

Product Brief

Intel® CE 9541

SNIM Reference Design

Consumer Electronics

Applications

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

Satellite Free-To-Air* TV Front End



Product Overview

The Intel® CE 9541 SNIM reference design is a complete front-end reference design for reception of digital satellite TV signals. Targeted primarily at FTA (free-to-air) applications where front-end sensitivity is a priority, the design combines Intel's high-sensitivity Intel® CE 5039 satellite tuner with the Intel® CE 6313 digital demodulator.

The Intel CE 9541 SNIM reference design enables customers to quickly and cost-effectively evaluate and implement a front end for a DVB-S (digital video broadcast-satellite) satellite receiver. The Intel CE 5039 satellite tuner chip integrates an LNA (low noise amplifier), which means that the sensitivity requirements of FTA receivers can be achieved without the need for an external amplifier. This simplifies the design, making it ideal for implementation directly onto the receiver motherboard.

Intel® CE 9541 Satellite TV Front-End Application

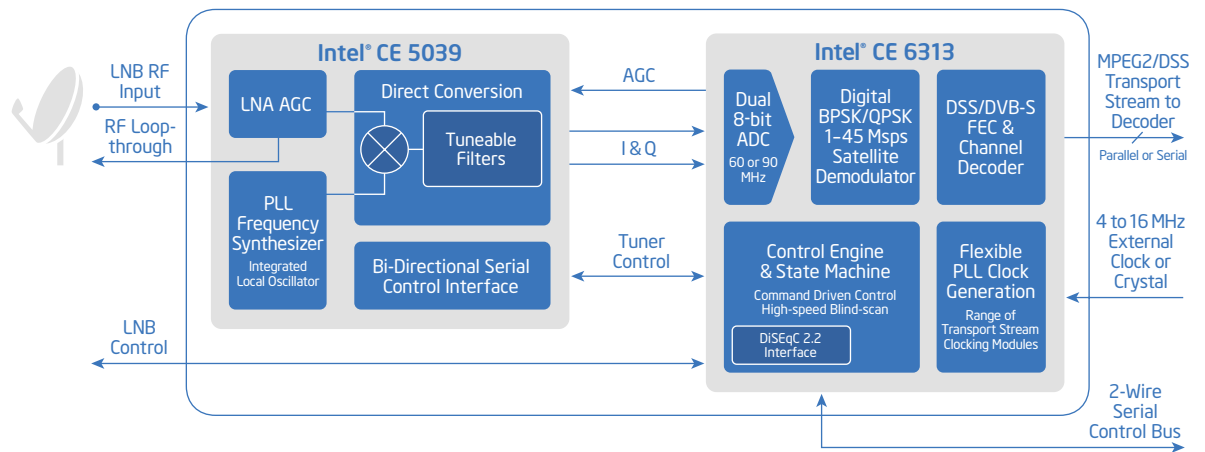
The Intel CE 9541 SNIM satellite receiver front-end reference design supports the growing demand for high-performance, cost-effective motherboard-based satellite receiver solutions. Based on the Intel CE 5039 satellite tuner and the Intel CE 6313 satellite demodulator, the application board gives designers a fast and easy path to a complete satellite front end for evaluation and integration into a receiver.

An additional board, the Intel® CE 9594 interface board, 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 LNB (low noise block), which can be switched for horizontal/vertical polarization, with a superimposed 22 kHz signal for DiSEqC 2.x messaging. The interface board also provides the power and 2-wire serial bus control to the Intel CE 9541 SNIM reference design via a single multi-purpose connector.

As shown in the application diagram (Figure 1), the Intel CE 5039 satellite tuner with integrated RF loop-through enables scalable tuner design for PVR/DVR set top box (STB) design and/or cascaded STB connector. The tuner's "power and forget" integrated LO eliminates the need for time-consuming calibration or alignment. With a high desired/undesired ratio performance, the device enables operation in the presence of adjacent channel interferers greater than 18 dB and low noise block feed steps in excess of 18 dB positive or negative.

The Intel CE 6313 satellite demodulator provides very high-speed 1 to 45 Msps auto-scan capability. The high-speed scanning mode for blind frequency, symbol-rate and code-rate acquisition enables set top boxes to efficiently scan the Astra high-band (11.7 to 12.75 GHz) and the 20 to 30 Msps channels in just 22 seconds. The Intel CE 6313 satellite demodulator and Intel CE 5039 satellite tuner together consume less than a watt of power. 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.

Figure 1— Intel® CE 9541 Satellite Receiver Front-End Application Board Diagram



Product Features

Intel® CE 9541 SNIM Reference Design

- High-sensitivity tuner for FTA performance without external LNA
- Easily integrated onto motherboard for maximum cost saving
- Low power consumption (<1 W maximum)
- Full software support with minimal host overhead required
- Very fast blind-scan capability
- Self-contained BERT (bit error rate test)
- Operation from 1 to 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” LO (local oscillator)
- Hardware and software user guides
- PCB Gerber files, circuit schematic and measured performance results

Intel® CE 9541 SNIM Evaluation Board

- Compact 2-layer FR4 circuit board with RF input and output, and a single multi-purpose data, control and power connector.
- Includes serial bus to PC adaptor
- Active area of design measures 35 mm x 49 mm
- All components used are available in production volume

Customer Support

- The Intel CE 9541 SNIM reference design is available to qualified customers.

For more information, visit the Intel Consumer Electronics home page at: www.intel.com/go/consumerelectronics

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