

Biosensor SoC - SDK Development for Reference boards

A semiconductor company wanted to develop a SDK that can be distributed along with their chip and reference board.

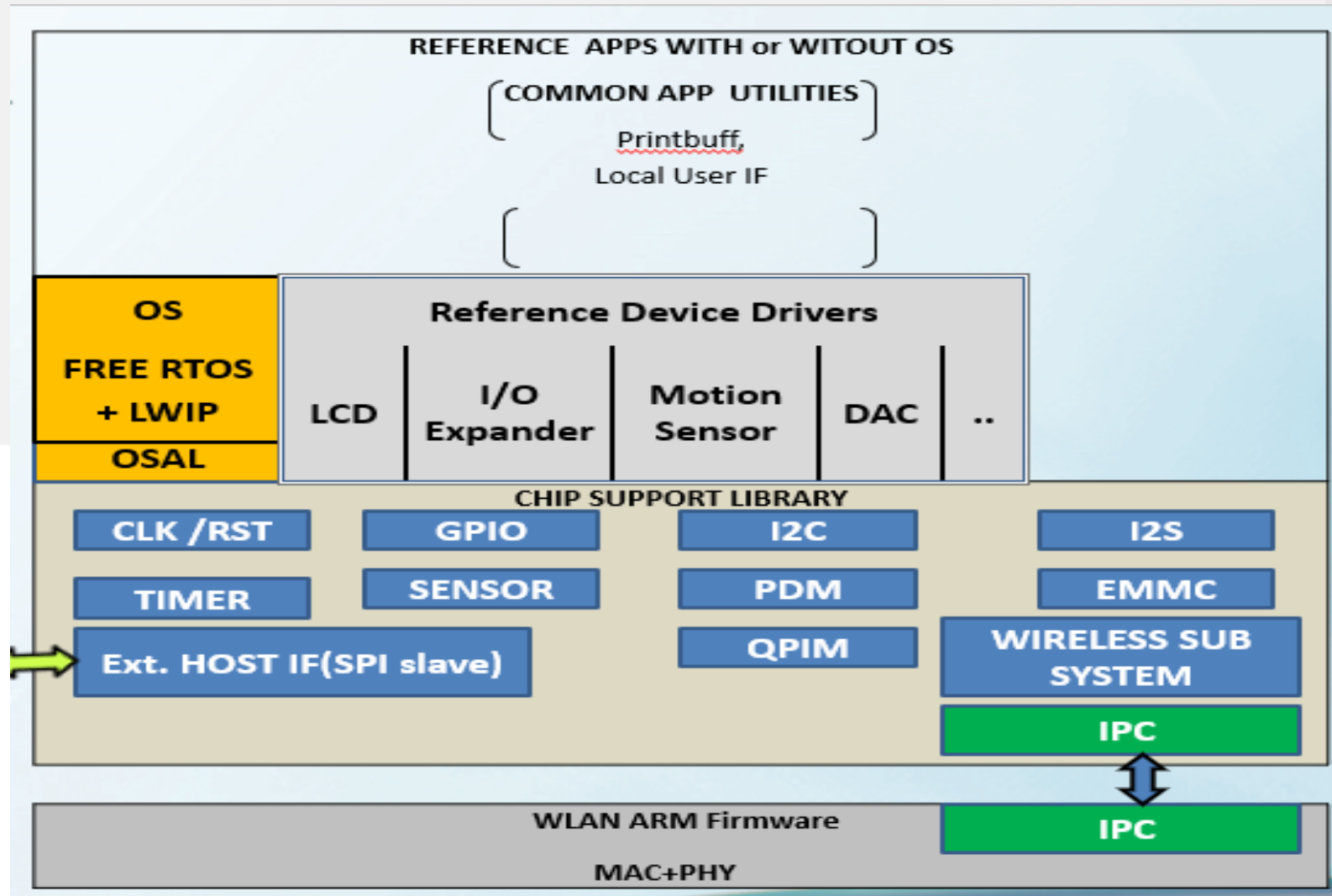
Challenge

- Develop an embedded software development kit similar to what TI, ST Microelectronics provides along with chips for a Biosensor chip company
- The SDK has to be Cortex Microcontroller Software Interface Standard (CMSIS) compliant

Outcome

- Developed reference libraries for high precision Bio-sensor and reference applications based on the chip
- Developed the SDK from scratch and developed reference libraries for all embedded peripherals
- Developed custom and eclipse based development environment in Windows/Linux along with necessary tools for easy software development

SDK for Biosensor SoC – System Architecture



WHAT DID GADGEON DO?	PLATFORMS/ TECHNOLOGIES USED
<p>1) Architect the complete peripheral and bio-sensor library for low power chip</p>	<p>Architecture a SDK in a CMSIS (Cortex Microcontroller Software Interface Standard) complaint way for a Cortex M0 processor</p>
<p>2) Developed the Embedded peripherals and Bio-Sensor libraries and provide standard API's for easy use in applications</p>	<p>Understanding of various h/w IP's like QPIM,SPI,I2C,Bio-Sensors etc and design the s/w based on CMSIS standards</p>
<p>3) Integrated RTOS, IP stack, and ported security stacks. Regular Security stacks did not support cortex M0. Optimized security stacks needing over 200kB to work in <20kB memory foot print and ported them to M0.</p>	<p>FreeRTOS, LwIP, WPA2 (WiFi security), SSL , ECDH (custom security mode not available in other chips)</p>
<p>4) Reference application based on chips bio-sensor capabilities developed in a highly power optimized way so that customers can easily go to market</p>	<p>Reference application that shows the ultra low power operations of the chip made available for easy productization</p>
<p>5) Provided Linux and Windows Custom development environment similar to KEIL, integrated with cross compilers, debuggers, custom eclipse development mode and other tools needed for easy development</p>	<p>Customized eclipse environment , Serial wire debugger, compilers, python based log analysis and plotting libraries etc</p>



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