STi7710

Single-chip, low-cost high definition set-top box decoder

DATA BRIEF

DESCRIPTION

The STi7710 is STMicroelectronics' first single chip set-top box decoder for high definition applications, and meets the requirements of all services in the United States, Japan, Australia, as well as the emerging European market.

By combining all the features of an HD decoder onto a single device, ST has ensured the lowest possible costs for set-top box manufacturers.
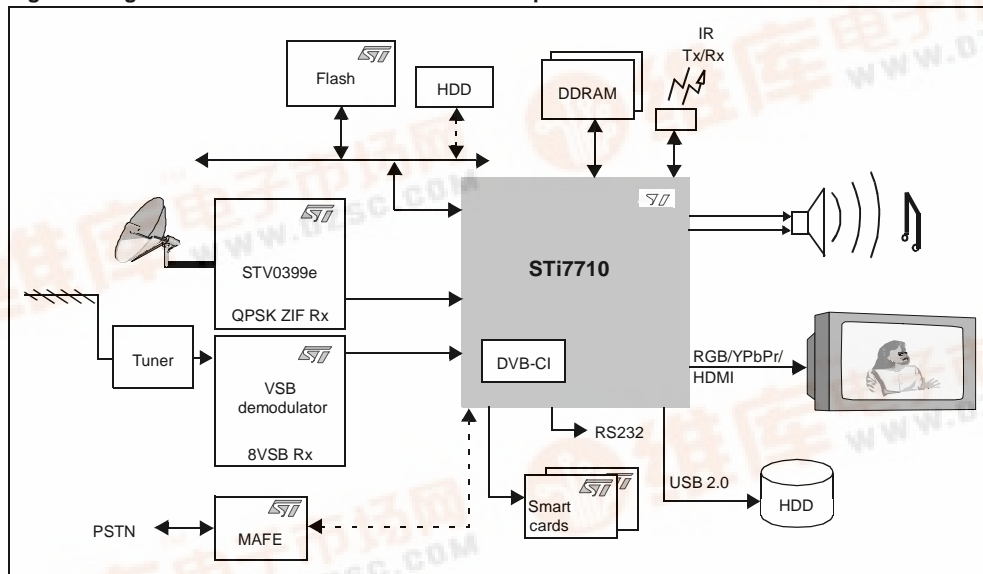
As well as including ST's enhanced security features, the STi7710 supports the High Definition Multimedia Interface (HDMI) and High-band width Digital Content Protection (HDCP) standards. These features ensure the STi7710 effectively meets the security requirements of content providers and operators.

The STi7710 embeds a wide range of peripherals, including a high-speed USB host interface, and provides connectivity options, including the ability to provide DVR capability.

Figure 1. Package

Figure 2. High definition satellite or terrestrial set-top box

Rev. 1

STI7710

FEATURES

- Enhanced ST20 32-bit VL-RISC CPU
  - 200 MHz, 8-Kbyte Icache, 8-Kbyte Dcache and 4-Kbyte SRAM
- Unified memory interface
- Dual transport stream merger
  - Supports DVB, DIRECTV®, and DCII
  - Integrates DES-ECB, DES-CBC, DVB, ICAM, XTV, Multi2 and Fast-I descramblers
  - NDS random access scrambled stream protocol (RASP) compliant
  - Low-cost DVB-CI and Cable Card support
- MPEG2 MP@ML video decoder
  - Trick modes including smooth fast-forward and rewind
- Video encoder
  - Single multi format HD display
    - Supports 1080I, 720P, 480P and 480I resolution
    - Analog RGB or YPbPr HD output
    - HDMI encoding
    - Digital video HD output
  - Single SD display
    - Analog YPbPr, CVBS and Y/C SD output
- Copy protection
  - HDMI / HDCP copy protection hardware
  - Macrovision™ copy protection for 480I and 480P output

- Audio
  - MPEG-1 layer I/II, MP3, MPEG-2 layer II, MPEG-2 AAC and AC3 Dolby® Digital decoding
  - Dolby Pro Logic® compatible output
  - PCM input, mixing and sample rate conversion
  - SRS® TruSurround XT™ virtual surround sound
  - Simultaneous MPEG audio decode and output of Dolby streams.
- Graphics/On Screen Display
  - Dual-source blitter engine
  - Alpha blending and raster operation
  - Colour space and format conversion
  - High quality scaling with high quality filters
  - Gamma compositor
  - 2 graphics display planes
  - Hardware cursor
  - Comprehensive resizing and format conversions
- On-chip peripherals
  - ASCs (UARTs)
  - Parallel 8-bit I/O banks
  - Smartcard interfaces and clock generators
  - SSCs for I²C/SPI master/slave interfaces
  - Silicon Labs line side (DAA) interface
  - USB 1.1/2.0 host, OHCI/EHCI compliant
  - DiSEqC interface
- Enhanced security

PART NUMBERING

Table 1. Order Codes

Part Number	Description
STi7710	Reference design
STi7710-Mboard	STi7710 development platform
ST7710-STDVB	STi7710 reference software

REVISION HISTORY

Table 2. Revision History

Date	Revision	Description of Changes
September-2004	1	First Issue