



Single-Chip FTA and FTA-CI Set-Top Box System Solution

CX24142/3/6/7

Complete IC System Solution for Worldwide FTA and FTA-CI Platforms

Conexant's broadband communications portfolio includes a comprehensive suite of semiconductor solutions that enable the digital home and information network. Conexant's Single-Chip Free-To-Air (FTA) and FTA-Common Interface (FTA-CI) Set-top box (STB) System Solution features all the major subsystems required to implement the core system and decoder electronics of a DVB-compliant FTA-CI STBs. The CX24142/3/6/7 IC family includes an MPEG-2 A/V decoder (Dolby Digital audio is optional), transport processor, a 32-bit RISC CPU, a hardware 2D graphics accelerator, TV encoder, QPSK demodulator (CX24142/3 only), a video/graphics display compositing controller, support for dual DVB-CI interface (CX24142/6 only), and a set of peripheral I/O ports for set-top box front and back panel connectors. For a complete system hardware design, the only additional components required are a tuner, modem codec (optional), audio DAC, SDRAM and flash memory ICs. This high level of integration results in a very low-cost system bill-of-materials for FTA and FTA-CI STB markets worldwide.

Common Platform for Satellite, Cable, 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 Ethernet IP networks. Conexant's CX24146/7 ICs can serve as a common back-end platform that easily interfaces to a variety of broadband front-ends through a transport stream interface. This provides a flexible STB solution that can be targeted to a variety of STB applications while minimizing hardware/software development costs. CX24142-3 devices, with an integrated QPSK demodulator, provide a cost effective system solution for DVB-S satellite STBs. The CX24142/3/6/7 ICs are pin-to-pin compatible and software compatible with the CX2415x family of ICs.

Full-Featured Development Platform

The CX24142/3/6/7 IC family is integrated into a fully engineered STB reference development system that implements third-party interactive middleware/RTOS platforms and provides complete STB functionality. The hardware platform comes equipped with fully integrated Nucleus+, pSOS and VxWorks runtime libraries and driver software components. A mature and robust hardware abstraction layer is assured by re-use of core driver libraries developed on previous generation ICs. The development platform set-top box hardware is designed in a two-layer PCB configuration and includes a choice of two robust tool chain development environments for code developers: ADS 1.2 from ARM, Inc. and Tornado 2.2 from WindRiver Systems, Inc. Conexant offers a complete development code solution that has been tightly integrated with both third party tool chain environments.



CX24142/3/6/7 Distinguishing Features

- MPEG-2/DVB broadcast service decoder for DVB-S/T/C markets
- Integrated 1-45 Msym/sec QPSK/BPSK demodulator/FEC with DiSEqC 2.x signaling support (CX24142/3 only)
- 32-bit 146 MIPS ARM920 CPU with 16KB I & D caches
- Dual-slot Common Interface support (CX24142/6 only)
- 16-bit unified memory controller architecture
- Integrated NTSC/PAL/SECAM TV encoder supporting simultaneous CVBS, Y/C & RGB/YPrPb analog video output signals
- Complete V.22 software modem available

Part Number CX24142/3/6/7

Description Single-Chip FTA and FTA-CI

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CX24142/3/6/7 Features

- MPEG-2 MP@ML video decoder supporting NTSC and PAL CCIR601 image resolution
- MPEG-1/MPEG-2 and Dolby Digital (AC-3) audio decoder
- MPEG-2/DVB transport stream demultiplexing
- Integrated 1-45 Msym/sec QPSK/BPSK demodulator/FEC with DiSEqC 2.x signaling support (CX24142/3 only)
- 32-bit 146 MIPS ARM920 CPU with 16KB I & D caches
- Dual-slot Common Interface support (CX24142/6 only)
- Dual SmartCard interface for flexible CAS support
- 16-bit unified memory controller architecture
- Integrated NTSC/PAL/SECAM TV encoder supporting simultaneous CVBS, Y/C & RGB/YPrPb analog video output signals
- High-performance 2D graphics rendering acceleration
- Multiplane video/graphics compositing and display engine
- Integrated DVB common descrambler & DES ECB descrambler
- Optional NDS Videoguard conditional access hardware support
- Flicker filtering, aspect ratio conversion and hardware cursor
- 4/8-bit per pixel palletized AYCrCb/YCrCb graphics

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The CX24142/3/6/7 IC family includes four part numbers defined by different functionality combinations.

Part Number	QPSK Demod	VDACs	DRAM	DVB-CI
CX24142	Yes	6	16-bit	Yes
CX24143	Yes	6	16-bit	No
CX24146	No	6	16-bit	Yes
CX24147	No	6	16-bit	No

License-based feature configurations are identified using a part number suffix or dash number.

CX24142/3/6/7-mn

	"-1n"	"-2n"	"-3n"	"-4n"
Macrovision		✓		✓
Dolby Digital			✓	✓

m = License based feature (0 thru 4)

n = die revision (e.g. n=1 for die rev A, 2 for die rev B etc.)

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