

Product Brief

Zoran Corporation
1390 Kifer Road
Sunnyvale, CA 94086-5305

Tel 408.523.6500
Fax 408.523.6501
www.zoran.com



Description

The Cascade2 is a multistandard demodulator and decoder for terrestrial and cable TV reception. It is designed to support 8/16-VSB in compliance with the ATSC Digital Television Standard as well as OpenCable ITU-T J.83B in compliant 256/64 QAM and OOB QPSK modes for Digital Cable Ready downstream reception.

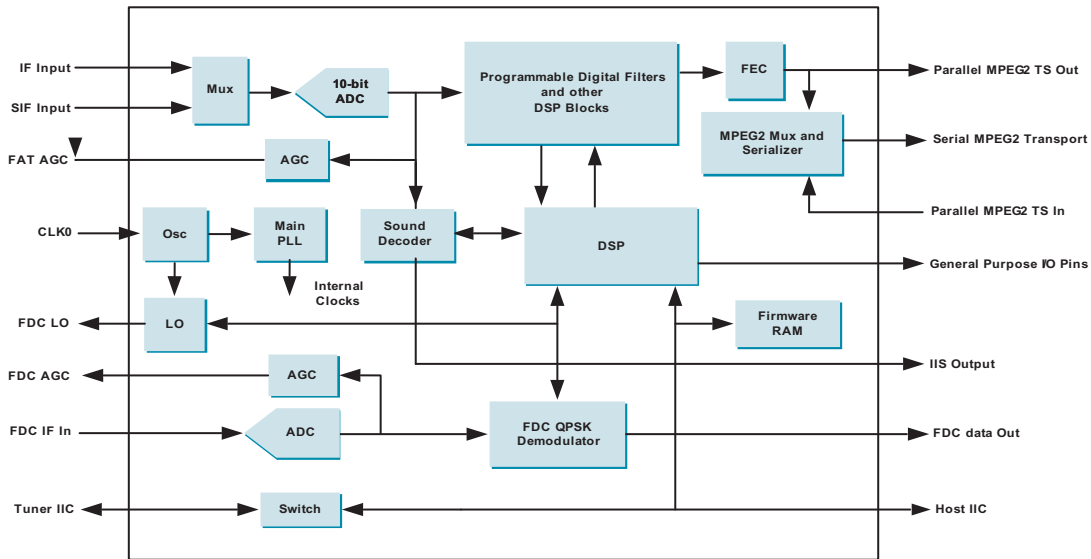
The Cascade2 is designed to reduce system costs by integrating the FAT channel demodulation of VSB, J.83 Annex B QAM and Audio decoding (for analog channels) and the FDC QPSK channel demodulation.

The small, high-performance Cascade2 is well suited for any system designed to receive off-air and cable digital TV transmissions. This includes stand-alone SDTV or HDTV sets, Set-Top Boxes, PC-TV cards and data reception appliances.

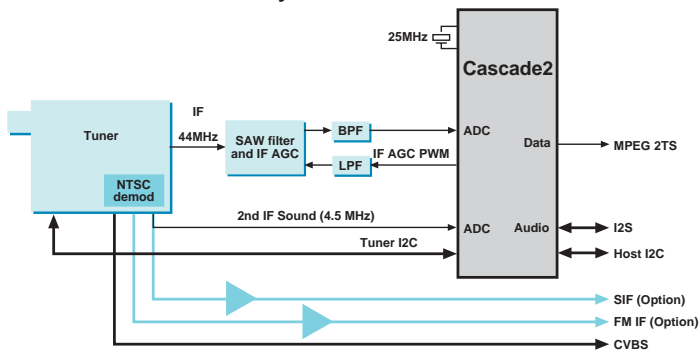
The Cascade2 family ICs are produced in several combinations of reception standards:

Cascade2 P/N	Description	ATSC	QAM Annex B	OOB FDC	US Audio BTSC	Korea Audio A2FM	FM Radio	Smart Antenna
CAS-220	VSB	●						●
CAS-220/C	VSB, QAM	●	●					●
CAS-220/S	VSB, BTSC	●			●	●	●	●
CAS-220/CS	VSB, QAM, BTSC	●	●		●	●	●	●
CAS-220/CO	VSB, QAM, OOB	●	●	●				●
CAS-220/CSO	VSB, QAM, BTSC, OOB	●	●	●	●	●	●	●

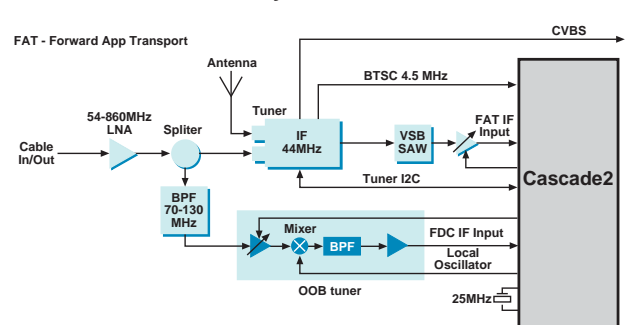
System Block Diagram



Cascade2 front end system solution without OOB



Cascade2 front end system solution with OOB



DTV Demodulator IC

Product Brief



Key Features

Modulation Flexibility

- ATSC 8-VSB demodulation
- OpenCable, ANSI/SCTE DVS-031, ITU-T J.83 Annex B and DOCSIS compliant 64/256 QAM demodulation
- OOB downstream demodulation, complies with SCITE DVS-178 and DVS-167 specifications
- Audio stereo decoding: US BTSC audio mono, stereo and SAP decoding (DBX), Korea A2 FM mono, stereo and bilingual, with IIS output
- Autonomous operation - Internal DSP firmware execution eliminates the need for supervision and operation by the system host

Excellent VSB Performance

- Superior 8-VSB multi-path performance with equalizer coverage of -34us to +78us.
- Superior VSB indoor reception using enhanced equalization and synchronization algorithms, based on training signal and data-aided equalization, enables Brazil and other 0dB ghosts reception
- Adaptive control loops according to channel conditions for fast channel acquisition and optimal tracking
- Excellent doppler ghosts rejection
- Fast channel auto search by carrier lock of +/-400KHz and NTSC channel detection

Excellent QAM Performance

- ANSI/SCTE DVS-031, ITU-T J.83 Annex B 64/256QAM, 5.059641/5.360537MHz symbol rate.
- Integrated 32Kbytes deinterleaver RAM for DI modes up to I=128 J=4.
- 84 taps equalization range: 36 FFE and 48 DFE for superior cable micro-reflection rejection
- Superior phase noise rejection
- Superior burst noise and combined distortion rejection
- Superior AM noise rejection
- Fast channel auto search based on auto 64/256QAM detection and wide carrier acquisition range of +/-500KHz

FDC Demodulator (OOB)

- OpenCable SCITE DVS-178 & 167 QPSK demodulation
- 8 taps adaptive equalizer
- On-chip frequency synthesizer provides LO for FDC down-conversion
- Direct Cable Card interface compliant with SCITE 28 2001 (DVS-295)

Sound stereo decoder

- US BTSC mono, stereo and SAP (DBX) decoding
- Korea A2 FM mono, stereo and bilingual decoding
- FM radio stereo decoding
- IIS server/client with output clock of 48KHz, 44.1KHz, and 32KHz

Advanced System Functions

- Accepts 44MHz or low-IF from the tuner eliminating external base-band demodulation
- Separate RF and IF AGC PWM outputs
- Parallel and serial MPEG2 transport outputs
- All digital recovery loops
- Firmware loading IIC serial bus from host upon initialization
- Integrated IIC switch for isolation of the tuner IIC port during normal reception modes
- Via IIC, the Cascade2 reports FEC statistics, receiver status, and channel data such as S/N ratio, equalizer taps, carrier offset, and more
- EIA/CEA-909 Mode A Smart Antenna Interface
- Internal mux for serial output of decrypted TS from POD

Standard 14x14 mm 100pin LQFP package

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

Shanghai, China	Shenzhen, China	Hong Kong	Israel	Japan	Korea	Taiwan
Zoran China Office	Zoran China Office	Zoran Asia Pacific Ltd.	Zoran Microelectronics Ltd.	Zoran Japan Office	Zoran Korea Office	Zoran Taiwan Office
Tel: 86-21-6469-9799	Tel: 86-755-8281-5777	Tel: +852-2620-5838	Tel: +972-4-8545-777	Tel: +81-3-5475-1051	Tel: +82-2-761-7471	Tel: +886-2-2659-9797
Fax: 86-21-6427-0545	Fax: 86-755-8322-0889	Fax: +852-2620-5238	Fax: +972-4-8551-550	Fax: +81-3-5475-1053	Fax: +82-2-761-7472	Fax: +886-2-2659-9595

© Copyright 2005 Zoran Corporation. All rights reserved. Zoran, the Zoran logo, and Cascade are trademarks of Zoran Corporation. All other brand product names and company names are trademarks of their respective owners. The information in this document is believed to be reliable. However, Zoran Corporation makes no guarantee or warranty concerning the accuracy of said information and shall not be responsible for any loss or damage of whatever nature resulting from the use of, or reliance upon it. Zoran Corporation does not guarantee that the use of any information contained herein will not infringe upon patent, trademark, copyright, or rights of third parties. Zoran Corporation reserves the right to make changes in the product and/or specifications, or both, presented in this publication at any time without notice.