Product Brief

Overview

The SupraTV family of highly integrated digital TV processors for Free-To-Air and Pay TV Set-Top Boxes (STBs) and integrated digital TVs combines the key functions required to support standard definition digital television systems.

The SupraTV processor enables products with enhanced flexibility and performance to be developed at low system costs. The use of programmable DSP-based technology allows for product differentiation, while a high performance MIPS processor provides access to industry standard middleware, including MHEG-5 and MHP.

With a comprehensive set of software drivers, proven tool kit and reference platforms, the SupraTV family keeps product development times to a minimum.

SupraTV 150 Family

The ZR39150 family includes the following SupraTV ICs:

- **ZR39140** — designed for use in Free-To-Air and Pay TV Set-Top Box applications (without Macrovision)

- **ZR39151** — designed for use in applications that require Macrovision

- **ZR39152** — designed for use in UK Free-To-Air terrestrial markets, including Cabot's Aurora DVB middleware, which supports MHEG-5 and over-air download (without Macrovision)

- **ZR39153** — designed for use in UK Free-To-Air terrestrial markets, including Cabot's Aurora DVB middleware, which supports MHEG-5 and over-air download (with Macrovision)

Differences Between ZR39140, ZR39151, ZR39152 and ZR39153

Chip	Macrovision Support	Includes MHEG-5 Software
ZR39140	NO	NO
ZR39151	YES	NO
ZR39152	NO	YES
ZR39153	YES	YES

SupraTV 140 Features Summary

- **MIPS 32 CPU with MMU**
  - 8K I-cache, 8K D-cache
  - 195 MHz, Main CPU & programmable DSP operating speed
  - ≥230 Dhrystone MIPS, total performance

- **Programmable multi-stream transport demultiplexer**
  - DVB descrambling
  - Support for PVR based applications

- **Dual SmartCard interfaces with integrated protection and control**

- **Integrated two-slot DVB-CIM controller**

- **MPEG-2 video decoder, ISO/IEC13818-2 (MP@ML)**
  - Support for bitrates up to 15Mbits/sec

- **High performance graphics subsystem**
  - 2D graphics accelerator function supporting six planes
  - 4, 8 bit CLUT, 16bit RGB with OSD, Antiflicker filtering
  - Flexible down/up-scaling of video

- **Integrated PAL/NTSC Video Encoder**
  - VBI reinsertion (Teletext, WSS, CC)
  - Simultaneous Component, S-Video and RGB output
  - 6 video DACs

- **Audio support:**
  - Programmable audio DSP for MPEG layers 1 & 2, MP3 & WMA
  - Two-channel audio output using I2S
  - SPDIF output
  - Two-channel audio input for decoded analog TV audio

- **Unified SDRAM memory architecture (64Mbit - 256Mbit)**

- **CCIR-601 digital video support**
  - Input for decoded NTSC/PAL/SECAM signals

- **Guestbus with glueless interface to peripheral devices**
  - ATAPI, 8 or 16 bits flash memory, USB/LAN bridge

- **Support for V.22bis soft modem**
  - Integrated codec and DAA interface

- **Set-Top Box interfaces including: UARTs, I2C, IR, GPIOs**

- **Single crystal**
  - Integrated digital timing oscillator replacing external VCXO

- **256-pin PQFP package**

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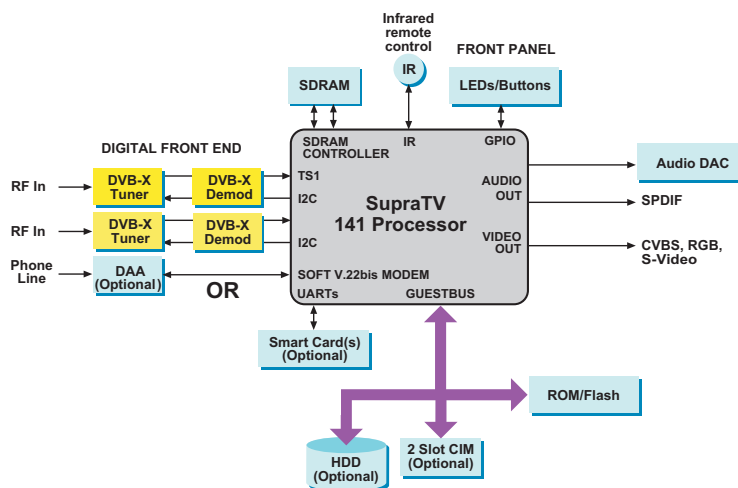
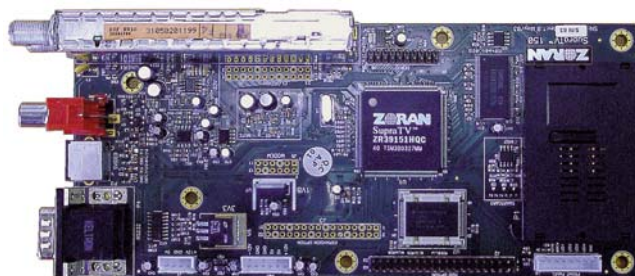### SupraTV 150 Development Platform

A comprehensive development platform is available for the SupraTV 150 family, including evaluation boards for digital terrestrial, satellite and cable-based products. An Integrated Development Environment includes a proven windows based GNU tool kit, Zoran's SiliconSoftware® registration drivers, and additional applications that add functions such as flash memory burning, high performance code download, software protection, a sophisticated GUI development tool (Embedded Wizard), and an automatic code generator.

The SupraTV 150 platform will significantly reduce the time taken to develop feature rich digital television and Set-Top Box products. The SupraTV 150 evaluation board supports all needed peripherals and is available with a COFDM, QPSK or QAM front-end.

Single and dual tuner Digital Video Recording capabilities can be achieved by adding a hard drive, Zoran DVR Software, additional memory, and a second front end (for dual tuner DVR).

SupraTV 150 Family Reference Design and System Block Diagram

For cable set-top boxes use DVB-C tuner & QAM demodulator
For satellite set-top boxes use DVB-S tuner & QPSK demodulator
For terrestrial set-top boxes use DVB-T tuner & COFDM demodulator
For digital televisions use combined DVB-T/analog terrestrial tuner, COFDM demodulator, and PAL/SECAM/NTSC video decoder

Zoran SiliconSoftware® API Package

Zoran provides software support for the SupraTV 150 and a documented Application Programming Interface. Based on the company's extensive DVD and HDTV experience, the API provides a stable base on which users can build their own applications.

The software stack, including the operating system (Nucleus+), is available on a royalty-free basis. Zoran's SiliconSoftware API will be supported on future SupraTV ICs. Software portability from one generation to the next minimizes project design time and effort while enabling the software to be reused.

Other components of the standard software package include an Electronic Programming Guide (EPG) for Free-To-Air services, DVB subtitle and OSD Teletext decoding, and DVB common interface module software. In addition, the SupraTV 152 and 153 include a complete UK DVB-T software stack, which includes MHEG-5 and Over-Air Download.

For more information, contact Zoran's Sunnyvale office or the office nearest you:

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