

ENTERPRISE IP PHONE CHIP

FEATURES

- The BCM1104 is a next-generation chip that integrates hardware security, advanced quality of service (QoS) techniques, and a Gigabit Ethernet (GbE) switch. The BCM1104 is based on a RISC architecture with enhanced DSP features to deliver an optimized level of performance for mid-range IP phones.
- The BCM1104 integrates:
 - MIPS32® CPU
 - Three-port 10/100/1000BASE-T Ethernet switch
 - Two 10/100/1000BASE-T Ethernet MACs
 - Two 10/100BASE-T Ethernet transceivers
 - Two RGMII ports for use with external Gigabit Ethernet transceivers
 - BroadSAFE™ Hardware Security Module
 - Two wideband audio ADCs and DACs with integrated programmable gain amplifiers
 - USB host interface
 - General-purpose UART
 - Two IrDA encoders and decoders
 - Keyscan interface
 - LED matrix control
 - LED cadence control
 - General purpose I/O with programmable direction
 - IEEE 1149.1 (JTAG)
 - DDR SDRAM controller
 - Multifunction Peripheral Interface supporting PCI, PCMCIA, CardBus, EBI devices
- The BCM1104 supports
 - NOR and NAND Flash
 - Serial Flash
 - DDR SDRAM
- 0.13µ process technology, 1.2/2.5/3.3V
- 420-pin PBGA Pb-free package

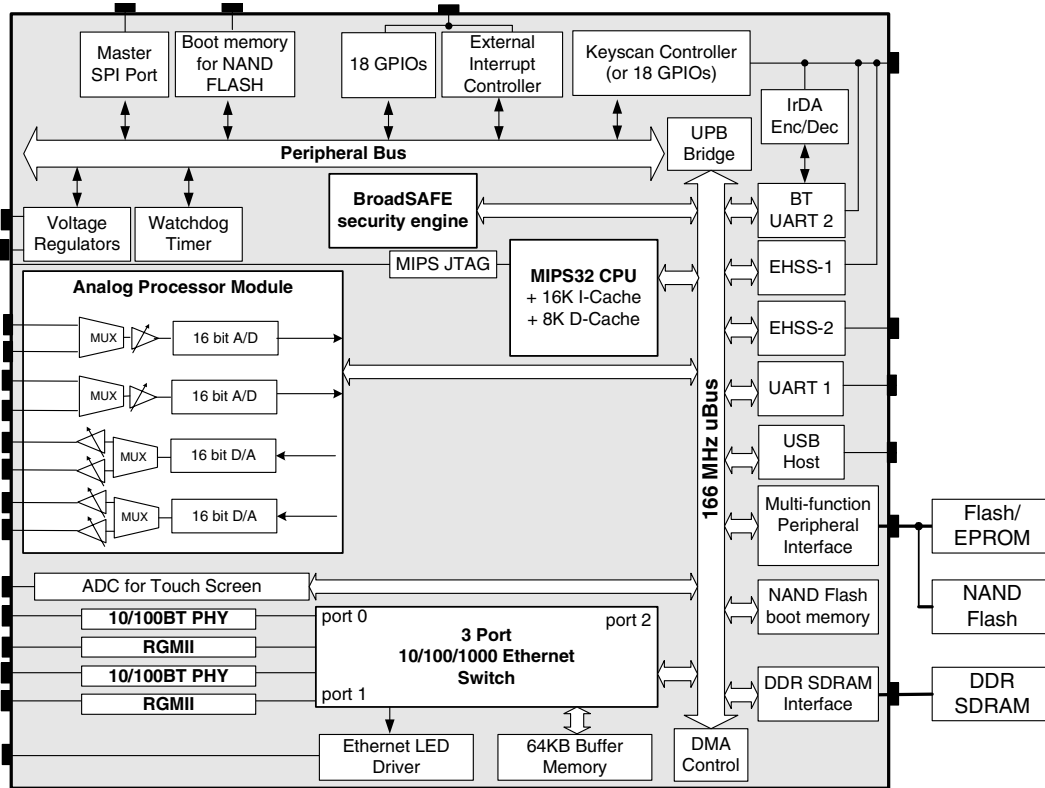
SUMMARY OF BENEFITS

- **BroadSAFE™ Security Module**
 - Hardware acceleration for AES encryption and SHA-1 authentication algorithms
 - Unique identifier embedded in the device guarantees device authenticity
- **10/100/1000BASE-T Ethernet Switch**
 - Configurable switch supports both Fast Ethernet and Gigabit Ethernet operation
 - Supports IEEE 802.1p voice prioritization, 802.1Q VLAN, and 802.1x authentication for advanced Quality of Service.
 - 64 KB switch buffer ensures wire-speed, non-blocking operation
- **Gigabit Ethernet MACs and RGMII Interfaces.**
 - Enable Gigabit IP phone products through the use of external Gigabit Ethernet transceivers
- **Application Support**
 - Microsoft® WinCE and Wind River PCD OS
 - Advanced Customer Applications (e.g., GUI, web browsing, instant messaging, etc.)
 - Protocol Stacks: SIP, H.323, MGCP, Megaco/H.248
 - Narrowband vocoders: G.711, G.729A/AB, G.723.1, G.726, BroadVoice®16
 - Wide band vocoders: G.722, G.722.1, BroadVoice®32
 - Full-Duplex speakerphone with AEC and AGC
 - Handset, Headset Echo Suppression
 - Broadcom and ITU Packet Loss Concealment Algorithms
 - VAD, CNG
 - Multiparty conferencing with complex vocoders
- **Flexible peripheral interface architecture enables connection to wireless LAN, Bluetooth, and video devices without glue logic.**

HARDWARE PLATFORM SUPPORT

- **BCM91104SP reference design includes:**
 - A housing that features a large graphics display
 - Reduced time to market
 - PhonexChange™ suite and example application software

OVERVIEW



The Broadcom BCM1104 IP phone chip enables manufacturers to build IP phones with hardware security and best-in-class voice quality.

The chip also integrates a Gigabit Ethernet (10/100/1000 Mbps) switch and two Fast Ethernet (10/100 Mbps) transceivers, allowing for the optional development of traditional Fast Ethernet IP phone designs without the additional cost of adding external transceivers. With the addition of external Gigabit Ethernet transceivers, manufacturers can easily upgrade their designs to create Gigabit Ethernet IP phone models.

The BCM1104 integrates Broadcom's BroadSAFE™ security technology, which performs voice encryption and authentication and elevates the phone's system security using a unique identifier embedded in each chip that is virtually impossible to decode, hack, or steal, thereby providing assurance that the identity of each phone in the network is genuine.

The chip's high-performance RISC processor supports Broadcom's field-proven PhonexChange IP telephony software suite. PhonexChange includes a wide variety of narrowband and wideband voice coders,

including Broadcom's high-fidelity BroadVoice® codec, a high quality full-duplex speakerphone algorithm, advanced jitter buffer management and packet loss concealment techniques, and a complete library of standard telephony algorithms required for IP phone designs. The RISC processor further allows customers to add product-differentiating application software

The chip integrates a variety of IP phone peripherals including wideband-capable analog codecs (coder/decoder) with integrated amplifiers, IrDA, USB host, and a touch screen digitizer. It also provides flexible interfaces for external peripherals and memory types. This high level of integration reduces the phone's bill of material (BOM) costs and enables phone vendors to build scalable IP phone solutions using a single architecture.

Associated devices:

- BCM2035 Bluetooth Single-Chip HCI Solution
- BCM5461 10/100/1000BASE-T Gigabit Copper Transceiver
- BCM4318 WLAN

Broadcom®, the pulse logo, Connecting everything®, the Connecting everything logo, BroadVoice®, and BroadSAFE™ are among the trademarks of Broadcom Corporation and/or its affiliates in the United States, certain other countries and/or the EU. Any other trademarks or trade names mentioned are the property of their respective owners.

Connecting
everything®



BROADCOM CORPORATION
16215 Alton Parkway, P.O. Box 57013
Irvine, California 92619-7013

© 2005 by BROADCOM CORPORATION. All rights reserved.

1104-PB201-R 10/21/05

Phone: 949-450-8700
Fax: 949-450-8710
E-mail: info@broadcom.com
Web: www.broadcom.com