

## WT32 Bluetooth® Audio Module™



### Key Features

- ▶ Plug n' Play *Bluetooth* solution for mono and stereo audio solutions
- ▶ Integrated DSP, stereo codec and battery charger
- ▶ Integrated antenna or W.FL connector
- ▶ *Bluetooth* 2.1+ EDR compliant
- ▶ *Bluetooth* end product, CE, IC and FCC qualified
- ▶ Class 2 - range up to 30 meters
- ▶ Industrial temperature range from -40°C to +85°C
- ▶ Low power consumption
- ▶ iWRAP™ Firmware for controlling connections and configuring settings
- ▶ Supported *Bluetooth* profiles:  
A2DP, AVRCP, HFP (v.1.5), SPP, OPP and HID

### Description

WT32 is the latest generation of Bluegiga's *Bluetooth* modules. It provides the highest level of integration with integrated 2.4GHz radio, DSP, battery charger, stereo codec and antenna ready to hit mono and stereo audio applications. WT32 is also completely ready to support the latest *Bluetooth* 2.1 standard.

The embedded DSP core allows enhancement of the product with features, such as, advanced audio decoding, echo cancellation, noise reduction and data manipulation.

WT32 combined with Bluegiga's flexible iWRAP firmware enables device manufacturers to easily add wireless, secure and standard based *Bluetooth* connectivity into new or existing applications with minimal development and manufacturing effort.

WT32 supports several different integration designs:

- The module can be configured to operate autonomously
- A host processor can control the *Bluetooth* functionality with ASCII commands via UART or USB interface
- *Bluetooth* functions are provoked with events via GPIO pins

WT32 *Bluetooth* module is available with several different firmware options for audio and data communications. Bluegiga also provides custom firmware development and production services, eliminating the need for customers to perform expensive *Bluetooth* development, certifications and production line configuration, significantly reducing the implementation costs, risks and time.

By utilizing Bluegiga's world-class integration services and technical support, OEMs can be assured that their products reach the market quickly and cost efficiently.



## TECHNICAL DATA

### Firmware

- iWRAP™ interface for accessing the *Bluetooth* functionality from a host system and for configuring the *Bluetooth* parameters
- Supported Profiles: A2DP, ACRCP, HFP (v.1.5), HFP-AG, SPP, OPP, HID
- Possibility to develop custom firmware
- 128-bit *Bluetooth* encryption available for all firmware options
- Additional DSP algorithms can be loaded into the module

### Hardware

- *Bluetooth* Class 2 radio (10-30 meters)
  - Nominal output power +5 dBm
  - Nominal sensitivity -87 dBm
  - Uses 2.4 GHz ISM band
  - Based on CSR's BC05 chip
- Integrated antenna or W.FL connector
- Host processor interface via UART, USB or GPIO
- SPI interface for firmware upgrades
- 10xGPIO and 2xAIO
- Fully differential analog audio inputs and outputs
- Integrated 16-bit stereo codec
- High quality -95dB Audio DAC
- Integrated battery charger
- PCM, SPDIF, I<sup>2</sup>S interfaces for audio applications
- Supply voltage: regulated 3.3 VDC
- Power consumption with iWRAP Interface:
  - Link active min: MIN: 7mA, MAX: 70mA
  - Link active in sniff mode: 2.5mA
  - Link active in park mode: 2.5mA
  - Idle with Deep Sleep: 1.3mA
- PCB form factor: 23 x 16 x 3 mm
- Operating temperature: -40 °C to +85 °C

## Product Codes

- Chip antenna, iWRAP WT32-A-AI
- W.FL connector, iWRAP WT32-E-AI

## Development and Evaluation

- WT32 Evaluation Kit EKWT32
- BlueLab Professional SDK CSRSDK

## Other Products

- WT12 *Bluetooth* Module
- WT11 *Bluetooth* Module
- 229x Access Server

## Certifications

- *Bluetooth* 2.1+ EDR
- CE, FCC and IC

## Applications

- High quality stereo headsets
- High quality mono headsets
- Hands-free car kits
- Wireless speakers
- VoIP handsets
- MP3 players
- USB multimedia dongles

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