

Sybase iAnywhere® Blue SDK v4.x

PRODUCT DATASHEET

COMPLETE BLUETOOTH PROTOCOL STACK

compliant to Bluetooth
specification version 3.0 + HS

The Sybase iAnywhere Blue Software Development Kit (SDK) version 4.0 addresses the latest Bluetooth Specification v3.0 + High Speed. Enhanced data rates can be achieved through using an additional 802.11 radio capable of increasing data rates of up to 20 times that are available through a dedicated Bluetooth link. Faster file transfers support timely MP3 playlist movement from one repository to another. Streaming audio and video applications can easily be supported as well.

The Bluetooth v3.0 + HS core stack will be qualified and is complemented with a comprehensive set of profiles that are kept up to date, maintained with the latest enhancements as they are ratified by the Bluetooth SIG and supported. OBEX related profiles such as file transfer (FTP) and object push (OPP) are modified to take advantage of the high speed data link made available over the 802.11 PHY. Further, the Audio Visual Profile will also include upgrades to make use of the enhanced data transfer capabilities. All other profiles are expected to remain mostly unchanged since they can easily use the current Bluetooth interface.

Unmodified application profiles can still use the alternate MAC/PHY (AMP) interface if they choose to do so. APIs governing the physical link over which data is sent will remain mostly unchanged, yet the underlying stack software has been changed to accommodate different AMPs. This translates into a stack being backward compatible with existing applications, reducing engineering time for customers wishing to incorporate this “Seattle” upgrade.

Additionally, the generic access profile (GAP) support offered in both Management Entity and Connection Management modules has been designed in a way to support existing application software with minimal modification. Existing applications resident on the previous Bluetooth stack require minimal change to manage connections with remote devices if they continue to use only the Bluetooth PHY. With backwards compatibility being a design consideration with this new release, engineering effort required in realizing solutions is thought to be minimal in upgrading to the iAnywhere Blue SDK v4.0.

Features incorporated into the iAnywhere Blue SDK v4.0 include the addition of:

Management Entity:

Connection management is a critical function and has been expanded to control additional AMP radio hardware, whatever it may be. Currently, the 802.11 AMP has been integrated and it is expected that other AMPs will be made available in the future and could include Ultra Wideband (UWB). In either case, the generic access profile, as implemented by the management entity will be able to establish connections to remote devices through either Bluetooth or AMP channels and route data associated with profiles through either radio channel.

AMP Manager

Information associated with AMPs that may be supported on the remote device is necessary. The AMP manager utilizes the BT link to collect such information and then uses this to configure, set up and control the AMP channel.

L2CAP:

Enhanced Retransmission mode

This is an enhanced version of the existing feature implementing flush timeouts on the transmit side and packet flushing on the receive side if the sender transmits data faster than the receiver can handle it.

Quality of service

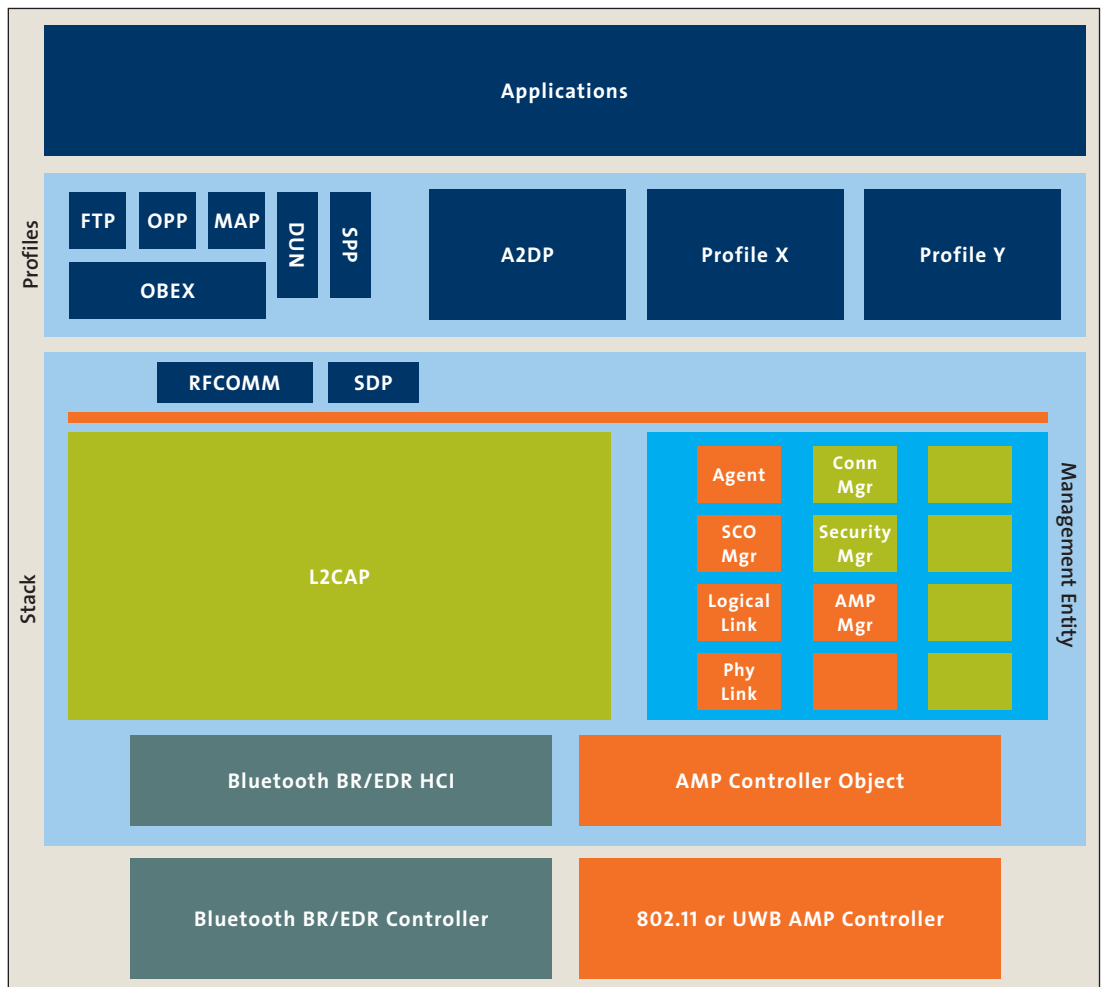
Inclusion of the extended flow specification allows applications to define Best Effort and Guaranteed channels (guaranteed latency, guaranteed bandwidth or both) which can run over either the BR/EDR controller (Bluetooth radio hardware) or AMP controllers (802.11 PHY). The extended flow specification feature allows devices to negotiate a data rate for a particular channel which is based upon packet size and frequency of packet arrival.

Physical Link management

Capability has been added within the stack to route data packets through either the BR/EDR or AMP controllers under control of the application. Autonomous control also exists in the case where an AMP based link may fail and data can be sent over the BR/EDR link by default. Memory management functions have been modified to support both data routing and efficient data handling throughout the stack.

AMP Controller Object

The addition of an AMP controller makes it possible to communicate with the additional 802.11 PHY. Additional driver software is required to match the hardware interface supported by the 802.11 based radio. The iAnywhere SDK v4.0 + HS has been integrated with the Marvell 8688 and makes use of the Windows based SDIO driver. Customers are responsible for developing their own driver.



PROFILE SUPPORT

The core stack is compliant to Bluetooth v 3.0 + HS and will be qualified as a core component. Every effort has been made to support application profiles developed for earlier versions of the stack. Most profiles will not require modification since the existing API structures remain compatible with the newest stack release.

Applications that do require modification include:

Generic Access profile: Managing connections to other Bluetooth devices is handled by this profile. To accommodate the addition of the 802.11 PHY, this connection management capability has been extended and additional APIs are required to facilitate this change. Connection setup, device capability information, data routing and link monitoring functions have been incorporated in the Management Entity module of the stack. GAP applications must account for this new functionality and in support of this new APIs have been added and existing APIs have been modified.

File Transfer profile/Object Push profile: This profile has the option to use either the Bluetooth radio or the 802.11 PHY, dependant upon how the application is managed. For larger data transfers, use of the 802.11 PHY can reduce file transfer times significantly over the normal Bluetooth link.

Audio/Visual profiles: Although streaming audio is easily supported using existing Bluetooth radio hardware, it may be advantageous to stream unique audio selections to multiple remote devices. In addition to this, video streaming can now be easily supported over the 802.11 PHY without absorbing all communication bandwidth. Running multiple profiles simultaneously, including video streaming, can be supported with the addition of the 802.11 PHY.

The iAnywhere Blue SDK v4.x is capable of supporting the following set of profiles:

- *Audio Visual Profiles**:
 - *Advanced Audio Distribution Profile (A2DP) v1.2,*
 - *Audio Visual Remote Control Profile (AVRCP) v1.4,*
 - *Video Distribution Profile (VDP) v1.0*
 - *A/V Control Transport Protocol (AVCTP) v1.3,*
 - *Generic A/V Distribution protocol (GAVDP) v1.2,*
 - *A/V Distribution Protocol (AVDTP) v1.2,*
- *Generic Object Exchange Profile v 1.4 supporting File Transfer Profile v1.1 and Object Push Profile v1.1**
 - Handsfree Profile (HFP) v1.5
 - Headset Profile (HSP) v1.1
 - Personal Access Networking Profile (PAN) v1.0 with Bluetooth Network Encapsulation Protocol (BNEP) v1.0
 - Phone Book Access Profile (PBAP) 1.0
 - Basic Imaging Profile (BIP) v1.0
 - Basic Print Profile (BPP) v1.0
 - SIM Access Profile (SAP) v 1.0
 - Messaging Access Profile (MAP) v1.0
 - Human Device Interface Profile (HID) v1.0
 - Serial Port Profile (SPP) v1.1
 - Health Device Profile (HDP) v1.0
 - Cordless Telephony Profile (CTP) v1.0
 - Intercom Profile (ICP) v1.0
 - Support for Dial Up Networking and Fax (Serial Port Profile)
 - Hardcopy Replacement Profile (HCRP) v1.2

** changes made to these profiles*

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