bound to come down in price.



← If you require the convenience of external DVD burning then opt for Sony's DRX-120L – the only external device in the chart

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The DRX-120L, however, has one advantage – it's external. If you need the portability of an external DVD writer, Sony's FireWire interface will prove invaluable. The absence of an interface card means that you'll need to have a FireWire port on your PC, but the relevant cabling is included, and the user-friendly software gets you quickly up to speed.

The DRX-120L's performance is strong, and in testing the Sony came very close to matching the ultra-fast Philips drive. This may be the most expensive drive in the chart, but compared to the usual pricing of external models, the premium is relatively small. For the average user, the Ricoh and Philips models are better value for money, but for anyone requiring the convenience of external DVD burning, the Sony DRX-120L fits the bill.

#### 4 Pioneer DVR-A04

Just to prove that the fight over DVD writing standards hasn't gone away, the Pioneer DVR-A04 flies in the face of this month's other new entries. Just as the top three entrants boast DVD+R/+RW facilities, Pioneer is sticking to the more traditional DVD-R/-RW standard espoused by its predecessor, the A03.

The A04's shortcomings should be obvious from one look at the chart. Whereas the other drives are achieving write and rewrite rates of 2.4- or 2.5-speed,

→ When it comes to write and rewrite rates, the Pioneer DVR-A04 fails to keep up with the other contenders



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the Pioneer struggles to a meagre dual- and single-speed. The 12-/10-speed CD-R/RW facilities are similarly underspecified, and in our tests the drive struggled to match the competition. The Pioneer stumbled to an arduous 19 minutes 37 seconds in DVD-RW mode. Less convincing was the CD segment, with the A04 requiring over eight minutes to burn a 350MB CD-RW. The Pioneer's software bundle (consisting of the inelegant VOB's Instant CD/DVD and the tried-and-trusted MyDVD) is adequate, as is the modest price tag. Unfortunately, the Pioneer struggles to compete with the high-performance DVD+RW/+R drives lining the top of the chart.

→ Shunning the usual Nero route, HP has bundled the DVD200i writer with its own software packages

#### 5 HP DVD200i

As an out-of-the-box experience, HP's DVD200i has plenty to recommend it.

Accompanied by a raft of manuals, CDs and placemats, setting up the drive is painless. The DVD200i also has the specs to compete with the best, running from its 2.4-speed DVD+R/+RW facilities up to the 2MB buffer and error protection technology.

Competent though it may be, the DVD200i is hampered by a cumbersome software bundle. Rejecting CD/DVD stalwarts like Nero and VOB, HP prefers to saddle the drive with a number of its own programs. What this amounts to is a software suite that's big on colourful icons but short on content. In operation the DVD200i's software left it trailing behind the leaders, and on average it took almost a minute longer to complete the tests.

Although undoubtedly a good buy for the wealthy beginner, the HP will seem limited and long-winded to anyone used to the clean no-frills approach of software bundles offered by the other drives.



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