



Single-Chip DBS Set-Top Box System Solution

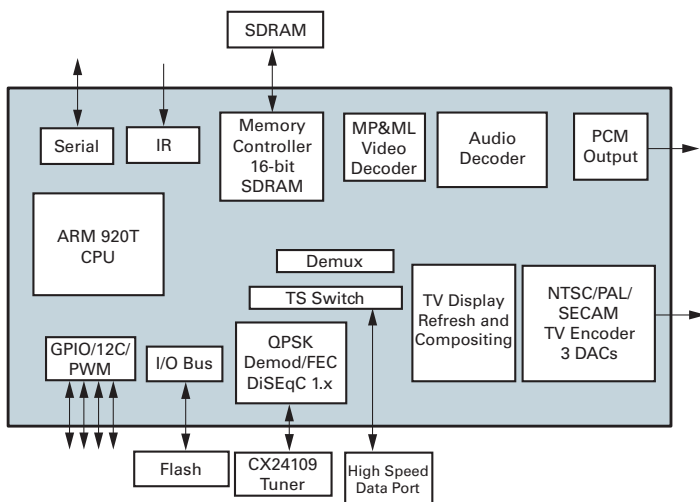
CX24138

Conexant's portfolio includes a comprehensive suite of semiconductor solutions for broadband communications, enterprise networks, and the digital home. Conexant's Single-chip IC direct broadcast satellite (DBS) set-top box (STB) system solution features all major subsystem requirements needed to implement the core system and decoder electronics of a low cost DVB-S free-to-air (FTA) TV STB in a 208-pin quad flat pack (QFP) package.

This includes an MPEG-2 A/V decoder, transport stream processor, a 32-bit RISC CPU, a 2-Dimensional (2D) graphics accelerator, TV encoder, quadrature phase-shift keying (QPSK) demodulator, a video/graphics display compositing controller, a serial high-speed data port, and a set of peripheral I/O ports for STB front and back panel connectors.

For a complete system hardware design, the only additional components required are a tuner, audio DACs, an ultra high frequency (UHF) modulator, static random access memory (SDRAM), and flash memory ICs.

This high level of integration delivers the low-cost system bill-of-materials (BOM) sought after by mainstream digital DBS multichannel TV operators.



CX24138 Block Diagram

Distinguishing Features

- Single channel decoder with DVB-S or HSDP input
- MPEG-2/DVB broadcast service decoder for worldwide markets
- Single IC DBS STB solution with integrated QPSK demod/forward error correction (FEC)
- High-performance 32-bit 100 MHz ARM920 CPU with 16KB I & D caches
- High-performance 2D graphics rendering acceleration
- Multiplane video/graphics compositing and display engine
- Dolby® Digital passthrough on S/PDIF (Sony/Philips Digital Interchange Format)
- High-performance 16-bit unified memory controller architecture
- RS-232 and Joint Test Action Group (JTAG) interfaces
- 208-pin QFP package
- DiSEqC 1.x support

Part Number CX24138

Description Single-Chip DBS Set-Top Box System Solution

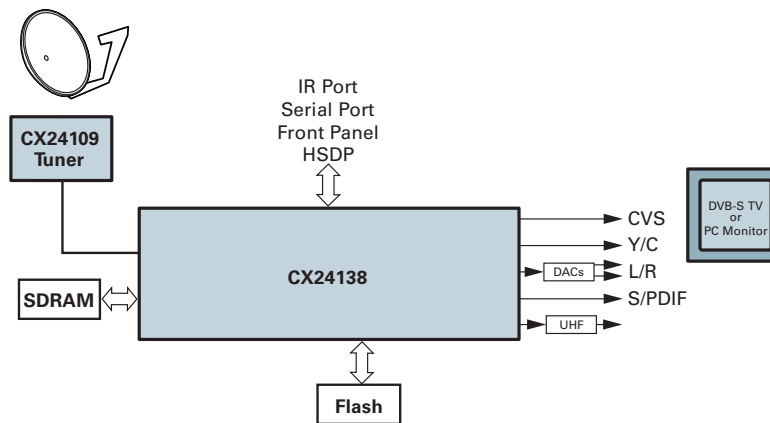


Full-Featured Development Platform

Conexant offers a complete reference design package integrating the CX24138 with the CX24109 tuner and an unprecedented level of localized design and sales support to accelerate development time-to-market. The DVB-S FTA satellite STB reference design kit includes samples, schematics, layout, BOM, STB drivers, scan algorithm, user interface with Chinese and English language support, and complete documentation of the hardware and software system solution.

The company's broad portfolio of semiconductor products also includes client-side digital subscriber line (DSL) and cable

modem solutions, home network processors, broadcast video encoders and decoders, digital STB components and systems solutions, and dial-up modems. In addition to its IEEE 802.11a/b/g-compliant wireless local area network (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.



CX24138 Block Diagram

CX24138 Features

- High-performance system-on-chip (SoC) with integrated QPSK demodulator
- Low power consumption in a 208-pin QFP package
- MPEG-2 MP@ML video decoder supporting NTSC and PAL CCIR601 image resolution
- MPEG-1/MPEG-2 audio decoder
- MPEG-2/DVB transport stream demultiplexing
- 100 MHz 112 MIPS 32-bit ARM920® CPU with 16KB I & D caches and memory management unit (MMU)
- NTSC/PAL/SECAM TV encoder
- Transport stream input via serial high-speed data port
- Supports software download via over-the-air (OTA) broadcast or RS-232 port

- Multi in-circuit emulation (ICE) debug environment
- Dolby® Digital passthrough on S/PDIF
- Advanced 2D graphics rendering engine for alphablt, bitblt, textblt, line draw, and color expansion acceleration
- 16-bit SDRAM support
- MPEG picture and still-plane upscaling and downscaling
- Multiplane video/graphics image compositing with color key or 256-level alpha blending
- Video-picture-in-graphics with flexible picture size and aspect ratio
- Flicker filtering, aspect ratio conversion and hardware cursor
- Generic infrared (IR) remote control receiver

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