

## Product Brief

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## Description

Zoran's SupraHD-680 ATSC/NTSC and Unidirectional OpenCable (UDC) reference design is a complete hardware and software solution for building an integrated Digital Cable Ready (DCR) Digital Television (DTV) targeted at the United States market. The reference hardware module can be implemented in an LCD-based or CRT-based DTV. The reference TV application software complies with the ATSC and OpenCable broadcast standards.

The reference design is a full-featured system that allows tuning, decoding, and display of analog (NTSC) and digital (ATSC) terrestrial broadcast, and cable transmission. The SupraHD-680 DTV System IC decodes standard-definition and high-definition content. This IC is highly integrated, consisting of a MPEG-2 decoder, NTSC video decoder, HDMI interface, IEEE-1394 interface, CableCARD interface, high-performance CPU, powerful graphics engine, video scalar, video enhancement, LVDS driver and various peripherals necessary for building an integrated DTV. The reference hardware module accepts the traditional video equipment interfaces, such as composite

(CVBS), S-video (Y/C), and component (YPbPr) inputs, as well as the more advanced interfaces, such as HDMI from newer DVD players and IEEE-1394 from digital video recorders. It also accepts VGA input from a personal computer. For the output interfaces, the reference hardware module can directly drive an LCD panel or a CRT TV. Other outputs are L/R audio for its internal speakers and SPDIF for multi-channel output to an external audio receiver.

The reference TV application supports the basic functionalities required for a DTV, such as an ATSC/NTSC software stack, Electronic Program Guide (EPG), closed-caption decoding, parental control, basic audio control (i.e. bass, treble, balance), and basic video control (i.e. contrast, brightness, color). In addition, the CableCARD software stack is provided, thereby meeting the FCC mandate of requiring DTVs to be digital cable ready. For ease of connectivity to external devices, such as digital video recorders, the IEEE-1394 software stack is also bundled with the software package.

## Key Hardware Features

- SupraHD-680 DTV System IC
- Boot ROM: 32KByte on SPI bus
- NOR Flash Memory: 16MByte
- DDR SDRAM: 64MByte
- ATSC/NTSC/Cable Tuner
- Zoran 8VSB/QAM/QPSK Demodulator
- Video In: ATSC/NTSC/Cable Tuner, CVBS, S-Video, YPbPr, VGA, HDMI, IEEE-1394
- Audio In: Left and Right Channels
- Main Video Out: LVDS (for LCD Panel), Analog YPbPr or RGB (for CRT TV)
- Auxiliary Video Out: CVBS and S-Video (for CRT TV)
- Audio Out: Left and Right Channels, SPDIF
- IR Remote, I2C, RS-232, and CableCARD interfaces

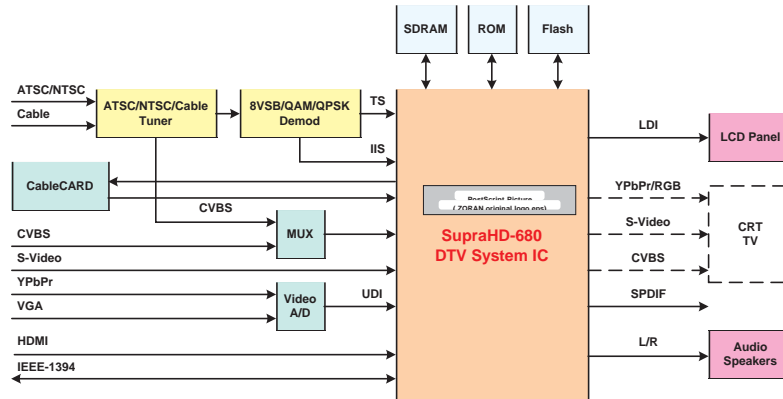


Zoran's SupraHD DTV Reference Design includes main board installed in flat panel display, stereo speakers, remote control, cables, preloaded software and documentation.

**Product Brief**



**System Block Diagram**



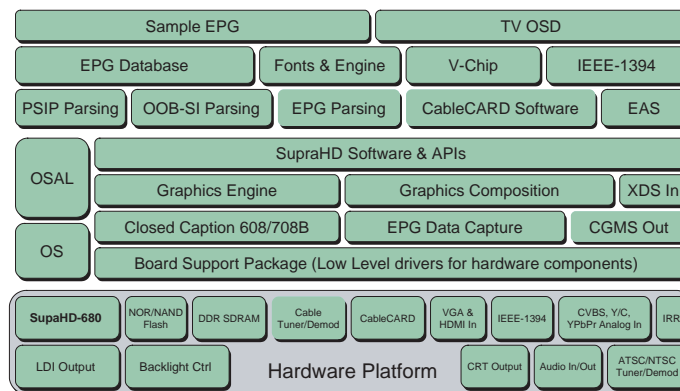
**System Software Features**

- ATSC/NTSC and UDC DTV application with customizable OSD
- Sample EPG
- V-Chip for analog and digital channels
- PSIP Parsing for channel map and EPG
- Analog and Digital Closed-Captioning (EIA-608 and EIA-708B)
- Fonts for OSD and Closed-Captioning
- Peripheral drivers for Tuner, Demodulator, HDMI, and Analog inputs
- Transport, Video Decode (single MP@HL), Audio Decode (AC-3, MPEG Layer I & II), Graphics, and Display drivers
- Thread-X royalty-free operating system
- Digital Keystone Uni-Directional CableCARD software
- IEEE-1394 software (Customer to license directly from VividLogic)

**Package Contents**

- 23-inch LCD HDTV with built-in main board, front-panel, and stereo speakers
- 110V-240V power adapter, remote control, and necessary cables
- Pre-loaded ATSC/NTSC/UDC compliant software on flash memory
- Complete documentation for reference design, software, and IC on a CD-ROM

**Software Architecture Diagram**



Export Classification Control Number (ECCN): 5A992 Product Order Code: ZR839680-UDC-LCDX

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