

## **Hitachi Releases High-Speed MultiMediaCard™ Series Achieving Industry's Top-Level Write Speeds**

— The 128/64/32/16-Mbyte product lineup offer write speeds approximately 3 or 6 times as fast as existing Hitachi MultiMediaCards —

Tokyo, September 10, 2001 Hitachi, Ltd. (TSE: 6501) today announced the high-speed MultiMediaCard™\*1 series, offering the industry's top-level write speeds, for use as flash cards in products such as digital cameras and portable music players. Sample shipments will begin in 11 September 2001 in Japan for the 64/32/16-Mbyte products and 10 October 2001 for the 128-Mbyte product.

- 128 Mbytes: HB28B128MM2, 2.0 Mbyte/second write speed
- 64 Mbytes: HB28D064MM2, 2.0 Mbyte/second write speed
- 32 Mbytes: HB28D032MM2, 1.0 Mbyte/second write speed
- 16 Mbytes: HB28E016MM2, 1.0 Mbyte/second write speed

\* The write speed is the write time for the card itself, and does not include processing time in the player.

The products in this series offer write times approximately 3 or 6 times as fast as existing Hitachi MultiMediaCard s, and are also the industry's first products to conform to the System Specification Version 3.1 specifications standardized in June of this year by the MMCA (MultiMediaCard Association), the MultiMediaCard standardization body. Multiblock writes are possible with interfaces widely used in the market, and in SPI mode, enabling higher speeds to be achieved.

### **[Background]**

Flash MultiMediaCards are the smallest and lightest flash cards currently available on the market, and because of their ease of use are widely used in devices such as digital cameras, mobile phones, PDAs, and portable music players. Demand for these cards is expected to continue to grow in the future. Hitachi currently has 64-, 32-, and 16-Mbyte MultiMediaCards in mass production, and has developed a 128-Mbyte model, but the need to raise imaging speeds as digital camera pixel counts increase, and to speed up music storage on cards in music players, has brought a demand for faster card write speeds. To meet this demand, Hitachi has now developed the High-Speed MultiMediaCard Series.

## [About these Products]

This high-speed series offers the following features.

1. Industry's top-level write speeds

The use of newly developed high-speed flash memory together with improvements in controller write logic, plus the use of interleaving\*<sup>2</sup> in the 128- and 64-Mbyte models, has made it possible to achieve write speeds of 2.0 Mbytes/second\* for the 128-/64-Mbyte models (approximately 6 times as fast as the 350-Kbytes/second\* of Hitachi's current models), and 1.0 Mbyte/second\* for the 32-/16-Mbyte models (approximately 3 times as fast as the 350-Kbytes/second\* of Hitachi's existing models). As a result, with a 128/64-Mbyte card, for example, the previous 1.5 second\* write time for around 500 Kbytes of image data in a 3-million-pixel class digital camera has been reduced to a mere 0.25 seconds\*, while the previous 5 to 6 minutes\* required for the data of one music track has been reduced to just 1 minute\*, making it possible to write to individual cards.

(\* Write time for the card itself, not including processing time in the player)

2. Industry's first products conforming to MMCA's System Specification Version 3.1 specifications

Multiblock write was previously only possible in MultiMediaCard mode, but in line with the System Specification Version 3.1 specifications released in June of this year, can now also be used in SPI mode. This allows high-speed data writing.

The label design is a new design projecting an image of high-speed performance, enabling the new products to be distinguished from current ones.

## [Support Tools]

Support tools for use when designing a system using MultiMediaCards are available from third-party suppliers, including driver, file manager, and other software\*<sup>3</sup>, hardware such as an H8S microcomputer-based development platform, and also analytical tools such as a dedicated MultiMediaCard protocol analyzer\*<sup>4</sup>.

Notes: 1. MultiMediaCard is a trademark of Infineon Technologies AG of Germany, and is licensed to the MMCA (MultiMediaCard Association). Hitachi is an MMCA board member.

<http://www.mmca.org/>

2. Interleaving refers to the simultaneous writing of two or more flash memories. By performing parallel writing it is possible to approximately double the write speed.
3. Driver and file manager software is marketed by AI Corporation in Japan.
4. An H8S microcomputer-based development platform and dedicated MultiMediaCard protocol analyzer are marketed by KOKUSAI ELECTRIC ALPHA CO., LTD.

## < Typical Applications >

- Portable imaging products such as digital video cameras and digital cameras
- Handheld PCs, palm-size PCs, PDAs, electronic organizers, and similar portable information devices
- Mobile phones with music download/playback functions, portable music players, toys, game machines, and similar portable entertainment products
- Smart phones, pagers

**< Prices in Japan > (For Reference)**

<b>Product Name</b>	<b>Capacity</b>	<b>Price</b>
HB28B128MM2	128-Mbytes	Open price
HB28D064MM2	64-Mbytes	
HB28D032MM2	32-Mbytes	
HB28E016MM2	16-Mbytes	

**< Specifications >**

	<b>Specifications</b>			
	<b>HB28B128MM2</b>	<b>HB28D064MM2</b>	<b>HB28D032MM2</b>	<b>HB28E016MM2</b>
Memory capacity	128-Mbytes	64-Mbytes	32-Mbytes	16-Mbytes
Interfaces	- MultiMediaCard - SPI(Serial Peripheral Interface) MultiMediaCard System Specification Version 3.1 compliant			
Read speed	1.7 Mbytes/sec			
Write speed*	2.0 Mbytes/sec		1.0 Mbyte/sec	
Operating temperature	- 25°C to + 85°C			
Package dimensions	32 mm × 24 mm × 1.4 mm, 7 pins			

\* The write speed is the write time for card itself, and does not include processing time in the player.