Bluetooth® Modules That Simply Work with iPhone®, iPad®, and iPod® Devices

Summary

Microchip's Bluetooth APL modules natively support iAP (iPod Accessory Protocol) data connections and directly manage authentication, reducing engineering effort and cost, and simplifying accessory product design.

Apple iOS devices such as the iPhone freely connect via the Bluetooth hands-free and headset profiles. However, establishing Bluetooth data connections with an iPhone, iPad or iPod requires a specific discovery class and authentication. Every Bluetooth accessory must have an Apple authentication co-processor.

APL modules are based on the standard RN41-I/RM and RN42-I/RM, making them footprint compatible. Power, ground and UART connections are identical, and connection of the Apple authentication IC is direct to the module via a 2-wire interface. The Apple authentication IC is not part of the module. Customer must join and purchase authentication ICs through the MFi program.

Features

- Discoverable/Connectable with iPhone, iPod or iPad
- Dual profile allows Bluetooth connections to other smartphone or computing platforms
- Automatically stores Bluetooth address of the last paired device, for quick reconnection
- Secure Simple Pairing (SSP) enables 'no PIN code required' operation
- Supports complete Microchip Bluetooth feature set
- Direct hardware connection to the authentication co-processor
- Authentication without iAP firmware development

Development Tools

RN-4x-APL-EVAL Evaluation Kits Include:

- RN-4x-APLX development board which contains:
  - RN4xAPL-I/RM module
  - Apple authentication co-processor
  - Status LEDs
  - Power regulation
  - RS232 and TTL signals
- Four RN4xAPL-I/RM modules
- Complete design documents including schematics
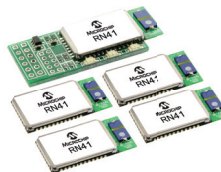- Source code for the Microchip Diagnostic Application
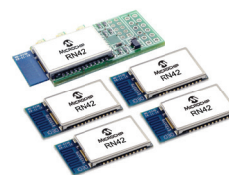
Product Selector

Module	Class	Typ. Range	Development Kit
RN41APL-I/RM	Class 1	~100m	RN-41-APL-EVAL[1]
RN42APL-I/RM	Class 2	~30m	RN-42-APL-EVAL[2]

1. http://www.microchipdirect.com/ProductSearch.aspx?keywords=RN-41-APL-EVAL
2. http://www.microchipdirect.com/ProductSearch.aspx?keywords=RN-42-APL-EVAL

RN-41-APL-EVAL   RN-42-APL-EVAL

MICROCHIP

Conventional Approach
Customer Implements iAP on Micrcontroller

Microcontroller ⟷ Bluetooth® Module

= Serial Data
= Authentication

Host Microcontroller:
Application
iAP Authentication

iAP Authentication Chip
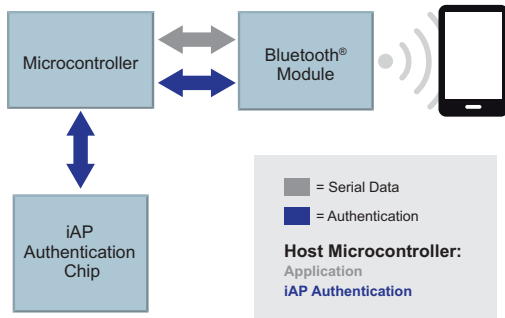
- ■ Adds complexity to firmware and hardware design
- ■ Longer development cycles and learning curves
- ■ Increases power consumption
- ■ Difficult to port code across microcontroller platforms

Microchip's Bluetooth Solution
Bluetooth Module Implements iAP

Microcontroller ⟷ RN-41-APL RN-42-APL

= Serial Data
= Authentication

Host Microcontroller:
Application

iAP Authentication Chip
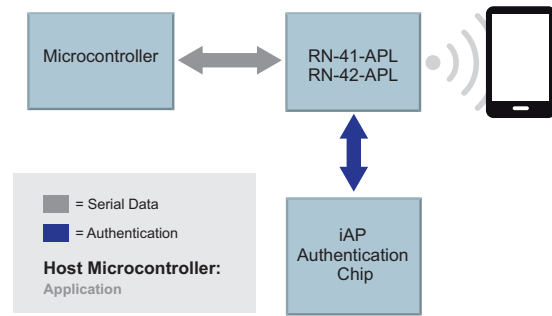
- ■ Interfaces to the system, independent of smartphone
- ■ Simple host interface
- ■ iAP transparent to user
- ■ Developers focus on their design, not iAP protocols

Developing Bluetooth Enabled iPhone, iPad and iPod Accessories

All products designed to connect to iPhones, iPods and iPads including those that incorporate the Microchip Bluetooth APL module must be approved with Apple's Made for iPod (MFi) program.

Developers of such products should visit Apple's developer portal at: http://developer.apple.com/ipod to enroll.

MFi membership is required to purchase the evaluation kit or modules.

RN-41-APL-EVAL
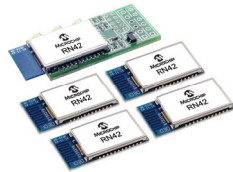
RN-42-APL-EVAL

MICROCHIP®

www.microchip.com/bluetooth

Visit our web site for additional product information and to locate your local sales office.

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