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
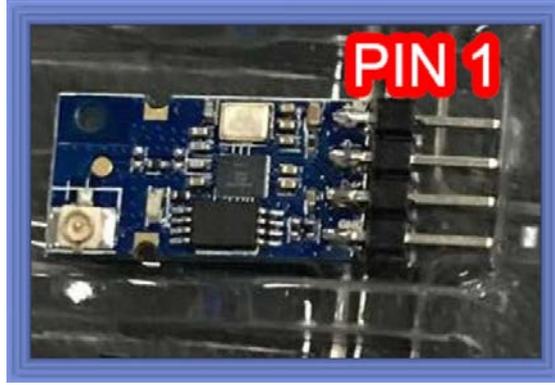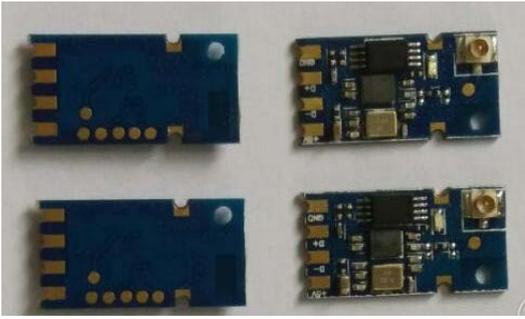■ Synchronous serial interface up to 4Mbps for system debugging

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
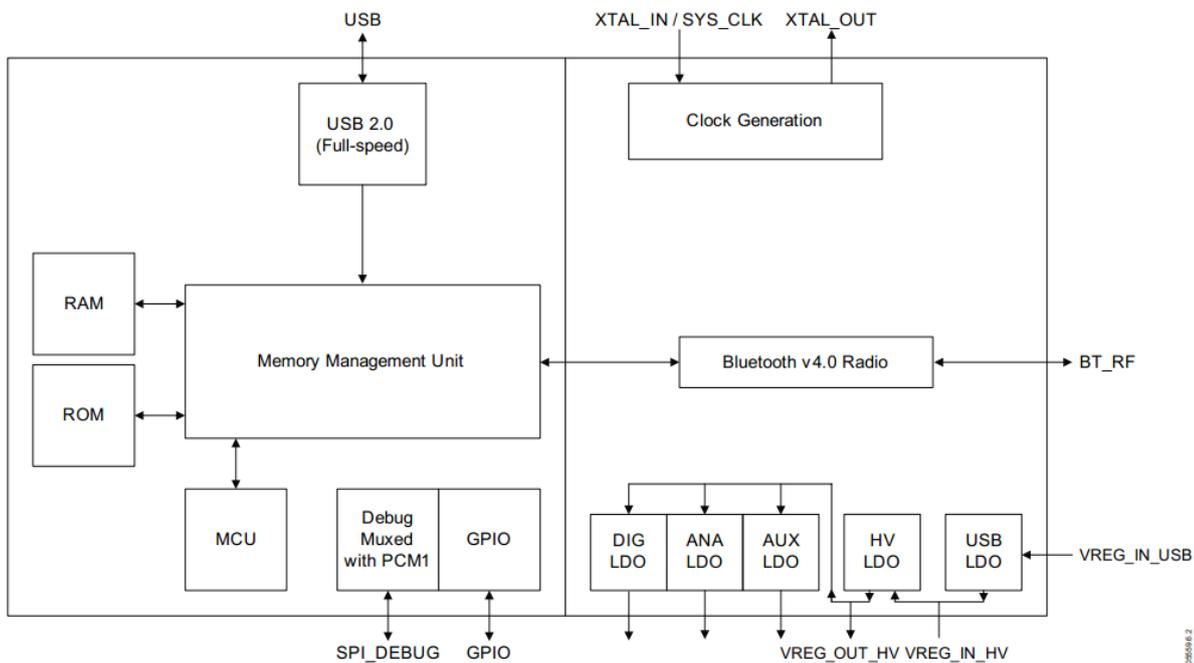
13. Pin Description

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