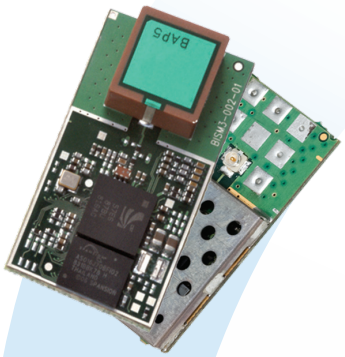
Laird TECHNOLOGIES

Innovative **Technology** for a **Connected** World

Bluetooth® Multimedia Module

BTM520/521



The BTM520 and BTM521 are the most advanced low-power, multimedia Bluetooth® modules available in the marketplace. Designed to meet the needs of developers requiring the ultimate Bluetooth audio performance and flexibility, these modules include everything required for a fully qualified and functional Bluetooth multimedia application.

In addition to providing best-in-class radio performance, range, and power consumption, the BTM520/521 support all the functionality to run Cambridge Silicon Radio's Road Tunes and Blue Tunes development applications. They support the latest Bluetooth Version 2.1+EDR Specification, providing secure simple pairing that improves security and enhances easy use. (The BTM521 has an integrated high-performance, multilayer ceramic antenna that achieves open field ranges in excess of 300 meters.)

The modules include a 16 bit stereo codec and microphone input to support both stereo and mono applications, with the ability to drive stereo speakers. Containing all the necessary audio filtration and biasing components, these modules only require the addition of speakers, microphone, and push buttons to make a high-quality Bluetooth stereo product.

The BTM520/521 contain a full, integrated Bluetooth stack along with SPP, HFP 1.5, HSP, AVRCP, and A2DP profiles, all of which are Bluetooth qualified. Additional profiles could be made available for file transfer, object exchange, dial up networking, messaging, and phonebook control.Because these modules are pre-qualified, customers can list and promote their products free of charge on the Bluetooth website.

These modules include an embedded 32-bit, 64-MIPS DSP core within the BC05 that is integrated with the Bluetooth functionality, allowing the addition of significant product enhancements, such as echo cancellation, noise reduction, and audio enhancement using additional soft codecs. The availability of the 16MB of flash memory in the module allows complex functionality to be included. DSP routines can be licensed through a number of specialist partners.

To speed product development and integration, Laird Technologies has developed a comprehensive AT command interface that simplifies application development, including support for audio and headset functionality. Combined with a low-cost development kit, Laird Technologies' Bluetooth modules provide faster time to market.

global solutions: local support™

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Bluetooth® Multimedia Module

BTM520/521

FEATURES

- Fully featured Bluetooth multimedia module
- Supports CSR Road Tunes and Blue Tunes applications
- Bluetooth v2.1+EDR
- Supports mono and stereo headset applications
- Adaptive frequency hopping to cope with interference from other wireless devices
- 32bit Kalimba DSP for enhanced audio applications
- Support for secure simple pairing
- External or internal antenna options
- HSP, HFP, A2DP and AVRCP audio profiles
- HDP profiles (later release)
- 16 bit stereo codec and microphone input
- Integrated audio amplifiers for driving stereo speakers
- Comprehensive AT interface for simple programming
- Bluetooth End product qualified
- Compact size
- Class 1 output – 8dBmi
- Lowest power operation with high efficiency internal switch mode supply.
- Wi-Fi coexistence hardware support

APPLICATION AREAS

- High quality stereo headsets
- Hands-free devices
- Wireless audio cable replacement
- MP3 and music players
- Phone accessories
- VoIP products
- Aftermarket automotive applications

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CATEGORIES	FEATURE	IMPLEMENTATION
Wireless Specification	Bluetooth®	Version 2.1+EDR
	Frequency	2.402 – 2.480 GHz
	Max Transmit Power	Class 1 + 6dBm (at antenna connector – BTM520) +8dBmi (from integrated antenna – BTM521)
	Receive Sensitivity	Better than -86dBm
	Data Rates	Up to 2.1Mbps (over the air)
	UART Data Transfer Rate	Greater than 300 Kbps
Host Interface	UART	Supports DTR, DSR, DCD and RI, multiplexed with other functionality.
Audio Interfaces	Codec	Internal 16 bit Stereo Codec Integrated Amplifiers for driving Stereo Speakers
	Microphone	Integrated low noise microphone bias
DSP	Integrated Kalimba DSP	32bit, 64MIPS
Profiles		GAP (Generic Access Profile) SDP (Service Discovery Profile) SPP (Serial Port Profile) HSP HFP – Audio Gateway and Handsfree A2DP – Source and Sink AVRCP – Target and Controller SCO/eSCO
Supply Voltage	Supply	3.0V – 4.2V DC
	I/O	1.7V – 3.6V DC
Power Consumption	Current Consumption	Operational - Less than 80 mA (including speaker amplifiers) Idle (sleep) < 1.5mA
Coexistence / Compatibility	802.11 (Wi-Fi)	2-wire and 3-wire hardware coexistence schemes supported
Connections	External Antenna	u.fl connector for external antenna – BTM520
	Internal Antenna	Multilayer ceramic antenna – BTM521
Programming API		AT Command Set (extended for audio and headset functions and secure simple pairing)
Physical	Dimensions	20.0mm x 36.0mm x 4.1mm - BTM 520 20.0mm x 36.0mm x 5.1mm - BTM 521
Environmental	Operating Temperature	-30°C to +70°C
	Storage Temperature	-40°C to +85°C
Miscellaneous	Lead free	Lead-free and RoHS compliant
	Warranty	1 Year
Development Tools	Development Kit	Development board and software tools
Approvals	FCC/IC & CE	BTM520 - Full Modular Approval w/specified antenna BTM521 - Full Modular Approval

ORDERING INFORMATION

BTM520	Bluetooth Multimedia Plus Module (external antenna)
BTM521	Bluetooth Multimedia Plus Module (with integrated antenna)
DVK- BTM520	Evaluation Board with BTM520
DVK- BTM521	Development Kit (with integrated antenna)

The details contained within the document are subject to change. Download the product specification from www.lairdtech.com/wireless for the most current specification.

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Bluetooth® Multimedia Module
BTM520/521

LAIRD TECHNOLOGIES—WIRELESS MODULES FOR EVERY APPLICATION

Bluetooth®
- Modules for data and multimedia applications
- Pre-qualified modules for rapid integration

802.11
- Modules for connection to Wi-Fi networks
- Low power M2M modules
- Video streaming modules

Proprietary
- Modules for 868MHz, 900MHz and 2.4MHz

ZigBee™
- Modules for low power mesh networking

Development Kits are available for all the above wireless modules.

Telematics
- End-to-end wireless telematics hardware and solutions

Industrial
- Rugged wireless connectivity products, bridges, and access points

Visit www.lairdtech.com/wireless for details on our full range of wireless products, as well as extensive range of white papers and applications notes.

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