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Alert

'Wear levelling' - a bedroom aid for multi-layer cell Flash Helps it last longer

By [Chris Mellor](#) • [Get more from this author](#)

Posted in [Storage](#), 13th December 2010 09:15 GMT

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Comment Multi-level cell NAND flash doesn't last as long as single-level cell flash but there are ways to increase its life, under the generic heading of wear-levelling.

NAND flash cells have a finite life, in that they only support a specific number of writes before failing to return valid data from a read request. It's necessary to understand some background characteristics of flash before moving on to ways of overcoming this limitation.

Flash is not byte-addressable, unlike disk drives and DRAM. Instead it is block-addressable, with pages of 4KB or so making up blocks of 512KB to 1MB typically, and bytes are written as page writes. A further property of flash is that two access cycles are needed to write data to a block that already contains written data.

Access one is used to erase all the data in the block's cells, a block erase, and access two is used to write the fresh data there. A common

problem is that not all the data in a block is invalid and the valid data must be retained.

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