

VOICE OVER IP CPE ENGINE

FEATURES

- The BCM1111 is the most highly-integrated silicon solution for Ethernet residential gateway, stand-alone media terminal adapter and wireless router terminal adapter applications.
- 300-MHz MIPS32[®] CPU (600 DMIPS).
 - VoIP optimized instruction set.
 - Large independent data and instruction caches.
 - Read ahead cache and dedicated low-latency access port to DRAM.
 - Two single-cycle multiply and accumulate engines.
 - Advanced single-channel memory-to-memory DMA controller.
- DSP-less architecture.
- Two-port audio processor module with;
 - Line analog audio interface DAC/ADC with differential interfaces for external SLIC devices.
 - Programmable hardware impedance synthesis filter for world line impedance matching with a single BOM.
- Two 10/100BASE-T Ethernet MACs.
- One 10/100BASE-T Ethernet PHY.
- Expansion bus supports PCMCIA, PCI, and CardBus.
- 133-MHz 16-bit DDR support.
- SPI master controller.
- Integrated 1.2V and 2.5V linear regulator controllers.
- 0.13 μ m process technology.
- Layout-friendly 426-pin PBGA package.

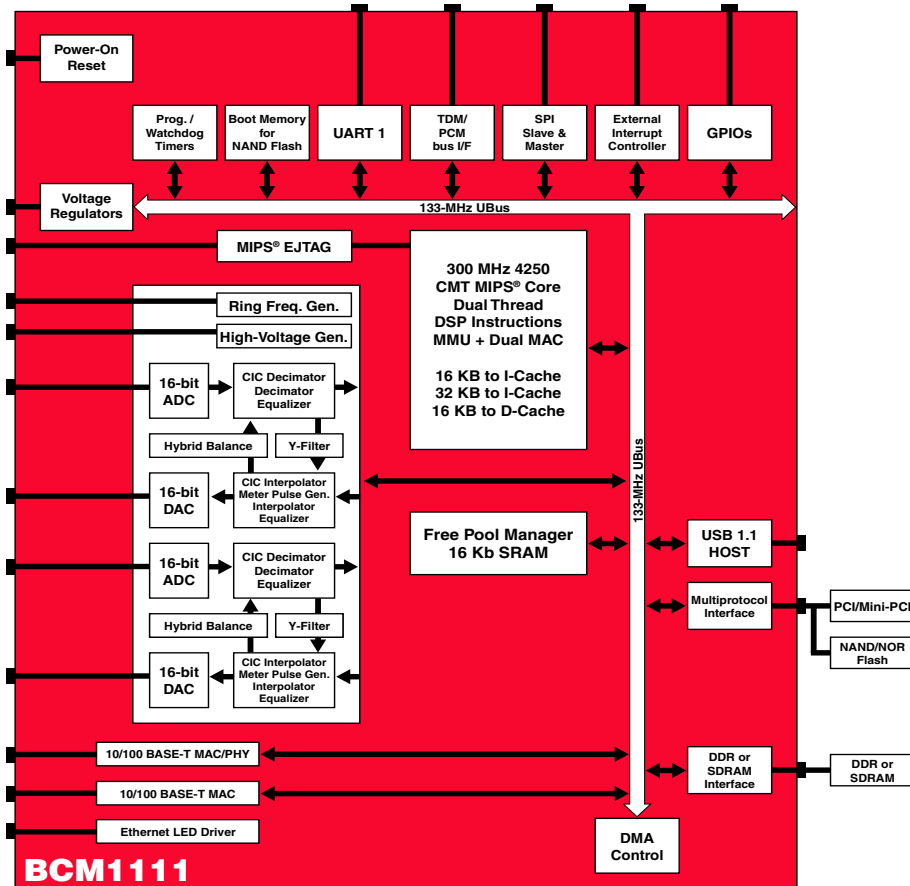
SUMMARY OF BENEFITS

- Full SIP client implementation.
 - RFC 3261.
- Voice codecs.
 - G.711, G.726, G.729A.
- Support for four simultaneous voice channels.
- Call features:
 - Auto fax/modem detect and voiceband data/T.38.
 - Voice activity detection (VAD).
 - Comfort noise generation (CNG).
 - Echo cancellation (G.168).
 - Message waiting indicator.
 - BroadVoice[®] concealment PLC.
- LAN features:
 - DHCP server.
 - Network address translation (NAT)/PAT support.
 - Wirespeed NAT throughput.
- WAN features:
 - PPPoE.
 - DHCP client.
- ICASA-certified firewall.
- Provisioning.
 - Web access to configuration in non-volatile memory.
 - TFTP firmware download.

HARDWARE PLATFORMS

- BCM91111SMTA reference platform.
 - Ethernet residential gateway reference design.
 - Wireless terminal adapter router reference design.

OVERVIEW



BCM1111 Block Diagram

The Broadcom BCM1111 VoIP processor offers a high level of system integration, performance, and features for Ethernet residential gateway and stand-alone media terminal adapter applications.

The BCM1111 is a highly-integrated VoIP processor based on a MIPS32 300-MHz enhanced processor core (600-DMIPS). The revolutionary Voice on MIPS[®] technology eliminates the need for a separate DSP for VoIP applications.

This enhanced processor core utilizes advanced instruction sets, two single-cycle multiply and accumulate engines, and optimized memory structures to deliver the highest level of performance on complex vocoders. Also integrated are dual analog codecs, two 10/100 Ethernet MACs, one 10/100 PHY, and a 32-bit, 33-MHz PCI/CardBus interface.

For a four-port LAN, two-port voice terminal adapter router, the BCM1111, along with the BCM5325E, enables a two-chip solution.

For a Wireless LAN, four-port LAN, two-port voice terminal adapter router, the BCM1111, along with the BCM4318E and BCM5325E, enables a three-chip solution.

BCM91111 SMTA Reference Design

To accelerate the product development cycle and time to market, the BCM1111 comes complete with a reference design that includes schematics, layout, BOM, and VoIP and 802.11 networking software.

Related Devices

BCM4318E: AirForce™ One with Integrated 802.11b/g Baseband, MAC, and Radio.

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