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BCM7030

PRODUCT Brief

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HIGH-DEFINITION VIDEO UMA SUBSYSTEM WITH 2D/3D GRAPHICS

FEATURES

- **ATSC-compliant, All-Format MP@HL MPEG-2 video decoder**
  - Decodes up to four MP@ML video streams
  - Standard definition output with reduced memory requirements
  - Simultaneous analog high-definition/standard-definition output
- **Dolby Digital (AC-3)/MPEG multichannel audio decoder with SPDIF output**
- **Stereo audio DACs**
- **Fully-featured 3D graphics HW accelerator**
- **NTSC analog video decoder**
- **NTSC/PAL/HD video encoder**
- **Bus bridge to memory, local bus, and PCI**
- **POD support including DVS 213 DES descrambler**
- **DVB and DC2-compliant transport demux with DVB and DES descramblers**
- **Support for PIDs and 64 section filters**

SUMMARY OF BENEFITS

- **Provides a cost-effective solution for high-definition and standard-definition video and graphics systems common to cable and satellite applications.**
  - Includes standard-definition with reduced memory mode
- **Simultaneous high-definition and standard-definition analog output for watch and record capability.**
- **Advanced 2D graphics system allows applications such as internet browsers and electronic program guides to deliver studio-quality text and graphics on television monitors.**
- **Fully-featured 3D graphics engine allows for multiplayer gaming and 3D Internet website acceleration.**
- **Personal video recorder capability supports VCR-like functions via a hard disk.**
- **PCI interface allows for direct connection of cost-effective SuperI/O devices.**
- **High-performance DMA capability can be used for cable modem traffic.**
- **Broadcom-developed device drivers enable rapid software development cycle.**
- **Supports DVS POD requirements.**

BCM7030 Advanced Video, Graphics, and Audio Subsystem with Bus Bridge

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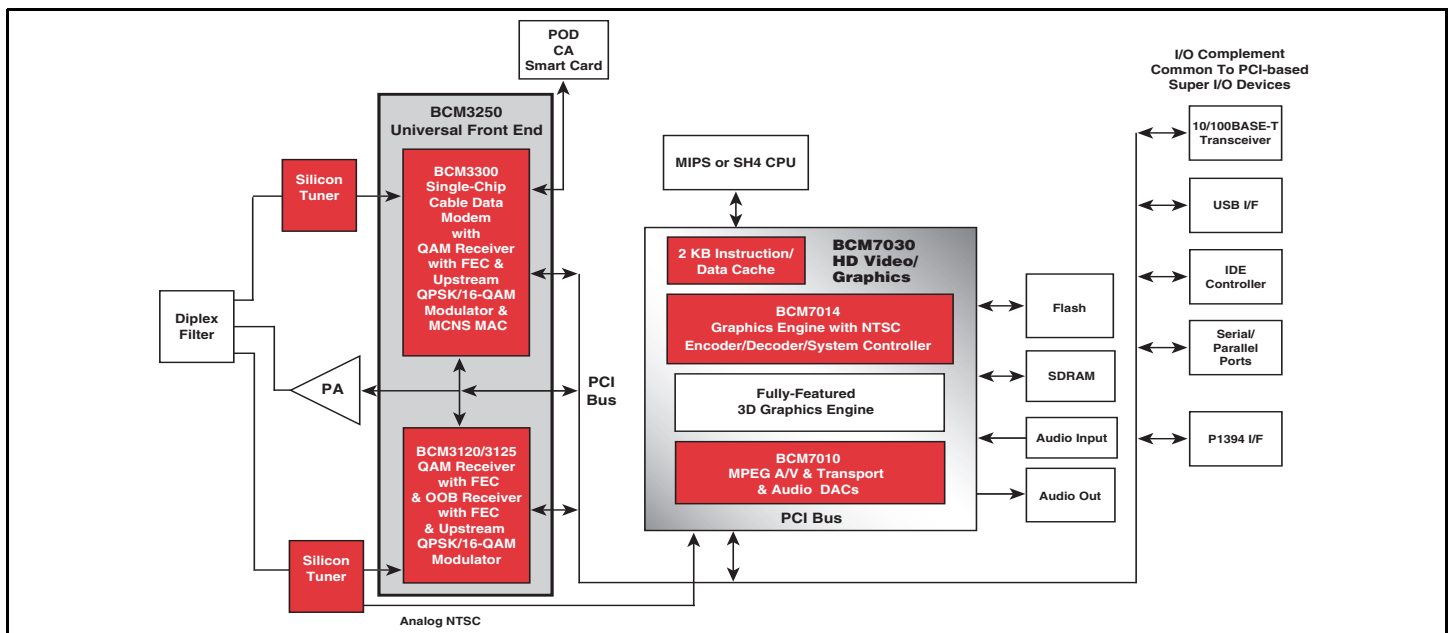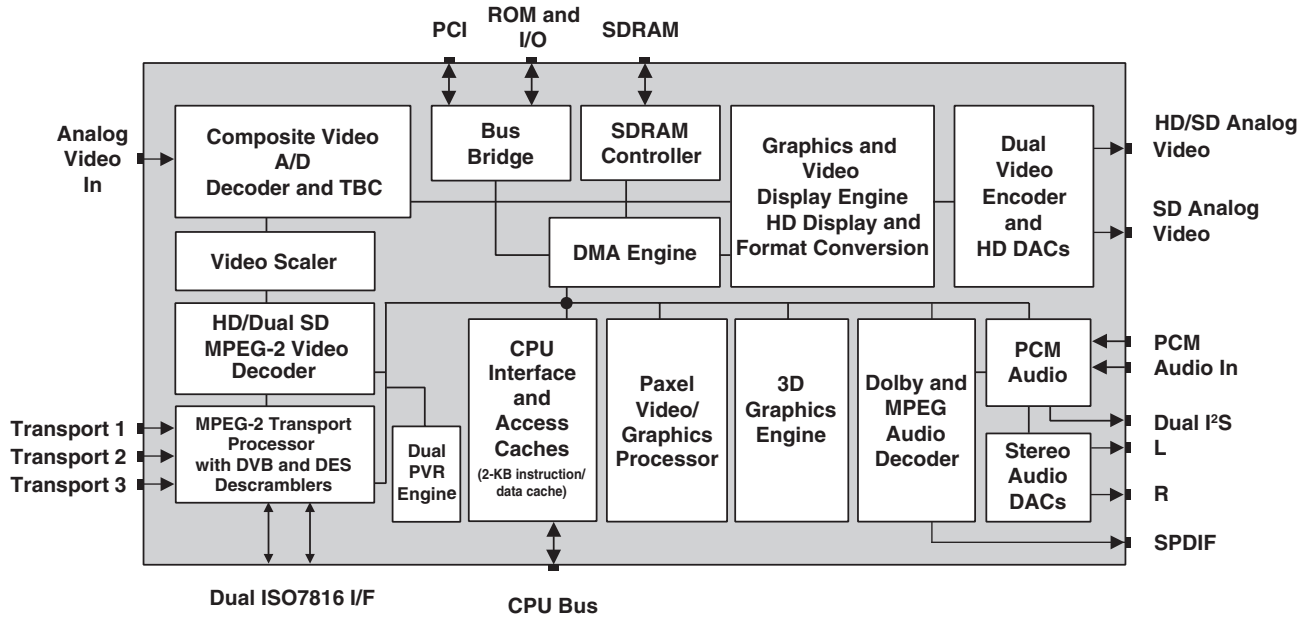
The BCM7030 Advanced High-Definition, Video and Graphics Subsystem supports the requirements of television and set-top box systems that require high-definition or standard-definition decoding of MPEG-2 streams with simultaneous high-definition and standard-definition outputs. For systems that require only standard-definition output, a reduced-memory mode substantially reduces the amount of memory needed for the video decompression process. The video decoder also supports multiple stream standard-definition decoding, providing both tiled video and PIP capability.

The BCM7030 graphics are based on Broadcom's advanced video/graphics technology that allows studio-quality text and graphics to be displayed on television-based systems. The graphics compositing engine allows for many windows of graphics and video to be layered with blending and antialiasing, creating high-quality rich display capability.

An onboard vector RISC processor provides 2D graphics, antialiased text, and 3D effects.

A MPEG-2 DVB/DC2-compliant transport demux with three transport stream inputs has advanced section-filtering capability, DVB descrambler, DES descrambler with ECB/CCB capability, and two

ISO7816 smart card interfaces. The DES descrambler is compliant with the DVS 213 requirements for the transport stream POD interface.

The transport engine is designed to support personal video recorder (PVR) functions, allowing the set-top box to support VCR-like functions, such as fast forward/reverse, pause, and record. The BCM7030 supports up to 2 record and 2 playback streams simultaneously.

The BCM7030 decodes both Dolby Digital (AC-3) and MPEG multichannel compressed streams. Audio output is provided over stereo DACs or SPDIF.

A PCM audio engine mixes separate audio streams generated from the MPEG2/Dolby audio decompression circuitry, PCM audio generated from the CPU, or PCM audio input via a baseband audio input. These streams can be resampled and mixed together with volume control.

A bus bridge is incorporated to provide a complete solution bridging the processor to memory, local I/O, and PCI. Main memory is shared among video, graphics, and the CPUs, which increases system performance and reduces cost. A flexible and powerful DMA controller is able to DMA between the different busses and memory, facilitating the needs of systems incorporating a cable modem.

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7030-PB03-R   07/06/04

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