SupraHD[®] 660 ATSC/NTSC

Driving the Digital Lifestyle

DTV Reference Design		DVD	Digital Camera	Digital TV	Imaging	IP Core
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Description

Zoran's SupraHD-660 ATSC/NTSC reference design is a complete hardware and software solution for building an integrated Digital Television (DTV) targeted at the United States market. The reference hardware module can either be used in LCD-based or CRT-based DTVs. The reference TV application software complies with the ATSC broadcast standards.

The reference design is a full-featured system that allows tuning, decoding, and display of analog (NTSC) and digital (ATSC) terrestrial broadcast. The SupraHD-660 DTV System IC decodes standard-definition and high-definition content. This IC is highly integrated, consisting of a MPEG-2 HD decoder, NTSC video decoder, HDMI interface, IEEE-1394 interface, high-performance CPU, powerful graphics engine, video scalar, video enhancement, LVDS driver and other peripherals necessary for building an integrated DTV. The reference hardware module accepts composite (CVBS), S-video

(Y/C), and component (YPbPr) inputs, and 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. The reference hardware module output interfaces can directly drive an LCD panel or a CRT TV. Other outputs include 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). 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-660 DTV System IC
- Boot ROM: 32KByte on SPI bus
- NOR Flash Memory: 16MByte
- DDR SDRAM: 64MByte
- ATSC/NTSC Tuner
- Zoran 8VSB/QAM Demodulator
- Video In: ATSC/NTSC 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, and RS-232 interfaces





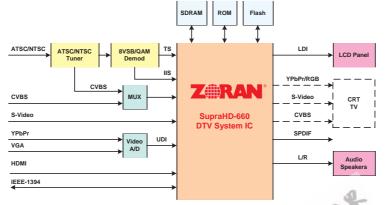
Zoran's SupraHD DTV Reference Design includes main board installed in flat panel display, stereo speakers, remote control, cables, preloaded software and documentation.

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DTV Reference Design

Product Brief

System Block Diagram



System Software Features

- ATSC/NTSC 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

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
- Peripheral drivers for Tuner, Demodulator, HDMI, and Analog inputs • Thread-X royalty-free operating system IEEE-1394 software (Customer to license directly from VividLogic)

MPEG Layer I & II), Graphics, and Display drivers

Transport, Video Decode (single MP@HL), Audio Decode (AC-3,

- · Pre-loaded ATSC/NTSC compliant software on flash memory
- · Complete documentation for reference design, software, and IC on a CD-ROM

Software Architecture Diagram

Sample EPG			TV OSD			
EPG Database Font		Fonts & Engi	ne	V-Chip		E-1394
		PSIP Par	sing			
		SupraHD So	ftware & AF	ls		
OSAL	Graphics Engine		Graphics Composition			XDS In
\dashv	Closed Caption 608/	708B		CGMS O	ut	
os	Board Support Pack	kage (Low Le	vel drivers fo	or hardware	compone	nts)
SupraHD-660	Rash DOR SDRAM	CVBS, V/C, YPbPr/	Analog in VGA a	Inci HOMI In	5-1384 Audi	
LD! Output	Backlight Ctrl H	ardware P	latform	CRT Outpu		TSC/NTSC rienDemod

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