Hitachi Releases Small, Large-Capacity Mobile Media Chips

— Industry's smallest mounting area of 11 mm × 10 mm for 32-Mbyte flash memory for embedding in mobile devices —

Tokyo, October 22, 2001 — Hitachi, Ltd. (TSE: 6501) today announced two Mobile Media Chips with AND-type flash memory and its controller mounted in a small package, for data storage use in small mobile devices such as mobile phones and PDAs. Sample shipments will begin on October 23, 2001, for the 16-Mbyte (128-Mbit) HB28E016BP2, and in December 2001 for the 32-Mbyte (256-Mbit) HB28D032BP2 in Japan.

These two products employ a small 71-pin FBGA (Fine-Pitch Ball Grid Array) package to allow their use in small devices, offering the industry's smallest mounting areas of 11 mm × 9 mm (typ.) for 16-Mbyte (128-Mbit) flash memory and 11 mm × 10 mm (typ.) for 32-Mbyte (256-Mbit) flash memory.

A controller handling complex control such as AND-type flash memory faulty sector management and ECC (Error Correcting Code) management is also incorporated, simplifying embedding in an end-product and reducing the processing load on the CPU.

[Background]

With the ever greater volumes of information associated with the increasing functionality of small mobile devices such as mobile phones, PDAs, and digital cameras, and the popularity of various kinds of content distribution using communication functions, the trend is one of increasing memory capacity in these devices. While it is possible for flash memory suitable for data file storage to be incorporated directly into such devices, complex new flash memory file management systems need to be designed and these impose an additional processing load on the CPU.

With these considerations in mind, Hitachi has developed Mobile Media Chips that simplify user system design and reduce the processing load on the CPU by incorporating a controller to handle such kinds of control together with flash memory in a single package.

[About this Product]

In these two new products a controller is stacked above the industry's smallest AND-type flash memory in a single package, achieving both large capacity and the industry's smallest mounting area. The 16-Mbyte HB28E016BP2 incorporates 128-Mbit flash memory in an 11 mm × 9 mm × 1.4 mm (max.) package size, while the 32-Mbyte HB28D032BP2 incorporates 256-Mbit flash memory in an 11 mm × 10 mm × 1.4 mm (max.) package size. These sizes are approximately half those of Hitachi's TSOP packages.

By also incorporating a controller used for MultiMediaCard™*[1] miniature flash cards, the faulty sector management and ECC management characteristic of AND-type flash memory can be carried out within the Mobile Media Chip, simplifying embedding in the end-product.

The SPI (Serial Peripheral Interface) mode provided for the interface is widely used commercially, and is also used for MultiMediaCards. There is consequently no need to develop new driver software for an end-product that already uses a MultiMediaCard, and embedding design can be carried out using the same file system environment.

[Development Support Tools]

When designing a system using a Mobile Media Chip, the same support tools can be used as for Hitachi MultiMediaCards. Driver, file manager, and other software*[2], hardware such as an H8S microcomputer based development platform, and also system analysis tools such as a dedicated MultiMediaCard protocol analyzer*[3] are available from third-party suppliers.

Future plans include the development of larger-capacity models to provide a comprehensive Mobile Media Chip lineup.

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. Driver and file manager software is marketed by AI Corporation in Japan.

3. 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
- Portable communication devices such as smart phones and pagers

< Prices in Japan >(For Reference)

Product Code	Capacity	Sample Price (Yen)
HB28E016BP2	16 Mbytes	2,400
HB28D032BP2	32 Mbytes	4,800

< Specifications >

Item	Specifications	
Memory capacity	16 Mbytes (HB28E016BP2)	32 Mbytes (HB28D032BP2)
Interface	SPI (Serial Peripheral Interface)	
Read speed	1.7 Mbytes/sec	
Write speed*	1.0 Mbyte/sec	
Power supply specifications	Operating voltage: 2.7 V to 3.6 V	
Read/write specifications	512-byte block read/write Multiblock read/write also possible	
Operating temperature range	-25°C to +85°C	
Package dimensions	11 mm (typ.) × 9 mm (typ.) × 1.4 mm (max.)	11 mm (typ.) × 10 mm (typ.) × 1.4 mm (max.)

* Write speed for Mobile Media Chip itself, excluding processing time on host side