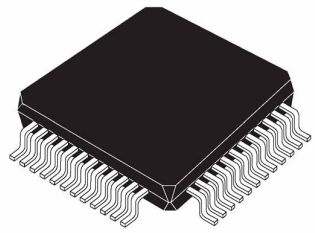
STV6417

Audio/video switch and 6-channel SD video filter

Data brief

Features

- I^{2}C bus control
- Interrupt signal output
- Video section:
  - Three CVBS inputs, two CVBS outputs
  - Three Y/C inputs, three Y/C outputs
  - Low-pass filters (LPF) for standard definition (1H) on six inputs plus bypass LPF (2H).
  - Gain of 6 dB on all CVBS/Y and C outputs
  - Integrated 150-Ω buffers
  - Two RGB/ two FB Inputs, one high impedance mode (HZ) RGB/FB output with 6-dB adjustable gain (from +3 dB to +9 dB)
  - Two YPrPb inputs
  - AC- or DC-coupled video outputs
  - One CVBS output (Y/C adder)
  - Two slow blanking inputs/outputs
  - Bottom clamp on all CVBS/Y and RGB inputs, average clamp on C inputs, synchronized clamp on PrPb inputs
  - Bi-directional control for VCR R/C output and for TV B output
  - AC-coupled inputs and AC- or DC-coupled inputs for video signal from encoder with internal clamp and bias
  - Video detection block in low power auto startup mode
  - Crosstalk: 50 dB minimum
  - Video muting on all outputs
- Audio section:
  - Three stereo inputs, two stereo outputs



LQFP48 7 × 7 × 1.4 mm^3
(48-pin low-profile quad flat pack)

  - One mono sound output
  - Stereo-to-mono sound capability
  - Differential or single-ended audio input
  - Selectable gain of 0, 6 or 9 dB on one stereo input
  - Full range volume control with soft control
  - Audio muting on all outputs

Applications

- Set-top boxes (IP, cable, satellite, terrestrial)
- Integrated digital TV plug-in
- Blu-ray and DVD players

Description

The STV6417 is a highly integrated I^{2}C bus-controlled audio and video switch matrix, optimized for use in digital set-top box applications. It provides all the audio and video routings required in a full two-SCART set-top box design.

The STV6417 is a fully integrated solution for filtering and buffering SD signals

Table 1. Device summary

Order code	Temperature range	Package	Packaging
STV6417AG	0 to 70 °C	LQFP48 (7 × 7 mm^2)	Tray
STV6417AGT	0 to 70 °C	LQFP48 (7 × 7 mm^2)	Tape and reel

1 Introduction

The STV6417 is an I²C-controlled integrated circuit for switching, filtering and buffering audio and video signals in any dual, full-SCART application. It can be used in products such as SD and HD set-top boxes or DVD/BD players and recorders for European markets.

It can be connected to six video DAC outputs of an MPEG decoder, allowing simultaneous switching and driving of either the composite and RGB signals, or the S-video signal only, to the TV SCART output, as well as the composite or S-video signals to the VCR SCART output. Further, the device provides the switching of the composite and RGB signals, or the S-video signal only, from the VCR SCART to the TV SCART.

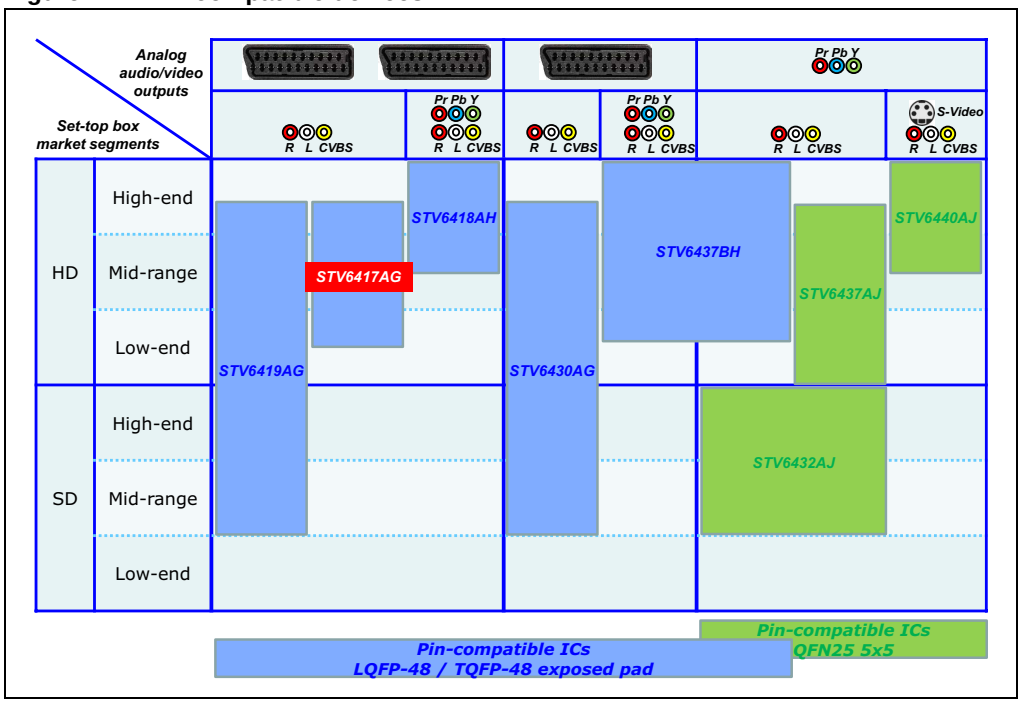
The STV6417 manages the slow blanking and fast blanking signalling through the I²C bus.

The complete set of features of the STV6417 makes it particularly adapted for all low- to high-end European HD set-top boxes.

The STV6417 is one of the family of five, pin-compatible products (Figure 1) that complete the new generation of audio and video switches and buffers from STMicroelectronics. Together they cover, both technically and price-wise, the whole market spectrum from mid-range SD retail (zapper set-top boxes or basic recorders) up to DVR HD operators (set-top boxes or recorders with SD component output).

Features	Benefits
Integrated switch from RGB/Composite SCART to S-video SCART.	Avoids video DAC change of output configuration.
AC- and DC-coupled video inputs.	Connects with any core chip on the market or reduces component count when using positive signals.
AC- and DC-coupled video outputs.	Connects to any type of display.
Audio gain up to +15 dB.	Allows optimization of THD and SNR, and saving external op-amps.
Pin-compatibility with four other products.	Combines single-device space-saving (up to 50%) benefits with commodity price/flexibility benefits to allow a single PCB design covering the entire market spectrum.
Pin-compatibility with STV6418AH.	Provides dual-source solution at no cost premium in case of market shortage or sudden rise in demand.
Auto startup mode.	Implements instantaneous SCART loop-through only when required while the STB is in standby, for significant power savings.

Figure 1. Pin-compatible devices



2 Revision history

Table 2. Document revision history

Date	Revision	Changes
27-Jun-2008	1	Initial release.
23-Sep-2011	2	Updated with new presentation.

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