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BCM93740
PRODUCT Brief

BCM93740 ADVANCED 3D SET-TOP BOX DEVELOPMENT PLATFORM
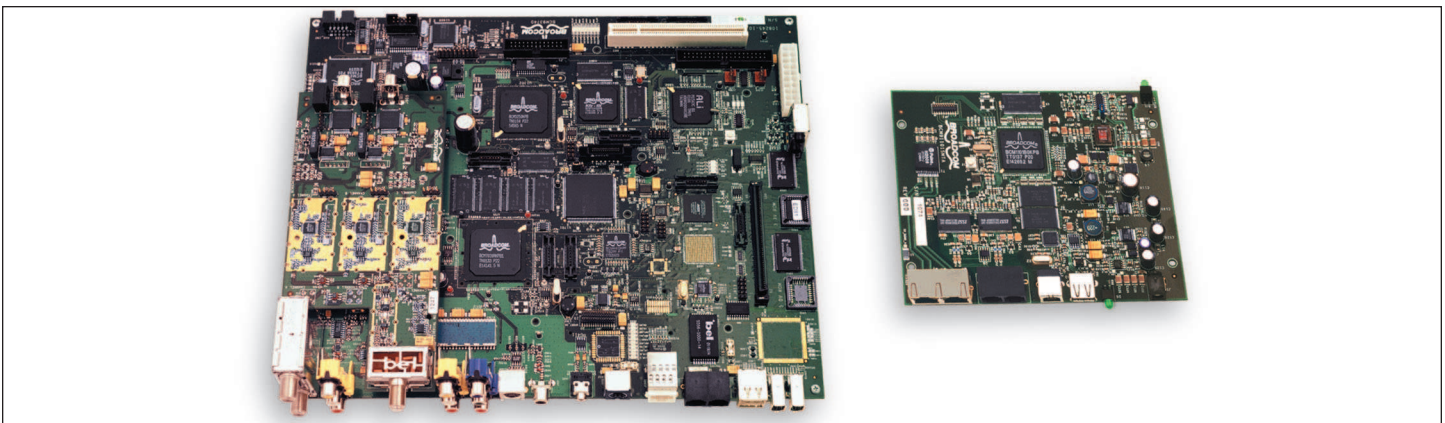
BCM93740 FEATURES

- **BCM3250 Advanced Set-Top Box Front End, including DOCSIS/EuroDOCSIS/DAVIC cable modems**
  - Dual 256 QAM variable symbol rate receivers supporting ITU-T J.83 Annex A/B/C
  - QPSK out-of-band (OOB) Receiver and QPSK/16 QAM upstream burst modulator
  - DOCSIS™/EuroDOCSIS 1.1 MAC supporting Quality of Service (QoS)
  - DAVIC 1.2/1.5 MAC
- **BCM7030 Dual Standard Definition/High Definition Video/3D Graphics Subsystem**
  - ATSC-compliant all format MP@HL MPEG2 video decoder
  - Broadcom's advanced 3D graphics engine
  - Dolby® AC-3/MUSICAM®
  - NTSC analog video decoder
  - NTSC/PAL/HD video encoder
  - PCI and local bus interfaces
- **BCM3125 QAMLink® transceiver**
  - 256 QAM demodulator, upstream burst modulator
- **BCM7041 dual MPEG2 encoder**
- **Triple Broadcom CMOS tuners**
- **High-performance 300 MIPS RISC R5000 class microprocessor**
- **VoIP module supporting up to two lines of voice data**
- **Peripheral devices include: HPNA 1/2, IEEE1394, POD interface with PCMCIA connector, Ethernet, V.90 Softmodem**
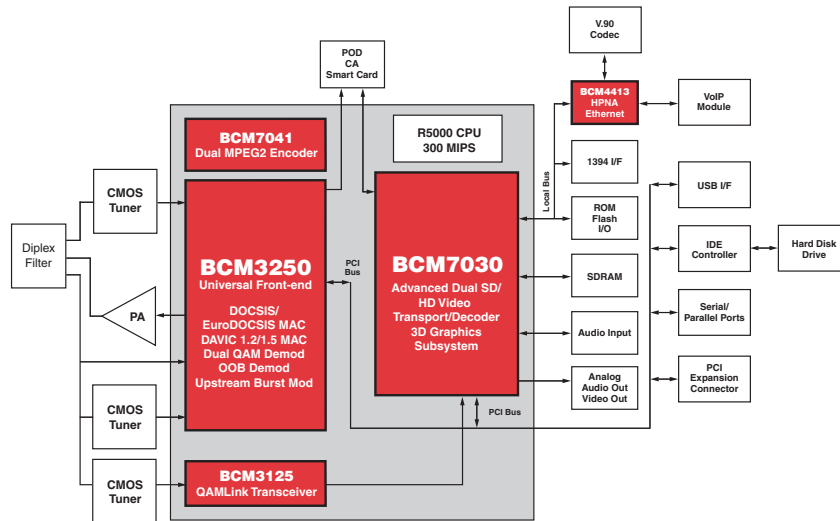- **Software device drivers supporting multiple operating systems**

SUMMARY OF BENEFITS

- **Highly integrated front-end and back-end results in a cost-effective advanced set-top box solution**
- **Triple CMOS tuner architecture allows for simultaneous web browsing, video and personal video recording (PVR)**
- **MPEG-2 encoding fully supports watch and record on analog channels.**
- **Supports dual standard definition decoding or HDTV decoding (all formats)**
- **Supports high definition (HD) PVR**
- **PCI architecture allows the use of low cost PC peripherals**
- **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 enable deployment in virtually all major markets worldwide**
- **Single high-performance RISC processor can support today's demanding set-top box operating systems, applications, and cable modem traffic**
- **Reference design includes:**
  - Schematics and Gerber files
  - Bill of materials (BOM)
  - Data sheets and user manual
  - Software source code
  - Applications support

BCM93740 Advanced 3D Set-Top Box Development Platform with VoIP Module

V.90 Codec

POD CA Smart Card

R5000 CPU 300 MIPS

BCM4413 HPNA Ethernet — VoIP Module

BCM7041 Dual MPEG2 Encoder

1394 I/F — USB I/F

ROM Flash I/O — IDE Controller — Hard Disk Drive

CMOS Tuner

Diplex Filter

BCM3250 Universal Front-end

DOCSIS/ EuroDOCSIS MAC DAVIC 1.2/1.5 MAC Dual QAM Demod OOB Demod Upstream Burst Mod

PCI Bus

BCM7030 Advanced Dual SD/ HD Video Transport/Decoder 3D Graphics Subsystem

SDRAM — Serial/ Parallel Ports

PA

Audio Input — PCI Expansion Connector

CMOS Tuner

Analog Audio Out Video Out

PCI Bus

Local Bus

CMOS Tuner

BCM3125 QAMLink Transceiver

The Broadcom **BCM93740** is an advanced set-top box development platform supporting high definition television (HDTV), dual standard definition decoding and broadband cable modem internet access. 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 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. Also included is support of high definition (HD) PVR.

The core chip set on the **BCM93740** includes the BCM3250 QAMLink® Advanced Set-Top Box Single-Chip Front End with DOCSIS™/EuroDOCSIS/DAVIC modems, the BCM7030 Advanced High Definition Video/3D Graphics Subsystem, and a high-performance MIPS R5000™ class processor. 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 BCM3250 is a complete front-end advanced set-top box solution providing dual 256-QAM receivers, an out-of-band QPSK receiver and a QPSK/16-QAM upstream burst modulator. All major physical layer standards are supported allowing set-tops based on the **BCM93740** design to be deployed worldwide. The device includes a complete DOCSIS/EuroDOCSIS 1.1 MAC (including QoS) and DAVIC 1.2/1.5 MAC for broadband interactive services.

The BCM7030 is a device that cost-effectively supports the requirements of television and set-top box systems that require high definition, multiple stream standard definition video decoding with the capability of simultaneous high definition and standard definition outputs.

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

The **BCM93740** 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 **BCM93740** 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 IEEE1394 connector for connecting to digital consumer electronic devices, hard disk drive support for digital video recording (DVR), and a POD interface for external conditional access. In addition, a low-cost V.90 softmodem is included for alternative low data-rate connections.

The **BCM93740** supports industry standard operating systems, middleware, and APIs. Driver source code for these are provided as part of the reference design.

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