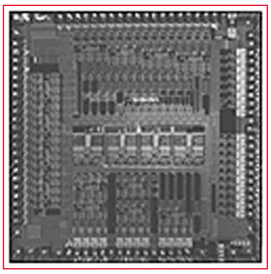
BROADCOM®
Connecting everything®

BCM1115
PRODUCT Brief



# BCM1115 SINGLE-PORT ENTERPRISE IP PHONE CHIP

## BCM1115 FEATURES

- **The BCM1115 is the most highly integrated silicon solution for 1-Port Voice over IP Enterprise Phone and Ethernet Residential Gateway applications.**
- **The BCM1115 integrates:**
  - 100-MHz MIPS32 CPU (110 DMIPS) with 8 KB of I-cache and 4 KB of D-cache
  - Superscalar 108 MHz ZSP DSP with dual-MAC (216 MIPS), 48 KB of instruction RAM and 32 KB of data RAM
  - One 10/100BASE-T Ethernet PHY with in-line power over Ethernet support
  - Two wideband audio DACs and ADCs
  - 9x9 keyscan controller
  - Ethernet status LED driver
  - TDM IOM-2® port
  - Two UARTs
  - Two high-speed serial ports
  - General purpose I/O
  - Interrupt control unit
  - DMA support unit
  - SDRAM interface
  - External Bus Interface
  - IEEE 1149.1 (JTAG)
- **0.18υ process technology, 1.8/3.3 V**
- **0.95W peak, 0.3-0.8W standby modes**
- **256-pin PBGA package enables 4-layer PCB designs**
- **Pin-compatible with BCM1101**

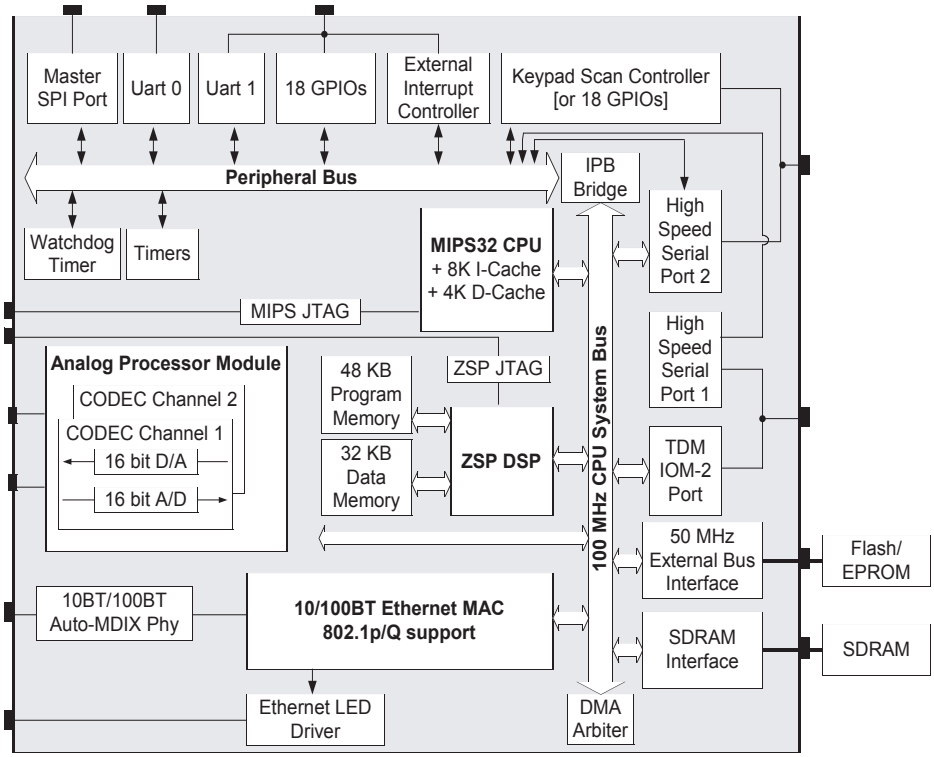
## HARDWARE PLATFORMS

- **BCM91101 Reference Platform**
  - Complete Ethernet IP phone reference design in phone plastics
- **BCM91101SMTA Reference Platform**
  - Ethernet Residential Gateway reference design
  - PacketCable SMTA reference design

## SUMMARY OF BENEFITS

- **100-MHz MIPS32 CPU and 108-MHz DSP Support**
  - In IP phone applications:
    - H.323, H.248/Megaco, SIP and MGCP
    - G.711, G.726, G.729A/AB/E, G.723.1/A, G.728, G.722.1 and BroadVoice™
    - Half- and full-duplex speakerphone operation
    - Two- and three-channel conferencing (G.711 vocoder)
    - Paging (via a G.711 channel)
  - In VoIP Gateway applications:
    - H.323, H.248/Megaco, SIP and MGCP
    - G.711, G.726, G.729A/AB/E, G.723.1/A and G.728
    - Fax relay (T.38, V.17, V.29, V27ter)
    - Two voice channels, or one voice channel and one fax channel, and a third channel limited to G.711 voice
  - In PacketCable SMTA applications:
    - PacketCable NCS
    - G.711, G.729E, and G.728
    - Two voice channels with complex vocoders
- **10/100BASE-T Ethernet MAC and PHY**
  - Integrates support for Modified Link Pulse in-line power specification
  - Compliant with 802.3af power over Ethernet standard
  - Provides auto-MDI/MDIX, enabling the use of straight or crossover cables in either port
- **Wideband Audio CODECS**
  - Enables support of emerging wideband vocoding standards
- **Glueless Interface to BCM4210/4100 HPNA MAC and AFE devices**
  - Enables low-cost, home-networking IP phone

# BCM1115 OVERVIEW




The Broadcom **BCM1115** is designed for use in cost-sensitive, single Ethernet port, Enterprise IP Phone products. The **BCM1115** is complementary to the BCM1101 VoIP CPE engine, which is ideally suited for higher-end, two-port Ethernet VoIP products that require an integrated Ethernet switch and a second Ethernet port.

Key modules integrated in the **BCM1115** include:

- MIPS32 100-MHz processor with 8K 2-way set associative I-cache and a 4K 2-way associative D-cache. This MCU supports the VoIP protocol stacks, jitter buffer management, and application program. Programming is done in C, on top of Broadcom's object-oriented signal processing API.

- ZSP 108-MHz DSP with 48 KB of instruction RAM and 32 KB of data RAM. The DSP supports a wide range of vocoders and a variety of telephony algorithms (e.g., DTMF and Call Progress Tones.)

- Analog codecs. Two DACs and two ADCs are integrated, eliminating the need for an analog switch to allow the sharing of a codec between multiple interfaces.

- 10/100BASE-T Media Access Controller and Transceiver. The Media Access Controller (MAC) supports 802.1p prioritization of voice packets and 802.1Q VLAN support for segmenting physical networks into multiple logical networks. The transceiver performs all of the functions for 100BASE-T Ethernet in full- or half-duplex mode over Category (CAT) 5 twisted pair cabling and 10BASE-T Ethernet in full- or half-duplex mode over CAT 3, 4, or 5 twisted-pair cable. The PHY also supports auto-MDI/MDIX detection to allow the use of any cable type. The transceiver integrates support for in-line powering over Ethernet.

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