Single-chip set-top box decoders
offering unprecedented levels of integration

The STi5516 is a single chip set-top box decoder containing all the features required to build a basic set-top box. The STi5517 is pin-to-pin and software compatible with the STi5516 but with additional advanced features:

- The STi5517 supports RGB16 graphics (with anti-flicker filtering) as an alternative image format for the OSD plane. With an integrated high-performance DMA engine, it is ideal for applications requiring high-resolution graphics, such as DVB-MHP or other browser-based middlewares.
- The STi5517 has built-in D1 and PCM input interfaces to allow the IC to be used in applications requiring legacy analog support. A common programme guide can then be used for both digital and analog services.
- The STi5517 has enhanced security features to help protect the integrity of set-top boxes against piracy.

High-performance across all application areas

The set-top box market continually demands higher levels of integration to reduce costs. To meet this challenge, STMicroelectronics has developed two devices for low cost cable, satellite and terrestrial set-top boxes. The STi5516 and STi5517 integrate more core set-top box functions into a single device than ever before, offering set-top box manufacturers the opportunity to build cost-effective solutions powered by devices from the leading supplier of MPEG-2 ICs.

Used with ST’s established demodulator devices, the STi5516 and STi5517 form a complete chipset for low-cost set-top boxes across all application areas.
Unprecedented levels of integration

- 180MHz ST20 CPU
  - 8K internal SRAM, 8K I-cache and 8K D-cache
- Integrated transport demultiplexer
  - DVB, DES and ICAM descramblers
  - Support for more than 48 PID slots
- MPEG2@ML video decoder
  - Fully programmable horizontal and vertical SRCs
- Audio features
  - MPEG-1 layers I/II decoding (MP3 option)
  - Dolby Digital 5.1 down-mixed to 2 channels
  - Dolby Pro Logic compatible
  - SRS TruSurround virtual surround sound
  - PCM audio input
  - Integrated audio DACs
- Graphics/display
  - 5 display planes (background, video, still, OSD and cursor)
  - 2, 4 and 8bpp CLUT graphics
  - RGB16 graphics (STi5517 only)
- PAL/NTSC/SECAM video encoder
  - RGB, CVBS, Y/C and YUV outputs with 10-bit DACs
  - CGMS, teletext, WSS, VPS, closed caption encoding
  - Macrovision 7.01 copy protection
- Interfaces
  - D1 input (STi5517 only)
  - POD and dual DVB-common interface
  - 5 ASCs (UARTs) with Tx and Rx FIFOs
  - 6 x 8-bit banks of parallel I/O
  - 2 smartcard interfaces and clock generators
  - 4 PWM channels
  - Multi-channel IR transmitter/receiver
  - Low-power/RTC/watchdog controller
- 388-pin PBGA package

Development platform

- The STi5516-MBoard and STi5517-Mboard support all peripherals of the STi5516 and STi5517 as well as evaluation platforms for ST demodulators

- An expansion connector is provided so additional devices may be connected when required. A range of expansion cards is available directly from ST and from ST partner companies

- ST’s established ST20 software toolset is available together with the royalty free operating system, OS20

STAPI software package

- STAPI is a fully supported and documented application programming interface developed by ST to act as a stable base on which to build applications

- STAPI will also be available on future ST chipsets, enabling software portability from one generation to the next

- Pre-integrated v.22bis software modem available from third-parties

STAPI software package

- EPG
- E-mail
- Web browser
- Other apps.

Middleware (MEDIAHIGHWAY, OpenTV, Liberate, DVB/MHP,...)

Adaption layer

OS/20 RTOS

STAPI drivers (audio, video, OSD, tuner, smartcard,...)

OMEGA hardware (eg. STi5516/17)

OMEGA software structure

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Full product information at www.st.com