It seems that if RDRAM's superiority is mathematical, the figures don't add up, says Gordon Laing.

The RDRAM scam

In the fashion world you often hear about trendy colours being described as the new black. So, what's the new black in terms of desktop computing? For a while, 3D graphics cards were number one, but judging by the concerns of everyone I speak to right now, the new black for PCs is the crucial combination of memory and chipset.

I reckon this story starts at the original announcement of Intel's 820 and 840 chipsets that were designed for new RDRAM memory only. However, as RDRAM prices remained high, Intel supplied a translator chip which allowed the 820 and 840 to talk to good old cheap SDRAM. Alarm bells, however, rang when SDRAM performance under the translator chip was revealed to be lower than on Intel's aging 440BX chipset.

So, the big question for PC buyers was whether they should stick with BX and 100MHz SDRAM, perhaps try the 820/840 with either inferior SDRAM performance or expensive RDRAM memory, or check out alternative 133MHz SDRAM solutions from the likes of VIA.

700MHz RDRAM delivers 1.424Gbytes/sec (712 million x 2bytes), which is only 1.3 TIMES THE BANDWIDTH of 133MHz SDRAM

Times have moved on since BX, and newer chipsets offer AGP 4X and UltraDMA66 interfaces, although neither have made much difference to me personally. They also provide official 133MHz front-side bus options with appropriate PCI and AGP bus dividers.

But what about the question of SDRAM vs RDRAM under Intel's 820 and 840 chipsets? Intel and RAMBUS have long claimed RDRAM to be much quicker than SDRAM, and the 800MHz speed of RDRAM certainly sounds impressive, until you look a little closer.

The RDRAM bus is only 16bits wide, compared to the 64bits of SDRAM. Consequently, 800MHz RDRAM is capable of transferring 1.6Gbytes/sec (800 million x 2bytes) compared to 1.064Gbytes/sec (133 million x 8bytes) on 133MHz SDRAM – not all that big a difference.

Unlike conventional SDRAM, however, RDRAM transfers data on the rising and falling edges of clock pulses – hence 800MHz RDRAM is driven by a 400MHz clock. 800MHz RDRAM is a rare beast and many 820 chipset systems are supplied with 700MHz RDRAM. This actually runs at 712MHz, which means its clock is driven at 356MHz – look out for this figure, indicating 700MHz RDRAM, on PC adverts. So, 700MHz RDRAM delivers 1.424Gbytes/sec (712 million x 2bytes), which is only 1.3 times the bandwidth of 133MHz SDRAM.

Supporter Dell claims on its website that RDRAM is 116 per cent faster than SDRAM. Well, in some early tests I've performed using the Wstream memory benchmark (see next month's *Hands On, Hardware*), 800MHz RDRAM on an 820 chipset was only around 50 per cent faster than 100MHz SDRAM on a normal BX chipset. Maybe reality lies somewhere in between, but more importantly, what's the price you pay for this extra performance?

At the end of March, 128MB of PC133 SDRAM cost around £94 inc VAT. RDRAM proved very elusive, but on its website Dell was offering 128MB 700MHz RDRAM system upgrades at a 'bargain' £352 inc VAT!

If you're into photo retouching or video editing, and demand 512MB or more memory, the price of RDRAM becomes even more prohibitive. Servers, too, require plenty of memory, which is why Intel's future high-end Foster chipset will support double data rate (DDR) SDRAM instead. Also transferring data on rising and falling pulses, DDR SDRAM will double existing bandwidth to equal or more than that of 800MHz RDRAM.

There are other benefits to RDRAM, but the fact is that it's ridiculously expensive and not quick enough to justify it – systems we've application-benchmarked are not significantly faster than those designed for SDRAM, and in many cases directly comparable. Unless you're into tweaking BX chipsets, it would appear that dumping the 820 with or without RDRAM in favour of the genuine PC133 SDRAM-support of the VIA Apollo Pro 133A may currently be the most sensible mainstream choice. RDRAM may be faster, but a system equipped with 512MB of SDRAM at the same cost of 128MB of RDRAM will certainly be doing a lot less pausing for virtual memory, and consequently going faster overall.

This summer, Intel is expected to release its 815 Solano chipset, designed to use PC133 SDRAM from the outset, which could be the dream ticket for Pentium purchasers.
Long live SDRAM!

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Barry Fox unravels the knots of the ISP battle and realises they don't call it the web for nothing.

That's another fine mess...

Dixons and Freeserve changed the rules by offering free Internet access and email. Alta Vista, NTL and Freeserve are now changing the rules again by offering free phone calls to the ISP node in return for the commitment to spend at least £10 a month on speech calls through one of BT's rivals. The economics are shaky. Freeserve and the Me-Too services hope to earn revenue from advertising, ecommerce and a share (roughly 50/50) of the local call rates paid to BT for connection. But users quickly learn how to avoid the home page and never see the adverts. Offering free calls knocks out the share revenue. And when BT's rivals give free calls they must still pay cash to BT for use of the copper wires that BT owns, connected to 20 million homes.

Once something is free or cheap, no-one wants to pay for it again unless there is a very good reason. So where does this leave the two main pay-to-use services, AOL and CompuServe?

AOL has already launched the Me-Too AOL/Netscape On-Line (NOL) free Internet service, and CompuServe has tiered its tariffs. But the AOL/NOL services (such as Freeserve et al) are only available by dialling a UK node.

If you want to access email or the Internet (nearly) anywhere in the world for the price of a local call, without signing up to a local ISP and without finding an Internet café, AOL and CompuServe are the answer.

Last year I wrote about the mess which followed the takeover of CompuServe by AOL and the launch of CompuServe 2000, which uses the same infrastructure, customer database and family of software. This prompted a stream of emails from CompuServe users who had upgraded from Classic Ver 4 to CS2000, bitterly regretted it and been told that reverting to Classic would mean the loss of incoming mail for several days. Others still email me to ask if it is now safe to change. So I have been trying to unravel the facts that got lost when the company slid the new service onto the market with cover-mount discs and mailshots.

Over a period of months a succession of literally a dozen or more UK spokespeople have given me a series of contradictions. I was told there was a surcharge of £2.50 per access for foreign use. Then it turned into £2.50 per hour. Online help was often useless. When my ISDN connection stopped working I was run ragged with advice to uninstall, reinstall, replace the Motorola/BT Terminal adaptor and so on. After a month, CompuServe finally admitted what I had suggested in the beginning; a change in the network protocol had knocked out some modems.

The same thing happened with GSM cell phone access in Germany. I spent a fortune on dropped calls.

No wonder fewer than five per cent of Classic users have migrated, and there are now persistent rumours that subscribers who phone to cancel their accounts are offered free use to stay.

The good news is that, after my barrage of letters and faxes to European Big Boss Man Andreas Schmidt, and copies to all and sundry at CompuServe in the US, we do now have the refreshingly frank admission from welcome new blood in the UK: 'The conversion from Classic to 2000 was mishandled. The two services are completely different and this was never communicated. It was a mistake and wholly regrettable. We are absolutely committed to supporting Classic if people want to stay with it.'

If there's any justice, the German and British management who made such a hash of the CS2000 launch, will be shown the door. Here are some of the hard facts that they should have been communicating to existing and new subscribers:

- CS2000 shares names with AOL, so most are long gone. Try phonetic spelling (mine is barryphox@cs.com) or adding UK to your name.
- Although there was no international access surcharge with Classic, there now is and it is the same as for AOL, usually around £2.50 an hour but it can be more (Oman is £23.13!). Check with GO PHONES, Communications Surcharges.
- A new service called CS Webmail allows international access through ISPs (http://csmail.compuserve.com).
- The CompuServe helpline used to be a freephone number; now you pay national rate.
- If you go back to Classic from 2000, mail sent to the 2000 address won't be forwarded. So be sure you want to change before you pop in one of those freebee discs.

If there's any justice, the German and British management who made such A HASH OF THE CS2000 LAUNCH, will be shown the door

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In this information age, Brian Clegg thinks a product label database for e-groceries is long overdue.

Supermarket sweep

Etail, the gentle art of getting us to buy over the Internet, is finally out of short trousers and showing signs of growing up. Yet for all the excitement of investors, the revolution that some expected hasn't materialised. Etail companies have been likened to the businesses involved in the disastrous South Sea Bubble – before the bubble burst. One of the problems etailers have is that so much of shopping is a touchy-feely experience. I heard an author on the radio recently drooling over the physical retail experience and expressing his doubts that buying over the web could ever really be Shopping with a capital 'S'.

It certainly explains why items where touching is largely irrelevant, such as books and CDs, have done so well. But there is an intermediate type of shopping that hasn't made it yet, despite a good match to the Internet – groceries. Tesco, Sainsbury and friends are plugging away, but they aren't getting the sort of uptake that you might expect. (It's interesting that new names such as Amazon dominate ebook and emusic selling, but only the old high-street faithfuls have bothered with supermarket produce.)

Before long you will be able to SHOP INTELLIGENTLY. You could specify that you only want vegetarian foods. Or gluten-free

It doesn't help that the trials have approached the opportunity in a dumb way. Who would benefit most from esupermarkets? Those in rural areas who find it a pain to get to a shop. So where do supermarkets target ebusiness? Cities and large towns. Of course distribution is easier, but the prospect of egroceries is less exciting when you pass half a dozen supermarkets on your journey home from work. And there's another factor at play. Supermarket shopping isn't just 'I want a tin of beans'. The produce might not have the feel appeal of clothes, but there's more to it than a brand name. We like informative labels. Look at a typical food product. You'll see details of fat content, additives and more. When we choose a butter substitute we might go down the line, comparing saturated fat levels. When we pick out orange squash, the colourings can influence the decision.

Putting detailed information for each product into the estore of a supermarket is a frightening thought. Enter third-party information brokers i-label. This company has negotiated with most manufacturers to put together a database of electronic labels. Everything you need to know about the products in one place. And the supermarkets are rushing to sign up. Tesco is already using it. Sainsbury was hot on its tail. Asda, Waitrose, Budgens and more are on the way. What's the big deal here? After all it's only another database.

But think what it gives the consumer. At the moment the supermarkets are only using the database to provide product details. But before long you will be able to shop more intelligently. You could specify that you only want vegetarian foods. Or gluten-free. Or those with a low fat content. You could be alerted to new products matching your preferences. Where current esupermarkets provide an unstructured experience that only gains you time and delivery over a conventional store, there's the chance to provide real service, tuned to your needs.

There are other possibilities for the future, too. The database could be used by the new Foods Standards Agency or *Which?* or *Good Housekeeping* to make cross-product comparisons more effective and accurate. And a grocery equivalent of the price comparison services mentioned at the end of my column could enable you to put together the shopping basket of your choice, then price it at different stores. At first sight, a labelling database seems a very small step for etail, but when it comes to bringing the supermarket to the desktop it could be just what the grocer ordered.

Back in the March issue I eulogised about Bookbrain (www.bookbrain.co.uk), the agent site which allows you to compare prices at different UK online bookshops. Thanks to a number of readers I can point out a similar site which is also worth a visit – Shopsmart (www.shopsmart.com). This is a service providing instant price comparisons on music, DVDs, videos and games as well as on books. I'd still recommend Bookbrain for books – it covers more shops and the presentation works better for me – but Shopsmart is well worth adding to your growing list of agents.

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Public organisations are ignoring the best medium to get their message across, says David Fearon.

Playing second fiddle

A couple of months ago I mentioned the way that the economic revolution brought about by ecommerce was threatening to sweep the benefits of the Internet away in a blizzard of retail websites and dotcom share offers. One of the by products of commercialisation is the way everyone's getting a bit carried away with multimedia, broadband whiz-bang uses of the web and forgetting that it's the best delivery system there is for good old text.

An example of the general potential of the Internet, and something I've been looking for an excuse to mention for a while, are the Internet RFCs. Edited and maintained via Internet Society funding (www.isoc.org), the RFCs (requests for comments) are a huge collection of text files that define and document, among other things, every aspect of the standards, protocols and networking systems that make the Internet work.

Now I personally find the contents of the RFCs fascinating, but I know I'm in the minority in that respect: most Internet users aren't trying to write SMTP mail clients or FTP servers. If you're interested enough in how the Internet works to wade through the technical stuff though, the RFCs are a brilliant resource. Visit www.rfc-editor.org and have a gander.

But it's not the contents of the RFCs that interests me so much as the methodology behind them. They're a standalone online repository. RFCs published over the Internet represent the definitive versions of the standards in question, rather than an error-prone, outdated copy of a paper-based master document buried in a filing cabinet somewhere, and access to them is totally free. It shows what can be done when the will is there.

The web is a fantastic resource for computing and technology-related information and documentation, but it's definitely lacking as far as wider pursuits go. Search engines and portals do a reasonable job of scraping together all the disparate sources for a given topic, but as we all know, coverage can be patchy, and most of it is devoid of any kind of editorial standard. When I'm looking for information on anything not containing a microprocessor I invariably end up with 20 browser windows open, wading through links trying to find the best unofficial resource: for definitive information on many topics I often have to resort to traditional media.

Most public organisations' websites, retail sites excepted, are no more than online leaflets providing electronic lip service instead of a decent web presence. Most British organisations that should have taken the plunge ages ago still don't have any significant, accessible online resources. My pet hate is the British Library, whose site (www.bl.uk) is turgid, bureaucratic and completely useless to the average person, just like the real building in St Pancras. Ordinary members of the public aren't allowed physical access to the Library's material, so the case for making its contents available electronically is pretty clear. You obviously can't just dump the contents of one of the largest paper-based archives in the world onto a web server overnight, but the whole organisation is still skewed toward paper-based information archiving, when it should be going all-out to at least provide all new text-based publications electronically via HTTP.

My pet hate is the British Library, whose site is turgid, bureaucratic and COMPLETELY USELESS to the average person

The web will never reach its full potential as a true information resource if it's always playing second fiddle to old publishing methods. It really is time that HTTP became the native distribution method of any organisation that produces or provides documents in the public domain. Put it on the web first and make that version the definitive master that supersedes any other format. Aside from the fact that anyone in the world can then get access to it instantly, we all know that the immediacy and the fact that revisions are automatically and instantly distributed makes it superior to any other medium. Physical versions should filter down from the electronic versions, not vice versa.

Unfortunately, I can't see any of this happening without serious government initiatives and support, however, Mr Blair and chums have only just got to the point of summoning up the confidence to mention the word 'Internet' in public, without the fear of alienating 10 million voters. Still, you could always try sending a message to Tony yourself (www.number-10.gov.uk/yoursay) and see what happens.

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