



# HD FTA Digital Satellite STB Solution

## Key Specifications

### CPU

- High-performance ARM Cortex A9 processor
- Built-in I-cache and D-cache
- Hardware Java acceleration
- Floating-point coprocessor

### Memory Interfaces

- DDR2/DDR3 interface
  - Maximum memory of 512 MB
  - 16-bit memory
- SPI flash
- NAND flash

### Video Decoding

- H264 MP, HP@level 4.2
- MPEG1
- MPEG2 MP@HL
- MPEG4 SP@L0-3 and ASP@L0-5
- AVS baseline@level 6.0
- VC-1 AP
- VP6/VP8
- 1080p@30 fps real-time decoding
- Video post-processing such as denoising and deblocking

### Image Decoding

- JPEG decoding, 64-megapixel maximum resolution
- PNG decoding, 64-megapixel maximum resolution

### Audio Decoding

- MPEG L1/L2 decoding
- WMA decoding
- AAC and HE-AAC decoding
- OggVorbis audio decoding
- Dolby digital and Dolby digital plus decoding, and Dolby digital plus transcoding (Optional)
- Dolby Digital or Dolby Digital Plus pass-through
- DTS or DTSHD core decoding
- DTS pass-through
- DRA
- Downmix processing
- Resampling
- 2-channel sound mixing
- Intelligent volume control

### TS Demultiplexing/PVR

- Two TS inputs, including one IF input
- Maximum of 96 PID filters
- Full-service PVR

### Channel Decoding

One built-in DVB-S/S2 demodulator, providing QPSK/8PSK/16APSK/32APSK modulation or demodulation of DVB-S2 (ETS 302307)/DVB-S (ETS 300421)/DirecTV (ITU-R BO.1294 System B)

### Satellite Control

DiSEqC 1.0/1.1/1.2/1.3/2.x standards

### Graphics Processing

- Enhanced full-hardware TDE
- Full-hardware anti-aliasing and anti-flicker

### Display Processing

- Two-layer OSD
- 16-bit or 32-bit color depth
- Two background layers and two video layers
- 1920-pixel width for each layer
- Image enhancement

### Audio/Video Interfaces

- Output norms of PAL, NTSC, or SECAM, and forced norm conversion
- Aspect ratio of 4:3 or 16:9, forced aspect ratio conversion, and free scaling
- 1080p 50(60), 1080i, 720p, 576p, 576i, 480p, and 480i outputs
- HD and SD signal receiving
- HD and SD outputs from the same or different sources
- xvYCC (IEC 61966-2-4) standard for color gamut
- HDMI 1.4a with HDCP 1.2
- Analog video interfaces
  - One CVBS interface
  - One YPbPr interface
  - One S-Video interface
  - Four built-in VDACS
  - Configurable output interfaces
  - Rovi
  - VBI
- Audio interfaces
  - Left- and right-audio channels (RCA type, low impedance, and unbalanced output interface)
  - SPDIF interface
  - One built-in ADAC



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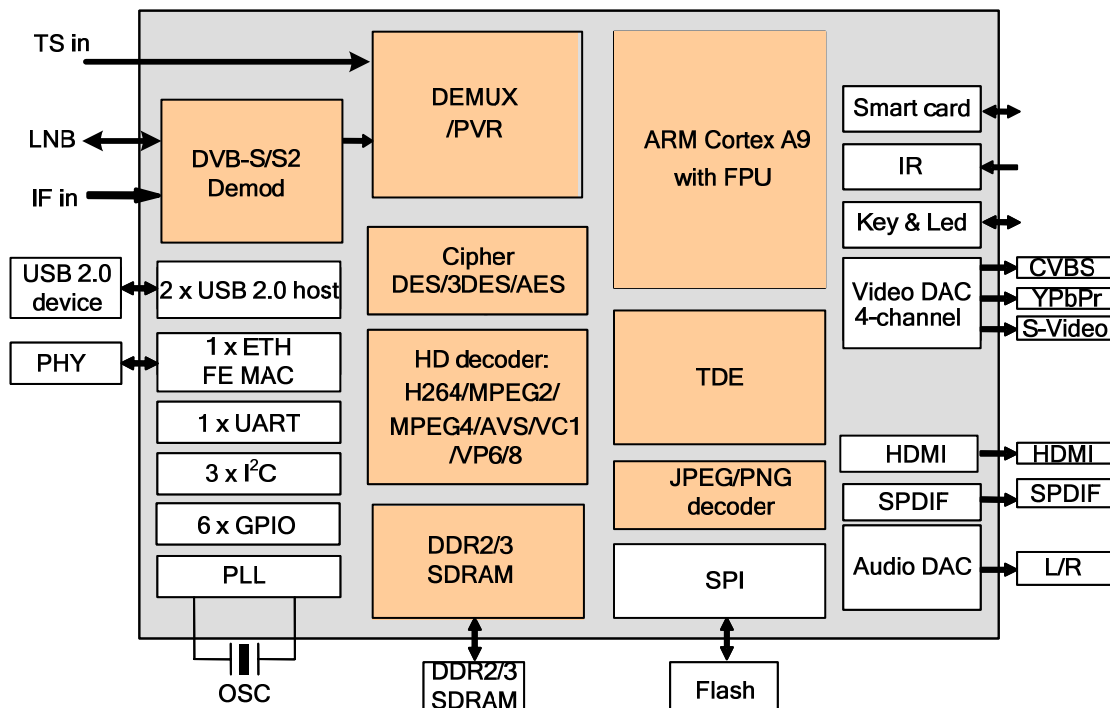
## Peripheral Interfaces

- Six GPIO interfaces
- Two USB 2.0 host ports, integrated with the PHY
- One 10/100 Mbit/s adaptive Ethernet port
- One UART interface
- One smart card interface, supporting T0, T1, and T14 protocols
- One IR receiving processor
- One LED and keypad control interface
- Three I<sup>2</sup>C interfaces

## Other Specifications

- Downloading and running of boot programs over the serial port
- Passive standby and low STB power consumption
  - Less than 0.5 W standby power consumption
  - Less than 5 W typical working power consumption
- QFP216 package with 24 mm x 24 mm (0.94 in. x 0.94 in.) body size and 0.4 mm (0.02 in.) ball pitch
- 2-layer routing PCB

## Functional Block Diagram



Hi3712 V100 supports DVB-S/S2 demodulation for a low-cost HD satellite STB solution. With the advanced ARM Cortex A9 processor, Hi3712 V100 provides high-speed processing capability, which meets the requirements for growing services. Hi3712 V100 also provides an Ethernet port and two USB ports to support flexible external connection and extend the network applications and local services. To meet multimedia play requirements, Hi3712 V100 supports HD video decoding in various formats, including MPEG2, H.264, AVS, VC-1 AP, VP6, and VP8.



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## Solution Features

### High Integration/Low Costs

- Integrated DVB-S/S2 demodulation module, USB port, and ETH port
- QFP package; 2-layer PCB design
- One 16-bit DDR3 SDRAM

### Open Architecture

- Open Linux operating system
- Various open-source websites

### Various AV Decoding Formats

### Internet Applications

- Internet connection over the 10/100 Mbit/s adaptive Ethernet port
- Internet connection over the USB Wi-Fi
- Internet applications such as YouTube, Facebook, and Twitter

### USB PVR

- Connection to peripherals over the USB port for recording
- Compatibility with FAT32 or NTFS on PCs
- Timed recording and scheduled EPG recording
- Simultaneous play of programs at one frequency and recording of programs at another frequency

### Fast Startup and Channel Switching

- Display of pictures one second after startup
- Play of TV programs three seconds after startup
- Rapid program channel switching

### Games

- Console games and online games

- Game background music and sound effects
- High-efficiency floating-point coprocessor for improving game performance

### Home Digital Entertainment

- Local and cloud albums
- Browsing of various picture formats and JPEG/PNG full-hardware decoding
- Special effects of shutter, gradient, scroll bar, and flip
- Play of MJPEG clips recorded by mobile phone, digital camera, or PMP
- WMA or OGG audio files
- MKV, MPG, AVI, TS, TP, TRP, M2TS, DAT, VOB, DivX, or MP4 video files
- SUB, SRT, and SSA subtitles

### Energy Conservation

- Less than 0.5 W standby power consumption
- Less than 5 W typical working power consumption  
Auto-hibernation and automatic standby when no activity within preset period
- Various wakeup modes

### 3D TV

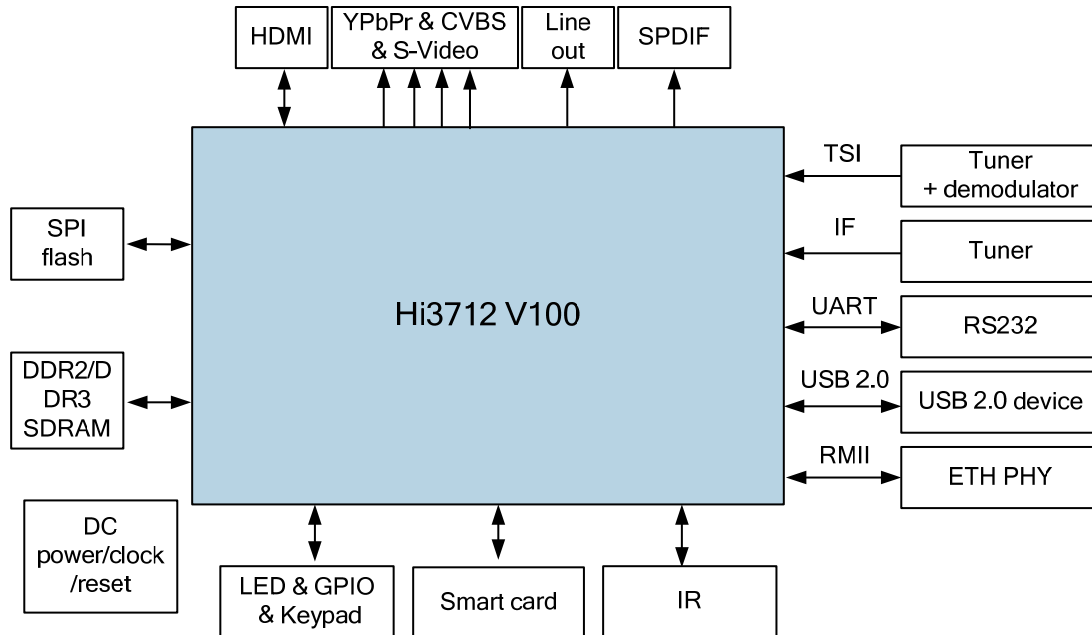
Playback of HD 3D videos in side-by-side or top-and-bottom mode

### Intelligent Volume Control

Automatic volume equalization between program channels and intelligent, human-centered operation

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## Typical Application Block Diagram



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