

SYD8821 BLE Introduction

Oct, 2017

Outline

- About SYD
- SYD8821 BLE SOC Introduction
- SYD8821 BLE Development Kit
- SYD Support

About SYD

- Founded in 2012;
- Focus on high performance wireless connectivity for IoT, wearable and the other low power applications;
- R&D center in Beijing and Chengdu, with rich oversea Bluetooth R&D experience;
- Support team in Shenzhen, provide total solutions, responses to customers quickly;

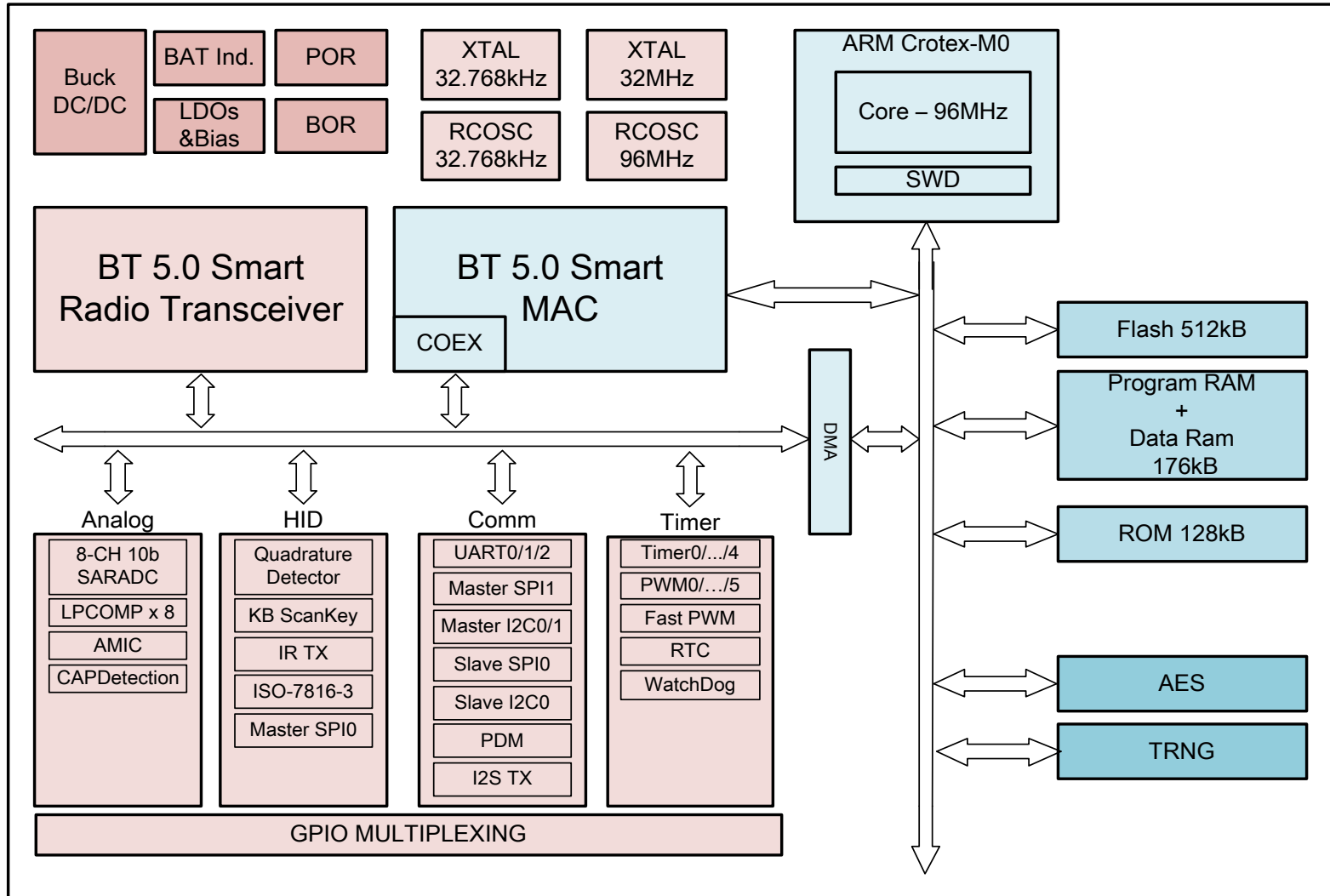
SYD Product

- BLE(Bluetooth Low Energy)
 - SYD8801: --1st Generation SYD BLE IC
 - 32MHz ARM Cortex-M0 with 128kB flash, middle end product, MP in 2016/Q1;
 - Sub 10mA radio current consumption;
 - -94dBm sensitivity, 4dBm output power;
 - On-chip balun, lowest BOM;
 - SYD8821: --2nd Generation SYD BLE IC
 - 96MHz Cortex-M0 with 512kB flash, 192kB SRAM, lowest power in the world, excellent performance, for high end applications;
 - -94dBm sensitivity, 4dBm output power;
 - 2.4mA RX radio current, 4.2mA TX radio current;
 - DMA, 24MHz SPI, etc;
 - On-chip balun, lowest BOM;

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SYD8821 Block Diagram



SYD8821 Highlight

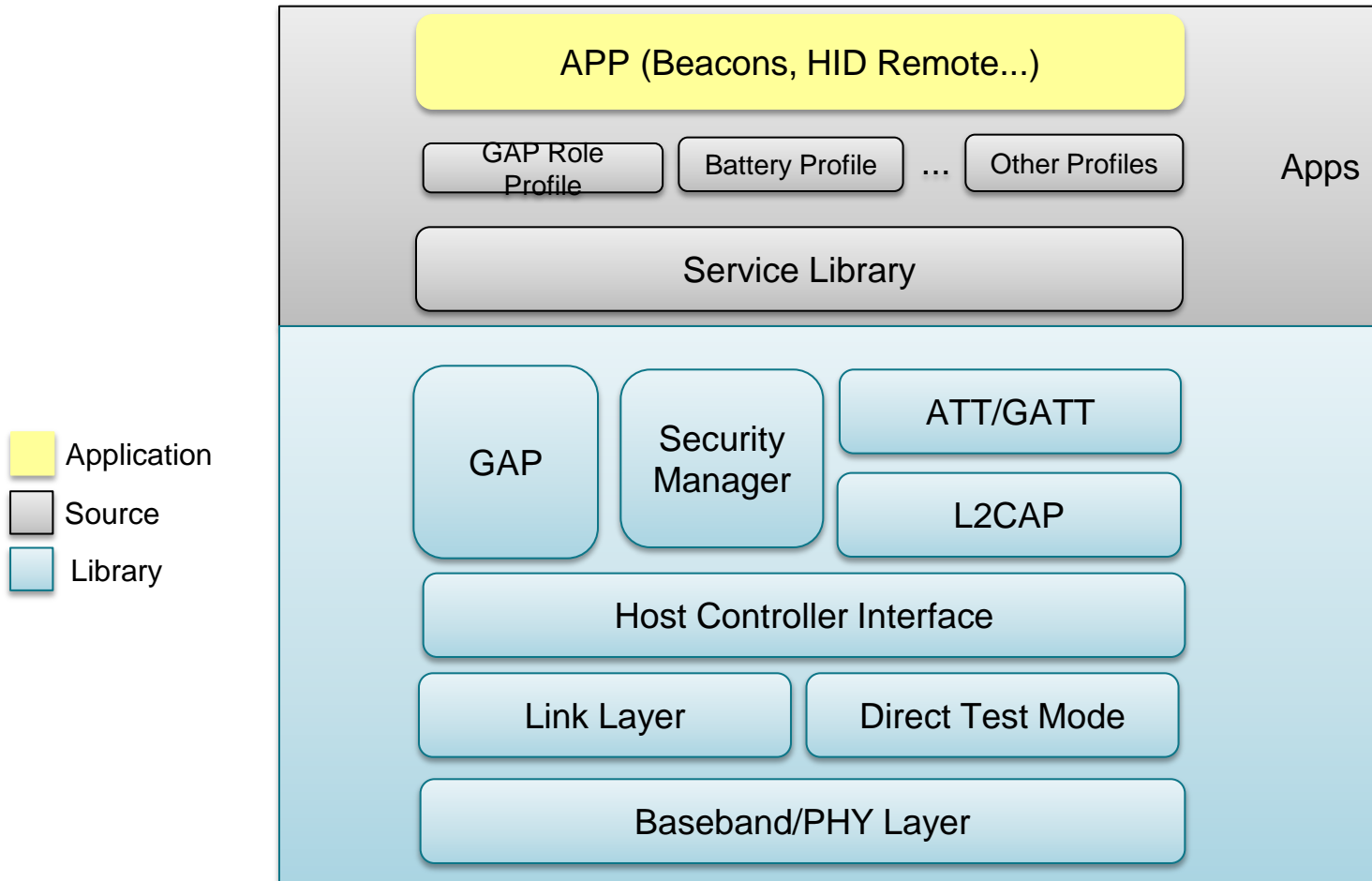
- Ultra low power consumption: 2.4mA RX/4.2mA TX radio current, 2uA sleep current;
- Lowest BOM cost: no need external LC matching network, no need XTAL load capacitors;
- Excellent RF performance: 4dBm output power, -94dBm sensitivity, excellent anti interference performance;
- 512kB flash, 192kB SRAM;
- Very high C/P!

Benchmark

	SYD8801	SYD8821	n**52832	D*14680	C*2650
MCU	ARM Cortex M0	ARM Cortex M0	ARM Cortex M4F	ARM Cortex M0	ARM Cortex M3+M0
MCU Freq	32MHz	96MHz	64MHz	96Mhz	48Mhz
Flash	128KB	512KB	512KB	1MB	128KB
SRAM	80KB	176KB	64KB	128KB	34KB
Supply voltage	1.8~3.6V	1.8~4.3V	1.7~3.6V	1.7~4.3V	1.8~3.6V
Sensitivity	-94dBm	-94dBm	-96dBm	-93dBm	-97dBm
Max output power	4dBm	4dBm	4dBm	0dBm	5dBm
RX current	8.2mA	2.4mA	6.1mA	3.7mA*1.22 (1)	5.9mA
TX current@0dBm	7.1mA	4.3mA	5.4mA	3.4mA*1.22 (1)	6.1mA
Sleep current	6.5uA	<2uA	1.6uA	1.4uA	1uA
Deep sleep current	2.5uA	<1uA	0.4uA	0.4uA	0.1uA
Package	QFN48	QFN48	QFN48	QFN40	QFN32

(1) D*alog assumes ideal DCDC with 100% efficiency, the real D*alog current should be 22% larger;

SYD8821 Stack



Supported BLE Services

Services	UUID	Source
Battery	0x180F	BLE SIG
Device Information	0x180A	BLE SIG
Scan Parameter	0x1813	BLE SIG
Human interface device	0x1812	BLE SIG
Immediate alert	0x1802	BLE SIG
Alert notification	0x1811	BLE SIG
Link Loss	0x1803	BLE SIG
TX Power	0x1804	BLE SIG

Supported BLE Profiles

SIG Profile	Version	Application
Alert Notification Profile	ANP v1.0	Smart Watch
Blood Pressure Profile	BLP v1.0	BPM
Find Me Profile	FMP v1.0	Kind finder
Glucose Profile	GLP v1.0	Blood glucose
HID over GATT Profile	HOGP v1.0	Mouse, keyboard, remote control
Heart Rate Profile	HRP v1.0	HRM
Health Thermometer Profile	HTP v1.0	Thermometer
Phone Alert Status Profile	PASP v1.0	Smart watch, band
Proximity Profile	PXP v1.0	Key fob
Running Speed and Cadence Profile	RSCP v1.0	Pedometer
Scan Parameter Profile	ScPP v1.0	Smart watch
Time Profile	TIP v1.0	Smart watch, band

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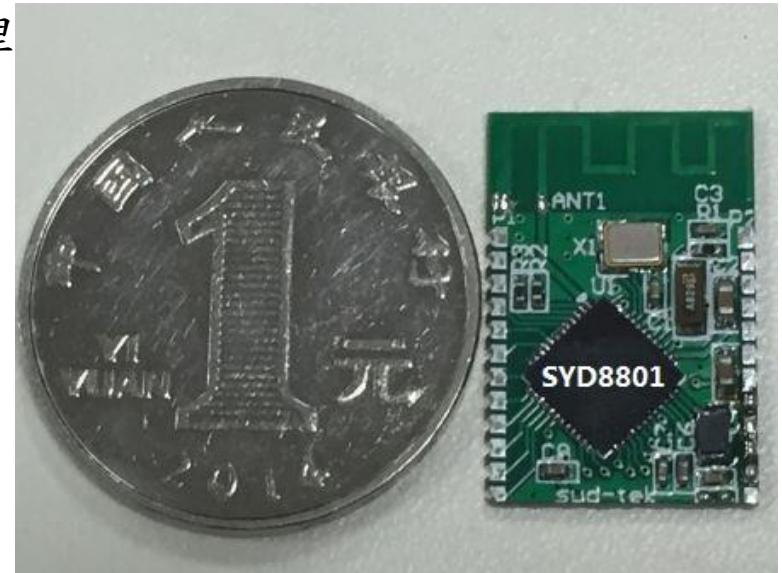
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SYD8821 BLE Development Kit

- SDK & EVB are ready;
 - User friendly SDK for development;
 - EVB with various application kits;
- Free for our customers;
 - User can apply for our EVB from our website:
 - www.syd-tek.com

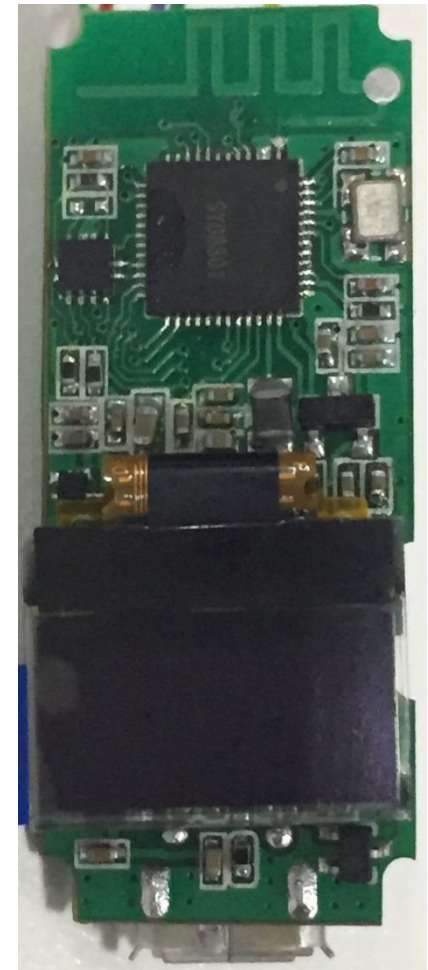
SYD8821 solutions example – BLE module

- 一、 概述：SYD8821 蓝牙透传模块为 BLE 单模数据传输模块，适合小数据极低功耗传输。
- 二、 应用领域：运动、医疗和健康护理智能家居、移动电话配件、室内定位等控制领域。比如防丢器、心率计、计步器、手环手表、血压计和血糖计、电子秤、运动跑鞋等。
- 三、 模块特点：
 - 1.完全兼容蓝牙低功耗 4.0 标准；
 - 2.使用简单，无需任何蓝牙协议栈应用经验；
 - 3.用户接口使用通用串口设计，全双工双向通讯，默认波特率115.2kbps；
 - 4.默认20ms连接间隔，连接快速；



SYD8821 solutions example – Wristband

- 基于盛源达SYD8821的智能手环turnkey方案，为用户提供了便捷的开发平台，用户在此基础上开发，可以节省宝贵的时间和人力物力，给客户带来利益，实现共赢。
- 内置高性能算法，为用户带来完美的智能穿戴设备体验。
- 低功耗，待机时间长；



SYD8821 solutions example – RCU

- SYD8821在设计时有专门针对HID优化：
 - 兼容性好：通过专门的认证厂对>300套平台设备进行兼容性测试并改进到完全兼容；
 - 功耗低：跟DA14680相当，有效增加待机时间；
 - 高精度32k rc振荡器： $\pm 250\text{ppm}$ ；
 - 射频性能优异，灵敏度高，抗干扰能力强；
 - 开发环境简单易用；



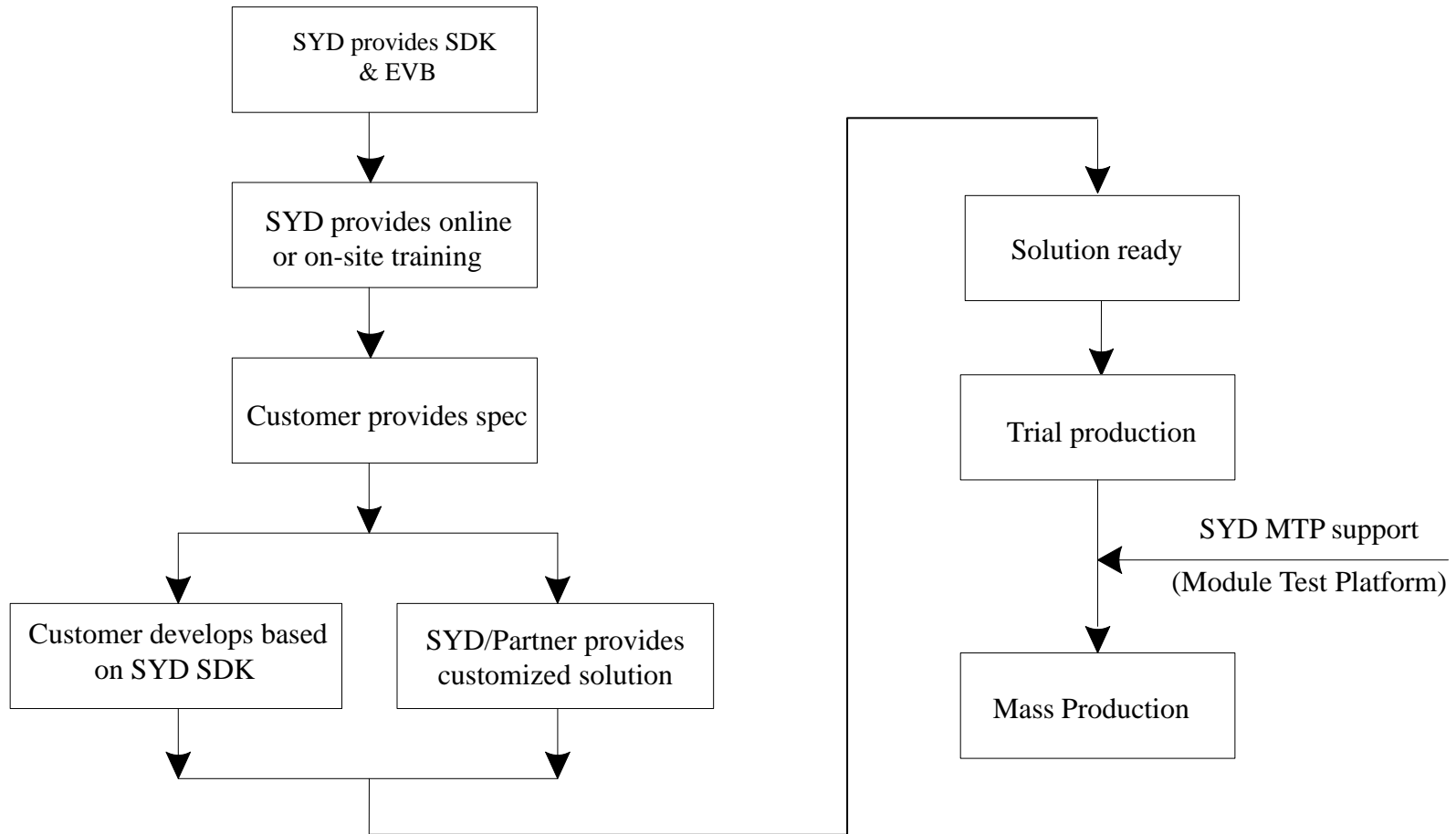
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SYD Support Channels

- 1. Forum: bbs.syd-tek.com;
 - Browse FAQs and ask questions
 - SYD FAEs reply to the questions frequently
- 2. Email, phone call;
 - For customer specific questions with high priority
- 3. SYD provides on-site technical services;
 - On-site demo
 - Solve tough issues

Customer Support Flow



Thanks

www.syd-tek.com