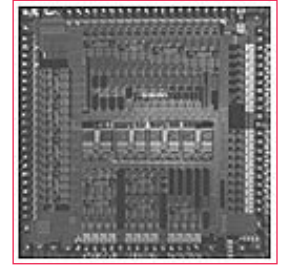




BCM96011 PRODUCT Brief



BCM96011 VDSL REFERENCE DESIGN

BCM96011 FEATURES

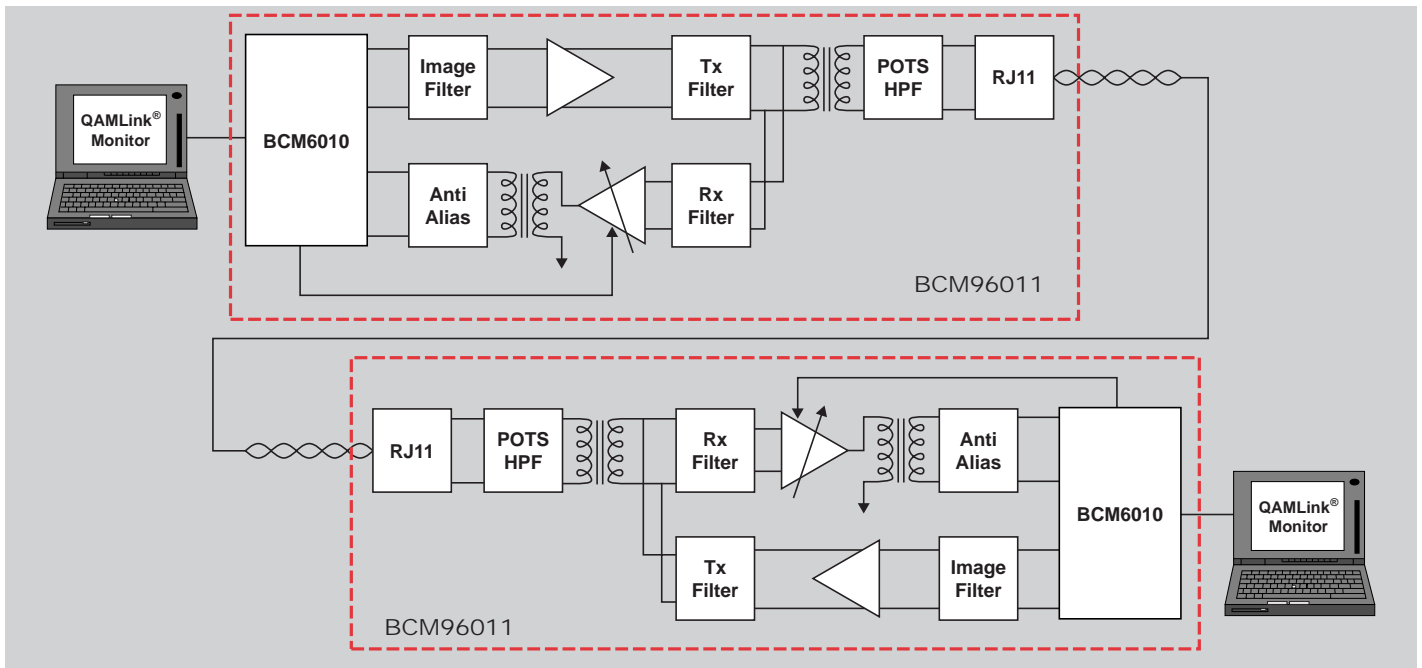
- Based on BCM6010 Single-chip VDSL Transceiver
- System Supplied with CO and CPE Configured Boards
- ATM Utopia Level 1 and 2 System Interfaces
- Line Driver
- Automatic Gain Control (AGC)
- 2-Wire/4-Wire Hybrid Conversion
- Low-pass, High-pass Diplexing filters
- Isolation Transformer
- POTS Filter
- Easy Interface to Standard BERT Testers
- Full-Duplex Acquisition QAMLink® Software
- Power Consumption-per-board only 2 Watts

SUMMARY OF BENEFITS

- The BCM96011 represents a turnkey VDSL transceiver reference design complete with datasheets, PCB Gerber files, and a bill-of-materials and schematics to reduce hardware development time.
- This solution provides a compact development environment for the BCM6010 DSL transceiver.
- QAMLink software enables system monitoring and configuration via on-screen user menus and status reporting windows. Management statistics such as SNR, BER and equalizer status can easily be accessed using this software.
- The BCM96011 provides a complete benchtop VDSL test capability when used with the BCM96012 VDSL Line Emulator
- QAMLink software enables full-register read/write access and permits acquisition sequence testing using either pre-configured or user-configured script files
- The BCM96011 is based upon Broadcom's field-proven BCM6010 DSL transceiver device.

BCM96011 QAMLink Reference Design Board





The **BCM96011** is a VDSL transceiver subsystem based upon the BCM6010 Digital Subscriber Loop transceiver chip. The **BCM96011** provides complete ATM Utopia to twisted-pair functionality through the on-board VDSL analog front-end circuit.

Supporting bit rates to 25.96 Mbps downstream, and 3.24 Mbps upstream, this compact system can be configured as a remote or central site device through a simple reconfiguration of the on-board components. The **BCM96011** provides a line driver amplifier, AGC circuit, isolation transformer, hybrid filters and diplexing filters to enable the user to generate full-duplex FDM VDSL traffic on the loop. Bit rates and center frequencies of upstream and downstream are programmable over a range of values using Broadcom's QAMLink Monitor software.

Broadcom's QAMLink Monitor software facilitates system integration and board debugging by providing comprehensive, easily accessible diagnostics and features such as constellation and equalizer displays. Operating from a host PC, the QAMLink software provides complete control of the BCM6010 through the on-chip serial port. Control bandwidth is exceptionally low because no microcode is required for the core modem operations. Register read/write operation is facilitated through the use of special on-screen menus and link-

initialization script files are provided to enable signal acquisition.

A complete manual describing the detailed operation of the QAMLink software is available. The software is also configured with a number of help files which describe the functionality of the register sets. Script files are provided to enable fast configuration of the BCM6010 for full-duplex VDSL operation. The manual also includes schematics and a bill-of-materials for the reference board. PCB Gerber files are also supplied.

The analog front-end has been designed to perform all filtering, diplexing, AGC and 2-wire to 4-wire hybrid conversion for a frequency-duplexed VDSL signal. Low-pass upstream and high-pass downstream filters are included. Power levels are compliant to the ANSI T1E1.4 draft standard for VDSL efficient systems. Spectrum allocation provides for the transmission of 3.24 Mbps downstream and 26 Mbps for a typical VDSL configuration; however, other rates are user configurable as long as compliance to the FDD frequency plan is maintained.

Control of the **BCM96011** is provided through a Pentium PC parallel port. Two parallel to I²C interface cards are supplied with the system, one each for the CO and CPE configured boards. Control of the BCM6010 is via the I²C port.

QAMLink® is a registered trademark of Broadcom Corporation.

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