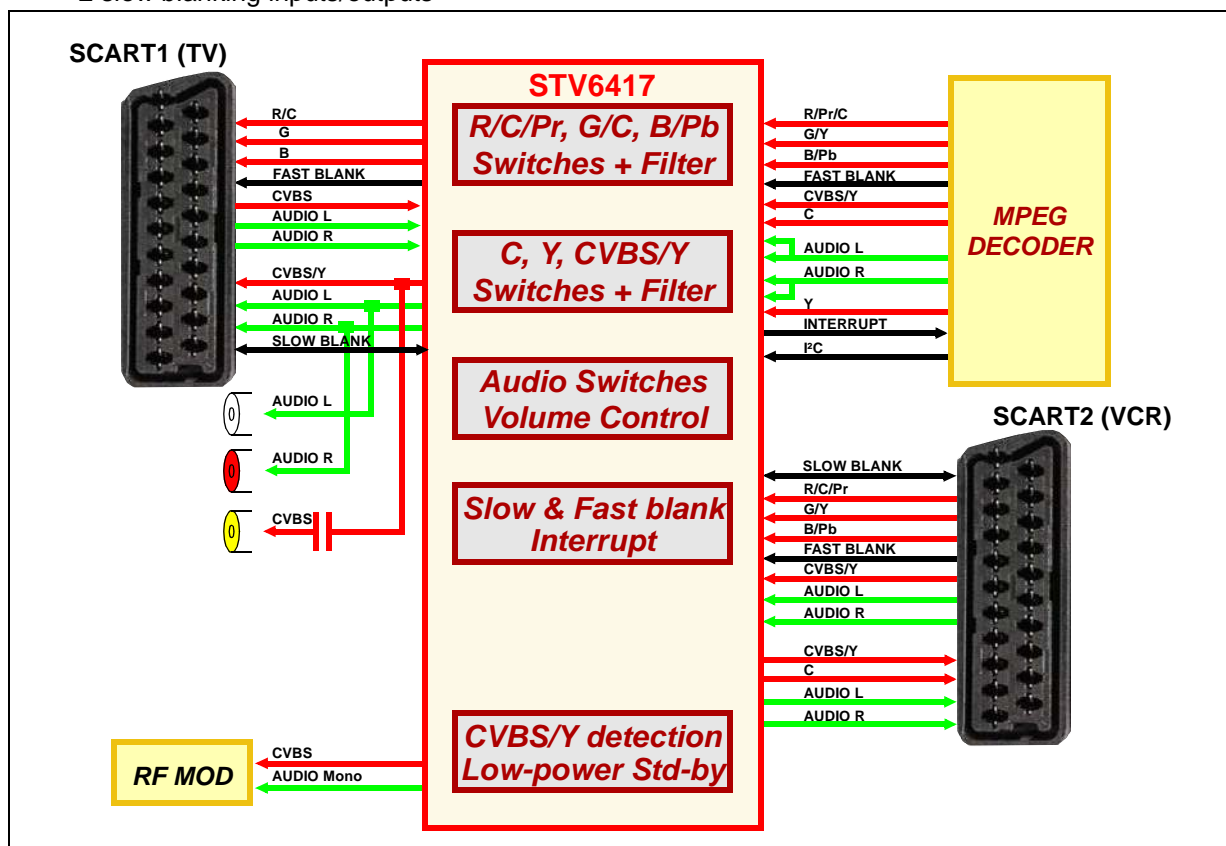


## Audio/video switch and 6-channel SD video filter

Data Brief

### Features

- I<sup>2</sup>C bus control
- Interrupt or auto-startup mode: low power consumption
- Video section
  - 3 CVBS inputs, 2 CVBS outputs
  - 3 Y/C inputs, 3 Y/C outputs
  - Low pass filters (LPF) for standard definition (1H) on six inputs plus bypass LPF (2H).
  - 6 dB gain on all CVBS/Y and C outputs
  - Integrated 150 Ω buffers
  - AC- or DC-coupled video outputs
  - 1 CVBS output (Y/C adder): RFMOD
  - 2 slow blanking inputs/outputs
- Bottom clamp on all CVBS/Y and RGB inputs; average clamp on C inputs; synchronize clamp on PrPb inputs
- Audio section
  - 3 stereo inputs, 2 stereo outputs
  - 1 mono sound output
  - Stereo-to-mono sound capability
  - Differential or single-ended audio encoder input
  - 0/6/9 dB selectable gain on one stereo input
  - Full-range volume control with soft control
  - Audio muting on all outputs



# 1 Description

The STV6417 is an I<sup>2</sup>C-controlled integrated circuit designed to switch both audio and video in any dual full-SCART application such as set-top boxes or DVD recorders for European markets.

The STV6417 is one of the four brand new products that complete the new generation of audio and video switches from STMicroelectronics, which cover both technically and price-wise the whole market spectrum from low-cost SD retail (zapper set-top box or basic recorder) up to DVR HD operator (set-top boxes or recorders with component outputs).

Its complete set of features makes it particularly adapted for all operator and high end retail set-top boxes.

**Figure 1. STMicroelectronics new generation of audio and video switches**

	Retail				Operator	
	FTA SD Zapper	FTA SD CI/CAS	SD DVR	HD	SD	HD
STV6418				■		■
<b>STV6417</b>		■	■	■	■	■
STV6419	■	■	■	■	■	■
STV6416	■					

## Small footprint

The first key differentiator of the STV6417 is its size. It is supplied in a LQFP-48 7 x 7 package, compared with older generation devices that used LQFP-64 10 x 10 and LQFP-64 14 x 14 packages.

## Reduced bill-of-material

A second key differentiator is the STV6417's ability to reduce the bill-of-material. The STV6417 can interact directly with an MPEG decoder audio output, whether it is voltage- or current-driven. In the latter case, an integrated programmable gain allows designers to reduce the bill-of-material by removing the need for external operational amplifier circuitry.

The STV6417 video inputs can be driven either in AC- or DC-coupled mode from the MPEG decoder video DAC outputs, again decreasing the need for external components.

The STV6417 can drive AC- or DC-coupled output loads, saving the need for additional external buffer circuitry or coupling capacitors. A dedicated video and a mono audio output are available to drive an RF modulator.

The STV6417 integrates 6 dB video buffers in series with each of the six by-passable standard definition (SD) low-pass filters. It can connect to six video DAC outputs of the MPEG decoder, allowing it to switch and drive at the same time the composite and RGB signals on the TV SCART outputs, as well as the S-video signal on the VCR SCART output.

The STV6417’s RGB inputs connected to both the MPEG decoder and VCR SCART are YPbPr-compatible and can therefore be adapted for other niche applications (SCART-to-component bundled connector).

**Optimized power consumption in stand-by**

The third key differentiator of the STV6417 is its power consumption, especially in stand-by. It embeds a brand new function that allows an automatic VCR-to-TV or TV-to-VCR SCART loop-through as soon as a composite or a luminance signal is active on one of the SCART inputs. This function allows an instantaneous loop-through while saving power consumption in stand-by. The STV6417 can achieve a market-lowest 50 mW stand-by consumption, demanding less than 10% of the power budget that shall soon be required by legislation or according to the average existing rules of conduct.

**Platform scalability**

Finally, the fourth key differentiator of the STV6417 and its associated products is their ability to cover all the dual SCART market spectrum, offering cost savings not only on device and bill-of-materials, but also on engineering and scalability cost. For example, the STV6417 shares the same footprint as the STV6419AG, allowing either one step for connectivity downgrades for a single HD platform, or one step for connectivity upgrades for a single SD platform in order to serve different customer connectivity requirements (support for S-video on VCR SCART output, support for Canal+ analog, component output allowed or not for HD content copyright protection), optimizing platform cost without re-engineering.

**Figure 2. Platform scalability**

		TV SCART out No RGB Loop-through No YPbPr out	TV SCART out RGB Loop-through No YPbPr out	TV SCART in/out RGB Loop-through No YPbPr out	TV SCART in/out RGB Loop-through YPbPr out
		VFQFPN-28 5x5	LQFP-48 7x7	LQFP-48 7x7	TQFP-48 7x7 EP
High-End STB	HD		STV6419AG	STV6417AG	STV6418AH
DVR			STV6419AG	STV6417AG	
Retail FTA CA/CI	SD		STV6419AG	STV6417AG	
Retail FTA Zapper		STV6416AJ	STV6419AG		

## 2 Application

Typical applications for the STV6417 are:

- Full dual-SCART standard definition (SD) set-top boxes (free-to-air or operator)
- Full dual-SCART high definition (HD) set-top boxes (free-to-air or operator)
- DVD recorders

### 2.1 Ordering information

**Table 1. Ordering information**

Part number	Packaging
STV6417AG	LQFP-48 7 x 7

### 3 Revision history

**Table 2. Document revision history**

Date	Revision	Changes
27-Jun-2008	1	Initial release.

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