Key Specifications

CPU
- Quad-core ARM Cortex A7
- Integrated multimedia acceleration engine NEON
- Hardware Java acceleration
- Integrated hardware floating-point coprocessor

3D GPU
- Quad-core Mali450
- OpenGL ES 2.0/1.1/1.0 OpenVG 1.1, EGL

Memory Interfaces
- DDR3/DDR3L interface
  - Maximum 2 GB capacity
  - 32-bit memory
  - Maximum 800 MHz frequency (DDR-1600)
- NAND flash interface
  - SLC/MLC flash memory
  - 8-bit data width
  - Maximum 64 GB capacity
  - Maximum 64-bit ECC
- eMMC flash memory

HiVXE Video Decoding
- H.265 Main Profile@L5.0 High-tier
- H.264 BP/MP/HP@L5.1
- Full-HD 3D videos (MVC), blu-ray navigation
- AVS baseline profile@L6.0, AVS-P16 (AVS+)
- MPEG1
- MPEG2 SP@ML, MP@HL
- MPEG4 SP@L0–3, ASP@L0–5, GMC
- MPEG4 short header format (H.263 baseline)
- VC-1 SP@ML, MP@HL, AP@L0–3
- VP6/8
- MJPEG decoding, maximum 1080p@30 fps
- 4K x 2K@30 fps decoding
- Low delay decoding
- Simultaneous 4-channel HD decoding

Image Decoding
- Full HD JPEG hardware decoding, maximum 64 megapixels
- PNG hardware decoding, maximum 64 megapixels

Video and Image Encoding
- H.264 BP/MP/HP@L4.2 video encoding, 1080p@30 fps
- JPEG hardware encoding, maximum 1080p@30 fps
- VBR or CBR mode for video encoding
- Low delay encoding

Audio Encoding and Decoding
- MPEG L1/L2
- Dolby Digital/Dolby Digital Plus Decoder-Converter
- Dolby True HD decoding
- DTS and DTS HD core decoding
- Dolby Digital/DTS transparent transmission
- AAC-LC and HE AAC V1/V2 decoding
- APE, FLAC, Ogg, AMR-NB, and AMR-WB decoding
- G.711 (u/a) audio decoding
- Downmixing, resampling, highly dynamic volume control
- High-quality Karaoke, supporting echo cancellation and G.711v (u/a), AMR-NB, AMR-WB, and AAC-LC audio encoding

TS Demultiplexing/PVR
- Two TS standard serial inputs
- Maximum 96 hardware PID filters
- DVB CSA, AES, and DES descrambling algorithms
- Recording of scrambled and non-scrambled streams

Security Processing
- Downloadable CA
- TV OS security solutions
- Android security solutions
- AES, DES, and 3DES data encryption and decryption
- Content protection for USB devices
- ROM flashing protection
- SVP

Image and Display Processing (Imprex Processing Engine)
- Hardware overlaying of multi-channel graphics and video inputs
- Three OSD layers
- Four video layers
- Screen mirroring
- Ultra-low-delay video processing
- Letter box and PanScan
- Full format 3D video processing and display
- Multi-tap vertical and horizontal scaling of videos and graphics; free scaling
- Enhanced full-hardware TDE
- Full-hardware anti-aliasing and anti-flicker
- CSC with configurable coefficients
- Image enhancement and denoising
- Deinterlacing
- Sharpening
- Chrominance, luminance, contrast, and saturation adjustment
- Video Db/Dr processing

Audio/Video Interfaces
- PAL, NTSC, and SECAM standard output, and forcible standard conversion
- Aspect ratio of 4:3 or 16:9 and forcible aspect ratio conversion
- 4K x 2K/1080p50/1080p30/1080p24/1080i60/1080i50 /720p/576p/576i/480p/480i output
- One SD output and one HD output from the same source or different sources

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Hi3796M V100 Brief Data Sheet

- One HDMI 1.4a TX with HDCP 1.4 output
- Analog video interfaces
  - One CVBS interface
  - One embedded VDAC
- Audio interfaces
  - Audio-left and audio-right channels
  - SPDIF interface
  - Embedded ADAC output
  - One ¼S/PCM digital audio input/output
  - HDMI audio output

Peripheral Interfaces
- One USB 3.0 host port
- Three USB 2.0 host ports
- Boot and debugging over the USB port
- One SDIO 3.0 interface

Functional Block Diagram

- Cortex A7 quad-core
- NEON+VFP+Trustzone
- ID cache L2 cache
- 3D GPU quad-core
- OpenGL ES 2.0
- OpenVG.1.1
- VDP
- Video processor engine
- JPEG/PNG decoder
- Video encoder (1080p30)
- H.264/JPEG
- TDE
- FE PHY
- SDIO 3.0

NOTE
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- Dolby, mentioned in this document, is a registered trademark of Dolby Laboratories, Inc. Any parties intending to use the trademark must obtain the permission from Dolby Laboratories, Inc.
## Acronyms and Abbreviations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>ADAC</td>
<td>audio digital-to-analog converter</td>
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<tr>
<td>ADB</td>
<td>Android debug bridge</td>
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<tr>
<td>AVS</td>
<td>adaptive voltage scaling</td>
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<tr>
<td>BGA</td>
<td>ball grid array</td>
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<tr>
<td>CBR</td>
<td>constant bit rate</td>
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<tr>
<td>CSC</td>
<td>color space conversion</td>
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<tr>
<td>CVBS</td>
<td>composite video broadcast signal</td>
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<tr>
<td>DSP</td>
<td>digital signal processor</td>
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<tr>
<td>DVFS</td>
<td>dynamic voltage frequency scaling</td>
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<td>ECC</td>
<td>error correcting code</td>
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<tr>
<td>eMMC</td>
<td>embedded multimedia card</td>
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<td>FE</td>
<td>fast Ethernet</td>
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<td>GMC</td>
<td>global motion compensation</td>
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<tr>
<td>GPIO</td>
<td>general-purpose input/output</td>
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<tr>
<td>GPU</td>
<td>graphics processing unit</td>
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<td>HDMI</td>
<td>high-definition multimedia interface</td>
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<td>HEVC</td>
<td>high efficiency video coding</td>
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<tr>
<td>I2C</td>
<td>inter-integrated circuit</td>
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<tr>
<td>IR</td>
<td>infrared</td>
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<tr>
<td>FS</td>
<td>inter-IC sound</td>
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<td>JPEG</td>
<td>Joint Photographic Experts Group</td>
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<tr>
<td>MJPEG</td>
<td>Motion Joint Photographic Experts Group</td>
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<tr>
<td>MLC</td>
<td>multi-level cell</td>
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<tr>
<td>MPEG</td>
<td>Moving Picture Experts Group</td>
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<tr>
<td>MVC</td>
<td>multiview video coding</td>
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<tr>
<td>NTSC</td>
<td>National Television System Committee</td>
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<tr>
<td>OTT</td>
<td>over-the-top</td>
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<tr>
<td>PCB</td>
<td>printed circuit board</td>
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<tr>
<td>PCM</td>
<td>pulse-code modulation</td>
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<tr>
<td>PID</td>
<td>packet identifier</td>
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<tr>
<td>POR</td>
<td>power-on reset</td>
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<tr>
<td>ROI</td>
<td>region of interest</td>
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<tr>
<td>SDIO</td>
<td>secure digital input/output</td>
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<tr>
<td>SLC</td>
<td>single-level cell</td>
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<tr>
<td>SPDIF</td>
<td>Sony/Philips digital interface</td>
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<td>SPI</td>
<td>serial peripheral interface</td>
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<td>STB</td>
<td>set-top box</td>
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<td>SVP</td>
<td>secure video path</td>
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<td>TDE</td>
<td>two-dimensional engine</td>
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<tr>
<td>UART</td>
<td>universal asynchronous receiver transmitter</td>
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<tr>
<td>VBI</td>
<td>vertical blanking interval</td>
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<tr>
<td>VBR</td>
<td>variable bit rate</td>
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<tr>
<td>VDAC</td>
<td>video digital-to-analog converter</td>
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