

Product Brief

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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.

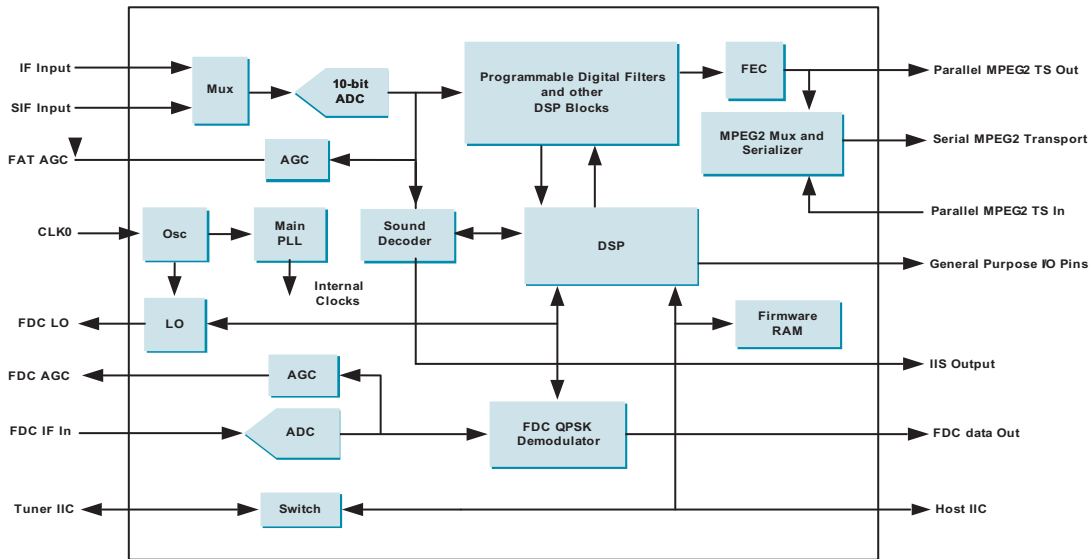
The Cascade2 is designed to reduce system costs by integrating the FAT channel demodulation of VSB, J.83 Annex B QAM and Audio decoding (for analog channels) and the FDC QPSK channel demodulation.

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.

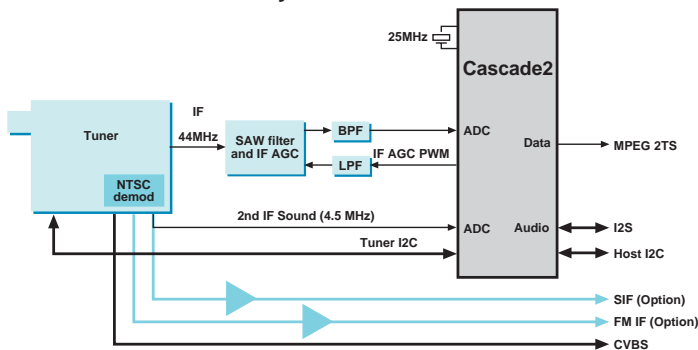
The Cascade2 family ICs are produced in several combinations of reception standards:

| 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 | ● | ● | ● | ● | ● | ● | ● |

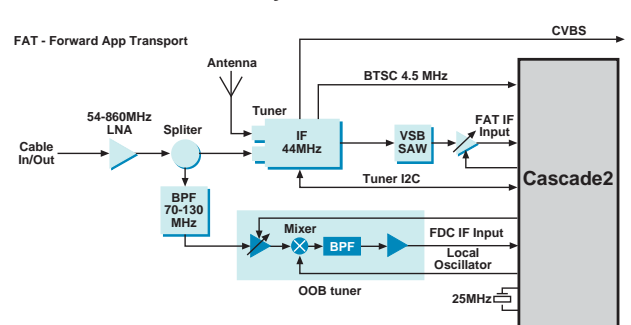
System Block Diagram



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:

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|----------------------|-----------------------|-------------------------|-----------------------------|----------------------|---------------------|-----------------------|
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