# 1.General Description

The BlueCore CSR8510™ A10 WLCSP is a product from CSR's Connectivity Centre.
It is a single-chip radio and baseband IC for Bluetooth 2.4GHz systems including EDR to 3Mbps.
CSR offers a comprehensive ecosystem of hardware and software components to aid rapid device development, including:

- CSR Synergy™ software for embedded devices
- CSR BlueSlim2 module reference design
- CSR µEnergy™ platform for Bluetooth low energy devices

# 2.Features BlueCore CSR8510™ A10 WLCSP

- Fully qualified Bluetooth v4.0 system
- Dual-mode Bluetooth/Bluetooth low energy operation
- HCI mode operation with full Bluetooth stack
- HID proxy mode for boot mode support and stackless operation
- High-sensitivity Bluetooth and Bluetooth low energy receiver
- Class 1, Class 2 and Class 3 support without external power amplifier or TX/RX switch
- Basesband processor running Bluetooth HCI firmware stack
- Reference design with worldwide qualification
- Green (RoHS compliant and no antimony or halogenated flame retardants)
- Full-speed USB 2.0 interface
- RFKill functionality for PCs (hardware and software radio enable controls)
- WLAN coexistence interface
- External EEPROM IC2 interface
- Integrated balun
- Minimal external components required: 15 passives plus crystal
- 28-ball WLCSP package
- On-chip synthesizer
- Internal power regulation for self-contained operation from USB vbus for dongles
- Selectable I/O voltage
- Real-time signal strength indicator (RSSI)

# 3.Applications

Computing devices including:

- PCs
- All-in-Ones
- Laptops
- Netbooks
- Tablets

Embedded home entertainment devices including:

- Digital TVs
- Set-top Boxes

After-market low-power Bluetooth accessories:

- USB dongles

The device incorporates auto-calibration and BIST routines to simplify development, type approval and production test.

## 4.Bluetooth low energy

- Dual-mode Bluetooth/Bluetooth low energy operation
- Support for Bluetooth basic rate/EDR and low energy connections
- 5 Bluetooth low energy connections at the same time as basic rate A2DP

## 5.Bluetooth Radio

- Integrated balun (50Ω impedance in TX and RX modes)
- No external trimming is required in production
- Bluetooth v4.0 specification compliant Bluetooth Transmitter
- Typical 9.7dBm RF transmit power with level control from on-chip 6-b it DAC over a dynamic range>30dB

## 6.Bluetooth Receiver

- Typical receive sensitivit y of -91dBm typical for basic rate
- High-sensitivity Bluetooth and Bluetooth low energy receiver
- Integrated channel filters
- Digital demodulator for improved sensitivity and co-channel rejection
- Real-time digitised RSSI available on HCI interface
- Fast AGC for enhanced dynamic range
- Channel classification for AFH

## 7.Synthesiser

- Fully integrated synthesiser requires no external VCO varactor diode, resonator or loop filter
- Compatible with external clock 16MHz to 40MHz and crystal oscillato r 16MHz to 32MHz

8.Baseband and Software

- Internal RAM enables full-speed data transfer,mixed voice and data, and full piconet operation, including all medium rate packet types
- Logic for forward error correction, header error control, access code correlation, CRC,demodulation,encryption bit stream generation,whitening and transmit pulse shaping. Includes support for eSCO and AFH.

## 9.Bluetooth Stack

CSR's Bluetooth Protocol Stack runs on the on-chip MCU:

- Support for Bluetooth v4.0 specification features:
- Master and slave operation
- Including encryption
- Software stack in firmware includes:
- GAP
- L2CAP
- Security Manager
- Attribute protocol
- Attribute profile
- Bluetooth low energy profile support

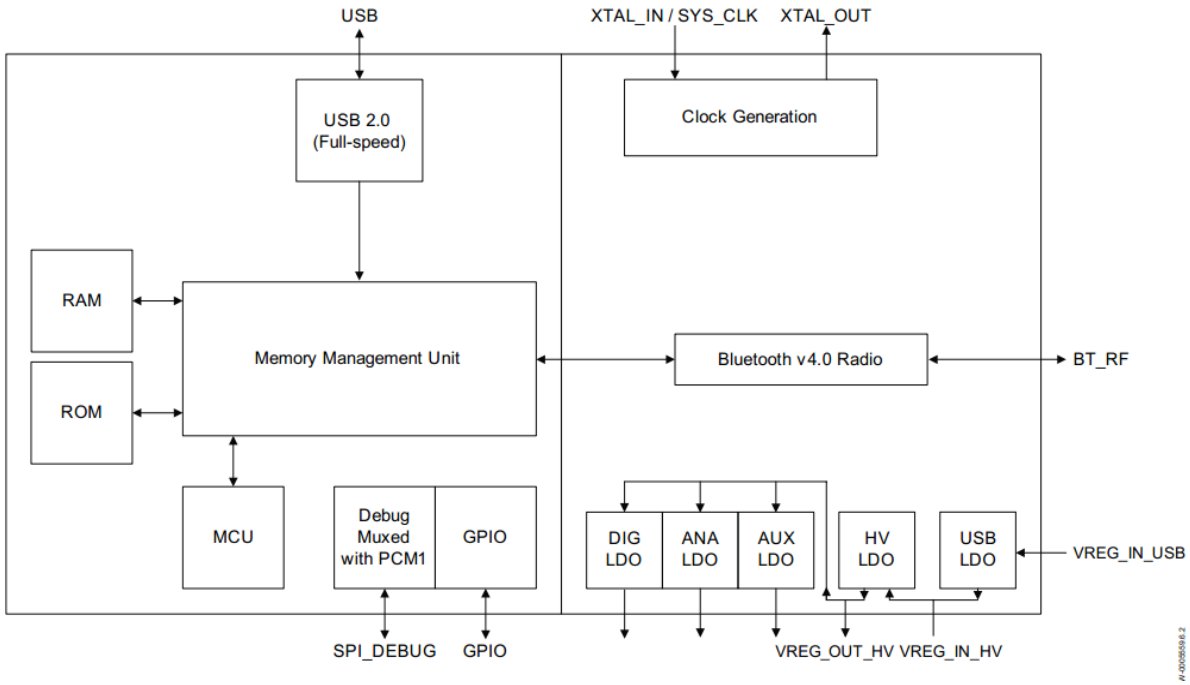
## 10.Physical Interfaces

- Full-speed (12Mbps) USB 2.0 interface
- Synchronous serial interface up to 4Mbps for system debugging

## 11.Moudle Features

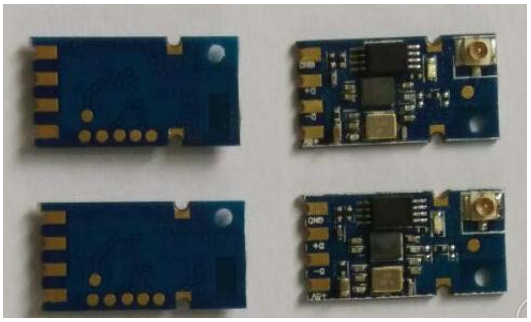
- Bluetooth V4.0 Class2 (also compliant Bluetooth2.1+EDR)
- OS supported :windows 7, 8 , 10 , vista , 98,2000,XP
- Plug and play
- Bluetooth low energy Support Heart rate belt, Find me, Proximity,Generic Attribute Profile
- Bluetooth2.1+EDR Support A2DP,AVRCP,DUN-GW,HSP,HFP A2D PAVTCP,FTP,
- OPP,Audio-GW,FAX,BPP and tec
- Supply Voltage : 5VDC (MAX5.75V)
- Working Current Depends on profiles, 22mA typical
- Standby Current (Connected) 0.4uA

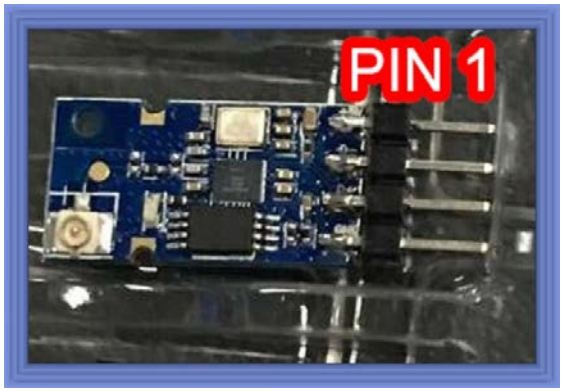
## 12.Functional Block diagram



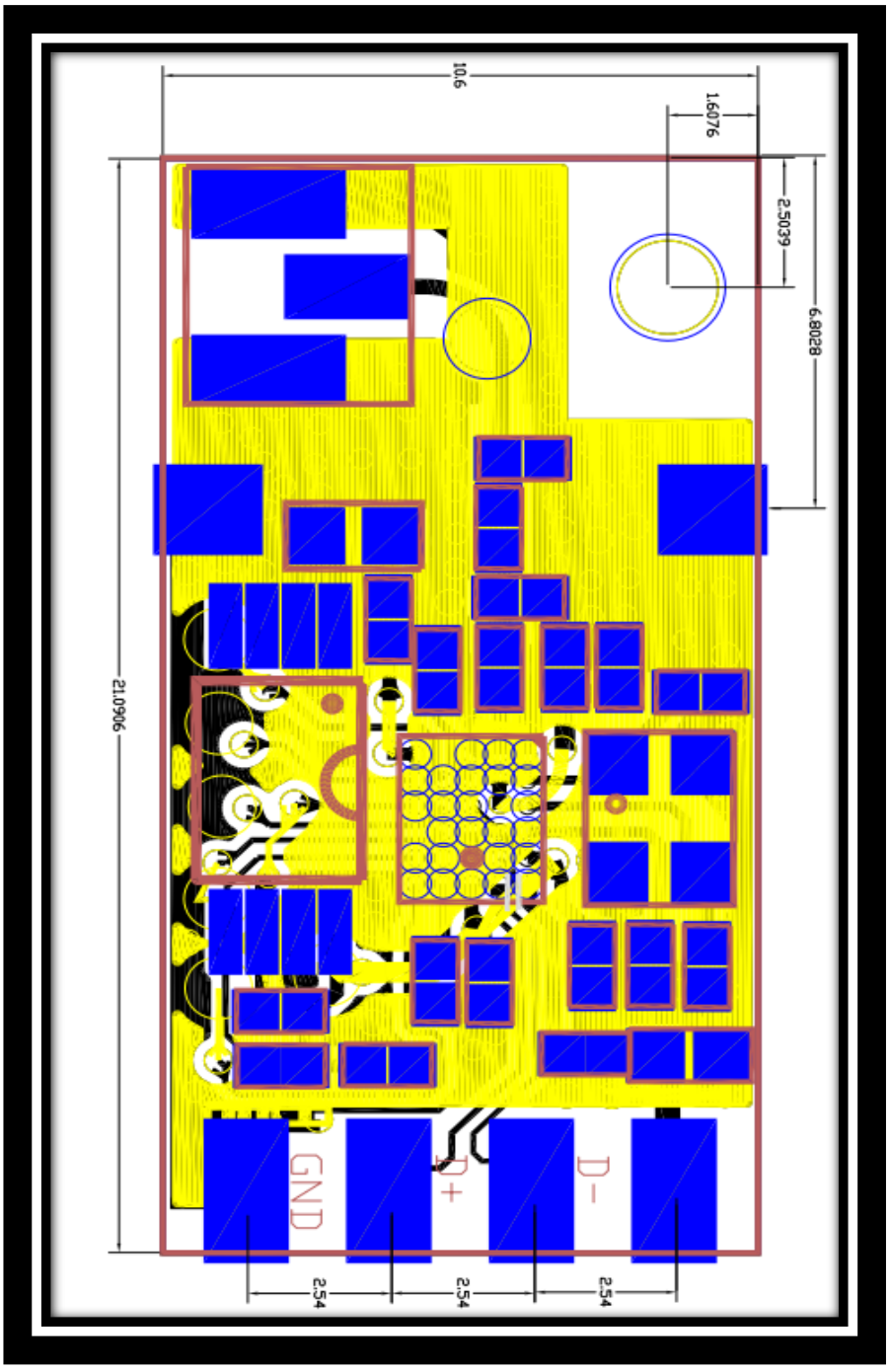

## 13. Pin Description

| Pin Description | | | |
|---|---|---|---|
| **Pin Number** | **Name** | **Pin Type** | **Function Description** |
| 1 | VCC | Power | USB Power Supply +5V |
| 2 | D- | Data Pin | USB Data Transmission |
| 3 | D+ | Data Pin | USB Data Transmission |
| 4 | GND | GND | System Ground |






## 14.Moudle Dimension



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