



Product Brief

Intel® CE 6251 Dual-Channel Diversity Enabled COFDM Demodulator

Demodulators and Tuners

Applications

- DVB-T PVR set top boxes
- DVB-T integrated digital TVs
- PC DVB-T receiver cards
- Portable DVB-T receivers

Intel® CE 6251 Dual-Channel Diversity-Enabled COFDM Demodulator



Product Overview

The Intel® CE 6251 device is a two-channel diversity-enabled COFDM demodulator. Each channel is compliant with worldwide DVB-T digital terrestrial television standards, including Unified NorDig 1.0.2. The Intel CE 6251 demodulator supports three key features required for the set top box and integrated digital television market segments: watch and record, also known as personal video recording (PVR), picture in picture (PIP), and for portable receivers diversity-enhanced signal performance. Each Intel CE 6251 channel is based on the Intel CE 6354 DVB-T demodulator, providing very high field performance at a total power consumption of less than 260 mW and small package size – 10x10 mm 80-pin LQFP.

Dual-Channel Diversity-Enabled COFDM Terrestrial Demodulator

The Intel CE 6251 device's two channels are fully independent, with individual tuner IF inputs and transport-stream outputs and independent programmability. The CE 6251 can be programmed for non-diversity mode allowing each channel to work independent of each other for PIP and PVR applications. The transport-stream outputs of each channel support either serial or parallel formats, and each includes PID filtering. The

transport streams can be multiplexed into a single-transport stream for MPEG decoders that support this feature. In diversity mode the two channels are brought together using maximum ratio combining and improved diversity enhanced signal to-noise performance is provided on a single Transport stream output.

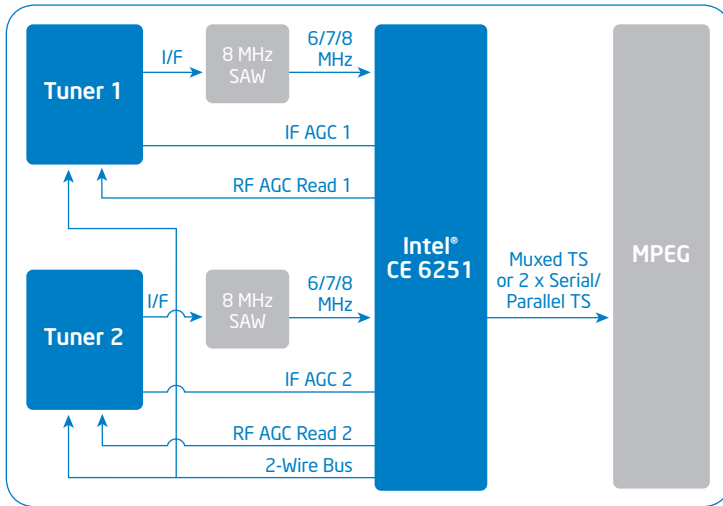
The diversity improvement in Gaussian channel SNR is up to 3 dB. For typical frequency-selective fading channels, the gain is much more significant, typically around 6 dB.

Digital filtering is provided for adjacent-channel rejection, and this enables a single fixed-bandwidth IF channel filter to be used for 6, 7 and 8 MHz OFDM bandwidth reception. An on-chip state machine enables full dual-channel and diversity automatic blind-signal acquisition. In diversity mode, the two channels share parametric information to provide very fast single-channel acquisition. The state machine also controls adjacent- and co-channel interference signal protection, Doppler tracking and impulse noise rejection.

The Intel CE 6251 demodulator provides all essential signal parameters including signal level, accurate SNR, pre- and post- Viterbi bit error rate and block error rate. A high-level command-driven interface simplifies programming. A sophisticated engine controls all acquisition and tracking operations in addition to controlling the tuners via a 2-wire bus.

The device is packaged in a 10x10 mm 80 pin LQFP and consumes less than 260 mW.

Application Diagram



Product Features

- Dual-channel diversity-enabled DVB-T COFDM demodulator for:
 - Watch and record (PVR) applications
 - Picture in picture (PIP) applications
 - Portable diversity applications
- Dual parallel/serial MPEG stream output with:
 - Optional PID Filtering
 - Transport-stream multiplexing to single MPEG port
- NorDig Unified 1.0.2 and ETSI 300 744 compliant
- Superior single-frequency network performance
- On-chip state machine:
 - Active impulse-noise filtering
 - Automatic co-channel and adjacent-channel interference suppression
 - Fast AGC and good Doppler performance for portable applications

- Large frequency capture range to enable triple offsets
- Blind acquisition capability (including 2K/8K mode detect)
- Fast auto-scan and acquisition technology
- Single SAW operation on 6, 7 & 8 MHz OFDM
- IF sampling at 36.17, 43.5 or 5–10 MHz from a single-crystal frequency
- Access to channel SNR, pre- and post-Viterbi bit error rates
- On-chip PLL clock generation using a single low cost 20.48 MHz crystal
- 8 general purpose ports, 2 dedicated and 6 shared-function
- Operational temperature range –10° to 80°C
- Compact 10x10 mm 80-pin LQFP

Customer Support

Contact your current sales representative for availability and customer support details.

- Hardware and Software development for Intel CE 6251 and Intel CE 6250 applications is supported by the Intel® CE 9529 Reference design.

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



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