



The BLUEmagic 3.0 embedded Bluetooth protocol stack is a thorough implementation of a fully-configurable, resource-efficient protocol stack targeted at embedded Bluetooth devices and applications.

The BLUEmagic 3.0 protocol stack is scalable, modular, and portable, with an innovative, high-performance, compact architecture ideal for embedded devices. In a market that is moving away from the desktop and toward distributed, application-specific, resource-constrained embedded systems, the smart choice is BLUEmagic 3.0 software, the solution that was engineered from the beginning with the embedded Bluetooth device market in mind.

MODULAR

- implemented as small functional modules with simple and well-defined interfaces
- HCI transport layer isolated at upper and lower edges for easy integration with drivers and Link Manager APIs

PORTABLE

- protocol stack and profiles written entirely in ANSI C
- 98% of BLUEmagic 3.0 software is platform-independent
- operating system and transport dependencies isolated
- data behavior consistent on any 16-bit, 32-bit, or 64-bit system
- not dependant on any particular Bluetooth chipset or OS

SCALABLE

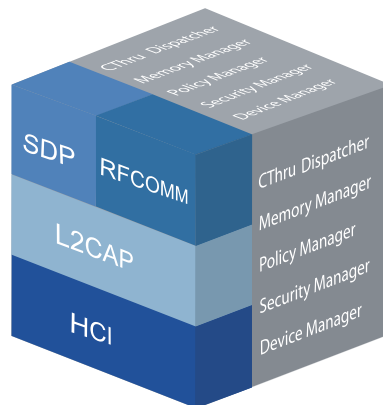
- control of dynamic memory usage through the Memory Manager, conserving RAM
- ability to select which stack modules are linked into an application, conserving ROM

EASY TO USE

- SDK implemented as fully documented APIs written in C
- synchronous or asynchronous API
- protocol stack configuration parameters easily accessible
- BLUEmagic 3.0 protocol stack as binary library files, enabling application development under Linux and Windows right out of the box

BLUEmagic 3.0 software has been certified as meeting the requirements of the Bluetooth Qualification Process.

With their great portability, efficiency, and versatility, the Open Interface North America BLUEmagic 3.0 embedded protocol stack and software development kit are uniquely adaptable to whatever the future of Bluetooth technology might bring.



Supported specifications and guidelines

- Bluetooth v1.1, v1.2, and v2.0 + EDR
- Security White Paper Security Modes 1, 2, and 3
- Car - Communication - Application - Promotion (CCAP)
- Home Printing with Mobile Terminals by MIPC

Available Bluetooth profiles and additional components

- GAP
- SPP
- SDAP
- Synch
- FTP
- Fax
- DUN
- PAN
- BNEP
- HID
- HCRP
- PBAP
- BPP
- BIP
- PBA
- Cordless Telephony
- Intercom
- GenOBEX
- Object Push
- Hands-Free (up to v1.5)
- Headset
- SIM Access
- TCS Binary
- A/V Control Transport
- A/V Distribution Transport
- A/V Remote Control
- Advanced Audio Distribution
- Generic A/V Distribution
- SBC and eSBC
- CSS and XML parsers

BLUEmagic 3.0 core stack

- Policy Manager
- Device Manager
- Security Manager
- Memory Manager
- CThru[™] Dispatcher
- SDP Client
- SDP Server
- L2CAP
- RFCOMM
- HCI

Supported transports

- USB
- UART H4, H5, and BCSP

Examples of embedded target environments supported

- embedded Linux
- embedded Windows[®]
- μITRON
- ATI Nucleus[™] Plus
- Express Logic ThreadX[®]
- Red Hat eCos[™]
- μCOS
- Green Hills INTEGRITY[®]
- Zeevo BlueOS[™]
- GCT Vincent OS[™]
- QNX[®]

Support is available for other real-time operating systems upon request.



OPEN INTERFACE

Single-threaded CThru™ architecture

Since the BLUEmagic 3.0 protocol stack is targeted at single-threaded embedded Bluetooth systems, dependence on external system services for threading and memory management has been eliminated. The BLUEmagic 3.0 protocol stack is built around the asynchronous, non-blocking, single-threaded, command/event-oriented CThru architecture, which is implemented consistently throughout the protocol stack and support modules. API calls "Call Through" the protocol stack layers without blocking. The overhead for this architecture implementation is small, with low memory and CPU requirements. This innovative architecture eliminates the

memory and performance overhead related with context switching, allowing the BLUEmagic 3.0 protocol stack to operate with less physical memory and at greater speed, which means that devices using the BLUEmagic 3.0 protocol stack can be smaller, faster, and cheaper than they would otherwise be.

Application developers may still use multiple threads in their designs, but the CThru architecture and the low-level BLUEmagic 3.0 API make it possible to avoid doing so when desired.

Easy to learn, easy to use, easy to maintain

The BLUEmagic 3.0 SDK is easy to learn and easy to use, reducing time to market for embedded Bluetooth devices built with the BLUEmagic 3.0 protocol stack.

The BLUEmagic 3.0 low-level API provides full configuration access to virtually all elements of the protocol stack, allowing developers of deeply embedded Bluetooth applications written in C to make efficient use of memory and processor power for devices with tight resource constraints. Application developers programming for host processors without such tight constraints may choose to use the optional BLUEmagic Host Application Programming Interface (BHAPI) software, which abstracts common Bluetooth profile functionality out to the level of simple interactions with Bluetooth services. Very little knowledge of the Bluetooth protocol is necessary to develop an embedded Bluetooth application with BHAPI software.

Debugging and quality assurance

A guiding principle in the design of BLUEmagic 3.0 software was "design for testability". The BLUEmagic 3.0 SDK provides debugging tools that enable run-time argument checks, memory corruption checks, and memory leak checks. All runtime checks can be disabled in the production build of an application to ensure minimal memory footprint and optimal performance. During application development and debugging, however, such checks are invaluable to developers. Only with such capabilities can products be developed that are guaranteed to be robust and effective.

Testing, service, porting, and support

Unlike other providers of Bluetooth wireless technology software, Open Interface North America provides more than just a software drop. Open Interface North America is committed to providing documentation, training, support, testing, application customization, encoders and decoders, porting, and other services to its customers. This full range of services allows customers of Open Interface North America to concentrate on doing what they do best, whether it is application development or system integration.

The chief concern of Open Interface North America is providing users of BLUEmagic 3.0 software with anything they need to develop better, cheaper, smaller, more easily maintained embedded Bluetooth products that reach the market faster and at lower development cost.

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