ambiqmicro

AmbiqSuite (v2.3.0), October 2019

Release Notes

1. Overview

This document is the release notes for the AmbiqSuite SDK v2.3.0. The Ambiq Suite SDK is a collection of software enablement for the Apollo, Apollo2, Apollo2-Blue, and Apollo3-Blue 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 the ARM/PacketCraft Cordio BLE Host stack and FreeRTOS v10.1.1 are distributed along with debugging tools and other support. Additional support for Ambiq products can be found at https://support.ambiqmicro.com/hc/en-us.

AmbiqSuite SDK v2.3.0 continues to support for Apollo3-Blue MCU both A1 and B0 silicon revisions from the same binary.

2. Target Hardware Supported

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

- apollo1_evb (Apollo1 APOLLO512-KBR Board Rev 1.0)
- apollo2_blue_evb (Apollo2-Blue EVB Rev 1.0)
- apollo2_evb (Apollo2 AMAPH1KK-KBR EVB Rev 1.1)
- apollo3_evb (AMA3B1KK-KBR EVB Rev 1.0)

3. Development Tools

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

- IAR Embedded Workbench 8.32.2
- Keil uVision 5.27.1
- GCC 5.4.1
- SEGGER JLink V6.48 or later

4.   Resolved Defects

Module	Target	Description
CTIMER HAL (am_hal_ctimer.c)	Apollo3-Blue	The CTIMER does not completely reset. CLR must be used to completely initialize the timer's control block even after a reset event. This fix sets CLR in the timer configuration functions.
STIMER Workaround (port.c)	Apollo3-Blue	A potential STIMER clock glitch could cause double counting and potentially a missed compare interrupt. This update sets up a backup compare interrupt using SCMPR1 in addition to SCMPR0 for the FreeRTOS tickless implementation.
MSPI HAL (am_hal_mspi.c)	Apollo3-Blue	During MSPI operations with XIP (instruction execution) and DMA transfers, unexpected gaps in MSPI operation are seen. This change disables clock gating inside the MSPI.
EM9304 HCI/SPI Driver (am_devices_em9304.c)	Apollo2-Blue	Improves the reliability of EM9304 patch downloading into IRAM with 2V supplied to Apollo2Blue.
Power Consumption (apollo3.h, am_hal_ble.c, am_hal_burst.c, am_hal_pwrctrl.*)	Apollo3-Blue	Update BLEBUCK and SIMOBUCK low power trim settings to improve power consumption and prevent brownouts.
PDM HAL (am_hal_pdm.c)	Apollo3-Blue	Fixed defect in FIFO Threshold computation.

Table 2. Resolved Defects in Release

5. New Features

Module	Target	Description
Open Source Cordio BLE Host Stack	Apollo2-Blue Apollo3-Blue	Includes the ARM/Packetcraft Open Source BLE Host stack under an Apache V2.0 License. Improves customer debug and support.
Binary Counter Example	Apollo3-Blue	Added demonstration of TurboSpot feature.
CRC Generator	Apollo3-Blue	Expanded function to allow specification of XIP/XIPMM addressing.
GPIO Mask	Apollo3-Blue	Added support to "future proof" the GPIO functions for GPIO configuration greater than 64 pins.

Table 3. New Features in Release

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