STi5251

## Advanced SD STB processor with integrated DVB-T/DVB-C demodulator

Data brief

Features

- Advanced standard definition video decoding (H.264/VC-1/MPEG2/AVS)

- Advanced multi-channel audio decoding (MPEG 1, MPEG 2, MP3, DD/DD+, AAC/AAC+, WMA9/WMA9pro)

- Linux, Windows CE® and OS21 compatible ST40 applications CPU (450 MHz)

- 16-bit DDR1/DDR2 compatible local memory interface (LMI)

- Embedded DVB-C or DVB-T demodulator

- Multi-stream, DVR capable, transport stream processing

- Flexible ST231-based audio decoder

- Flexible ST231-based advanced video decoder

- Multi-channel flexible DMA controller

- Extensive connectivity (dual USB controller, Ethernet MAC/MII/RMII/TMII and SD-MMC/SDIO)

- Advanced security and DRM support including SVP, MS-DRM, Marlin, DivX and DTCP-IP

- External memory interface (EMI) with NAND-Flash, NOR-Flash, peripherals support

- Dual smartcard, 4 x UART, 4 x synchronous serial controllers (SSC), soft modem, IR transmitter and receiver, UHF Rx/SCD

- 4 x 4 matrix key front panel switch scanner FSM with key de-bounce

- 23 mm x 23 mm x 1.7 mm package

Description

The STi5251 is a new, cost-effective SD advanced decoding STB SoC. The STi5251 is ideally suited to cable, terrestrial and terrestrial/IP hybrid networks. The STi5251 integrates in a single IC a versatile DVB-C/DVB-T demodulator/FEC (user mode selectable), multi-stream transport demux, an ST40 applications CPU, A/V decode, video processing, graphics and display, advanced security, STB peripherals, audio/video DACs, digital A/V outputs, USB 2.0 host controller with PHY and ULPI, SDIO SD-MMC controller and Ethernet GMAC controller with /MII/RMII/TMII interface.

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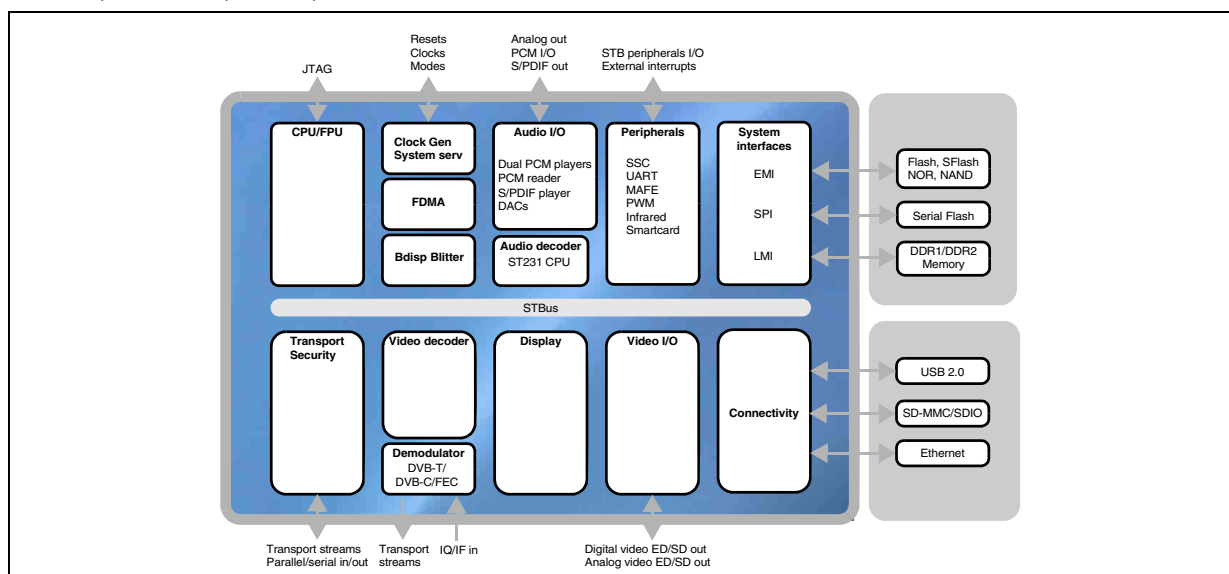
1 Introduction

The STi5251 uses ST's state of the art process technology to provide a cost-effective SD advanced decoding set-top-box SoC. It is a highly integrated solution suitable for DVB-C or DVB-T/IP STB markets worldwide.

The STi5251 provides a solution for operators to specify a range of cost-effective SD STBs including high-volume broadcast-only zapper STBs, interactive STBs and dual-stream DVR and time-shift capable STBs. Content delivery is possible using broadcast and Ethernet connectivity (Hybrid STBs).

The STi5251 is optimized for secure Pay-TV applications with integrated DVB, DES, AES, TDES and ICAM descramblers and smartcard interfaces. It also has advanced security features to further safeguard operator and content investment including secure control words, software integrity checking, JTAG locking and DRM support.

The STi5251 offers high-performance CPU and graphics subsystem, which targets the full range of software/UI platforms from basic OS/program guide to demanding middlewares, such as MHP.

Features	Benefits
Combines a DVB-C/DVB-T demodulator with STB decoding and display functions	This highly integrated SoC helps to reduce board area and manufacturing cost, allowing cost effective and small-size STBs to be designed for DVB-C/DVB-T networks
Serial Flash-based secure boot and code storage, integrated voltage regulator, 23 mm x 23 mm x 1.7 mm PBGA package	Enables further BOM optimization and cost reduction of advanced decoding SD STBs
ST40-300 applications CPU @450 MHz, 32 K I cache, 32 K D cache	Up to 800 DMIPs superscalar performance from a single CPU core, using standard tools and operating systems (Linux, OS21)
STMicroelectronics' DELTA video decoding system with ST231 processor	Decoding of advanced standard definition MPEG2, H.264 and VC-1/WMV9 streams, with the performance and flexibility for web-based content decoding such as Flash, DivX, MJPEG, XviD and Real
Dual USB 2.0 hosts, Ethernet MAC with MII/RMII and TMII, SD-MMC/SDIO	Extensive high-speed connectivity for the widest range of STB peripherals, such as Flash drives, external HDDs, home network controllers (for example MoCA, Wi-Fi), memory cards
Low power process, design and architecture	Best in class, low-power standby mode, to meet emerging energy standards for STBs. Dynamic configuration of power to individual subsystems enables power-efficient active standby modes
Advanced 2D graphics and display subsystem and 480p/576p display output	Allows visually appealing user interfaces and video-rich navigation to be offered to consumers, while high-quality progressive output can be watched on the latest displays

2 Revision history

Table 1. Document revision history

Date	Revision	Changes
30-Aug-2011	1	Initial release.

Please Read Carefully: