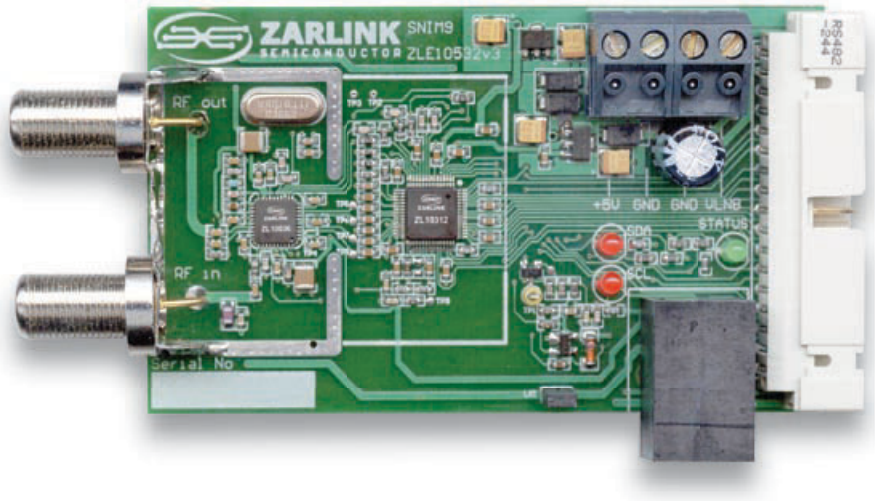
ZLE10532

DIGITAL SATELLITE TV FRONT-END REFERENCE DESIGN

SET-TOP BOX



The ZLE10532 is a complete front-end reference design for reception of digital satellite TV signals. This reference design takes advantage of Zarlink's highly integrated satellite front-end chipset, which includes the ZL10036 Zero IF (ZIF) tuner and ZL10312 QPSK demodulator.

The ZLE10532 reference design provides a solution that allows customers to quickly and cost-effectively evaluate and implement a satellite receiver solution for DVB-S and DSS applications. This highly reliable reference design can be directly copied to a system motherboard, which is particularly beneficial in high volume consumer applications. Additionally, the ZLE10532 provides excellent cost, performance, and manufacturing advantages in a variety of different implementations.

Applications

- 1 – 45 Msps DVB compliant satellite receivers
- DSS compliant satellite receivers
- SMATV (Satellite Master Antenna TV) transmodulators
- Data and satellite PC implementations

ZLE10532 Application Board

- Compact 2-layer FR4 circuit board with RF input and output, 2-wire serial interface, MPEG and control interface and power supply connectors.
- Includes serial bus to PC adaptor
- Complete front-end reference design section measuring 30 mm x 60 mm
- All components used are available in production quantities

A Complete Two-Chip DSS/DVB-S Compliant Reference Design

- ZLE10532 Satellite Network Interface Module Application board enables fast time to market
- Provides ease of integration onto the motherboard
- LOWEST cost BOM available, with less than 60 components, including all discretes
- Low power consumption (<1.5 W max)
- Full software support with minimal host overhead required
- Very fast blind scan capability
- Self-contained BERT (Bit Error Rate Test)
- Operation from 1 – 45 Msps for all code rates
- GUI running under Microsoft Windows 98, 2000, XP and NT
- Integrated RF loop-through
- LNB circuitry and interactive DiSEqC 2.x support
- Fully integrated automatic "power and forget" LOs
- Excellent desired/undesired channel performance
- CD including hardware and software user guides, PCB Gerber files, circuit schematic and measured performance results

Complementary Products

- ZLE10036 tuner-only application board
- ZLE10590 interface board

Customer Support

The ZLE10565 reference design is available for qualified customers. The design is supported by Zarlink's network of in-house field application and design engineers.

ZARLINK SEMICONDUCTOR

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Application Board

The ZLE10532 Satellite Receiver Front-End Reference Design supports the growing demand for high performance, cost-effective motherboard-based satellite receiver solutions. Based on Zarlink's ZL10036 satellite tuner and ZL10312 satellite demodulator, the reference design application board gives designers a very fast and easy path to a complete satellite front-end for evaluation and integration into a satellite receiver.

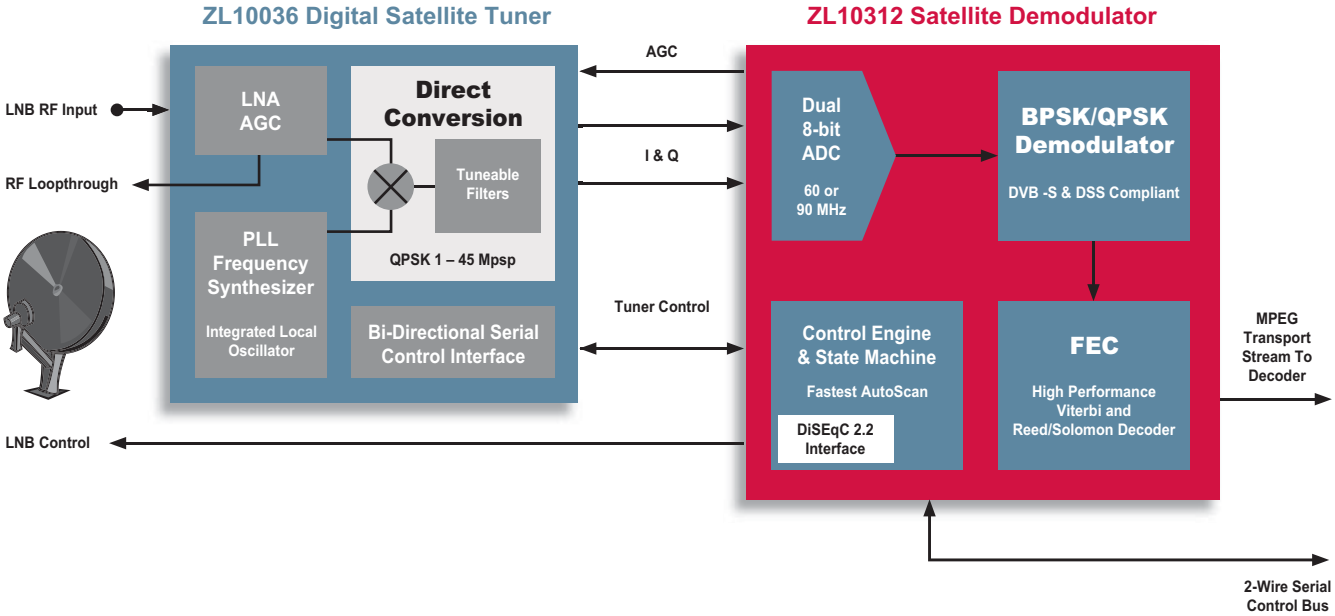
An additional interface board, the ZLE10590, provides an LVDS (low voltage differential signaling) buffered set of MPEG outputs, allowing high-speed MPEG data to be transmitted to test equipment over relatively long leads (>2 m). It also provides DiSEqC controlled voltages for the control of a remote Low Noise Block (LNB), which can be switched for horizontal/vertical polarization, with a superimposed 22 kHz signal for DiSEqC 2.x messaging.

As shown in the simplified diagram below, the ZL10036 satellite tuner with integrated RF loop–through enables scalable tuner design for PVR/DVR STB design and/or cascaded STB connector. The tuner's "power and forget" integrated local oscillator (LO) eliminates the need for time-consuming calibration or alignment. With a high desired/undesired ratio performance, the ZL10036 enables operation in the presence of adjacent channel interferers greater than 18 dB and LNB feed steps in excess of 18 dB positive or negative.

The ZL10312 provides industry-leading 1 – 45 Msps autoscan capability. The high speed scanning mode for blind frequency, symbol rate and code rate acquisition enables STBs to efficiently scan the Astra high band (11.7 to 12.75 GHz) and the 20 – 30 Msps channels in 22 seconds for both polarization.

The ZL10312 together with the ZL10036 consumes less than 1.5 W. Both devices are equipped with a sleep pin enabling significant power reduction in stand-by mode. This ultra-low current consumption assists in compliance with ENERGY STAR® requirements.

Satellite Receiver Front-End Application Board Diagram



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