

Bluetooth Protocol Stack Intellectual Property

Overview

- Tality is a leader in Bluetooth system, chip and intellectual property design
- Tality has undertaken over 25 Bluetooth system and chip designs
- Tality utilizes and licenses intellectual property to speed time to market
 - Bluetooth protocol stack licensed by over 12 customers
 - Bluetooth system-on-chip integration platform
 - Bluetooth baseband controller core licensed by over 12 customers

Tality Corporation has developed and utilizes Bluetooth protocol software for custom Bluetooth system and chip design. Tality also licenses the protocol stack to those who wish to undertake design themselves.

The software has been designed specifically for application across a broad range of low-cost embedded devices. The major features of the protocol software include:

- **Bluetooth Specification Compliance**
Full compliance with the current Bluetooth specification.
- **Application Range**
Full support for all currently-defined profiles.
- **Usage Partitioning**
Upper and lower stack available together or separately.
- **Portability**
Modular architecture that enables portability across a broad range of processors, real-time operating systems (RTOS), Bluetooth chipsets and host-controller interface (HCI) transports.
- **Testability**
Comprehensive testability features that enable full regression testing, including in the target system.
- **Comprehensive Deliverables and Support**
Deliverables include full "C" source code, SDL, test tools and scripts, documentation and training.
- **Track Record**
Adoption by over a dozen licensees.
- **Simple Licensing Model**
Up-front fee, with no royalty fees.

RFCOMM	SDP	Example
L2CAP		Upper Management
Upper HCI Protocol		Upper Management
Upper HCI Transport Driver		
Host Controller Interface		
Lower HCI Transport Driver		
Lower HCI Protocol		
Link Manager	Lower Management	
Baseband Device Driver		
Bluetooth Baseband Chip		
Radio Frequency Transceiver Chip		

For Product Manufacturers

- IP licensing
- Product specification
- Component selection and/or ASIC design
- Hardware, software & RF design and integration
- MMI design
- Industrial design
- Qualification testing
- Support during type approval and production ramp-up

For IC Manufacturers

- IP licensing
- System design
- RF chip architecture, specification and design
- Baseband chip specification and design
- Protocol software porting
- Reference designs
- Design-in support

For Module Manufacturers

- IP licensing
- System design
- Component design
- PCB design and prototyping
- Module verification and qualification testing

Licensable Bluetooth SOC Integration Platform

- Speeds Bluetooth SOC design
- Integrates Tality's baseband core and protocol stack with ARM7TDMI

Licensable Bluetooth Baseband Core

- Implements all real-time Bluetooth protocol functions
- Flexible radio interface
- Ultra-low power design
- Process-targetable
- Fully-documented, synthesizable VHDL
- Comprehensive verification environment
- Supported by Bluetooth SOC integration platform

Licensable Bluetooth Protocol Software

- Fully documented UML/SDL design
- Processor-independent, 'C' source code
- Portable to multiple Real Time Operating Systems
- Easily partitioned between multiple processors
- Comprehensive verification environment
- Link Management Protocol

- Host-Controller Interface
- Logical Link Control and Adaptation Protocol
- RFCOMM
- Service Discovery Protocol

Design Services

- Product specification
- Digital, mixed-signal, and RF ASIC design
- Software porting and integration
- Hardware-software co-verification
- Hardware design and prototyping
- PCB design and layout
- Board-level RF design
- Antenna design
- Mechanical/industrial design
- Module design
- System integration and testing
- Test equipment design
- Bluetooth qualification services
- Support through type approval
- Links to subcontract manufacturers
- Support into production

For more information, contact us at 1.877.473.2924, info@tality.com, or visit us on the World Wide Web at: <http://www.tality.com>.