

HDTV MPEG-2/H.264/VC-1 Video Decoder

CX24501

Conexant's portfolio includes a comprehensive suite of semiconductor solutions for broadband communications and the digital home.

Conexant's CX24501 is a highly integrated, MPEG-2/H.264/VC-1, DIRECTV/DVB compliant, back-end decoder IC solution for high-definition digital TV which can be deployed in digital satellite, cable, Telco or terrestrial TV networks.

The CX24501 features a flexible multi format video decoder capable of decoding High Definition or Standard Definition programs in MPEG-2, H.264 and VC-1 formats. The audio decoder supports multiple audio format decoding, including MPEG-1, MPEG-2, Dolby® Digital, Dolby Digital+. MPEG-4 aac and aacPlus™, WMA and WMA Pro. An integrated ARM1176 CPU with 32K Instruction and Data cache supplies over 730 Dhrystone 1.2 MIPS at 550MHz, and a high performance 667MHz 32-bit DDR-2 SDRAM memory controller gives ample processing power for advanced applications and future expansion capability. An additional 16-bit DDR-2 SDRAM controller is also available for high performance applications.

The CX24501 also features an impressive array of I/O features, including HDMI with HDCP, dual USB 2.0 host controller with integrated PHYs, an additional USB1.1 solution, dual integrated 10/100 Ethernet MAC with MII, integrated V.92 hardware modem, PCI bus and HomePlug® connectivity via a high-speed UART. The CX24501 fully supports cable applications when used in conjunction with the CX24450-CX24453 DOCSIS 2.0+ STB Front End IC, supporting an OpenCable™ Cable CARDTM M-Card™ interface.

The CX24501 is software compatible with the other single chip MPEG decoder products from Conexant including the CX24500 and CX2427x family. A single code base allows common software development to be applied to across all platforms minimizing development time and maximizing software reuse.



Distinguishing Features

- DVB/DIRECTV® compliant back-end HDTV decoder for worldwide markets
- High-performance ARM1176 CPU with 32K I/D cache providing 730+ DMIPS
- Multiple OS support including Nucleus+, VxWorks, Linux® and Windows® CE
- MPEG-2, H.264 and VC-1 video decoder
- Advanced audio decoder with multiple audio format support
- Advanced security features including secure boot software authentication, IC personalization via OTP memory, SVP support and 3DES/AES ciphering engines
- HDMI v1.3 transmitter with HDCP content protection
- High performance de-interlacer with 480i or 1080i to 480p/720p conversion
- Dual USB2.0
- OpenCable M-card support

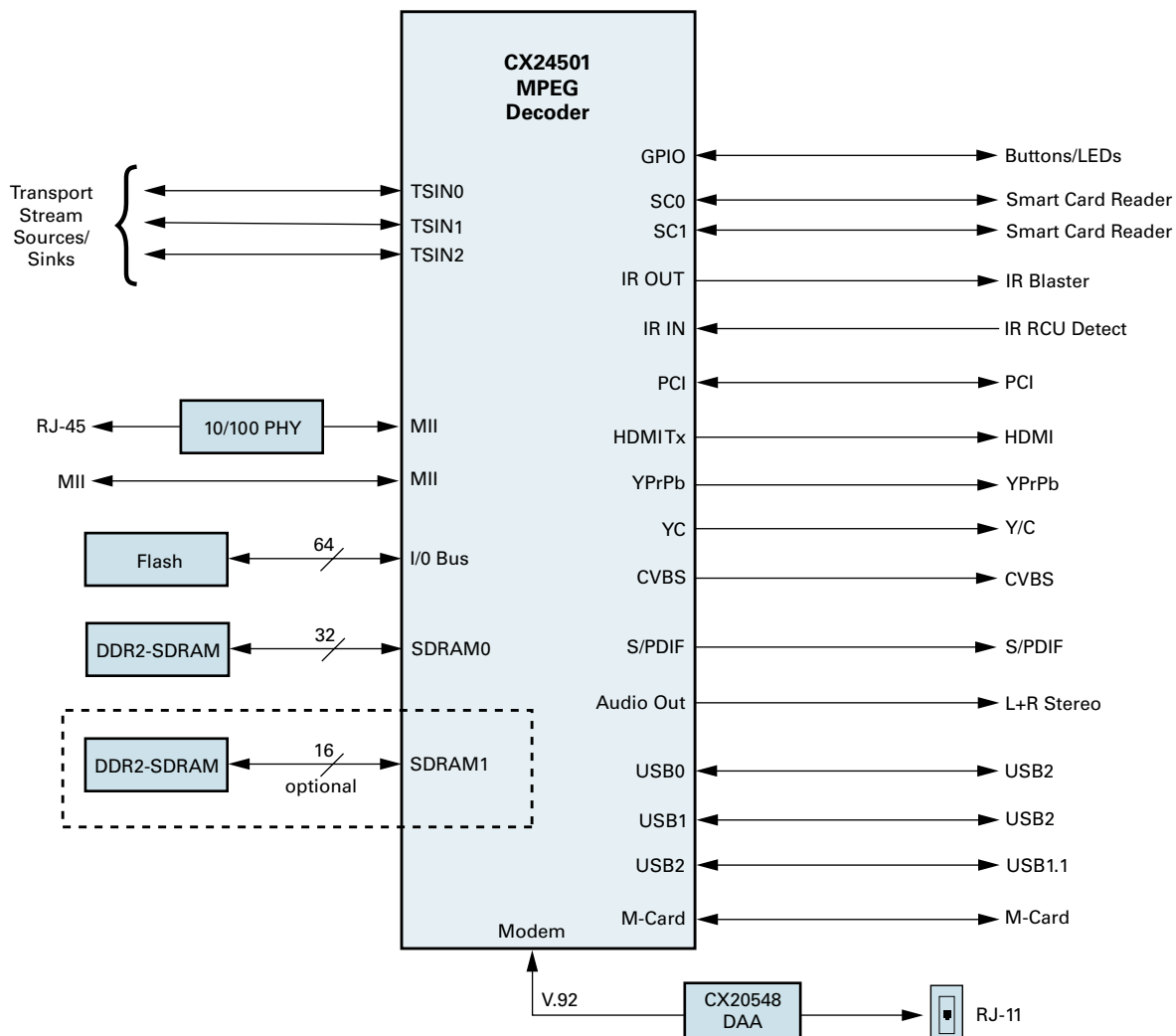
Part Number CX24501

Description	HDTV MPEG-2/H.264/VC-1 Video Decoder
--------------------	---

[查询"CX24501"供应商](#)

For a complete HDTV hardware design, the only additional components required are a tuner, demodulator, double data rate (DDR-2) synchronous dynamic random access memory (SDRAM), and flash memory ICs. This level of integration enables a low-cost system bill of materials and allows the flexibility of supporting different modulation and compression technologies with a low cost, highly featured MPEG solution for dual TV set-top box (STB) applications.

The CX24501 IC is integrated into a fully engineered interactive TV STB reference development system that implements third-party interactive middleware/real-time operating system (RTOS) platforms and provides a complete set of STB low-level drivers. The STB development platform hardware is designed with a flexible architecture that supports multiple front end tuner/demodulator daughter boards. A mature and robust hardware abstraction layer is assured by re-use of core driver libraries developed over multiple generations of production MPEG ICs. Support for Nucleus+ and Linux OS is included, with the software architected to allow easy porting to other real-time OS.



CX24501 System Block Diagram

[查询"CX24501"供应商](#)

Common Platform for Satellite, Cable, IP and Terrestrial STB manufacturers increasingly look to leverage a common hardware platform that can be reused over various broadband networks, including satellite, cable, terrestrial, DSL, and Telco networks. Conexant's CX24501 IC can serve as a common back-end platform that easily interfaces to a variety of broadband front ends, including

QPSK, 8-PSK, DVB-S2, QAM, OFDM, 8-VSB, ADSL/VDSL, 802.3, 802.11a/b/g, Homeplug, MoCA® or IEEE 1394 through either transport stream, MII or PCI interfaces. This provides a flexible STB solution that can be targeted to a variety of broadband operators while minimizing hardware/software development costs.

CX24501 Product Features

- High-performance ARM1176 CPU with 32K I/D cache supplying 730+ Dhrystone 1.2 MIPS at 550MHz
- 667 MHz 32-bit DDR-2 memory interface with optional additional 16-bit DDR-2 interface for high performance applications
- DIRECTV/DVB transport stream demultiplexing
- Multi-standard transport processor with 3DES, AES and Multi-II descrambling
- Supports MPEG-2 MP@HL, MP@ML, MP@LL, SP@ML
- Supports H.264 MP@L4.1 and HP@L4.1
- Supports VC-1 AP@L3 and MP@HL
- Multi-plane video/graphics display controller
- HD displays supports HD 1080p, 1080i and 720p picture output with six-plane compositing
- Supports constrained HDTV image output on YPrPb
- Supports video plane re-sizing for format conversion, picture-in-picture, or picture-in-graphics
- High-performance de-interlacing supports 480i to 480p/720p and 1080i to 480p/720p conversions
- Multi-format audio decoder supporting decoding of MPEG-1, MPEG-2, Dolby Digital, Dolby Digital Plus, MPEG-2 AAC, MPEG-4 AAC, aacPlus, WMA and WMA Pro encoded bitstreams
- Advanced 2D graphics rendering engine for alphabl, bitblt, textblt, line draw, and color expansion acceleration
- Six 10-bit video DACs
- Macrovision® 7.x copy protection with 525p/625p optional support
- Advanced security features including secure boot SW authentication, IC personalization via OTP memory
- Secure video processor (SVP) support
- Integrated DIRECTV security
- HDMI v1.3 transmitter with HDCP
- Dual USB2.0 host controllers with integrated PHYs
- Dual channel 10/100 Ethernet MAC with overclocked MIIs
- Two Smart Card ports
- 32-bit 33 MHz PCI controller
- Multiple I2S, 12C, SPI, GPIO, UARTs
- OpenCable™ CableCARD™ M-Card interface
- Infrared (IR) input/output



[查询"CX24501"供应商](#)

Conexant Product Portfolio

The company's broad portfolio of semiconductor products also includes client-side DSL and cable modem solutions, home network processors, broadcast video encoders and decoders, digital set-top box components and systems solutions, and dial-up modems. In addition to its IEEE 802.11a/b/g-compliant WLAN chipsets, software, and reference designs, Conexant offers a suite of networking components that includes solutions for applications based on HomePlug® and HomePNA™. Additional products include a complete line of asymmetric and symmetric DSL central office solutions, which are used by service providers worldwide to deliver broadband data, voice, and video over copper telephone lines.

© 2007, Conexant Systems, Inc. All Rights Reserved. Conexant and the Conexant logo are registered trademarks of Conexant Systems, Inc. All other trademarks are owned by their respective owners. Although Conexant strives for accuracy in all its publications, this material may contain errors or omissions and is subject to change without notice. **THIS MATERIAL IS PROVIDED AS IS AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NON-INFRINGEMENT.** Conexant shall not be liable for any special, indirect, incidental or consequential damages as a result of its use.

www.conexant.com
General Information:
U.S. and Canada: (888) 855-4562
International: (732) 345-7500
Headquarters
4000 MacArthur Blvd.
Newport Beach, CA 92660

Order# PBR-201182

