SEARAN

The Leader in Embedded Bluetooth

Bluetooth

SEARAN's ultra small Bluetooth stack, dotstack™, was designed for low cost and low power embedded devices. Bluetooth SIG compliant and well tested, dotstack™ has the smallest footprint, is easy to port and already runs on most popular platforms and OS.

dotstack™

- Written in ANSI C for embedded devices and easy portability
- All functions called from one thread
- Uses well defined protocols and profile API
- Supports Bluetooth specification version 2.1, +EDR, 4.0, 4.1, 4.2, 5.0 and 5.1
- PTS and stress tested

OS

Android, Linux, QNX, MQX, Win, uC OS, ThreadX, FreeRTOS, no RTOS. Port with any OS on demand.

BR/EDR

Protocols L2CAP, RFCOMM, SDP, HCI, AVDTP, AVCTP, OBEX, BNEP

Profiles SPP, HID, GAP, HSP, HFP, OBEX, FTP, OPP, PBAP, A2DP, AVRCP, PAN, DUN, MAP, iAP, HCRP

BLE(GATT)

Protocols HCI, ATT, L2CAP

Profiles ANP/ANS, FMP, HIDS, HOGP, PASP/PASS, PXP, TIP, BAS, DIS, IAS, LLS, TPS, ANCS, BLP/BLS, GP, HTP, HRP/HRS, CPS, CSCP, Voice

Processors

ARM

Cortex M0/M3/M4

STM32L0/L1/L4/F0/F1/F2/F3/F4/F7
EFM32 series
LPC series
SiM series
Freescale/Kinetics K series

Microchip

PIC24/32/33

Renesas

SH2A, RX, M2 Cortex-A15, R-Car

Texas Instruments

MSP430, C55XX

Imagination Tech

MIPS, MicroAptive

Support

Multiple devices, up to 7, including Android and iOS concurrently
Multiple channels with up to 1.5Mbps on a single channel over SPP and 900kbps over iAP
Multiple profiles working simultaneously

Interoperability

- ***Stacks:*** tested with Microsoft, Toshiba, Wicomm/Broadcom, MAC OS X, iOS, BlueZ and others
- ***Controllers:*** supports Cypress/Broadcom, CSR, Intel, Marvell, TI, RDA, and any standard HCI controller
- ***IOP testing*** with thousands of devices

Application development

- Embedded Application development with focus on low power, audio-voice-data, high data rate, low latency, minimum footprint, multiple connections

Services

- Ported to different OS and platforms
- Embedded Application development
- Support and Maintenance

General Requirements

- 5.6KB RAM, 57KB Flash for minimum SPP configuration without RTOS
- Footprint includes integration layers, FreeRTOS, demo app
- < 0.3 MIPS

Some popular controllers supported—below
Any standard HCI single or dual mode would work

- CC2560/2564
- CSR8810, 8811, 8831, 8510
- CYW20704 A2
- Marvell 88w8790, 88w8987

For more information please visit our website at www.searanllc.com

SEARAN LLC is the exclusive licensee of CandleDragon Inc Bluetooth technology otherwise known as dotstack™.

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dotstack™, Bluetooth stack, has been certified by the Bluetooth SIG as meeting all requirements of the Bluetooth Qualification Process.

Bluetooth		MIPS		TOTAL Code Size + Read Only (KB)	TOTAL Data RAM (KB) static
Component		Avg	Peak	includes integration and FreeRTOS	includes integration and FreeRTOS
Profile Name	Role				
Serial Port Profile (SPP)	Device A and B	0.3 MIPS per 1KB/s	0.3 MIPS per 1KB/s	62	9.8 min 54 for the highest data throughput
HeadSet Profile (HSP)	HS	1 (for transferring audio) < 0.01 if audio is not routed through the host processor	1 (for transferring audio) < 0.01 if audio is not routed through the host processor	62	6

Bluetooth		MIPS		TOTAL Code Size + Read Only (KB)	TOTAL Data RAM (KB) static
Component		Avg	Peak	includes integration and FreeRTOS	includes integration and FreRTOS
Profile Name	Role				
Hands-Free Profile (HFP)	HF	1 (for transferring audio) < 0.01 if audio is not routed through the host processor	1 (for transferring audio) < 0.01 if audio is not routed through the host processor	62	6
Advanced Audio Distribution Profile (A2DP) inc. SBC decoder	Sink	SBC decoder: 38 A2DP transport and processing: 5	SBCDecoder: 42 A2DP transport and processing: 5 MIPS are specified for 44.1 kHz, 128 kbps, 53 bitpool, joint stereo bitstream	78	8

Bluetooth		MIPS		TOTAL Code Size + Read Only (KB)	TOTAL Data RAM (KB) static
Component		Avg	Peak	includes integration and FreeRTOS	includes integration and FreeRTOS
Profile Name	Role				
Audio/Video Remote Control Profile (AVRCP)	Controller	< 0.01	< 0.01	Incremental to A2DP adds 18KB A2DP+AVRCP total 96KB	5 and additional 4 to display text, with 9 total
Generic Audio/Video Distribution Profile (GAVDP)	inline with A2DP requested role	N/A	N/A	included with A2DP	included with A2DP