



Hi3731 V201 Brief Data Sheet

Key Specifications

Key Features

- 32-bit CPU
- Global analog TV solution
- DTV all-in-one machine solution
- FHD features
- Embedded TCON

High-Performance CPU

- 32-bit RISC
- Smooth intelligent applications
- Independent I-cache and D-cache

Video Decoding

FHD decoding in various formats

Image Decoding

JPEG decoding

2D Graphics Acceleration

- Hardware acceleration engine, supporting highly-efficient 2D processing
- Data processing in various formats

IF Demodulation for the Analog TV

- All analog TV standards
- Tuner input at various frequencies

Digital Demodulation

- Low IF tuner input
- Embedded ATSC demodulator
- External TS input

NTSC/PAL/SECAM Video Demodulation

- NTSC, PAL, and SECAM standards
- Automatic standard detection
- CVBS input
- VBI processing

Multi-Format Audio Demodulation

Audio and Audio Effect Processing

Audio and audio effect processing in various formats

Audio Decoding

Audio decoding in various formats

Professional HiSilicon Graphics Engine (Hi-Imprex III Engine)

- Hi-Imprex III scaling engine
- Hi-SuperClear III processing

Security Processing^{Option}

AES, DES, and 3DES data encryption and decryption

Audio and Video Interfaces

- Audio interfaces
 - I²S output and S/PDIF output
 - HDMI ARC channel
 - Stereo input, supporting the MIC input
 - Stereo output, supporting the headphone output
- YPbPr/RGB interface
- Online cable detection for analog video channels
- HDMI
- LVDS, mini-LVDS, and EPI output
- CVBS output

Memory Control Interfaces

- Integrated DDR SDRAM
- SPI flash interface

Peripheral Interfaces

- USB 2.0 host port
- IR receiver
- Keypad interface
- I²C interface
- UART interface
- Multiple groups of GPIO interfaces
- Multiple PWM interfaces
- Integrated POR module

Others

- 2-layer PCB design
- Boot program download and execution in various modes
- Various low-power modes
- Various wakeup modes
- Ultra-low-power design



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Acronyms and Abbreviations

| | |
|------------------|---|
| 3DES | Triple Data Encryption Standard |
| 3DNR | digital noise reduction |
| AAC_LC | advanced audio coding low complexity |
| ADC | analog-to-digital converter |
| AES | Advanced Encryption Standard |
| ARC | audio return channel |
| ATSC | Advanced Television Systems Committee |
| AVS | Audio Video Standard |
| BTSC | Broadcast Television Systems Committee |
| CC | closed caption |
| CEC | consumer electronics control |
| CPU | central processing unit |
| CTI | chroma transient improvement |
| CVBS | composite video broadcast signal |
| DCE | dynamic contrast enhancement |
| DDR | double data rate |
| DES | Data Encryption Standard |
| DTS | Digital Theater Systems |
| DTV | digital television |
| EPI | Embedded Point-Point Interface |
| FHD | full high definition |
| FLAC | free lossless audio codec |
| GPIO | general-purpose input/output |
| HD | high definition |
| HDCP | high-bandwidth digital content protection |
| HDMI | high-definition multimedia interface |
| HE_AAC | High-Efficiency Advanced Audio Coding |
| IEC | International Electrotechnical Commission |
| IF | intermediate frequency |
| I ² C | inter-integrated circuit |
| I ² S | inter-IC sound |
| IR | infrared |
| LTI | luma transient improvement |
| LPCM | linear pulse-code modulation |
| LUT | lookup table |
| LVDS | low-voltage differential signaling |
| MC | motion compensated interlaced-to-progressive conversion |
| MHL | mobile high-definition link |
| MIC | microphone |
| NICAM | Near Instantaneous Companded Audio Multiplex |
| NR | noise reduction |
| NTSC | National Television System Committee |
| PAL | Phase Alternating Line |
| PCB | printed circuit board |
| POR | power-on reset |
| P2P | point-to-point |
| PWM | pulse-width modulation |
| RISC | reduced instruction set computing |
| ROP | raster of operation |
| SAP | secondary audio programming |
| SAW | surface acoustic wave |



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|--------|---|
| SDRAM | synchronous dynamic random access memory |
| SECAM | sequential color with memory |
| SIF | sound intermediate frequency |
| SoG | sync on green |
| S/PDIF | Sony/Philips digital interface |
| SPI | serial peripheral interface |
| SRS | Sound Retrieval System |
| TCON | timing controller |
| TS | transport stream |
| TT | Teletext |
| UART | universal asynchronous receiver transmitter |
| VBI | vertical blanking interval |
| VGA | video graphics array |