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BCM97110
PRODUCT Brief

# SINGLE-CHIP DOCSIS® 1.1/PVR SET-TOP BOX DEVELOPMENT PLATFORM

FEATURES

- **BCM7110 advanced single-chip set-top box including DOCSIS®/EuroDOCSIS™/DAVIC and PVR**
  - Dual 1024/256/64-QAM variable symbol rate receivers supporting ITU-T J.83 Annex A/B/C
  - QPSK out-of-band (OOB) receiver and QPSK to 256-QAM upstream burst modulator
  - DOCSIS/EuroDOCSIS 1.1 MAC supporting quality of service (QoS)
  - DAVIC 1.2/1.5 MAC
  - ATSC-compliant MPEG-2 video decoders
  - Dolby® AC-3/Musicam® (MPEG-2)
  - Dual NTSC/PAL analog video decoder
  - NTSC/PAL video encoder
  - Local bus interface
  - PVR support with IDE controller, 3DES
  - High-performance 250-MHz RISC MIPS32™ microprocessor
- **BCM3125 QAMLink® transceiver**
  - 256-QAM demodulator, upstream burst modulator
- **BCM7041 MPEG-2 encoder**
- **Triple Broadcom CMOS tuners**
- **VoIP module supporting up to 2 lines of voice**
- **Peripheral devices include: HPNA 1/2, IEEE 1394, POD interface with PCMCIA connector, dual Ethernet, and V.90 soft modem**
- **Software device drivers supporting multiple operating systems**

SUMMARY OF BENEFITS

- **Highly integrated BCM7110 single-chip IC results in a cost-effective, advanced set-top box solution**
- **Triple CMOS tuner architecture allows for simultaneous Web browsing, video viewing, and personal video recording (PVR)**
- **MPEG-2 encoding fully supports watch and record on analog channels**
- **DOCSIS/EuroDOCSIS 1.1 cable modem QoS enables applications to support VoIP and video conferencing**
- **Support for DOCSIS/EuroDOCSIS 1.1, DAVIC 1.2/1.5, and DCII enables deployment in virtually all major markets worldwide**
- **Single high-performance RISC MIPS32 processor can support today's demanding set-top box operating systems, applications, and cable modem traffic**
- **Supports high definition (HD) with sidecar (BCM7031 and BCM7501)**
- **Reference design includes:**
  - Schematic drawings and Gerber files
  - Bill of materials (BOM)
  - Data sheets and user manual
  - Software source code
  - Applications support

BCM97110 Single-Chip DOCSIS® 1.1/PVR Set-Top Box Development Platform with VoIP Module
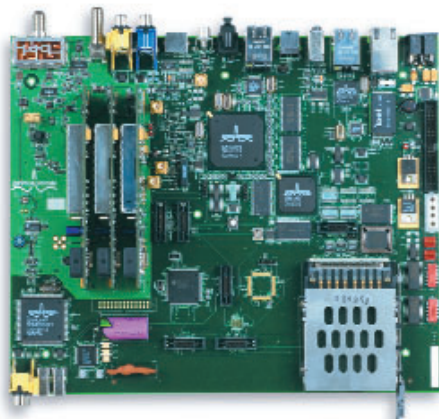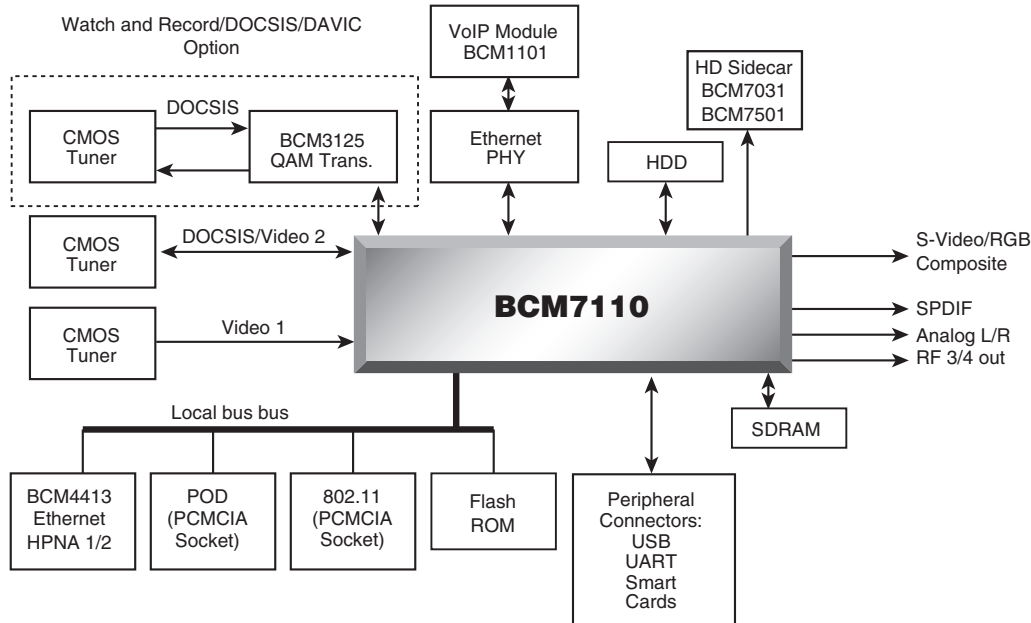
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The Broadcom BCM97110 is an advanced set-top box development platform supporting standard definition decoding, broadband cable modem and personal video recording (PVR). It is a highly integrated, cost-effective design built on the latest generation of Broadcom silicon and software offering low risk and quick time-to-market for the next generation of interactive set-top boxes.

The triple tuner architecture allows for web browsing, video viewing, and personal video recording (PVR) on a separate channel. Time shifting is also simultaneously supported on the channel being viewed. The dual MPEG-2 encoder allows full support of watch and record on 2 analog channels.

The core chip on the BCM97110 is the BCM7110 single-chip DOCSIS 1.1/PVR IC. The BCM3125 supplies the additional QAM demodulator and upstream burst modulator. The BCM7041 dual MPEG-2 encoder provides the real-time encoding for analog PVR.

The BCM7110 contains a complete front-end advanced set-top box solution providing dual 1024/256/64-QAM receivers, an out-of-band QPSK receiver, and a QPSK to 256-QAM upstream burst modulator. All major physical layer standards are supported allowing set-tops based on the BCM97110 design to be deployed worldwide. The BCM7110 includes a complete DOCSIS/EuroDOCSIS 1.1 MAC (including QoS) and DAVIC 1.2/1.5 MAC for broadband interactive services.

Features also include studio-quality text for presenting standard Windows fonts on a standard television and a 3D graphics engine for applications such as gaming and e-commerce.

The BCM97110 also includes a high-performance MIPS RISC processor supporting middleware, graphics, applications, and cable modem traffic. The single processor design eliminates the need for multiple processors in the set-top, substantially reducing system cost.

The BCM97110 contains a number of peripherals required for next-generation set-top boxes. Some of these include home phoneline networking (HPNA 1/2) for streaming of data and video throughout the home, a VoIP module supporting 2 lines of voice, an IEEE 1394 connector for connecting to digital consumer electronic devices, hard disk drive support for personal video recording (PVR), PCMCIA socket, and a POD interface for external conditional access. In addition, a low-cost V.90 soft modem is included for alternative low data-rate connections.

The BCM97110 supports industry standard operating systems, middleware, and APIs. Driver source code for these are provided as part of the reference design.

The BCM97110 can also expand to support high definition streams with the HD sidecar module. This daughterboad consists of the BCM7031 HD transport, video decoder, and graphics engine. Digitial Visual Interface (DVI) is supported with the BCM7501.

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