

## BLUETOOTH® V2.1 COMMUNICATIONS SOFTWARE FOR MOBILE PHONES

### FEATURES AND BENEFITS

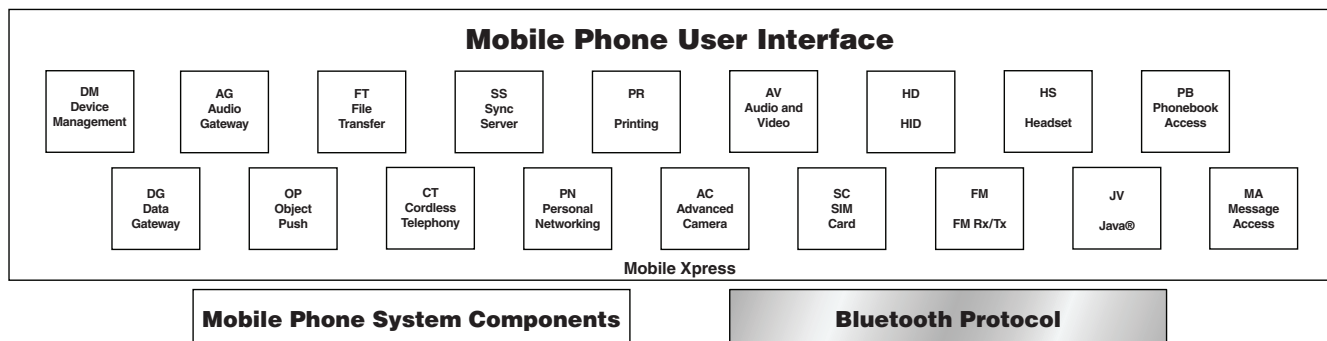
- **Portability**—BCM1200-BTEM code is portable and scalable over a wide array of phone design and platform architectures. BCM1200-BTEM can be adapted to all Bluetooth® phone applications, ranging from a headset or hands-free Audio Gateway (AG) to a more advanced dial-up networking, data communication, and cordless phone connectivity.
- **Optimized for Phone Operating Systems (OS)**—The BCM1200-BTEM has been developed and validated with GSM, UMTS, and CDMA platforms. Source code is provided for software ports to RTOS platforms, such as ARM® Nucleus, pSOS, uTron, VxWorks®, and many others. A detailed porting guide explains how to connect to common phone interfaces, including AT Command processing, NV and flash file system, data path, and audio control.
- **Support for FM Rx, FM Tx, GPS, and multiple AV headsets** (depending on Bluetooth silicon used).
- **Insight Application Development and Scripting Tool**—BCM1200-BTEM Insight is a PC-based Bluetooth development environment for mobile phone applications. BCM1200-BTEM supports USB or H4 and H5 UART transport. The scripting engine provides an extensive test environment and test scripts for standard HCI commands, upper-layer stack, and many of the Bluetooth profiles. The simulated Mobile Phone User Interface greatly simplifies application development and validation.

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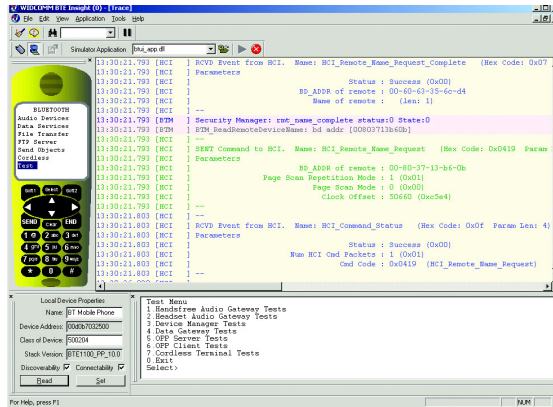
- **Advanced Protocol Stack**—The Bluetooth v2.1 upper protocol stack is composed of the:
  - Logical Link Control and Adaptation Protocol (L2CAP)
  - Serial Port Emulation (RFCOMM)
  - Telephony Control Specification (TCS)
  - Service Discovery Protocol (SDP)
  - Object Exchange (OBEX) Protocol
  - Broadcom's Bluetooth Manager

Advanced layers including Bluetooth Network Encapsulation Protocol (BNEP), Audio/Video Distribution Transport Protocol (AVDTP), and Audio/Video Control Transport Protocol (AVCTP) are also available as optional features. ANSI C source code is available for easy customization.
- **Mobile Xpress™, the Bluetooth Application (BTA) for mobile phones**—BCM1200-BTEM Mobile Xpress offers a re-entrant layer that groups profile functionality into simple application blocks (e.g. headset profiles [HSP] and hands-free profiles [HFP] are consolidated into an AG application block). The Printing (PR) functionality from Object Push (OP), Basic Printing Profile (BPP), and Basic Imaging Profile (BIP) are consolidated into a PR block. Each of the application blocks offers the full functionality of the independent profiles, but with a simpler application interface. Mobile Xpress is scalable and can be implemented to meet the specific phone's feature requirements.

### BCM1200-BTEM Block Diagram



# OVERVIEW



## Reference Design

The innovative BCM1200-BTEM Bluetooth communications software for mobile phones is a complete Bluetooth protocol stack, profile application, and development solution. The BCM1200-BTEM enables mobile phone OEMs and semiconductor companies to quickly and easily port Bluetooth applications onto their mobile phone platform.

The BCM1200-BTEM is modular, robust, and maintainable across any embedded phone platform or OS. The BCM1200-BTEM includes either an RTOS abstraction layer or a Generic Kernel Interface (GKI) and a variety of interfaces for any common platform and OS. GKI can be configured to run as a simple OS or used as a software abstraction layer that resides between the Bluetooth protocol stack and platform OS. GKI reduces time-to-market by enabling easy porting to any OS without requiring modifications to the stack.

### Product Deliverables

The ANSI C source code is fully compliant with the Bluetooth Core Protocol Specification v2.1 + EDR, including Core Specification Addendum 1 (CSA 1), including:

- L2CAP (including Enhanced Retransmission and Streaming Modes)
- RFCOMM
- TCS
- SDP
- OBEX
- BNEP
- AVDTP
- AVCTP

The ANSI C source code is fully compliant with the Bluetooth Specification v2.1 and is integrated in the Xpress application blocks, including:

- Device Manager (DM)
  - Discover Bluetooth devices
  - Discover Bluetooth services—Manage security
  - Configure local device settings
- Data Gateway (DG)
  - Multiple instances of Serial Port Profile (SPP) servers
  - SPP client
  - Dial-Up Networking (DUN) server
  - FAX server
- Audio and Video (AV)
  - Generic Audio Video Distribution Profile (GAVDP)
  - Advanced Audio Distribution Profile (A2DP)
  - Audio/Video Remote Control Profile (AVRCP)
  - Video Distribution Profile (VDP)

- Audio Gateway (AG)
  - Headset Profile (HSP) AG
  - Hands-free Profile (HFP) AG
- Headset (HS)
  - Headset Profile (HSP) headset
  - Hands-free Profile (HFP) hands-free kit
- Object Push (OP)
  - Personal Information Manager (PIM) OP- object pull
  - Business card exchange
- File Transfer (FT)
  - FT Profile (FTP) server
  - FTP client put and pull-OPP client file put
- Cordless Telephony (CT)
  - CT Profile (CTP) terminal
  - InterCom Profile (ICP) terminal
  - Wireless Users Group (WUG) + Fast Inter Memory Access (FIMA)
- Synchronization Server (SS)—Synchronization Profile/IrMC Server (SYNC)
- Personal Networking (PN)
  - PAN user- PAN Gateway Node (GN)
  - PAN Network Access Point (NAP)
- Printing (PR)
  - OPP client—OP
  - BIP sender—Simple push
  - BPP sender—Job-based printing
  - BIP initiator—Image push
- Advanced Camera (AC)
  - BIP archiving
  - BIP remote display
  - BIP image pull
- SIM Card (SC)—SIM Access profile
- HID (HD)—HID profile
- PBAP Profile
- MAP Profile
- A porting guide for embedded systems and documentation that exposes and details Bluetooth wireless technology application program interfaces (API) for protocols and profiles
- User Manual, Release Notes, and Bluetooth conformance documentation
- API and design documents for all software components
- BCM1200-BTEM Insight Development and Scripting tool
- FM Rx and Tx support
- GPS support
- Support for streaming to multiple AV headsets (up to four headsets)
- Java support

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