

Fujitsu Releases Transcoders with Built-in Memory, H.264 Transrating Function

With low power-consumption and compact package, can also be used in mobile products

Yokohama, Japan, December 1, 2011 – Fujitsu Semiconductor Limited today announced the development of three second-generation transcoders with built-in memory, the MB86M01, MB86M02, and MB86M03. The new products, which are bi-directional H.264/MPEG-2 transcoders, can convert both video and audio data, and can also perform full HD (1920 x 1080) conversions. Even with built-in memory, they deliver very low power consumption, consuming only 1.2W. Sample shipments of the new products will begin towards the end of March 2012.

The new products are also equipped with a transrating function that enables H.264 video data to be converted into even higher-compression H.264 video data, making them ideal transcoders to install in products for broadcast markets around the world that use H.264, such as Europe, South America, and Asia. Fujitsu's proprietary transcoding technology delivers industry-leading levels of low power consumption. Moreover, because of their compact size, they can be used in a wide range of products, including mobile products such as smartphones and tablet PCs, as well as home digital broadcast recording equipment, such as TVs, hard disk PVRs, and PCs.

These days, transcoders enabling extended H.264 video recording have become a standard feature on hard disk PVRs and TVs with video recording functions, and many types of equipment have built-in transcoders. Moreover, as there are increasing opportunities to view HD content even on mobile products, such as smartphones and tablet PCs, transcoding functionality is becoming increasingly prevalent in these products, as well, to enable high-compression of the heavy, data-intensive HD content for the purpose of transmitting it over the narrow bandwidths of wireless networks.

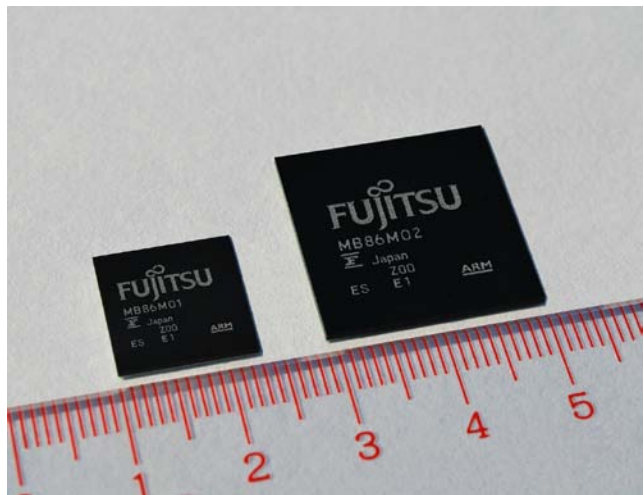


Figure-1 MB86M01, MB86M02

Fujitsu Semiconductor has responded to these needs by enhancing the functionality of its first generation transcoders, which were widely used in hard disk PVRs and other equipments as well as mobile products, such as accessories for laptop PCs. The company developed second-generation transcoders with built-in memory, the MB86M01, MB86M02, and MB86M03, which can convert H.264 video data into even higher -compression H.264 video data (the H.264

transrating function), and are packaged in an even smaller form-factor, so that they can be used in products for markets around the world.

The MB86M01, MB86M02, and MB86M03 combine Fujitsu Semiconductor's low power consumption technology with a proprietary algorithm of Fujitsu Laboratories that enables higher image quality while reducing the processing load, resulting in industry-leading levels of low power consumption, consuming just 1.2W when using the H.264 transrating function, even including the memory. Moreover, the products combine audio transcoding functions, the security functions needed to protect digital broadcast content, and each type of connection interface all in one chip, resulting in one package that includes memory.

The MB86M01 and MB86M03, whose compact packages measure 13mm square, are ideal for mobile products, such as laptops and accessories for smartphones and tablet PCs, while the MB86M02, with a 21mm square package, is better suited for home electronics equipment.

Fujitsu Semiconductor will continue to enhance its line of ASSP products for video recording equipment, mobile products, and cameras, with a focus on LSI devices for video processing.

Package size and Sample release schedule

Product	Package, Size	Sample release schedule
MB86M01	FBGA-490, 13mm X 13mm	End of March 2012
MB86M02	FBGA-490, 21mm X 21mm	End of March 2012
MB86M03	FBGA-289, 13mm X 13mm	End of April 2012

Sales Target

400,000 units/month from FY2012(Total three products)

Product Features

1. Built-in H.264 transrating function, audio transcoding functions

In addition to the full HD transcoding functions for converting MPEG-2 to H.264 that were in the first-generation MB86H57 and MB86H58, the new products have a H.264 transrating function for converting H.264 video data into an even higher-compression H.264 video data. It can therefore be used in products for markets in every region of the world, not only in products for Japan and US that broadcast using MPEG-2, but also European, South American, and Asian markets that broadcast using H.264. It can also accommodate the transcoding of audio data for any format, enabling conversions to meet the specifications of the user's playback equipment.

2. Industry-leading low power consumption, with small form-factors for compact products

Fujitsu's proprietary-developed transcoding technology delivers industry-leading levels of low power consumption for H.264/MPEG-2 full HD transcoders. The products are equipped with 1 Gbits of memory (FCRAM). Through built-in memory technologies and miniaturization process technologies, power consumption is held to just 1.2W when using the H.264 transrating function in full HD, even including the memory. Moreover, with two of the products having a 13mm square compact package size, these transcoders can be used in a wide variety of products, including laptops and accessories for smartphones and tablet PCs as well as home electronics equipments.

3. Control functions for simultaneously viewing and recording programs

Connecting two tuner modules to two tuner input terminals enables simultaneous control of the program being viewed and another program being recorded.

4. Shorter delay time when transcoding

To shorten the delay time that is a cause of concern when distributing content over a network, the delay time generated when transcoding is shorter in these products than in the first-generation products.

For More Information

Fujitsu Semiconductor:

<http://jp.fujitsu.com/group/fsl/en/>

H.264 Video Processing LSI :

<http://www.fujitsu.com/global/services/microelectronics/product/assp/video/>

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About Fujitsu Semiconductor

Fujitsu Semiconductor Limited designs, manufactures, and sells semiconductors, providing highly reliable, optimal solutions and support to meet the varying needs of its customers. Products and services include microcontrollers, ASICs, ASSPs, and power management ICs, with wide-ranging expertise focusing on mobile, ecological, automotive, imaging, security, and high-performance applications. Fujitsu Semiconductor also drives power efficiency and environmental initiatives. Headquartered in Yokohama, Fujitsu Semiconductor Limited (formerly named Fujitsu Microelectronics Limited) was established as a subsidiary of Fujitsu Limited on March 21, 2008. Through its global sales and development network, with sites in Japan and throughout Asia, Europe, and the Americas, Fujitsu Semiconductor offers semiconductor solutions to the global marketplace.

For more information: <http://jp.fujitsu.com/group/fsl/en/>

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Appendix

Key Specifications of MB86M01, MB86M02, MB86M03

Function	Transcode	Video	MPEG-2 HD/SD => H.264 HD/SD + H.264 SD or lower H.264 HD/SD => H.264 HD/SD + H.264 SD or lower MPEG-2 HD/SD => MPEG-2 SD H.264 HD/SD => MPEG-2 SD
		Audio	Re-multiplex, Audio transcode
		PSI/Private PES re-multiplex	
	Encode	Video	VBS(*1)=> H.264 HD/SD + H.264 SD or lower VBS => MPEG-2 SD
		Audio	ABS(*2) => MPEG-1 Audio Layer2, etc.
Thumbnails	JPEG encode		
Video	Profile	H.264 High-profile H.264 Main-profile H.264 Base-line-profile MPEG-2 Video Main-profile	
	Interface	SMPTE274M/SMPTE296M-2001,ITU-R BT.656	
Audio	Format	Dolby [®] Digital(AC-3)(*3), MPEG-2/4 AAC-LC/HE-AAC, MPEG-1 Audio Layer2	
	No. of Channel	Max. 5.1ch(*4)	
	Interface	I ² S	
JPEG	Resolution	QVGA	
Stream	Format	MPEG-2 TS, MP4	
	Interface	USB2.0, PCI Express(*5), 8 bit parallel/serial[Input:2, Output:3]	
Host Interface		USB2.0, PCI Express	
Security		AES, MULTI2(Decrypt only)	
Peripheral		I ² C, SPI, B-CAS Card	
Clock Frequency		27MHz	
Operating Frequency		243MHz(Internal memories:216MHz)	
Power(Include Memories)		1.2W(Target)(typ., 1.2V, H.264 HD => H.264 HD Transrate)	
Package		MB86M01:FBGA-490 (13mm X 13mm) SiP(0.5 mm ball pitch) MB86M02:FBGA-490 (21mm X 21mm) SiP(0.8 mm ball pitch) MB86M03:FBGA-289 (13mm X 13mm) SiP(0.65mm ball pitch)	
Memories		1Gbits FCRAM X 1	

(*1) VBS : Video Baseband Signal. Refers to uncompressed video data.

(*2) ABS : Audio Baseband Signal. Refers to uncompressed video data.

(*3) Dolby[®] Digital(AC-3) : Dolby is a registered trademark of Dolby Laboratories.

(*4) Max. 5.1ch : Number of channels are differs depending on the audio format.

(*5) For the MB86M03, PCI Express interface is not supported.