**DIGITAL HDTV CHIP**

Highly integrated SoC for iTDV sets

**Description**

The MB86H70 is a highly integrated System-on-Chip incorporating all the processing functions required by digital HDTV receivers particularly for integrated digital TV sets, including those for digital video, audio and graphics.

The MB86H70 contains Fujitsu’s original high quality picture engine for realising reality motion pictures. This technology integrates motion adaptive de-interlacing, 3/2:2/2 pull down detection, noise reduction and enhanced hybrid filters for featuring sharpness and clearness by scene, automatic setting of the best active tone curve by scene, real 3D colour management for colour control freedom, and more. In addition, Fujitsu provides a picture quality adjustment tool for emphasizing motion picture quality. The graphical and mouse-operated user interfaces help optimise the parameters affecting picture quality.

This high definition media processor is able to decode both MPEG-2 and H.264/AVC compressed video up to HD resolution (1920 x 1080) for DVB HD broadcasting TV system. A dual link 10-bit LVDS video output is integrated for connecting an HD LCD panel. Simultaneously, the video signal can be scaled down and offered in standard definition (SD) resolution. The picture quality on these SD component outputs may be optimised by using cross-colour and cross-luminance filters. Additionally, a digital RGB input and an ITU-R 656 input are available.

The integrated audio processor can decode a wide variety of audio standards required by the broadcast market such as MPEG-1/2 Layer I, II, III and MPEG-4 AAC and HE-AAC. Furthermore, support for Dolby* Digital (AC-3) and Dolby* Digital Plus is planned. Available audio outputs are IFS with delay processing for lip sync, and SPDIF.

The MB86H70 incorporates the high performance ARM processor 1176JZF-STM featuring an integrated memory management unit (MMU), a floating point co-processor, ARM’s Jazelle® technology and Thumb® instruction set extensions for compact code. The ARM11 provides all the processing power needed to enable a whole host of middleware software. Only two 16-bit DDR2 memories are required for HDTV operations, H.264 video/audio decoding and processing the high quality picture enhancement.

Advanced connectivity is provided by a USB 2.0 High Speed On-The-Go (OTG) controller. Integrated peripherals include two serial ports, ISO7816 smart card interfaces, three FC controllers, LED and keypad controller, IR receiver, SPI input/output for serial interface flash, PWM output and 96 GPIO pins. The number of usable GPIOs depends on the system configuration since they are shared among other IO functions.
For evaluating the device and starting software development, Fujitsu offers the MB86H70 development kit. It comprises the evaluation board, documentation, schematics and a comprehensive software package including drivers, sample applications, tools, an operating system and more.

Features

**Video**
- Specification
  - H.264 high profile / Level 4.0 decoder
  - MPEG-2 video main profile / high level decoder
- Resolution
  - Input: 480i, 480p, 576i, 576p, 720p, 1080i, 1080p
  - Output: 1920 x 1080, 1366 x 768, 640 x 480
- Processing
  - Motion adaptive de-interlacing
  - 3:2 / 2:2 Pull down
  - Frame rate conversion
  - Noise reduction
  - Enlarge / shrink
  - Edge emphasis
  - 3D-LUT dynamic colour management
- Interface
  - 10-bit digital RGB input
  - ITU-R BT. 656 video input
  - Dual link 10-bit LVDS video output

**Audio**
- Format
  - MPEG-1/2 Layer 1, 2 and 3 (MP3), MPEG-2/4 AAC and MPEG-4 HE-AAC, Dolby* Digital and Dolby* Digital Plus
- Interface
  - 5.1 channels
  - L/R serial, SPDIF
  - Additional delay for lip sync

**OSD**
- Layer
  - Video x 1, OSD x 3, background x 1
- Size
  - OSD1/2: 1920 x 1080, OSD3: 480 x 1080
- Format
  - 32bpp / 16bpp / 8-bit CLUT

- ARM1176JZF-S is the trademark of ARM Limited. Dolby is a registered trademark of Dolby Laboratories. Any other trademarks or trade names mentioned are the property of their respective owners.

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