

# MB86H51

## Full HD H.264 Codec

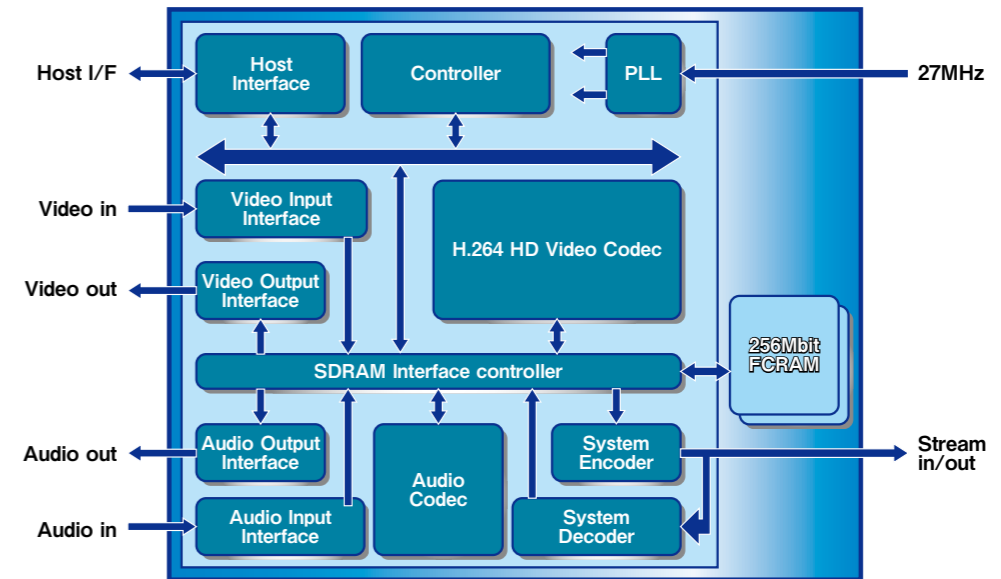
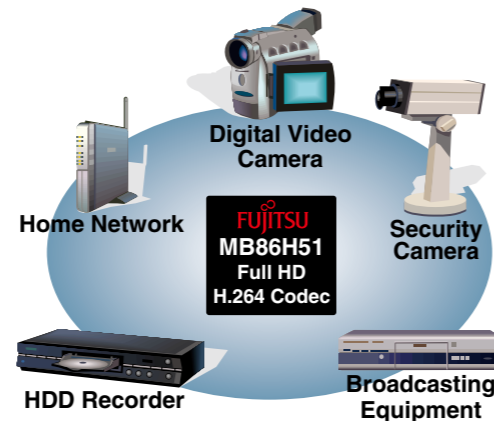
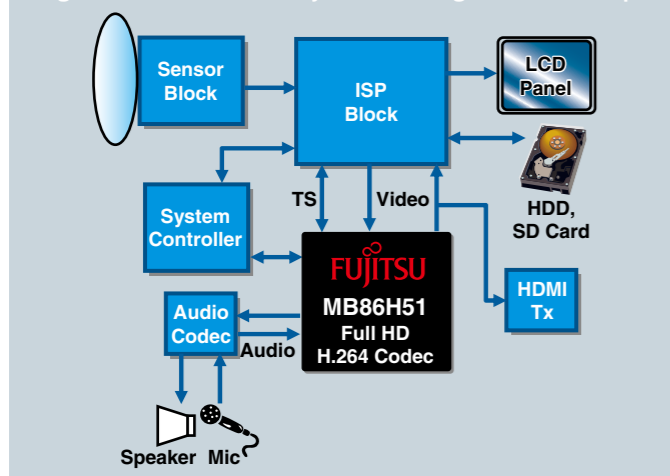
### Introduction

The Fujitsu MB86H51 can compress and decompress full High-Definition (HD) video (1920 dots x 1080 lines) in the H.264 format in real-time.

This chip is the version that did a functional enhancement of the Fujitsu's chip MB86H50 for HD (1440 dots X 1080 lines) that is currently being mass-produced and shipped. Using proprietary video compression algorithms from Fujitsu Laboratories Limited to reduce processing burden, while leveraging embedded memory technologies from Fujitsu Limited to enable compactness and low power consumption, Fujitsu's new chip is the industry's first one-chip full HD H.264 High Profile LSI with memory in one package.

This chip enables high image quality recording, playback, and transmission of full high-definition video over a wide range of fields from consumer to industrial applications, such as for digital video cameras (camcorders), hard disk digital video recorders (DVRs), home network devices, security cameras, and broadcasting equipment.

Digital Video Camera System Configuration example



### Specifications

<b>Video</b>	Spec	H.264 High profile / Level 4.0 Half -Duplex Codec
	Resolution	1920 x 1080 x 60i/50i, 1440 x 1080 x 60i/50i, 1280 x 720 x 60p/50p, 720 x 480 x 60i, 720 x 576 x 50i
	Bit rate	20Mbps(max.)
	Interface	SMPTE 274M / SMPTE296M-2001, ITU-R BT.656
<b>Audio</b>	Format	MPEG-1 Audio Layer2, MPEG-2 AAC(LC profile), Linear PCM, Dolby® Digital(AC-3)*
	Channels	2channels
	Interface	LR Serial
<b>System</b>	Format	MPEG-2 TS CBR / VBR
	Stream Interface	8bit parallel or Serial
<b>Host Interface</b>		General 16bit interface
<b>Input clock</b>		27MHz
<b>Operating frequency</b>		27MHz, 108MHz (memory only: 135MHz)
<b>Power consumption</b>		750mW (typ., 1.2V, 1920 x 1080 x 60i at encoding [include Memory])
<b>Package</b>		FBGA 650pin 15mm square SiP (Ball pitch 0.5mm)
<b>Memory</b>		256Mbit FCRAM x2

\* Dolby is a registered trademark of Dolby Laboratories.

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### Features

- System memory enables compactness and low power consumption  
This LSI contains two blocks of 256 Megabit memory (FCRAM) in the same System in Package (SiP), and utilizes optimized LSI design to realize smaller size and low power consumption.
- Real-time compression & decompression of HDTV video & audio  
Compared to previous formats, real-time H.264 format video compression requires more than 10 times the data processing that was necessary for previous formats. By realizing further high-speed processing, Fujitsu's new chip can support H.264 High Profile Level 4.0. Also, with this new chip audio is compressed and decompressed in real-time by utilizing formats such as MPEG-1 Audio Layer2.
- Proprietary technologies for compression and high quality video  
This chip utilizes a proprietary algorithm developed by Fujitsu Laboratories that automatically applies less compression to areas in the image where compression artifacts are most noticeable to human vision, such as human faces or slow-moving objects, and greater compression to other areas. Thus, high image quality for the critical zones is maximized. This feature also makes it possible for image size to be reduced less than a half size that of the MPEG-2 format with an equivalent level of image quality.