

Background information

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It's all a question of format

~ With Digital Versatile Discs (DVD), the market has not yet agreed on a single standard ~

Games freaks and home cinema lovers agree: the DVD (Digital Versatile Disc) has established a firm place in their lives. As a recorded medium, the DVD started its march to victory in the consumer sector a long time ago. But as part of the search for new storage systems, the demand for DVDs as a writable medium is also increasing. Particularly for users who handle large volumes of data, a disc of this type offers real advantages: at the moment, these discs can hold up to 4.7 GB – thanks to flatter, smaller indentation, in comparison with CD-Rs, creating space for more tracks per DVD. The only drawback is that there is as yet no industry-wide format that is supported by all hardware manufacturers – and prices are disproportionately high. At the moment, there are four formats, competing with each other in some cases, which can be divided, like blank CDs, into two categories: those that can only be written to once, and those that can be rerecorded. The first group includes the DVD-R, the second covers the DVD-RAM, DVD-RW and DVD+RW.

The formats

The **DVD-R** is a WORM format (Write Once, Read Many) – which means that, once it has been recorded, data can be called up as often as you like. At present, the DVD-R can hold up to 4.7 GB of music, text, computer and video data and be played on almost any DVD-ROM drive and DVD video player. The appliances for writing to the DVD-Rs are rare and expensive at the moment – a drive of this type made by Pioneer currently costs around 5,500.- US dollars. As soon as the range of recorders

increases and prices become more affordable, market studies estimate that demand for DVD-Rs will increase. The whole development is reminiscent of the rise of the CD-R – here too, a mass market developed as soon as the appropriate hardware became available. In the long term, it is expected that the price per disc will fall from just under 25 US dollars to about the same as CD-Rs. At the moment, there are still different standards for professionals – the DVD-R for authoring – and for consumers, which is adding to the general confusion.

The **DVD-RAM** – the abbreviation stands for Random Access Memory – was first launched back in 1998, and is particularly suitable for high-volume multimedia applications and computer backups; it is also used as a secondary and tertiary data archiving medium in the professional sector. It now also has a capacity of 4.7 GB and, at around 0.01 US dollars per megabyte, is the cheapest form of DVD storage at present. However, this advantage is offset by its extremely limited compatibility. In most cases, a special DVD-RAM drive is required, since only a very few traditional read-only devices can read these discs. For this reason, even the low hardware prices - 250 US dollars for an internal drive and 650 US dollars for an external one - have little effect on the success of this format. The hardware suppliers are Panasonic, Hitachi and Toshiba.

The abbreviation **DVD-RW** is used to describe a rewritable format that allows the user to write to the same disc several times. Like the DVD-R, the DVD-RW is suitable for video, music and IT applications and can be played in almost any DVD player, with slight firmware modifications. With a storage capacity of up to 4.7 GB – which is a good two hours of film – the DVD-RW may outpass the normal VHS video system in the long term, as soon as the appropriate video disc recorders have become established in the market and the further capacities proposed in the product road map are available. This also presupposes a much lower disc price – they cost around 50 US dollars each at present – plus a supply of the appropriate hardware. At the moment, this segment is being fought over by suppliers such as Pioneer, Yamaha,

Ricoh and Thomson, who only supply the market in Japan, however. In the future, manufacturers intend to focus on two areas: the data sector, for which there will be a Multiwrite device that can write not only to DVD-RWs but also to DVD-Rs and the still popular CD-Rs and CD-RWs, and the home entertainment sector based around a DVR as the main component.

Finally, as an unofficial format that is not part of the DVD forum comes the **DVD+RW**: a consortium made up of companies such as Philips, Sony, Hewlett-Packard and Mitsubishi Chemical supports this DVD format, which is primarily targeted at the end user, especially for home cinema use. Like the DVD-RW, the medium holds 4.7 GB and can be written to more than one. The first appliance will be presented at this year's IFA Berlin, at a cost of around 2,500 US dollars. It is not yet known how much the silver discs will cost, but they are bound to be in the same range as the competitor products. However, once the discs have been launched, it is likely that the DVD+RW will benefit from the reticence of the hardware industry and will stand a good chance of becoming just as successful as the CD-R/RW.

Memorex, the world's market-leader in CD-R and CD-RW media and a specialist in optical data media, will shortly be launching various DVD formats.

"Demand will decide which format will predominate in the end", says Joachim Kürten, VP and General Manager at *Memorex* Products. "In concrete terms, the write-once DVD-R, as the universal successor to the CD-R, and the rewritable DVD-RW and DVD+RW, because of their home consumer focus, will probably have the greatest success. In any case, our product portfolio will include all the solutions that promise maximum hardware compatibility in the long term."