Release Notes

1. Overview

This document is the release notes for the Ambiq Suite SDK v1.2.12. The Ambiq Suite SDK is a collection of software enablement for the Apollo and Apollo2 MCU based EVBs. The SDK includes a hardware abstraction layer (HAL), device drivers, and example applications to speed the understanding of the operation of the MCUs. Third party software including ARM's Cordio BLE Host stack, Mindtree's BLueLite Host Stack, and FreeRTOS 9.0 are distributed along with debugging tools and other support. Additional support for Ambiq products can be found at http://ambiqmicro.com/support/.

2. Target Hardware Supported

This release of the SDK enables support for the following targets:

- apollo1_evb (Apollo1 APOLLO512-KBR Board Rev 1.0)
- apollo1_evb_am_ble (Apollo1 APOLLO512-KBR Board Rev 1.0 + AM_BLE_SHIELD Rev 2[1])
- apollo1_evb_em9304 (Apollo1 APOLLO512-KBR Board Rev 1.0 + EM9304 DVK V4.0)
- apollo2_blue_evb (Apollo2-Blue EVB Rev 0.3)
- apollo2_evb (Apollo2 AMAPH1KK-KBR EVB Rev 1.1)
- apollo2_evb_am_ble (Apollo2 AMAPH1KK-KBR EVB Rev 1.1 + AM_BLE_SHIELD Rev 2)
- apollo2_evb_em9304 (Apollo2 AMAPH1KK-KBR EVB Rev 1.1 + EM9304 DVK V4.0)

3. Development Tools

The Ambiq Suite SDK has been tested with the following Integrated Development Environments:

- IAR Embedded Workbench 8.22.1
- Keil uVision 5.24
- Atollic TrueSTUDIO 7.1.2
- GCC 5.3.1

[1] Note that the default configuration of the AM_BLE_SHIELD is for working with the Apollo2 EVBs. The shield must be modified (cut traces and soldering) in order to function correctly in this configuration.

4. Functional Changes

Module	Target	Description
AmbiqSuite SDK	Apollo1 Apollo2 Apollo2-Blue	Updated the projects to allow the default compiler option to be selected to improve backward compatibility with Keil toolchain.
BLE	Apollo1 Apollo2 Apollo2-Blue	Support for the Mindtree BlueLitE BLE 5.0 Host Stack.
BLE	Apollo1 Apollo2 Apollo2-Blue	Additional examples for the Mindtree Host Stack: • mindtree_amdtps • mindtree_amota • mindtree_ams • mindtree_ancs • mindtree_fcc_test • mindtree_hrm • mindtree_ibeacon • mindtree_pxm • mindtree_pxr • mindtree_txpower_ctrl
EM9304	Apollo1 Apollo2 Apollo2-Blue	New patch from EM has the following fixes/improvements since 1.2.11 release: 1. enhance slave latency handling with certain timeout to improve the throughput significantly with phone and fix certain connection break issue when slave latency is enabled. 2. Fix multiple master/slave concurrency issues including support advertising while connected. 3. Bug fix when min and max connection interval are different when master initiates a connection.
EM9304	Apollo1 Apollo2 Apollo2-Blue	Updated the /tools/emp2include.py script to handle multiple EM patch containers in a single *.emp file.
EM9304	Apollo1 Apollo2 Apollo2-Blue	Updated the EM9304 patches to default to run in IRAM instead of OTP which allows development to not risk consuming all of OTP. Patches should be redirected to OTP once a production version is released.
Examples	Apollo2 Apollo2-Blue	Updated adc_vbatt example to correctly report temperature.
Examples	Apollo1 Apollo2	ULPBench examples have been deprecated from the SDK.

Table 2. Functional Changes in Release

5. Resolved Defects

Module	Target	Description
ADC	Apollo2 Apollo2-Blue	Fixed a problem with the ADC precision macros. The definitions for the macros were all set to 14-bits.
Tools	Apollo1 Apollo2 Apollo2-Blue	Fixed a defect in the /tools/emp2include/emp2include.py script to process multiple EM9304 binary patch containers inside a single *.emp file.
EM9304	Apollo1 Apollo2	Updated the am_devices_em9304.c to allow operation on any of the valid IOMs.
Examples	Apollo2	Fixed a defect in adc_lpmode0 example with reading the ADC FIFO.
HAL	Apollo1 Apollo2 Apollo2-Blue	Fixed a problem with compiler optimization of AM_HAL_CRITICAL_BEGIN_ASM macro.
HAL	Apollo2 Apollo2-Blue	Updated the Apollo2 register definitions to be more compatible with CMSIS register definition namespace.
SYSCTRL	Apollo1	Fixed a problem in am_hal_sysctrl_sleep when checking if TPIU is enabled to determine whether NORMAL or DEEP sleep is appropriate.
UART	Apollo2 Apollo2-Blue	Removed unnecessary TXFIFO interrupt enable.

Table 3. Resolved Defects in Release

Contact Information

Address	Ambiq Micro, Inc. 6500 River Place Blvd. Building 7, Suite 200 Austin, TX 78730
Phone	+1 (512) 879-2850
Website	http://www.ambiqmicro.com
General Information	info@ambiqmicro.com
Sales	sales@ambiqmicro.com
Technical Support	support@ambiqmicro.com

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