ASF: Release ASF-3.17

The Atmel® Software Framework (ASF, www.atmel.com/asf) is a compilation of embedded software for Atmel flash MCUs: megaAVR®, AVR XMEGA®, AVR UC3 and SAM devices. It has been designed to help develop and glue together the different components of a software design. It can easily integrate into an operating system (OS) or run as a stand-alone product.

The ASF is included in Atmel Studio® 6 (www.atmel.com/atmelstudio). A separate package is available for megaAVR, AVR XMEGA, AVR UC3 and SAM users for IAR™, Atmel AVR Studio 4 and AVR32 Studio on www.atmel.com/asf. Atmel Studio users do not need this package as the ASF is integrated in Atmel Studio.

This document describes the supported devices, supported tools, and changes since last ASF release (enhancements, bugs fixes and known issues).

Atmel®

8/32-bits Atmel Microcontrollers

Release ASF-3.17

Atmel

Installation Instructions

Device Support

This release supports the following devices:

- AVR UC3
  - AVR UC3 A0/A1 (revision H and later)
  - AVR UC3 A3/A4 (revision E and later)
  - AVR UC3 A3xS/A4xS (revision E and later)
  - AVR UC3 B (revision F and later)
  - AVR UC3 C (revision D and later)
  - AVR UC3 D
  - AVR UC3 L
- AVR XMEGA
  - AVR XMEGA A1
  - AVR XMEGA A1U
  - AVR XMEGA A3
  - AVR XMEGA A3B
  - AVR XMEGA A3U
  - AVR XMEGA A3BU
  - AVR XMEGA A4U
  - AVR XMEGA A4
  - AVR XMEGA B
  - AVR XMEGA C
  - AVR XMEGA D3
  - AVR XMEGA D4
  - AVR XMEGA E
- megaAVR
  - ATmega1284P
  - ATmega2560
  - ATmega48/88/168/328
  - ATmega16/32
  - ATmega169/329
  - ATmega64/128
  - ATmega324/644/1284
  - ATmegaxRF
- SAM
  - SAM3N
  - SAM3S
  - SAM3U
  - SAM3X
  - SAM4C
  - SAM4CM
  - SAM4CP
  - SAM4E
  - SAM4L
  - SAM4L8
  - SAM4N
  - SAM4S

- SAM D20
- SAM D21
- SAM G51
- SAM G53
- SAM G54
- SAM R21

Supported Tools

- Atmel Studio 6.2 using GCC compiler - Visit www.atmel.com/atmelstudio -:
  - Atmel ARM GNU Toolchain - 4.7.4.217
  - Atmel AVR (32 bit) GNU Toolchain - 3.4.2.435
  - Atmel AVR (8 bit) GNU Toolchain - 3.4.3.1072
- Atmel AVR32 Studio version 2.6
- Atmel AVR Studio 4.18 SP3
- IAR EWAVR32 version 3.30
- IAR EWAVR version 6.12
- IAR EWARM version 6.50
- WinAVR version 20100110

Note:

- Atmel Studio 6.0 version is not supported since ASF3.6 extension.
- IAR EWAVR32 requires updated header files for the UC3 A3 and UC3 A3xS, UC3C C revision C, UC3 L series (unzip the avr32/utils/header_files/avr32-headers.zip under /Embedded Workbench x.x/avr32/inc/). WinAVR requires updated header files (refer toxmega/utils/header_files/readme.txt).
- SAM4L support for IAR requires the add-on installer EWARM_6.40_SAM4L_addon_vx.x.zip from www.atmel.com/tools/SAM4L-EK.aspx
- SAM4E support for IAR requires the add-on installer EWARM_6.40_SAM4E_addon_vx.x.zip http://www.atmel.com/images/Atmel-42145-AT03088-Getting-Started-with-SAM4E-ewarm-add-on%20v0.1.1_Application-Note.zip
- XMEGA E support for Atmel Studio 6 requires the Atmel Studio 6 Part Pack for ATxmega32E5 installed and an updated AVR GCC toolchain (3.4.0.84 or higher). Visit www.atmel.com/atmelstudio.
- SAM4N support for IAR requires the add-on installer IAR-EWARM-SAM4N-ADDON-V1.0.zip http://www.atmel.com/images/Atmel-42169-AT03758-Getting-Started-with-SAM4N_Application-Note.zip
- SAM4C support for IAR requires the add-on installer EWARM_SAM4C_addon_V0.6.zip
- SAMG support for IAR requires the add-on installe IAR-EWARM-SAMG53N19-ADDON-V0.8.zip
- SAMG support for Atmel Studio requires the part pack to support the devices

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Documentation

- ASF getting started and reference manual: http://www.atmel.com/asf/.
- ASF on-line documentation: http://asf.atmel.com/.
- Atmel Studio 6 installer (includes ASF): www.atmel.com/atmelstudio
- Atmel Studio 6 videos: http://www.atmel.com/microsite/atmel_studio6/videos.aspx
- Atmel Gallery: http://gallery.atmel.com/

Community Information

These forums can be used to have an open discussion about usage, development, bugs, fixes, improvements, etc.

- ASF forum on AVRFreaks® (AVR users) at http://www.avrfreaks.net/index.php?name=PNphpBB2&file=viewforum&f=21.
- ASF forum on AT91® (SAM users) at http://www.at91.com.

New and Noteworthy

Release ASF3.17 (May 2014)

- SAM R21: added support for SAM R21 device series and SAMR21-XPRO support; added drivers support for AC, ADC, BOD, DMA, EVENTS, EXTINT, NVM, PAC, PORT, RTC, SERCOM(SPI, USART, I2C), System(clock, interrupt, pinmux), TC, TCC, USB, WDT, serial_flash, ssd1306, virtual_mem, sdmmc; added services support for delay, gfx_mono, ctrl_access, USB device (CDC, Composite, HID, MSC, PHDC, Vendor); added third party support for CMSIS, FATFS, freertos, added applications support for getting-started, i2c_slave_bootloader, led_toggle, sleepwalking_adc, tictactoe, xosc32k_failure_detector.
- SAM G54: added support for SAMG54 device series; added drivers support for adc, chipid, i2sc,pdm, pmc, rstc, spi, supc, twi, twihs, uart, usart; added services support for clock, freertos peripheral control, ioport, sleep manager, twi; added third party support for CMSIS, freertos.
- SAM4CM: Add SAM4CM device series and SAM4CMP-DB/SAM4CMS-DB support; added drivers support for AES, ADC, CHIPID, SMC, EFC, GPBR, ICM, MATRIX, PDC, PIO, PMC, PWM, RSTC, RTC, RTT, SLCDC, SPI, SUPC, TC, TRNG, TWI, UART, USART, WDT; added services support for clock, delay, ioport, serial, sleepmgr, spi, storage/ctrl_access, twi, flash_efc, smart_card; added component support for serial_flash, eeprom, at30ts75, added third party support for CMSIS, freertos, FATFS.
- SLCD-XPRO: added example for SAM4L-XPRO
- SAM D21: added USB MSC bootloader
- SAM4CP: added support for SAM4CP16B and ATPL230; added ATPL230AMB board (SAM4S + ATPL230) support; added service support for PLC; added third party support for Prime Phy Layer.
- 802.15.4 MAC: added device support for SAM R21/D21, SAM4S and SAM4E.
- Performance Analyzer Application: added device support for SAM R21/D21, SAM4S and SAM4E; componentization of Performance Analyzer.
- RF4Control: added device support for SAM R21; added Joystick Demo Application for ZID; added Sleep support in Single button ctlr application.
- LWMesh: added device support for SAM R21/D21, SAM4S and SAM4E; added EDDemo and Peer2Peer support, SecurityMode0(HW Security) support, identify commands feature support for WSNDemo application; componentization of WSNDemo app.

Release ASF3.16 (Apr 2014)

- SAM4C: Add CMCC driver support
- SAM D21: Add additional drivers and examples (USB device class support: composite/HID/PDHC, SD/MMC support, getting started and i2c slave applications)
- Add lwIP 1.4.1 and Ethernet Xplained Pro extension support for SAM D20

Release ASF3.15 (Feb 2014)

- SAM D21: added support for SAM D21 device series and SAMD21-XPRO support; added drivers support for AC, ADC, BOD, DAC, DMA, EVENTS, EXTINT, I2S, NVM, PAC, PORT, RTC, SERCOM(SPI, USART, I2C), System(clock, interrupt, pinmux), TC, TCC, USB, WDT, serial_flash, at30ts75, ssd1306, virtual_mem ; added services support for eeprom, delay, gfx_mono, ctrl_access, USB host (HID, CDC, MSC, Vendor, composite), USB device (HID, CDC, MSC, Vendor); added third party support for CMSIS, freertos, added applications support for dac_sound_player, led_toggle, osc8_calib, sleepwalking_adc, tictactoe, xosc32k_failure_detector.
- SAM4CP: added SAM4CP device series support.
- SAM4E-XPRO: added SAM4E-XPRO kit support with examples.
- LWMesh Stack: supported MCU SAMD20,SAM4L,MegaRF,XmegaA3; supported Transceivers: AT86RF212, AT86RF212B, AT86RF231, AT86RF233, ATMEGARFA1, ATMEGARFR2.

- ZID Stack: supported MCU Family : MegaRF,XmegaA3U; Supported Transceivers : AT86RF233,ATMEGARFR2.

Release ASF3.14 (Dec 2013)

- SAMG: added support for SAMG51 and SAMG53 device series and SAMG53-XPRO support; added drivers support for adc, chipid, efc, gpbr, i2sc, matrix, mem2mem, pdc, pdm, pio, pmc, rtc, rtt, spi, supc, tc, twi, twihs, uart, usart, wdt; added services support for clock, delay, ioport, serial, sleep manager, flash_efc, twi; added third party support for CMSIS, freertos, added applications support for getting-started and low-power.
- SAM4C: added SAM4C32 device series support.
- SAM4E: added SAM4ExC device series support.
- IEEE 802.15.4 MAC GTS feature support for SAM D20.
- Note: SAMG projects require a part support package for Atmel Studio 6.1

Release ASF3.13 (Nov 2013)

- IEEE 802.15.4 MAC Support Addition for Atmega2564RFR2 Device
- SAM D20: various bug fixes for EEPROM, DFLL, ADC, DAC, SERCOM
- Note: SAM4C projects require a part support package for Atmel Studio 6.1
- Note: Removed ASF versions ASF-3.3.0, ASF-3.4.0, ASF-3.5.0 and ASF-3.5.1 in order to improve performance in Atmel Studio. DO NOT upgrade to this ASF release if you are using the removed versions and need the ASF Wizard. If you do upgrade, you will have to upgrade your project to a newer ASF version in order for the ASF Wizard to work.

Release ASF3.12 (Oct 2013)

- SAM4C: added support for new device series and SAM4C Evaluation kit; added drivers support for aes, adc, chipid, smc, efc, gpbr, icm, matrix, pdc, pio, pmc, pwm, rstc, rtc, rtt, slcdc, spi, supc, tc, trng, twi, uart, usart,wdt; added services support for clock, ioport, serial, sleep manager, flash_efc, twi; added component support for serial_flash, eeprom, at30ts75 and c42364a_slcdc; added third party support for CMSIS, freertos and fatfs, added applications support for getting-started and low-power.
- SAM4S: added support for SAM4S4 and SAM4S2.
- SAM D20: maintenance and improvements to API.
- Note: SAM4C projects require a part support package for Atmel Studio 6.1

Release ASF3.11 (July 2013)

- SAM4N new device and SAM4N Xplained pro kit support in ASF.
- Performance Analyzer supports the kits supported in Wireless Library 1.0 Release.
- SAM4L: Add USB device PHDC example, add TWIM PDC transfer example.

Release ASF3.10 (July 2013)

- SAM4L8 new device and SAM4L/SAM4L8 Xplained pro kit support in ASF, with all existing drivers, services, third parties from SAM4L4.
- Feature Enhancement in Performance Analyzer v2.1 firmware to support Wireless Composer-2.0
- SAM D20: maintenance and improvements to API

Release ASF3.9 (June 2013)

- Added SAM D20 Drivers (AC, ADC, BOD, DAC, Events, External Interrupts, NVM, PAC, PORT, RTC, SERCOM USART/SPI/I2C, TC and WDT).

- Added SAM D20 Services (GFX_mono, Delay, Dataflash, FreeRTOS)
- Added SAM D20 applications (DAC sound player, SPI/I2C bootloader, Led toggle and OSC8 calibration, FreeRTOS demo)

Release ASF3.8 (April 2013)

- mega128RFA1 new drivers: MAC symbol counter and TWI.
- SAM4E: USB stack, lwIP demo, new drivers (AFE, DACC,MATRIX, ACC, CHIPID, USART, PIO, AFEC), QTouch library, low power and getting started demo, FreeRTOS demo.

Release ASF3.7 (Feb 2013)

- SAM4L new drivers: AESA, IISC, ACIFC, PEVC, USB device composite, USB host, picoUART, ABDACB, FREQM, ADCIFE, GLOC, FatFS,
- SAM4E new drivers: FPU, SPI, DMA, USB HID, TC, AT25 flash, WDT, EBI SMC, RTT, CAN, RTC, GPBR, SUPC, PDC, USART, GMAC, PWM
- megaRF, megaRFR2 new drivers: USART, STDIO, clock, interrupt, TWI
- XMEGA E new drivers: XCL, EDMA, QDEC. New ADC demo for XMEGA-E5 Xplained board
- SAM4S and SAM4L Xplained Pro demo: low power and sleep modes
- Added supports Performance analyzer application for Xplained Pro Boards compatible with Wireless Analyzer in Atmel Studio. Supports MAC demo applications for Beacon, No Beacon and No Beacon Sleep Application. Supports RF4CE demo applications for Button controller, Single button controller and Terminal target. Platforms supported are: Atmega256RFR2 Xplained Pro, ZigBit ATmegaRFR2, ZigBit ATRF233 XMEGA, ZigBit ATRF212B XMEGA, USB stick with ZigBit ATRF233 XMEGA, USB stick with ZigBit ATRF212B XMEGA, SAM4L Xplained Pro with ZigBit ATmegaRFR2, SAM4L Xplained Pro with ZigBit ATRF233 XMEGA, SAM4L Xplained Pro with ZigBit ATRF212B XMEGA, XMEGA-A3BU Xplained, RZ600

Release ASF3.6 (Internal, Jan 2013)

- Added SAM4E support: WDT, TC, EEFC, PMC, clock, ioport, CMSIS, stdio, PIO, Flash, interrupt
- Added XMEGA C3 Xplained demos: LED, switchs, QTouch, OLED, USB, SD card
- Added megaRF drivers: interrupt, adc
- Added SAM4L drivers: GPIO for event and interrupt, Watchdog, USB Host HID class, HMATRIX, CRCCU, CMSIS DSPlib examples, FreeRTOS demo, Getting Started, IISC, improved TWIM with sleep manager support.
- Added SAM4S-EK2 demo (same as SAM4S-EK)
- Added examples for XMEGA-E5 Xplained board: XCL, USART
- USB Device PHDC class is now compliant with the USB command verified tool 2.0 v1.4.9.2.

Release ASF3.5 (Nov 2012)

- Added XMEGA E (STK600) support, added new XCL driver demo
- Added XMEGA-C3 Xplained board support
- Added SAM4SD32 and SAM4S-EK2 support
- SD stack for SAM, UC3, XMEGA ready, with SPI and MMC interface. With file system example.
- SAM4L: added AST, EIC, USB device HID, BPM, PDCA, TC, DACC, Flashcaldw, LCDCA, C42364
- Updated CMSIS for SAM from v2.1 to 3.0
- FatFs is now available in Atmel Studio ASF wizard
- Added USB Host vendor class
- megaRF: added GPIO and clock driver
- Added new FreeRTOS specific driver for USART, SPI and TWI for SAM4S

New features added

- **Issue #ASFP-3710:** ASF -> Common -> Services -> freertos -> sam _ freertos_uart_serial.c .
Files added:
common\services\freertos\sam\freertos_uart_serial.h
common\services\freertos\sam\freertos_uart_serial.c

- **Issue #ASFP-4296:** SAM4L - TWIM driver limit the transfer length to 255 bytes.
Fixed TWIM driver limit the transfer length to 255 bytes.
Modified files:
sam/drivers/twim/twim.c
sam/drivers/twim/twim.h

- **Issue #ASFP-4306:** SAMG54 - Add device family support in ASF.
SAMG54 ASF support:
* Device family in ASF
* Full set of drivers
* Services and components
* Third party

- **Issue #ASFP-4351:** SAMR21 - Add SAMR21 and SAMR21 Xplained Pro support in ASF.
Add SAMR21 and with SAMR21 Xplained Pro ASF support:
- Device family and kit support
- Full set of drivers
- Services and components
- Third party
- Examples

- **Issue #ASFP-4450:** Compile error when adding SD/MMC module to 'FREERTOS With LWIP' sample.
Compile error when adding SD/MMC module to 'FREERTOS With LWIP' sample
Modified files:
common/components/memory/sd_mmc/sd_mmc.c
common/components/memory/sd_mmc/sd_mmc_spi.c

- **Issue #ASFP-4513:** SAM4L - Segment LCD example.
Files Modified:
sam\boards\sam4l_xplained_pro\sam4l_xplained_pro.h
sam\boards\sam4l_xplained_pro\init.c
Folder Added:
sam\components\display\c42412a

- **Issue #ASFP-4556:** SystemCoreClock API usage question from Segger.
Update the CMSIS files of SAMG.
Files modified:
sam\utils\cmsis\samg\samg53\source\templates\system_samg51.c
sam\utils\cmsis\samg\samg53\source\templates\system_samg53.c
sam\utils\cmsis\samg\samg53\source\templates\system_samg54.c

- **Issue #ASFP-4559:** SAMD21: missing ioport support.

Modified file:
* common/services/ioport/ioport.h

- **Issue #ASFP-4599:** SAMD21 - Add USB MSC bootloader.

Add USB MSC bootloader for SAMD21.
File modified:
sam0/drivers/dma/dma_crc.h
Folder added:
sam0/applications/usb_msc_bootloader/

- **Issue #ASFP-4603:** SAM4CM - Add SAM4CM and SAM4CMP-DB/SAM4CMS-DB support in ASF.

Add SAM4CM devices and SAM4CMP-DB/SAM4CMS-DB support in ASF:
- Drivers: AES, ADC, CHIPID, SMC, EFC, GPBR, ICM, MATRIX, PDC, PIO, PMC, PWM, RSTC, RTC, RTT, SLCDC, SPI, SUPC, TC, TRNG, TWI, UART, USART, WDT
- Services: clock, delay, ioport, serial, sleepmgr, spi, storage/ctrl_access, twi, flash_efc, smart_card
- Components: serial_flash, eeprom, at30ts75
- Third party: CMSIS, freertos, fatfs

- **Issue #ASFP-4607:** SAMD21 - Dataflash example need to wake up first after flash sleep command.

Update the dataflash quickstart example
Modified file:
common2/components/memory/serial_flash/at25dfx/quick_start_basic/qs_at25dfx_basic.c
common2/components/memory/serial_flash/at25dfx/quick_start_basic/qs_at25dfx_basic.h

- **Issue #ASFP-4628:** MAC/RF4Control/LWMesh Updates and Stack Support for SAMR21/SAM4S/SAM4E.

Updates:
1. 802.15.4 MAC:
a. SAMR21/D21, SAM4S and SAM4E Device support added.
2.Performance Analyzer Application:
a. SAMR21/D21, SAM4S and SAM4E Device support added.
b. Componentization of Performance Analyzer for ease in porting for newer platforms .
3. RF4Control:
a. SAMR21 Device Support added.
b. Joystick Demo Application added for ZID.
c. Sleep support added in Single button ctlr application.
4. LWMesh:
a.SAMR21/D21, SAM4S and SAM4E Device support added.
b. Addition of EDDemo and Peer2Peer app in LWMesh
c. Addition of SecurityMode0(HW Security) support in LWMesh
d. Identify commands feature support for WSNDemo application
e. Componentization of WSNDemo app for ease in porting for newer platforms .
Files Modified/Added:
• mega/boards/atmegarfx_rcb/atmegarfx_rcb.h
• mega/boards/atmegarfx_rcb/helper.c
• mega/boards/atmegarfx_rcb/helper.h
• mega/boards/atmegarfx_rcb/init.c
• mega/boards/atmegarfx_rcb/led.h
• mega/utils/compiler.h
• sam/boards/sam4e_xplained_pro/init.c
• sam/boards/sam4e_xplained_pro/sam4e_xplained_pro.h

- sam/boards/sam4s_xplained_pro/init.c
- sam/boards/sam4s_xplained_pro/led.h
- sam/boards/sam4s_xplained_pro/sam4s_xplained_pro.h
- sam0/boards/dummy/dummy_board.h
- sam0/boards/samd20_xplained_pro/samd20_xplained_pro.h
- sam0/boards/samd21_xplained_pro/board_init.c
- sam0/boards/samd21_xplained_pro/samd21_xplained_pro.h
- sam0/boards/samr21_xplained_pro/board_init.c
- sam0/boards/samr21_xplained_pro/samr21_xplained_pro.h
- thirdparty/wireless/avr2025_mac/apps/mac/beacon/coord/ncp/sam4sd32c_reb233_xpro
- thirdparty/wireless/avr2025_mac/apps/mac/beacon/coord/ncp/samr21_xpro
- thirdparty/wireless/avr2025_mac/apps/mac/beacon/dev/ncp/sam4sd32c_reb233_xpro
- thirdparty/wireless/avr2025_mac/apps/mac/beacon/dev/ncp/samr21_xpro
- thirdparty/wireless/avr2025_mac/apps/mac/no_beacon/coord/ncp/sam4sd32c_reb233_xpro
- thirdparty/wireless/avr2025_mac/apps/mac/no_beacon/coord/ncp/samr21_xpro
- thirdparty/wireless/avr2025_mac/apps/mac/no_beacon/dev/ncp/sam4sd32c_reb233_xpro
- thirdparty/wireless/avr2025_mac/apps/mac/no_beacon/dev/ncp/samr21_xpro
- thirdparty/wireless/avr2025_mac/apps/mac/serial_if/bcn_ffd/ncp/sam4sd32c_reb233_xpro
- thirdparty/wireless/avr2025_mac/apps/mac/serial_if/bcn_ffd/ncp/samr21_xpro
- thirdparty/wireless/avr2025_mac/apps/mac/serial_if/bcn_rfd/ncp/sam4sd32c_reb233_xpro
- thirdparty/wireless/avr2025_mac/apps/mac/serial_if/bcn_rfd/ncp/samr21_xpro
- thirdparty/wireless/avr2025_mac/apps/mac/serial_if/no_bcn_ffd/ncp/sam4sd32c_reb233_xpro
- thirdparty/wireless/avr2025_mac/apps/mac/serial_if/no_bcn_ffd/ncp/samr21_xpro
- thirdparty/wireless/avr2025_mac/apps/mac/serial_if/no_bcn_rfd/ncp/sam4sd32c_reb233_xpro
- thirdparty/wireless/avr2025_mac/apps/mac/serial_if/no_bcn_rfd/ncp/samr21_xpro
- thirdparty/wireless/avr2025_mac/apps/tal/performance_analyzer/inc/app_init.h
- thirdparty/wireless/avr2025_mac/apps/tal/performance_analyzer/inc/performance_main.h
- thirdparty/wireless/avr2025_mac/apps/tal/performance_analyzer/main.c
- thirdparty/wireless/avr2025_mac/apps/tal/performance_analyzer/sam4e16e_sam4e_xpro
- thirdparty/wireless/avr2025_mac/apps/tal/performance_analyzer/sam4sd32c_reb233_xpro
- thirdparty/wireless/avr2025_mac/apps/tal/performance_analyzer/samr21_xpro
- thirdparty/wireless/avr2025_mac/apps/tal/performance_analyzer/src/per_mode_common_utils.c
- thirdparty/wireless/avr2025_mac/apps/tal/performance_analyzer/src/per_mode_initiator.c
- thirdparty/wireless/avr2025_mac/apps/tal/performance_analyzer/src/per_mode_receptor.c
- thirdparty/wireless/avr2025_mac/apps/tal/performance_analyzer/src/performance_main.c
- thirdparty/wireless/avr2025_mac/apps/tal/performance_analyzer/src/user_interface.c
- thirdparty/wireless/avr2025_mac/include/return_val.h
- thirdparty/wireless/avr2025_mac/include/stack_config.h
- thirdparty/wireless/avr2025_mac/source/pal/common/drivers/nvm/sam0/module_config/conf_nvm.h
- thirdparty/wireless/avr2025_mac/source/pal/common/drivers/nvm/sam0/sam_nvm.c
- thirdparty/wireless/avr2025_mac/source/pal/common_sw_timer/common_sw_timer.c
- thirdparty/wireless/avr2025_mac/source/pal/common_sw_timer/common_sw_timer.h
- thirdparty/wireless/avr2025_mac/source/pal/pal.c
- thirdparty/wireless/avr2025_mac/source/pal/pal.h
- thirdparty/wireless/avr2025_mac/source/pal/pal_ext_trx.c
- thirdparty/wireless/avr2025_mac/source/pal/pal_ext_trx.h
- thirdparty/wireless/avr2025_mac/source/stb/inc/stb.h (12)
- thirdparty/wireless/avr2025_mac/source/stb/src/stb.c (26)
- thirdparty/wireless/avr2102_rf4control/addons/gamepad/module_config/conf_usb.h
- thirdparty/wireless/avr2102_rf4control/addons/gamepad/udi_hid_kbd.c
- thirdparty/wireless/avr2102_rf4control/addons/gamepad/udi_hid_kbd.h

- thirdparty/wireless/avr2102_rf4control/addons/gamepad/udi_hid_kbd_conf.h
- thirdparty/wireless/avr2102_rf4control/addons/gamepad/udi_hid_kbd_desc.c
- thirdparty/wireless/avr2102_rf4control/addons/gamepad/usb_hid.h
- thirdparty/wireless/avr2102_rf4control/addons/kbd/usb_hid.h
- thirdparty/wireless/avr2102_rf4control/apps/zid/adptr/usb_hid_gamepad/app_config.h
- thirdparty/wireless/avr2102_rf4control/apps/zid/adptr/usb_hid_gamepad/asf.xml
- thirdparty/wireless/avr2102_rf4control/apps/zid/adptr/usb_hid_gamepad/main.c
- thirdparty/wireless/avr2102_rf4control/apps/zid/adptr/usb_hid_gamepad/vendor_data.c
- thirdparty/wireless/avr2102_rf4control/apps/zrc/serial_if/ctr/ncp/samr21_xplained_pro
- thirdparty/wireless/avr2102_rf4control/apps/zrc/serial_if/main.c
- thirdparty/wireless/avr2102_rf4control/apps/zrc/serial_if/tgt/ncp/samr21_xplained_pro
- thirdparty/wireless/avr2102_rf4control/apps/zrc/single_button_ctr/main.c
- thirdparty/wireless/avr2102_rf4control/apps/zrc/single_button_ctr/ncp/samr21_xplained_pro/
- thirdparty/wireless/avr2102_rf4control/apps/zrc/single_button_ctr/vendor_data.c
- thirdparty/wireless/avr2102_rf4control/apps/zrc/terminal_tgt/main.c
- thirdparty/wireless/avr2102_rf4control/apps/zrc/terminal_tgt/sam4lc4c_reb233_xpro
- thirdparty/wireless/avr2102_rf4control/apps/zrc/terminal_tgt/samr21_xplained_pro
- thirdparty/wireless/avr2102_rf4control/include/nwk_internal.h
- thirdparty/wireless/avr2102_rf4control/include/nwk_msg_types.h
- thirdparty/wireless/avr2102_rf4control/include/rf4ce.h
- thirdparty/wireless/avr2130_lwmesh/apps/EdDemo
- thirdparty/wireless/avr2130_lwmesh/apps/PeertoPeer
- thirdparty/wireless/avr2130_lwmesh/apps/Tester
- thirdparty/wireless/avr2130_lwmesh/apps/Tester/commands.c
- thirdparty/wireless/avr2130_lwmesh/apps/Tester/commands.h
- thirdparty/wireless/avr2130_lwmesh/apps/wsndemo/commands.c
- thirdparty/wireless/avr2130_lwmesh/apps/wsndemo/commands.h
- thirdparty/wireless/avr2130_lwmesh/apps/wsndemo/main.c
- thirdparty/wireless/avr2130_lwmesh/apps/wsndemo/sam4e16e_sam4e_xpro
- thirdparty/wireless/avr2130_lwmesh/apps/wsndemo/sam4sd32c_reb233_xpro
- thirdparty/wireless/avr2130_lwmesh/apps/wsndemo/samr21_xplained_pro
- thirdparty/wireless/avr2130_lwmesh/apps/wsndemo/wsndemo.c
- thirdparty/wireless/avr2130_lwmesh/apps/wsndemo/wsndemo.h
- thirdparty/wireless/avr2130_lwmesh/source/sys/inc/sys.h
- thirdparty/wireless/avr2130_lwmesh/source/sys/inc/sysConfig.h
- thirdparty/wireless/avr2130_lwmesh/source/sys/inc/sysTypes.h
- thirdparty/wireless/avr2130_lwmesh/source/sys/src/sys.c
- thirdparty/wireless/avr2130_lwmesh/source/sys/src/sysTimer.c
- thirdparty/wireless/services/common_hw_timer/sam/hw_timer.c
- thirdparty/wireless/services/common_hw_timer/sam/hw_timer.c
- thirdparty/wireless/services/common_hw_timer/sam/hw_timer.h
- thirdparty/wireless/services/common_hw_timer/sam0/hw_timer.c
- thirdparty/wireless/services/sal/at86rf2xx/src/sal.c
- thirdparty/wireless/services/sal/atmegarf_sal/src/sal.c
- thirdparty/wireless/services/sal/atxmega_sal/src/sal.c
- thirdparty/wireless/services/sal/inc/sal.h
- thirdparty/wireless/services/sal/inc/sal_generic.h
- thirdparty/wireless/services/sal/inc/sal_types.h
- thirdparty/wireless/services/sleep_mgr/megarf/sleep_mgr.c
- thirdparty/wireless/services/sleep_mgr/sam/sleep_mgr.c
- thirdparty/wireless/services/sleep_mgr/sam0/sleep_mgr.c

- thirdparty/wireless/services/sleep_mgr/sam4l/sleep_mgr.c
- thirdparty/wireless/services/sleep_mgr/sleep_mgr.h
- thirdparty/wireless/services/trx_access/module_config/conf_trx_access.h
- thirdparty/wireless/services/trx_access/trx_access.c
- thirdparty/wireless/services/trx_access/trx_access.h
- xmega/boards/xmega_rf212b_zigbit/xmega_rf212b_zigbit.h

Notable bugs fixed

- **Issue #ASFP-4141:** SAM - FreeRTOS TWI service bugs.

SAM - FreeRTOS TWI service bugs fix
Files modified:
common/services/freertos/sam/freertos_peripheral_control.c
common/services/freertos/sam/freertos_peripheral_control_private.h
common/services/freertos/sam/freertos_twi_master.c

- **Issue #ASFP-4545:** SAMG51 - Update header files.

Update the SAMG51 header files

- **Issue #ASFP-4549:** SAM4L - usart_spi_init() calls sysclk_enable_peripheral_clock() with wrong parameter type.

File Modified:
common/services/spi/sam_usart_spi/usart_spi.c

- **Issue #ASFP-4550:** IOPORT set port mode doesn't set PULLEN for sam0.

File modified:
common/services/ioport/sam0/ioport.h

- **Issue #ASFP-4553:** SAM PMC driver: Enabling the fast RC osc and change its frequency at the same time is forbidden.

Files Modified:
/sam/drivers/pmc/pmc.c
/sam/drivers/pmc/pmc_clock_switching_example/pmc_clock_switching_example.c

- **Issue #ASFP-4560:** SAMG53 CMSIS files are wrong.

Update the CMSIS files of SAMG.
Files modified:
sam\utils\cmsis\samg\samg53\source\templates\system_samg51.c
sam\utils\cmsis\samg\samg53\source\templates\system_samg53.c
sam\utils\cmsis\samg\samg53\source\templates\system_samg54.c

- **Issue #ASFP-4562:** sam0 ADC driver sets up resolutions wrong.

File Modified:
sam0/drivers/adc/adc.c
sam0/drivers/adc/adc.h
sam0/drivers/adc/unit_test/unit_test.c

- **Issue #ASFP-4564:** There is a problem with circular dependesy in the callback implementation of the extint driver of SAM D20/21/...

Fix circular header file dependence in EXINT driver.
Modified files:
sam0/drivers/extint/extint.h
sam0/drivers/extint/extint_callback.h

- **Issue #ASFP-4570:** RAMFUNC in EFC driver will not in RAM after set the optimation with "O2" or higher.

Add no inline option for EFC RAM functions.
Files modified:
sam/drivers/efc/efc.c
sam/utils/compiler.h

- **Issue #ASFP-4597:** FreeRTOS serial buffer size assertion doesn't check correct values.

Fix the assertion doesn't check correct values issue in FreeRTOS service.
Files modified:
common/services/freertos/sam/freertos_uart_serial.c
common/services/freertos/sam/freertos_usart_serial.c

- **Issue #ASFP-4611:** SAM0 - Define a common symbol to denote SAM0 devices in part.h.

Define a common symbol to denote SAM0 devices
Modified file:
common/utils/parts.h

- **Issue #ASFP-4613:** AT03243: SAM D20/D21 ADC application note is missing adc_init in quickstart documentation.

Files modified:
* sam0/drivers/adc/quick_start/qs_adc_basic.h
* sam0/drivers/adc/quick_start_callback/qs_adc_callback.h

- **Issue #ASFP-4616:** SAM D20 PAC driver does not work for PAC2.

Files modified:
* sam0/drivers/pac/pac.c
* sam0/drivers/pac/pac.h

- **Issue #ASFP-4620:** Wrong status bit used for checking DFLL clock status in clock driver.

Fix DFLL ready check for close loop mode.
Modified files:
sam0/drivers/system/clock/clock_samd20/clock.c
sam0/drivers/system/clock/clock_samd21_r21/clock.c
sam0/drivers/tc/unit_test/samd20j18_samd20_xplained_pro/conf_clocks.h

- **Issue #ASFP-4624:** port definition for EBI_NRD is not correct in SAM3X-EK board file.

Correct the port definition for EBI_NRD in SAM3X-EK board file
Files modified:
sam/boards/sam3x_ek/sam3x_ek.h

- **Issue #ASFP-4627:** SAMG53 : wait mode wakeup issue.

Fix the wait mode issue of SAMG.
Files changed:

sam/drivers/pmc/sleep.c

- **Issue #ASFP-4630:** FLUVI - Add FLUVI support in public ASF.

Add FLUVI devices and ATPL230AMB support in ASF:
- Drivers: AES, ADC, CHIPID, EFC, GPBR, ICM, MATRIX, PDC, PIO, PMC, PWM, RSTC, RTC, RTT, SLCDC, SPI, SUPC, TC, TRNG, TWI, UART, USART, WDT
- Services: clock, delay, ioport, serial, sleepmgr, spi, twi, flash_efc, plc
- Components: c42364a
- Third party: CMSIS, freertos, prime

- **Issue #ASFP-4638:** RTT drivers issue for SAMG53/G54.

RTC1HZ and RTTDIS in RTT_MR are not write only for the SAMG53/G54 parts.
File modified:
sam/drivers/rtt/rtt.c

- **Issue #ASFP-4647:** FreeRTOS vPortStartFirstTask() does not initialize MSP properly in old versions for CM0.

Fixed the scheduler start issue of Cortex-M0 in the old FreeRTOS version:
Files modified:
thirdparty/freertos/freertos-7.4.2/Source/portable/GCC/ARM_CM0/port.c
thirdparty/freertos/freertos-7.4.2/Source/portable/IAR/ARM_CM0/portasm.s
thirdparty/freertos/freertos-7.5.2/Source/portable/GCC/ARM_CM0/port.c
thirdparty/freertos/freertos-7.5.2/Source/portable/IAR/ARM_CM0/portasm.s

- **Issue #ASFP-4651:** SAM R21 Xplained Pro board has a typo.

File modified:
* sam0/drivers/sercom/spi/unit_test/samr21g18a_samr21_xplained_pro/conf_test.h

- **Issue #ASFP-4654:** SAM4E - unit_test error in PMC driver and ILI93XX component.

Files Modified:
sam\boards\sam4e_ek\init.c
sam\drivers\pmc\pmc.c
sam\drivers\pmc\unit_tests\unit_tests.c

- **Issue #ASFP-4656:** SAM0 - Missing member reference in adc_enable.

Modified file:
sam0\drivers\adc\adc.h

Known issues

- **Issue #ASFP-184:** AT42QT1060 driver - use of EIC hardcoded for EVK1105 only.

AT42QT1060 component is not supported by the AT32UC3A0 and AT32UC3A1 device family.

- **Issue #ASFP-198:** PolarSSL needs to be updated to version 1.0.0 to solve build error.

Header file "openssl.h" from polarssl version 0.14.0 has some wrong function definition that creates build error. Update to version 0.99 will solve the issue

- **Issue #ASFP-674:** common/components/memory/data_flash/at45dbx is not listed for any devices in AVR Studio 5 ASF menu.

Some AT45DBX definitions are missing in board definition causing module errors when using it in AVR Studio 5 with those boards. Modified file : avr32/boards/uc3_a3_xplained/uc3_a3_xplained.h ,xmega/boards/xmega_a1_xplained/xmega_a1_xplained.h

- **Issue #ASFP-881:** XMEGA NVM driver does not support XMEGA A3 rev B errata.

XMEGA NVM driver does not support XMEGA A3 rev B errata.

- **Issue #ASFP-882:** Sensor library fails compilation if not using a board in the 'Xplained' series of boards.

Sensor library fails compilation if not using an board in the "Xplained" series of boards.

- **Issue #ASFP-3595:** ASF includes its own SAM header files set which is not synchronized with the latest header files from Atmel Studio 6.1 toolchain.

The Atmel Studio 6.1beta header files set for SAM devices is not backward compatible with the Atmel Studio 6.0 header files set.
ASF SAM drivers are using their own set of header files (from sam/utils/cmsis/sam*/include) and are not compatible with the Atmel Studio 6.1beta header files.
SAM drivers will be ported to the new Atmel Studio 6.1beta header files set in a later ASF release.

- **Issue #ASFP-4502:** Some standalone ASF applications in Application Builder do not work.

The following ASF modules are not available as standalone in the "Select Drivers from the ASF" menu, but only as examples: XMEGA Sleep Manager and ADC driver, AVR UC3 USB Stack from ASF v1, ECC Hamming, TLV320AIC23B codec,FAT file system with play list support, Joystick interface (5-way), MEMORY - EBI SDRAM Controller, MEMORY - MCI - MultiMedia Card Interface, MEMORY - SD/MMC card access using MCI, MEMORY - SD/MMC card access using SPI, MEMORY - NAND Flash on EBI, MEMORY - AT45DBX DataFlash, TOUCH - AT42QT1060 QTouch 6-channel sensor, MEMS Sensors - Accelerometer LIS3L06AL, TIMING - CS2200 Clock Synthesizer, LodePNG, FreeRTOS minimal, lwIP, Micrium uC/OSII, H&D Wi-Fi SPB Firmware Download.

Contact Information

For more info about Atmel MCU visit http://www.atmel.com/products/microcontrollers/default.aspx, download application notes from the Application Notes page or contact support through the http://support.atmel.no/ site. The support site also have a Frequently Asked Questions.

ASF bug or enhancement requests can be reported in the ASF Bug Tracker at http://asf.atmel.com/bugzilla/.

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