K56Flex modems

Nine
on the
line

Buying a 56K modem doesn't necessarily mean communicating at 56Kbits/s. We test nine K56Flex modems and explain the issues you need to consider before buying

When it comes to surfing the Internet, speed is everything. The faster a Web page downloads, the faster you can read it, get offline and stop paying for that phone call. For the foreseeable future at least, the fastest way to pull information off the Web without taking out a bank loan is to use a 56K modem. This can download information at speeds reaching 56Kbits/s – almost as fast as an ISDN line. Unlike ISDN though, a 56K modem doesn't cost a fortune and it works over an ordinary telephone line.

Unfortunately, buying a 56K modem isn't quite as simple as popping down the shops with your cheque-book – there are a number of issues you must consider before making an investment. We've tested nine 56K Flex modems this month and as our results clearly show, not all are created equal.

X2 and K56`Flex

If you want to buy a 56K modem, the first choice you have to make is whether to opt for an x2 or K56Flex model. X2 is US Robotics' implementation of 56K modem technology, K56Flex is Rockwell's. This distinction is important because although the two technologies achieve the same result, they do it in different ways, of which more later.

At the moment, US Robotics is the only manufacturer of x2 modems, so if you don't like the look of its Sportster Flash, too bad. K56Flex, on the other hand, is more widespread and most modem manufacturers have or plan to have a K56Flex model in their line-up.

56K and ISPs

When your PC connects to an ISP (Internet Service Provider), your modem is connected to one of the ISP's modems. Ordinarily, this

is a straightforward process, but the situation is a little different when it comes to 56K modems.

Unlike their slower 28.8Kbits/s and 33.6Kbits/s relatives, 56K modems aren't yet governed by an International Telecommunications Union (ITU) standard, which means that anyone can develop their own 56K technology and use it in a modem.

Unfortunately, this lack of a standard means ISPs that want to support 56K have to maintain a different set of modems for each manufacturer's modem technology. And that can prove to be an expensive business. As a result, although some ISPs offer support for both technologies, some only support one technology and a few don't support either of them just yet.

If you use a 56K modem to connect to an ISP that doesn't explicitly support the 56K technology it uses, the modem will only work at 33.6Kbits/s. In other words, if you already have an Internet account, you'll need to check what standard your ISP supports before buying a 56K modem.

Flash memory

Thankfully, the confusing incompatibility between x2 and K56Flex should be resolved when the ITU eventually issues a 56K modem standard. The standard may involve changes in the way both x2 and K56Flex modems work but this should make buying a 56K modem much simpler.

When the new standard is revealed, however, existing 56K modems probably won't conform to it. Fortunately, as long as a 56K modem has flash memory, there's no problem. All of the 56K modems tested here have flash memory and upgrading them to a new modem standard is as simple as running a small program on your PC.

Who can use a 56K modem?

The answer is 'not everyone'. The speed of any desktop modem is restricted by the chip that a PC uses to control its serial ports. Older PCs have a chip called a 8250 UART, which generally has a speed limitation of around 9.6Kbits/s. More modern PCs use a 16550 UART, which allows speeds of 14.4Kbits/s and above.

Apart from physically checking the chip on your PC's motherboard (it's usually obviously placed and labelled), there's no sure-fire way of checking what UART you have. The chances are that if you have a fairly new Pentium PC though, you'll have a 16550 UART.

There's no reason to despair if you don't have a 16550 UART in your PC. You can buy a cheap ISA expansion card that provides a serial port with 16550 UART or you can fit an internal 56K modem.

What is 56Kbits/s?

Despite manufacturers' claims that a 56K modem will allow you to surf the Internet at 56Kbits/s, this isn't quite the whole story. First of all, a 56K modem only allows you to *download* data at a speed of 56Kbits/s and anything your

How we did the tests

A 56K modem only works at 56Kbits/s when it's downloading data from an ISP (Internet Service Provider), so we tested each modem by doing just that.

Each modem was used to download five files a number of times, using a new connection each time. An average download speed was then taken and this is shown on the chart.

The files were a mix of those you're likely to encounter when browsing the Web – a .GIF, .TIF, .DOC, .RTF and an .EXE. To get the best performance from a modem, hardware compression was enabled for each download, ensuring that the ISP compressed each file before sending it down the phone line. Some files, like .TIFs can be highly compressed, whereas others (.GIFs) are already compressed and can't be squeezed much further. This explains why some modems have an average performance of more than 56Kbits/s and the figures show *apparent* download speed rather than just raw modem performance.

As the chart shows, although the modems claim to offer 56K performance, not all deliver it.

By far the fastest modem was the Pace 56e Voice, with its apparent download speed of over 67Kbits/s. This is around 50 percent faster than the benchmark 33.6Kbits/s modem and as such, offers a significant reduction in typical download times.
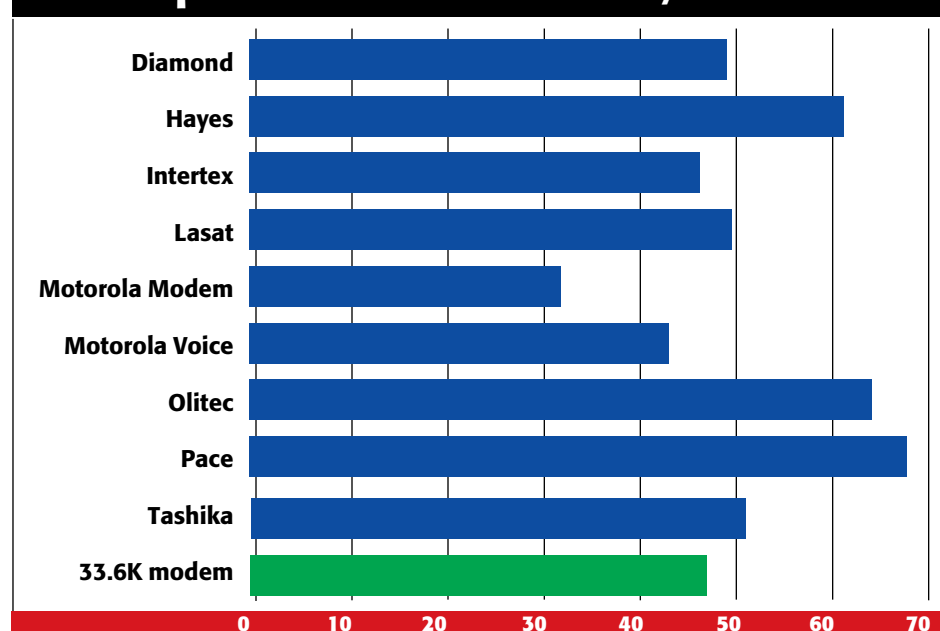
The Olitec Self Memory 56000

Flash comes in a close second, with an average download rate of almost 65Kbits/s – still a respectable performer. In third place is the Hayes Accura 56K with an average of 60Kbits/s.

Unfortunately, the rest of the modems are all way behind and most offer little performance increase over a 33.6Kbits/s model.

Finally, a black mark goes to Motorola for its ModemSURFR. With an average download speed of just 32Kbits/s, it's much slower than even the 33.6Kbits/s benchmark modem. This is simply unacceptable for a 56K modem and the ModemSURFR should be avoided at all costs.

Modem performance chart in Kbits/s

Modem	Performance
Diamond	~51
Hayes	~62
Intertex	~46
Lasat	~50
Motorola Modem	~32
Motorola Voice	~43
Olitec	~65
Pace	~68
Tashika	~51
33.6K modem	~47
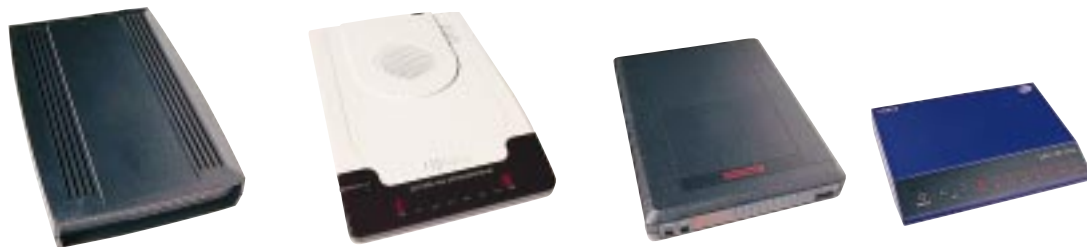
K56Flex modems

K56Flex modems compared

Product	Diamond SupraExpress 56e	Hayes Accura 56K	Intertex IX36	Lasat Safire 560 Voice
Spec				
RRP inc VAT (Note 1)	£108.10	£149	£222.08	£135
56K standard	K56Flex	K56Flex	K56Flex	K56Flex
Maximum fax speed	14.4Kbits/s	14.4Kbits/s	14.4Kbits/s	14.4Kbits/s
Features				
Voice-capable	❍	●	●	●
Speakerphone	❍	●	●	●
Flash upgradeable	●	●	●	●
SVD	❍	●	●	●
Serial cable	Captive	❍	●	●
Phone-through socket	On modem	On modem	On modem	●
Software	Trio Communication Suite	Smartcom Message Center LE	Trio Communication Suite	Trio Communication Suite
Ratings				
Performance	★★★★	★★★★	★★★	★★★
Documentation	★★★	★★★★	★★★★★	★★★★
Value for money	★★★	★★★★	★★	★★★
Features	★★	★★★★	★★★★★	★★★★★
Overall	★★★	★★★★★	★★★	★★★★
Notes				
Contact details	Diamond Multimedia 01189 444400	Hayes 01252 775577	Intertex 0181 870 6924	Lasat Communications 01270 886223
Web site	www.diamondmm.com	www.hayes.co.uk	www.intertex.se	www.lasat.com
High street availability	Mail order, Dixons, PC World	PC World, Byte, Tempo, Dixons, Comet	Interquad: 01753 536464	Computer Warehouse

Note: 1. Manufacturer's recommended retail price. Street prices are usually lower.

modem sends (e-mail, for instance) will be at 33.6Kbits/s.

Second, you can only download at 56Kbits/s when your 56K modem is connected to an ISP that supports your particular modem standard. If you connect your 56K modem to another 56K modem, both modems will only send and receive at 33.6Kbits/s – even if they are the same type.

Although this may sound like a bit of a con, the limitations on communication speed are entirely due to the way that 56K technology works rather than manufacturer marketing speak.

Besides, whenever you use a browser to look at Web pages, most of your modem's time is spent receiving data rather than sending it. If your modem can receive data at 56Kbits/s, this means that a Web page will appear that much more quickly, as the chart (below) shows.

Appearance and connections

All the modems in this test are desktop modems – they are designed to sit on top of your desk and connect to your PC via a cable. None of the modems have a particularly ungainly design, but one or two are particularly stylish.

Lasat has always been renowned for its smart modems and the Safire 560 Voice is no exception. While not particularly attractive, the Olitec Self Memory 56000 Flash is the smallest desktop modem we've ever seen – about the size of a disposable camera – and so if you don't like it, you can easily hide it out of the way.

All the modems have a strip of status LEDs on the front that tell you what the modem is doing. A few years ago, PC communications used to be a black art and initiates needed such things as 'AA', 'RD' and 'OH' displayed on their modem. While PC communications are now much simpler, the cryptically named LEDs still persist and only one manufacturer has seen fit to bring its modem up to date. A housepoint to Pace then for having the common sense to label the LEDs on its 56 Voice in plain English.

Since a desktop modem connects to a PC's serial port, you can't use one without a serial cable. It's usual for a manufacturer to supply one with its modems and Diamond even goes as far as having one permanently attached to its SupraExpress 56e. Hayes, on the other hand, is being a little tight-fisted in not supplying a serial cable at all and you have go out and spend an extra fiver if you want to get online with the Accura 56K.

Voice capability

All but two of the modems here (the Diamond and Motorola ModemSURFR) are voice-capable, which means they can also be used as a speakerphone. Calls are made using supplied software and you then talk into the modem's built-in

Transfer speed in mins of a 1Mb file

	0 mins	1 min	2 mins	3 mins	4 mins	5 mins	6 mins
28.8Kbits/s							
33.6Kbits/s							
56Kbits/s							

Motorola ModemSURFR	Motorola VoiceSURFR	Olitec Self Memory 56000 Flash	Pace 56 Voice	Tashika Online K56FlexVoice
£119	£129	£168.03	£139	£105.69
K56Flex	K56Flex	K56Flex	K56Flex	K56Flex
14.4Kbits/s	14.4Kbits/s	14.4Kbits/s	14.4Kbits/s	14.4Kbits/s
○	●	●	●	●
○	●	●	●	●
●	●	●	●	●
○	●	●	●	●
●	●	●	●	●
Extension lead	Extension lead	○	●	●
Trio Communication Suite	Trio Communication Suite	Olifaxvoice	SuperVoice	SuperVoice
★	★★	★★★★	★★★★★	★★★
★★★★	★★★★	★★★★	★★★★★	★★
★★	★★★	★★★★	★★★★★	★★★★
★★	★★★★★	★★★★★	★★★★★	★★★★★
★★	★★★	★★★★	★★★★★	★★★★
Motorola 0118 984 1075	Motorola 0118 984 1075	NP Datacom 01787 476976	Pace 0990 561001	Tashika 01675 466467
www.mot.com	www.mot.com	www.olitec.com	www.pacecom.co.uk	www.software-warehouse.co.uk
Dixons, PC World	Dixons, PC World	Mail order, Byte	Mail order	Software Warehouse

○ No ● Yes   ★ = Poor ★★ = Below average ★★★ = Average ★★★★ = Good ★★★★★ = Excellent

microphone as if it was a normal phone.

Most of the modems also have a built-in speaker for listening to calls. Although the quality isn't great, all the modems can be connected to external speakers for better sound. If your PC has a sound card, the software supplied with voice modems also provides sophisticated voicemail facilities with multiple message boxes. You'll need to leave your PC running to take advantage of this, but it's an easy way to give your answering service a professional sheen.

SVD

Using a modem as a speakerphone is no big deal – unless a voice modem also supports SVD, which stands for Simultaneous Voice and Data. It means that a modem can be used as a modem and a speakerphone at the same time.

The advantage of SVD is obvious – with your PC connected to another PC with an SVD modem, you can talk to the person at the other end of the line as well as exchange data with them. This could be as simple as taunting your opponent during a Quake Deathmatch or taking remote control of a customer's PC as you talk them through the software you've just sold them.

SVD modem-to-modem communication only works at 33.6Kbits/s and sending voice as well as data does have an impact on overall modem performance. All the voice modems here support SVD though, and it can be a useful extra.

Fax

Although few manufacturers make such a big deal out of it these days, all the modems here can also be used as a fax, or 'fax/modem'.

Using software supplied with a modem, you can use your PC to send information to a fax machine anywhere in the world. The process is as simple as choosing 'Fax' from an applications 'Print' option, and then anything you print will be sent to your modem instead of the printer. Once you've typed in a phone number, your modem will take care of the rest. Receiving faxes is just as simple – just leave your PC switched on and the fax software running.

Unless you have a scanner, a fax/modem is limited to sending information you already have on your PC. A modem can only do one thing at a time, so if you're using it as a fax you won't have access to the Internet. If you only have occasional fax needs though, a modem is much cheaper than buying a dedicated device. ●

As our tests show, you can't always rely on a manufacturer's claims for its 56K modem. The poor performance of some of the models we tested can be blamed firmly on poor internal design and they simply aren't up to the demands of receiving data at high speed.

Since modems are all about speed, the Best Buy is a simple choice. The Pace 56e Voice is the fastest modem by far yet is also one of the cheapest. At £139, it offers fantastic performance, and represents great value for money.

A whisker behind in the performance stakes is the Olitec Self Memory 56000 Voice. Although it's more expensive than the Pace, it's considerably cuter to look at and is certainly worth considering if you're running out of that vital commodity – desk space.

Also recommended is the Hayes Accura 56K, which is a capable performer. Although this modem is also more expensive than the Pace and doesn't come with a serial cable, it's still good value. Julian Prokaza