

# MB86H60

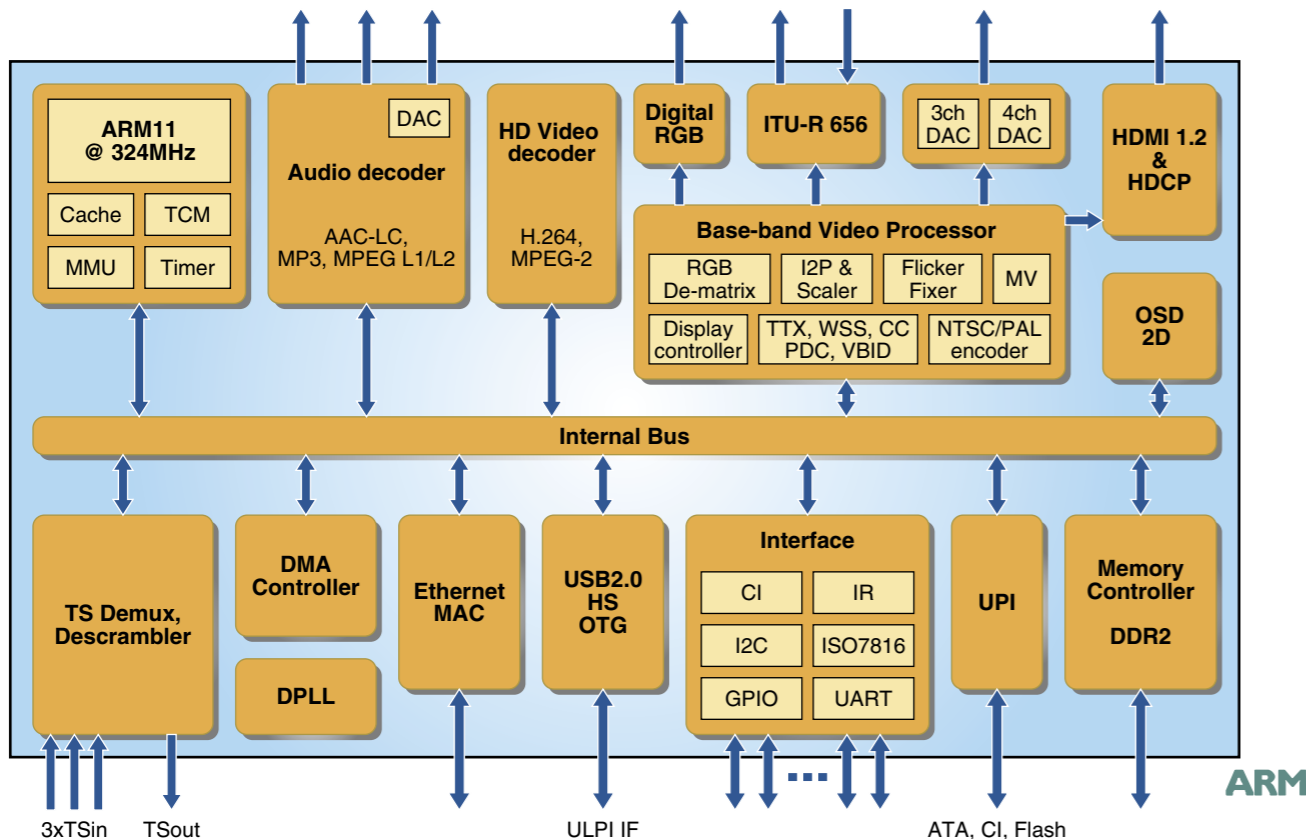
## Multi Standard Decoder for Set-Top-Boxes

### Introduction

This Fujitsu MB86H60 is a highly integrated System-on-Chip (SoC) and complies with the DVB standard currently used in various regions, mainly Europe. The LSI decodes full HD (1920dots x 1080lines) video compressed in either MPEG-2 or H.264 and integrates on a single chip the necessary processing functions for a HD broadcast receiver, including processing of digital video, audio, and graphics. This makes the multi-decoder product suitable for TVs, STB, and portable TV receivers. Also, as the LSI's functions can be implemented with the addition of only two 16-bit wide external memory chips, it allows set vendors to reduce their total costs when designing their TVs and set-top-boxes.

The TV or display can be connected in HD resolution analog via component output or digital via copy protected HDMI interface (Link and PHY). A down-sampled SD format can be provided in parallel.

The MB86H60 device supports multiword DMA for ATA devices. Embedded USB 2.0 High Speed OTG Link and 10/100 Base-T Ethernet MAC are provided for connectivity.



### Features

- Decodes both full HD MPEG-2 and H.264, supporting current and next-generation European broadcasting standards. This multi-decoder LSI can be used for current standard-definition MPEG-2 broadcasts used widely in Europe and other regions, and for next-generation HD broadcasts using H.264.
- Integrates on a single chip all functions necessary for HD TV processing. The CPU core in the LSI is the high-performance ARM1176JZF-S™, which supports a wide range of functions including system control for TVs and set-top boxes, teletext, subtitles, and JPEG decoding. In addition, by integrating audio, graphic video processing, and functions required for processing HD broadcasts on one chip, Fujitsu's full HD multi-decoder LSI enables set vendors to more easily construct their systems.
- Complete Functionality by Adding Two 16-bit wide DDR2-SDRAMs. By simply connecting two 16-bit wide DDR2 SDRAM667 external memory chips as working memory to the multi-decoder chip, the chip becomes fully functional, including CPU-based system control and digital-video decoding. This allows set vendors to reduce the total cost of their systems.
- Four video-transfer ports for connectivity to various devices. With four video-transfer ports, this multi-decoder LSI can be connected to a wide variety of external devices. For example, the LSI makes it possible to connect to digital video recorders (DVRs) which record TV broadcasts to a hard disk drive, or to connect to a conditional access card to view restricted digital broadcasts.

### Specifications

<b>CPU core</b>	ARM1176JZF-S™ *1 CPU @ 324MHz	
<b>Video</b>	Spec	H.264 High profile / Level 4.0 Decoder, MPEG-2 Video Main profile / High Level Decoder
	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
	Video encoder	Supports PAL/NTSC/SECAM, 7ch Video DAC embedded, Supports Teletext/WSS/PDC/CC/VBID
	Interface	ITU-R 656 I/O, digital RGB888 output, YPrPb analog HD output
<b>Audio</b>	Format	MPEG-1/2 Layer I/II/III, MPEG-2/4 AAC LC, etc
	Channels	5.1channels
	Interface	L/R serial, S/P-DIF
<b>TS processing</b>	Format	MPEG-2 TS standard
	Interface	3 output streams, 1 input stream, Built-in DVB descrambler
	Encryption processing	3DES encryption/decryption
<b>DDR2 memory interface</b>	2 x 16-bit width DDR2-SDRAM667, Supports 256Mbit to 1Gbit SDRAM	
<b>Flash memory interface</b>	Supports serial flash, NOR flash, NAND flash	
<b>Display</b>	5 planes: background (BG), video, cursor, OSD x 2	
<b>USB</b>	USB 2.0 high-speed OTG controller	
<b>Ethernet</b>	10/100baseT MAC	
<b>ATA</b>	Multiword DMA ATA interface (16Mbps)	
<b>HDMI</b>	HDMI 1.2 Link and PHY with HDCP 1.1	
<b>UPI</b>	NAND/NOR flash, common interface	
<b>Peripherals</b>	UART x 2, Smart card, I <sup>2</sup> C x 2, GPIO, PWM, IR Rx/Tx, SPI output	
<b>Input clock frequency</b>	27MHz	
<b>Operating clock frequency</b>	Internal: 324MHz, DDR2 memory interface: 324MHz	
<b>Power consumption</b>	1.2W (typ.)	
<b>Packaging</b>	484-pin PBGA, 27sq.mm (1.0-mm pitch)	

\*1 ARM1176JZF-S is the trademark of ARM Limited.

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