MB86M01/M02/M03 Series Transcoder LSIs

Low-Power, Bi-Directional H.264/MPEG-2 HD Transcoder

Description

The Fujitsu MB86M01/M02/M03 Transcoder LSIs can convert between Full HD (1920 dots x 1080 lines) H.264 video data and MPEG-2 video data. The bi-directional LSIs, which can also transcode between any audio format, offer industry-leading low power consumption and built-in memory.

Additionally, a transrating function enables H.264 video data to be converted into even higher-compression H.264 video data, making the transcoders ideal for products for H.264 broadcast markets such as Europe, South America, and Asia

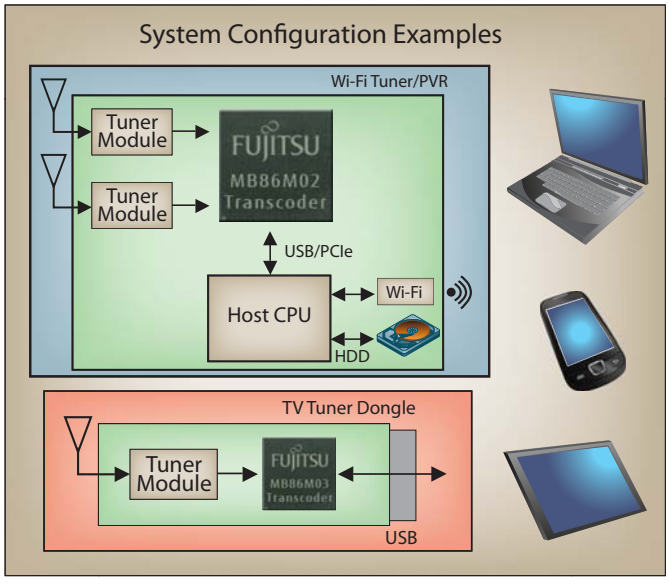
The transcoder LSIs combine Fujitsu's low-power-consumption technology with a proprietary algorithm that enables higher image quality while reducing the processing burden. Even with built-in memory, they deliver industry-leading levels of low power consumption.

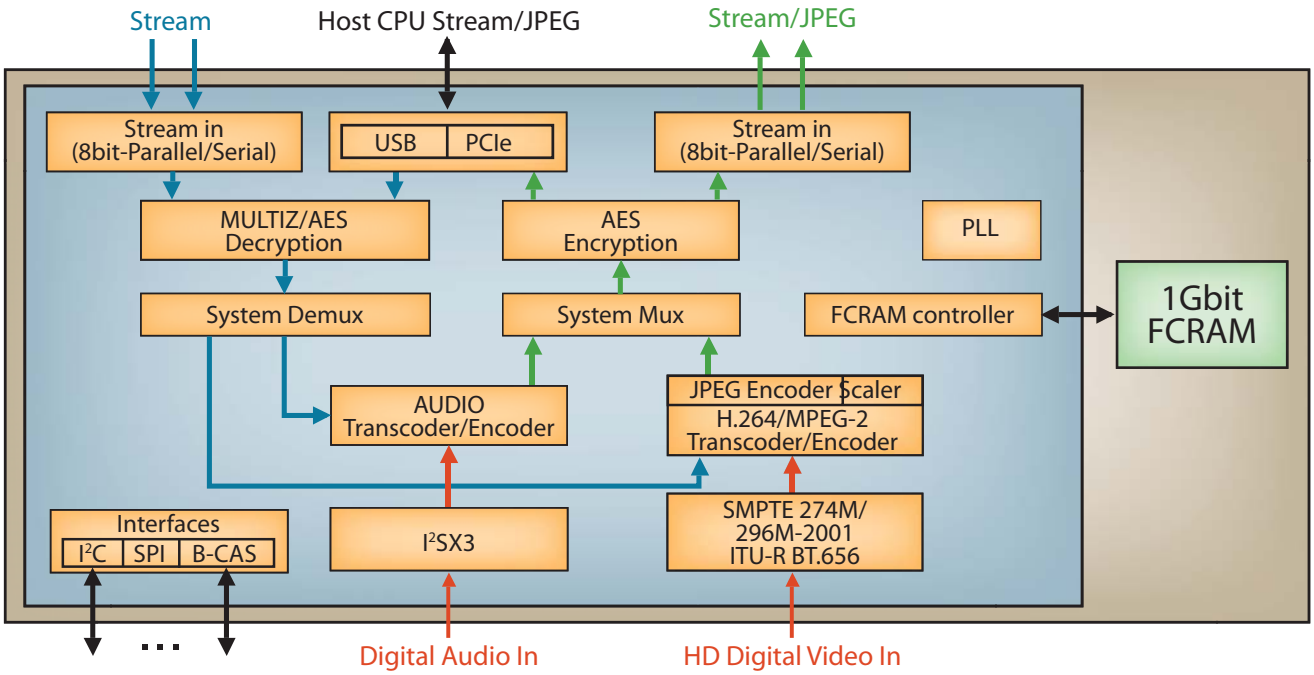
Features

- **Built-in H.264 transcoding, transrating and audio-transcoding functions** – In addition to full HD transcoding functionality that converts MPEG-2 to H.264, the Series features H.264 transrating functionality for converting H.264 video data into even higher-compression H.264 video data. The devices can also transcode audio data for any format, meeting the specifications of the playback equipment.
- **Industry-leading low power consumption** – Power consumption is held to just 1.2W when using the H.264 transrating function in full HD, including the memory.
- **Small form-factors for compact products** – Two of the LSIs come in 13mm-sq. compact package, making them appropriate for products such as laptops, accessories for smartphones, and home electronics equipment
- **Control functions for simultaneously viewing and recording programs** – Connecting two tuner modules to two tuner input terminals enables simultaneous control of a program being viewed and another program being recorded.
- **Shorter delay time when transcoding** – The transcoding process is faster than in the first-generation products.
- **Single chip solution** – In addition to integrating 1 Gbits of memory (FRAM), the transcoders combine the needed security functions and connection interfaces all in one chip.

Applications

- Mobile products (e.g., smartphones, tablet PCs)
- Home digital-broadcast-recording equipment (e.g., TVs, hard disk PVRs, and PCs)





Block Diagram

Specifications

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	Single Audio Transcode, Double Audio Re-multiplexing support
		PSI / Private PES Re-Multiplexing	
	Encode	Video	VBS*1 => H.264HD/SD + H.264 SD or lower VBS => MPEG-2SD
		Audio	ABS*2 => MPEG-1 Audio Layer2, etc.
	Thumbnail	JPEG Encode	
Video	Profile	H.264 High profile H.264 Main profile H.264 Baseline profile MPEG-2 Video Main profile	
	Interface	SMPTE 274M/SMPTE296M-2001, ITU-R BT.656	
Audio	Format	Dolby® Digital(AC-3)*3, MPEG-2/4 AAC-LC/HE-AAC, MPEG-1 Audio Layer2	
	Channels	Max. 5.1ch*4	
	Interface	I²S	
JPEG	Resolution	QVGA	
Stream	Format	MPEG-2 TS, MP4 support function	
	Interface	USB2.0, PCI Express*5, Stream(8bit parallel, Serial) [2input, 3output]	
Host Interface		USB2.0, PCI Express	
Security		AES, MULTI2(Decrypt only)	
Peripheral I/O		I²C, SPI, B-CAS Card	
Input Clock Frequency		27MHz	
Operating Frequency		243MHz (internal memory interface only: 216MHz)	
Power Consumption(including memory)		1.2W (typ., 1.2V, H.264 HD to H.264 HD Transrating)	
Package		MB86M01 FBGA 490pin 13mm square SiP (Ball pitch 0.5 mm) MB86M02 FBGA 490pin 21mm square SiP (Ball pitch 0.8 mm) MB86M03 FBGA 289pin 13mm square SiP (Ball pitch 0.65mm)	
Memory		1Gbit FCRAM ×1	

*1 Video Baseband Signal
*2 Audio Baseband Signal
*3 Dolby is a registered trademark of Dolby Laboratories.
*4 Number of channels depend on audio format.
*5 For the MB86M03, PCI Express interface is not supported.

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