STMicroelectronics has developed two devices for low-cost cable, satellite and terrestrial STBs. The STi5516 and STi5517 integrate more core STB functions into a single device than ever before, offering STB 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 STBs across all application areas.

The STi5517 contains additional advanced features: it 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.

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.

Figure 1. Package: PBGA 35 x 35 (388)
FEATURES

- 180 MHz 32-bit ST20 CPU
  - 8 Kbytes internal SRAM, 8 Kbytes of I-cache and 8 Kbytes of D-cache
- Integrated transport demultiplexer
  - DES, DVB and ICAM descramblers
  - Support for more than 48 PID slots
- MPEG-2 MP@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 8 bpp CLUT graphics
  - RGB16 graphics
- PAL/NTSC/SECAM video encoder
  - RGB, CVBS, Y/C and YUV outputs with 10-bit DACs
  - Encoding of CGMS, teletext, WSS, VPS, closed caption
  - Macrovision 7.01 copy protection
- Interfaces
  - D1 input
  - 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
  - Multichannel IR transmitter/receiver
  - Low power/RTC/watchdog controller
- Package PBGA 35 x 35 (388)

PART NUMBERING

Table 1. Order codes

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>STi5517ZUA</td>
<td>Development version, all options</td>
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<tr>
<td>STi5517AUA</td>
<td>Basic DVB</td>
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REVISION HISTORY

Table 2. Revision history

<table>
<thead>
<tr>
<th>Date</th>
<th>Revision</th>
<th>Description of Changes</th>
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</thead>
<tbody>
<tr>
<td>October-2004</td>
<td>1</td>
<td>First issue</td>
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