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BCM6411/BCM6421
PRODUCT Brief

# LOW-POWER HIGH BIT RATE CENTRAL OFFICE MULTI-DSL CHIPSET

FEATURES

- Low-power, high bit rate Central Office ADSL solution

- High-density two-chip solution implements 12 channels of full-rate ADSL2+

- Small modem footprint and low component count

- Complete standards support: ANSI T1.413 Issue 2; ITU G.992.1 Annex A, B, C, I, and H; ITU G.992.1 ADSL Quad Spectrum, G.992.2 (G.lite); ITU G.992.3 (ADSL2) Annex A, B, L, and M; ITU G.992.5 (ADSL2+) Annex A, B, and M

- CPE-less Design for Manufacturing™ and diagnostic tools

SUMMARY OF BENEFITS

- Superior performance enabling converged Voice, Data, and Video services over high bit rate DSL

- Proven worldwide ADSL, ADSL2, and ADSL2+ interoperability

- System-wide power management capabilities deliver unmatched low-power consumption

- No external devices required (memory and local processor)

- Designed to support a wide range of line driver devices

- Shared clock and power supplies reduce line card cost

- Embedded test tools further reduce line card qualification cost

- Comprehensive reference design documentation and design-in support provided

BladeRunner™ Central Office ADSL System
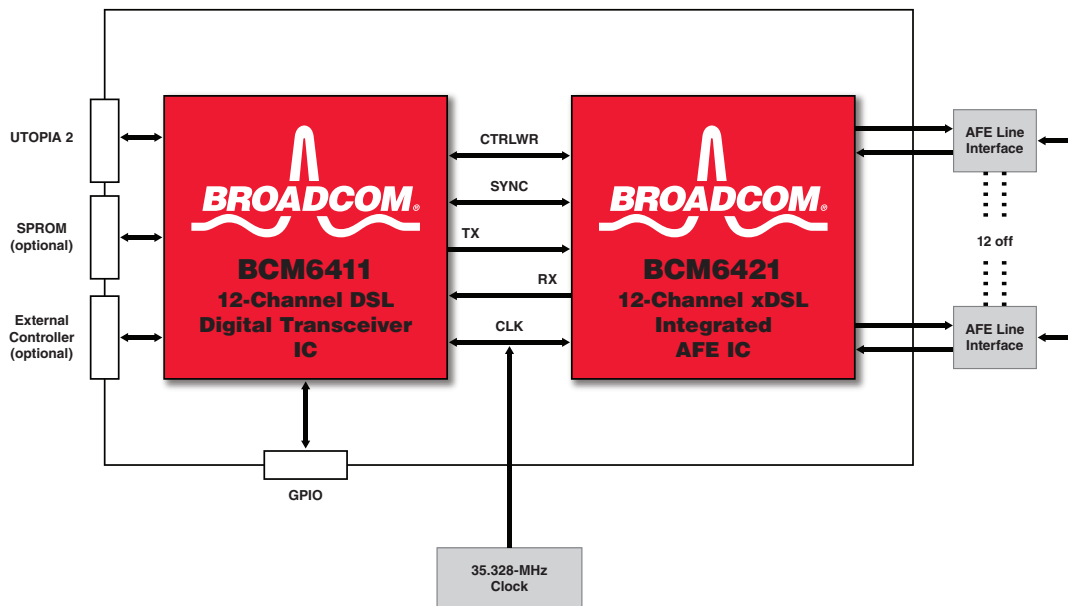
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OVERVIEW

The BCM6411 and BCM6421 devices are the second generation of Broadcom's BladeRunner™ low-power chipsets designed for advanced DSLAM and DLC systems.

Powered by Broadcom's ultra-high performance FirePath™ communications processor and optimized xDSL algorithms, the BCM6411 programmable digital design serves as a platform for high-density multi-DSL digital transceivers.

The BCM6411 12-channel DSL digital transceiver IC is supplied in a 27 mm x 27 mm plastic BGA (336-ball) package. The BCM6421 12-channel xDSL AFE IC is supplied in a 23 mm x 23 mm plastic BGA (208-ball) package. Both devices are pin-compatible replacements for the first-generation BCM6410 and BCM6420 chipset.

The single-build firmware for the BCM6411/BCM6421 chipset supports auto-detected ANSI T1.413 Issue 2, ITU G.992.1 Annex A, B, C, I, and ADSL Quad Spectrum, ITU G.992.2 (G.lite), ITU G.992.3 (ADSL2) Annex A, B, L, and M, and ITU G.992.5 (ADSL2+) Annex A, B, and M (Double Upstream) giving complete support for high data rates up to 40 Mbps downstream and 5 Mbps upstream.

The BCM6411 soft modem implementation enables future firmware upgrades and evolution to new standards in very short design cycles. Upgrades are supplied to customers as required for all firmware releases using the same hardware design for all Annexes.

CPE Interoperability

The BladeRunner solution has proven interoperability with a broad range of ADSL and ADSL2 CPEs. Detailed interoperability and performance reports are available to customers via DocSAFE or upon request.

Host Messaging Interface Definition

The BladeRunner chipset is managed via a high-level messaging interface supported either on a local processor or over the in-band management channel. Comprehensive definition of the Host Messaging Interface is available to customers and full design-in assistance is provided, including example host code and graphical user interfaces.

Reference Line Card Designs

The BCM96438 is a 1U IP-DSLAM "pizza box" featuring 48 lines of ADSL2+ with generic 100/1000BASE-T Ethernet uplink connectivity, providing a reference for customer designs. The BCM96438 board demonstrates the high channel density capability of the Broadcom solution, verifying CPE interoperability, and showcases the viability of low-cost volume production. Broadcom provides line card design expertise as an integral part of the design support activity.

Evaluation Systems

Broadcom has produced several evaluation systems that use modular 12-port reference line card designs to quickly prototype working multi channel ADSL modems. This allows customers to evaluate the benefits of using Broadcom's BladeRunner ADSL chipset and provides a development platform for system/product prototyping.

Software Development Environment

Broadcom has created a sophisticated software development environment with which to design, build, and verify the software base for its FirePath processor core and its ADSL applications.

This environment includes a comprehensive commercially available tool chain of processor simulators, assemblers, optimizing compilers, and debugging tools. The software environment includes a robust real-time operating system and flexible software architecture. Utilizing the tool-chain, Broadcom tailors the chipset firmware's functionality to meet customers' specific requirements.

Product Documentation

Broadcom provides customers with comprehensive documentation to support the reference designs ranging from data sheets, application notes, schematics, Gerber files, PCB layout files, BOM, and technical reference manuals. All documentation is available from DocSAFE: Broadcom's secure, web-based document management system.

For more information, contact your local Broadcom sales representative.

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