

Barry Fox is philosophical over the DVD-format battle, because Sony is setting its own standards.

To DVD, or not to be



We are now heading into one of the most important standards battles since VHS vanquished Beta and IBM's move into personal computers competed head-on with the pre-DOS plethora of home formats.

Both CD and DVD were launched as agreed industry formats, and DVD is now smoothly replacing CD, since new DVD drives can play old CD music discs and ROMs. But there are now five ways of using DVD to record audio, video and data.

It's too late to agree a common choice and the stakes are enormous. Whichever system becomes the *de facto* standard will dominate the future of digital storage.

The result is a war of words, with claims and counter-claims, muddled by hype, misinformation and ignorance. The only safe basis for any decision or opinion is fact.

Building a digital video disc recorder is a tall order, because most video signals are still analog and must be converted, on the fly, into the MPEG2 code used for DVD. Because it is working in real time the recorder cannot use the DVD-Video trick of saving bits by varying the data rate to suit the picture content (more bits where there is fine detail and motion, and less for static images). Several companies have developed prototype single-chip encoders and the cost will fall, but they work at a fixed bit rate. So storage capacity should ideally exceed that of a pressed DVD.

The 'official' erasable DVD format, approved by the DVD Forum, is DVD-RAM. Several manufacturers (Hitachi, Toshiba and Panasonic) already sell RAM recorders for computer use. Like CD-RWs, RAM discs rely on a phase change coating which records the information as reversible changes in reflectivity. But the changes are so small an ordinary DVD-ROM drive or DVD-Video player can't read them.

Future drives will achieve playback with variable laser sensitivity, but this is no consolation to owners of existing hardware. Likewise, existing DVD drives and players cannot accept the protective caddies in which RAM discs must be housed.

The capacity of DVD-RAM has so far been limited to 2.6GB, whereas pressed DVDs have a capacity of at least 4.7GB. Panasonic claims improved laser optics can track the blank disc with sufficient accuracy to store 4.7GB.

Pioneer has a semi-official phase change format

called DVD-RW which also matches the capacity of pressed DVDs. This builds on the official DVD-W, write once, format which is compatible with existing DVD drives. But Pioneer admits that existing players will need modification if they are to play -RW phase-change discs.

NEC has another variation on the same theme, dubbed GigaStation. This uses Multimedia Video Disc, which looks like the official standard DVD-RAM, but stores 5.2GB per side instead of the 4.7GB promised for DVD-RAM. No backwards compatibility is claimed.

Philips, Sony and Hewlett-Packard opted for a completely different format which they call DVD+RW. The DVD Forum frowns on it.

DVD+RW also uses a modified phase-change system, but Philips claims that +RW recordings will play back on existing DVD-ROM drives and DVD-Video players.

At the recent IFA consumer electronics show in Berlin, Philips 'proved' this by shooting the press, recording the images on +RW discs and letting people choose which of a wide range of players to use for playback.

This sent the clear message that DVD+RW is the best bet for erasable DVD, regardless of whether the format has the official blessing of the DVD Forum, or not.

During IFA, Pioneer people were hinting darkly that Philips had rigged the demonstration. Weeks later,

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in Japan, Panasonic's Sakon Nagasaki told American journalists the same thing, saying that any manufacturer who claims two-way compatibility 'is not telling the truth'.

Philips denies this, but has declined the invitation to send a +RW recording for us to try on consumer players.

Sony, however, has now scrapped DVD+RW as an audio and video home recorder. Its plan is to use a 5in erasable disc, and 515nm blue laser, storing up to 20GB of data on a single side. The move was prompted by America's adoption of a high definition (HD) digital TV system, for which a 4.7GB DVD would be inadequate.

A 20GB disc could record a whole HD movie per side and, incredibly, back up a full PC hard disk on a blank.

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