

Sybase iAnywhere Blue SDK

An Embedded Bluetooth® Protocol Stack

COMPLETE BLUETOOTH PROTOCOL STACK

compliant to Bluetooth
specification version 2.1 + EDR

PROTOCOLS, SAMPLE APPS. AND DOCUMENTATION:

- RFCOMM
- L2CAP
- SDP
- Security
- HCI Transport (H4 and H5)
- Management Entity
- Sample application code
(GAP, SDP, Serial port)
- API documentation
- Porting Guide (operating
system, radio hardware)
- Implementation Guide

PROFILES INCLUDED

- Generic Access
- Service Discovery
- Serial Port which supports FAX
and Dial-up Networking

The Sybase iAnywhere Blue Software Development Kit (SDK) provides an efficient way to add reliable Bluetooth® radio communications to any embedded device. It is designed for use in cellular phones, PDAs, portable office equipment, automotive / telematics implementations, medical equipment, industrial automation products, consumer electronics and more. With over ten years experience working with wireless connectivity and synchronization protocols and hundreds of product design wins, iAnywhere has amassed extensive expertise working with R&D teams. Its large base of OEMs assures the highest quality code written to specification, with industry proven reliability, functionality, and portability.

BLUETOOTH QUALIFIED AND MARKET TESTED

The Sybase iAnywhere Blue SDK was first listed on the Bluetooth Qualified Product List in 2000. As the SDK has matured and added features, those too have been qualified and the SDK continues to hold qualifications for more user profiles than any other development kit. By providing a certified solution, iAnywhere helps device manufacturers reduce development costs, shorten time-to-market and apply strict compliance to the Bluetooth Special Interest Group's (SIG) interoperability standards. This solution enables developers to focus on the important aspect of product creation, implementing applications and system integration activities with full assurance that the underlying stack software will deliver.

Sybase iAnywhere has hundreds of Bluetooth design wins across all product categories including market leaders such as Palm, HP, Motorola, 3COM, Harman-Becker, Siemens, JVC, NEC, Mitsubishi, Fujitsu, STMicroelectronics, Visteon, Texas Instruments, Qualcomm and other chipset and solution companies. iAnywhere is an Associate member of the Bluetooth SIG and helps shape the next generation of Bluetooth innovation with its involvement. iAnywhere is a member of the Core Specification Working Group, participates in the Automotive Working group, the AV working group, the Medical Working Group, and is section owner for many OBEX based profiles such as Object Push and File Transfer Profiles.

SDK FEATURE SET

iAnywhere Blue SDK is delivered as a well-documented, ANSI C source code solution that engineers will find is an easy-to-use product providing complete control over their Bluetooth software implementation. iAnywhere Blue SDK is packed into approximately 100 kbytes of code for a complete Bluetooth protocol stack making it suitable for memory limited embedded systems. Processor loading is also extremely low.

iAnywhere Blue SDK provides a full implementation of Bluetooth v2.1 + EDR (Lisbon) for use in embedded devices. Stack architecture is fully capable of supporting multiple profiles (optional software SDKs) that can be compiled with the stack to form a single task.

ADDITIONAL PROFILES AVAILABLE

- Headset
- Hands-Free
- Video Distribution Profile
- Phone Book Access
- SIM Access
- BNEP / PAN
(Personal Area Networking)
- Hardcopy Cable Replacement
- Basic Imaging
- Basic Printing
- Advanced Audio Distribution
- AV Remote Control
- Generic Object Exchange /
Object Push / File Transfer
- Human Interface Device
- OMA Data Synchronization and
Device Management - *ask about
iAnywhere embedded DS and
DM SDKs*

The Bluetooth v2.1 + EDR release includes security mode 4 to support the new Secure Simple Pairing (SSP) paradigm. Also included within this release is support for sniff sub-rating, link supervision timeout, encryption pause / resume, erroneous data reporting and extended inquiry response. Additional APIs have been introduced to the SDK, taking advantage of the newest feature set.

PORTABLE CODE

To ease portability to different operating systems the required OS calls are clearly identified as APIs and a sample Mini-OS is provided in case an implementation doesn't use an operating system. Ported modules for Microsoft Windows, Windows CE and Linux operating systems are also available. To ease implementation with various hardware providers a Hardware Abstraction Layer and sample Host Control Interface Transport Drivers are provided for various Bluetooth hardware providers such as Broadcom, CSR, STMicroelectronics, TI, Qualcomm/RFMD, Infineon and Ericsson. Standard Bluetooth hardware interfaces are also provided as templates and include UART and USB drivers. The iAnywhere Blue SDK also comes with native support for ABSCP and HCI (H4 and H5) 3 Wire transports. Ready to use software for additional Bluetooth radio hardware is continually being added. The SDK does not rely upon external libraries or host CPU architecture and is completely independent from compiler or CPU choice.

EASY APPLICATION DEVELOPMENT

iAnywhere's Bluetooth development kit includes an updated intelligent Management Entity to manage current and historical Bluetooth connections, devices and services, reducing the amount of work required to produce applications that meet and exceed user expectations. Intelligent radio management software is also included to compensate for spontaneous disconnects and other unexpected radio events that would otherwise cause instability in applications using Bluetooth wireless technology and frustrate users.

And with the ever increasing need to manage multiple profiles, the iAnywhere Bluetooth stack is easily able to accommodate multiple connection sessions and simultaneous profile operation.

BENEFITS OF BLUETOOTH V2.1

Bluetooth v2.1 + EDR has incorporated Secure Simple Pairing (SSP), increasing the level of data link security while simplifying the connection process for the end user. iAnywhere's Blue SDK has incorporated security mode 4 to support SSP and it is backwards compatible with earlier versions of the Bluetooth stack. Legacy support for security modes 1 through 3 is still available and is used when non-Bluetooth v2.1 + EDR compliant devices are encountered.

Faster connect times are now achievable using extended inquiry. Improved power conservation for battery operated devices is made possible through the use of Sniff Sub-rating. Audio performance can be improved through the use of the erroneous data reporting feature by identifying incoming eSCO packets that are in error or absent.

Data link security is increased through the encryption pause / resume feature since unencrypted data is no longer transmitted between devices to facilitate a master / slave switch. And finally link supervision timeout can be used in identifying broken communications links much faster than before, permitting recovery measures to be taken in restoring broken connections.

For more information and a list of distributors visit our web site:
http://www.iAnywhere.com/products/sdk_bluetooth.html

**QUALIFIED COMPLIANT WITH
BLUETOOTH SPECIFICATIONS
VERSION 2.1 + EDR**

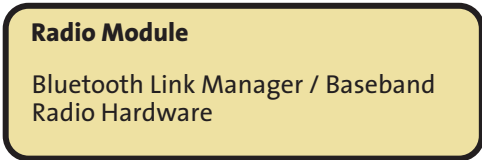
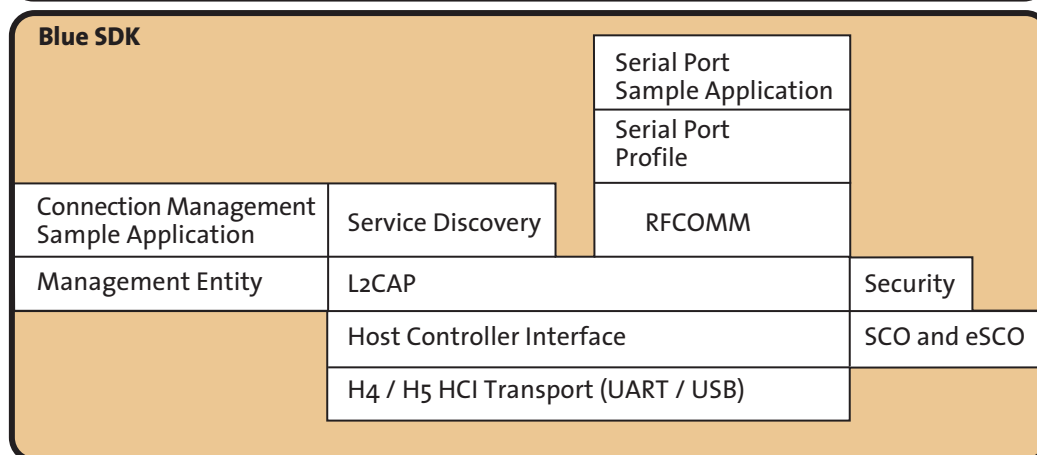
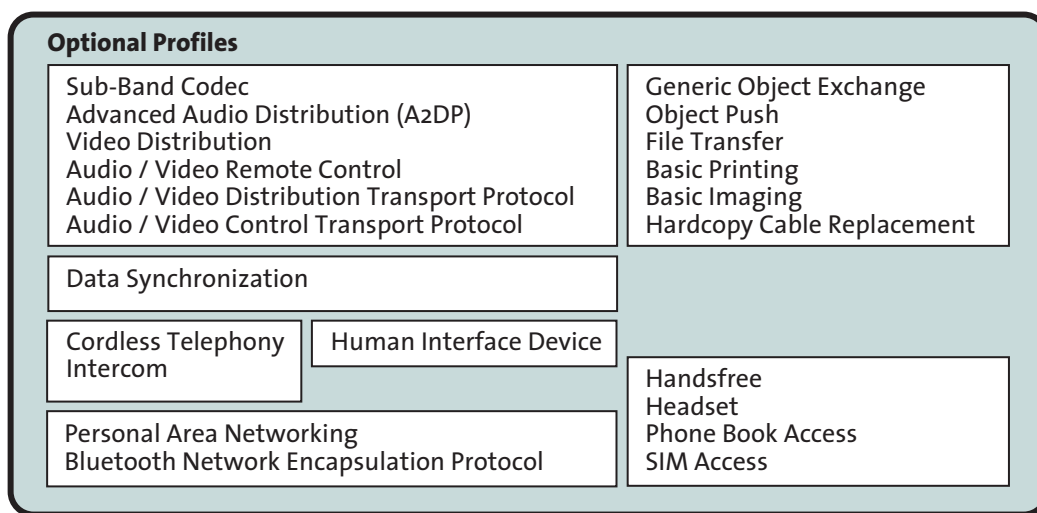
SUPPORTING:

- Adaptive frequency hopping
- Extended SCO links (eSCO)
- Security mode 4 (Secure Simple Pairing)
- Support for :
 - Sniff sub-rating
 - Link Supervision Timeout
 - Erroneous Data Reporting
 - Extended Inquiry Response
 - Encryption pause / resume

Approximate code size —
100Kbytes portable source code

IANYWHERE BLUE SDK FOR EMBEDDED DEVICES

- PPP, TCP/IP not included in SDK, but needed for DUN, PAN and LAN Access profiles
- Serial Port Profile / Serial API : Common serial port calls simplify access to the stack.
- RFCOMM Serial port data and flow control emulation.
- SDP: Service Discovery Protocol provides a database of device services.
- L2CAP: Multiplexes protocols and performs segmentation reassembly for BT link connection.
- Management Entity Provides integrated control of Bluetooth radio features, such as encryption, device connection, inquiry, and more.
- SCO and eSCO channels: Voice / Audio Multiple audio channels
- OS Abstraction Layer: An easy-to-port library of OS system routines. Portable to systems without an operating system



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