BROADCOM®
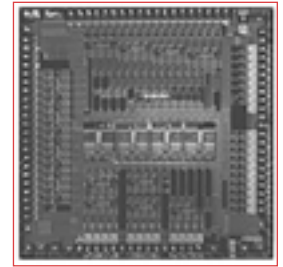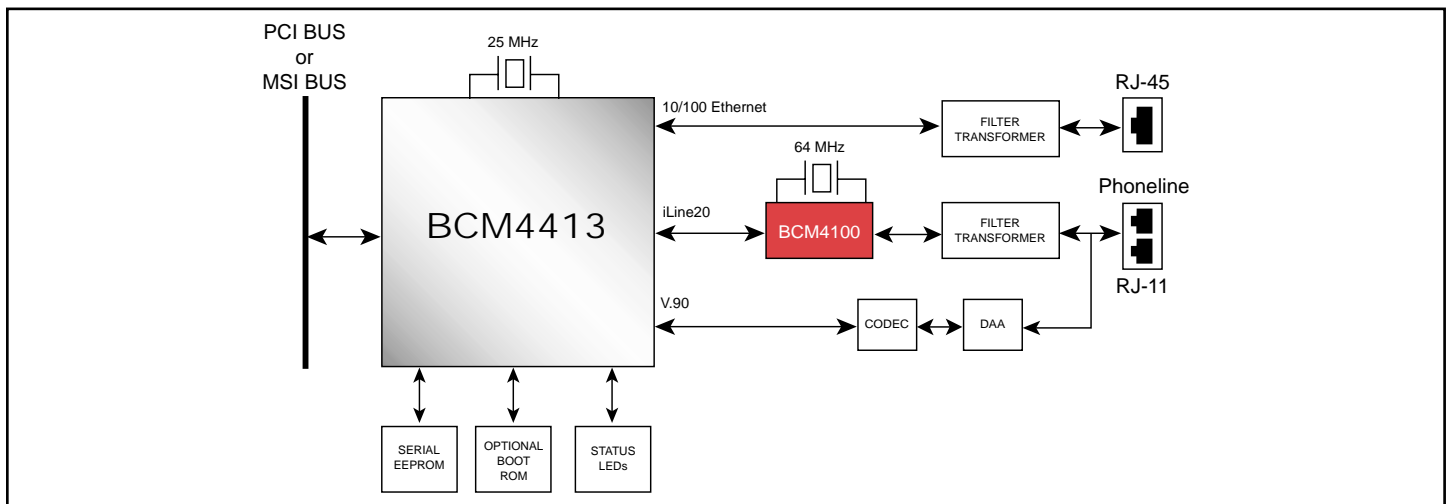
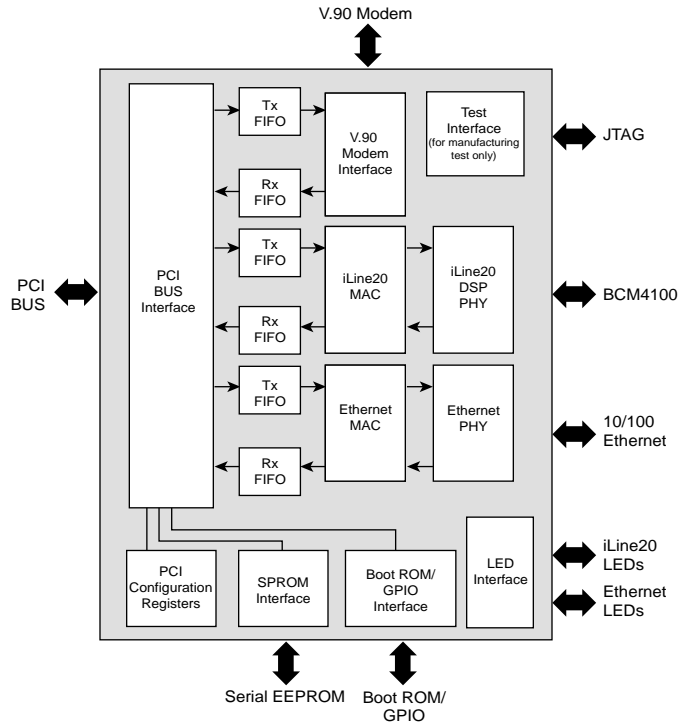# BCM4413 PCI/MSI iLine20™ CONTROLLER

BCM4413 FEATURES

- **Combination HomePNA 2.0, 10/100 Ethernet, and V.90 PCI/Mini PCI modem with Fully Concurrent Operation**
- **PC99 WHQL certified drivers for Windows 98, Windows Millennium Edition, and Windows 2000**
- **Meets PCI Power Management Interface v1.1 (ACPI)**
- **HomePNA 2.0**
  - iLine20 speed-doubling mode - twice the data rate of baseline iLine10 HomePNA 2.0 solution
  - iLine20 is fully compatible with iLine10 and HPNA 1.0
  - Rate adaptive line rate from 4 Mbps to 32 Mbps
  - Low-latency real-time multimedia (DFPQ)
- **10/100 Ethernet**
  - Complete 10/100 MAC/PHY and driver solution
  - IEEE802.3u compliant Transmit and Receive engines
  - Integrated MIB counters
  - Low power 10BASE-T/100BASE-TX IEEE 802.3u Fast Ethernet Transceiver
- **V.90 PCI Modem**
  - High-performance V.90 software modem available
  - On-chip serial interface to external DAA/Codec
  - Efficient – uses only 30 MHz x86 CPU capacity
- **2.5/3.3 V supply, 3/5 V PCI I/O**
- **196-ball FBGA**

SUMMARY OF BENEFITS

- **Fully integrated iLine20 MAC/PHY, 10/100 Ethernet MAC/PHY, and V.90 modem device for use in:**
  - PCI/Mini PCI adapters
  - LAN on Motherboard
  - Internet Appliances and Broadband Gateways
  - Voice over IP (VoIP) Gateways
- **Each interface operates concurrently as a separate function, providing independent communication channels.**
- **Represents the highest level of integration for consumer Internet communications functions.**
- **Provides the lowest cost per communications function.**
- **Includes the speed-doubling feature of the HomePNA 2.0 standard to support a maximum line rate of 32Mbps.**
- **PCI and Microprocessor Slave Interface bus options allow integration into virtually any system.**
- **WHQL certified drivers for Windows 98, Windows ME, and Windows 2000 for all three functions.**
- **All drivers are portable for embedded operating systems.**

BCM4413 System Diagram

The Broadcom **BCM4413** integrates HomePNA 2.0, 10/100 Ethernet MAC/PHY, and V.90 software modem interfaces, enabling complete Internet communications connectivity. By integrating all three functions the **BCM4413** dramatically lowers the cost per function and allows ubiquitous high-speed connection to Cable, DSL, and Fixed-Wireless Broadband pipes throughout the home. HomePNA 2.0 everywhere means hundreds of dollars in installation costs can be saved while carrying voice, video, and data to each room in the house.

Home Networking Function: The **BCM4413** high-speed HomePNA 2.0 compliant Home Networking interface uses a highly adaptive integrated Internet Communications Processor that overcomes the wiring impairments on existing installed home phonelines. The **BCM4413** Home Networking function operates on home telephone wiring without disturbing normal phone or modem operation or other services like POTS, V.90, ISDN, and ADSL. Broadcom's iLine20 implementation of the HomePNA 2.0 standard encompasses the required rate adaption between 4 Mbps-16 Mbps (iLine10) and the higher speed 8 Mbps-32 Mbps (iLine20) line rates.

10/100 Ethernet Function: The **BCM4413** 10/100 Ethernet function incorporates a complete IEEE802.3u compliant MAC and PHY. The MAC also supports management functions including RMON, Ethernet-like MIB, and IEEE 802.3u Ethernet MIB. The 10/100 PHY uses Broadcom's advanced Mini-Φ™ architecture for low power and includes advanced power management. The 10/100 PHY also supports Auto-Negotiation and HP Auto-MDIX functions to eliminate installation errors.

V.90 Modem Function: The **BCM4413** controller includes a V.90 data/fax/voice modem interface to an external serial Modem Codec/DAA, allowing implementation of a complete, low-cost V.90 data/fax/voice soft modem. The V.90 data/fax/voice Software Modem driver is available for Windows 98, Windows ME, and Windows 2000, and can be ported to virtually any processor and operating system combination.

Ordering Info: **BCM4413** KPF

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