



NXP MPEG-2 SD set-top box decoder CX24142/6

Integrated MPEG-2 SD decoder for worldwide FTA and FTA-CI platforms

NXP's single-chip Free-to-Air (FTA) and FTA-Common Interface (FTA-CI) set-top box (STB) decoder features all the major subsystems required to implement the core system and decoder electronics of a DVB-compliant FTA-CI STBs.

Key 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 only)
- ▶ Dual-slot Common Interface support
- ▶ 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

The CX2414x IC family includes an MPEG-2 A/V decoder (Dolby Digital audio is optional), transport processor, 32-bit RISC CPU, a hardware 2D graphics accelerator, TV encoder, QPSK demodulator (CX24142 only), a video/graphics display compositing controller, support for dual DVB-CI interface, 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, 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. NXP's CX24146 IC 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. The CX24142 device, with an integrated QPSK demodulator, provides a cost effective system solution for DVB-S satellite STBs. The CX2414x ICs are pin-to-pin compatible and software compatible with the CX2415x family of ICs.

Full-featured development platform

The CX2414x IC family is integrated into a series of fully engineered STB manufacturable reference designs that provide complete STB functionality in a low cost board.

The CX2414x STB reference designs are targeted to the DVB-S, DVB-T and DVB-C markets. The kit includes samples, schematics, layout, BOM, STB drivers, user interface (UI) reference software, and complete documentation of the hardware and software system solution. The UI includes support for auto scan, DiSEqC 2.x control, 7-day electronic program guide (EPG), teletext, and multiple languages and is available with a pass through OS license option.

The CX2414x IC family includes part numbers defined by different functionality combinations.

Part Number	QPSK Demod	DVB-CI
CX24142	Yes	Yes
CX24146	No	Yes

CX2414x 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 only)
- ▶ Dual-slot Common Interface support
- ▶ 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

License-based feature configurations are identified using a part number suffix or dash number. CX2414x-mnz

	"-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.)

z = Security configuration (contact NXP for details)

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