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## ASF: Release ASF-3.21

The Atmel® Software Framework (ASF, [www.atmel.com/asf](http://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](http://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](http://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).



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**8/32-bits Atmel  
Microcontrollers**

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**Release ASF-3.21**

## 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 D10
- SAM D11
- SAM D20
- SAM D21
- SAM G51
- SAM G53
- SAM G54
- SAM G55
- SAM L21
- SAM R21

## Supported Tools

- Atmel Studio 6.2 using GCC compiler - Visit [www.atmel.com/atmelstudio](http://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 7.10
- 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`).
- 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](http://www.atmel.com/atmelstudio).
- SAMG55 support for Atmel Studio 6 requires the Atmel Studio 6 Part Pack for SAMG55 installed and an updated Atmel Studio 6(6.3.1342 or higher). Visit [www.atmel.com/atmelstudio](http://www.atmel.com/atmelstudio). SAMG55 support for IAR EWARM requires an add on.
- SAML21 support for Atmel Studio 6 requires the Atmel Studio 6 Part Pack for SAML21 installed and an updated back end installer(1.13.4069 or higher). Visit [www.atmel.com/atmelstudio](http://www.atmel.com/atmelstudio). SAML21 support for IAR EWARM requires an add on.

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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](http://www.atmel.com/atmelstudio)
- Atmel Studio 6 videos: [http://www.atmel.com/microsite/atmel\\_studio6/videos.aspx](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>.

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## New and Noteworthy

### Release ASF3.21 (Dec 2014)

- SAM L21 device family and SAML21-XPRO support : added drivers support for Clock ,AES, CCL, OPAMP, TRNG, RWW, HSDAC, AC, ADC, BOD, DAC, DMA, Event, EXTINT, I2S, NVM, PAC, PORT, RTC, SERCOM, TC, TCC, USB, WDT, added services support for EEPROM, USB host/device, gfx\_mono, delay, ctrl\_access, added components support for serial\_flash, at30ts75, ssd1306, added Thirdparty support for CMSIS, FreeRTOS, FATFS
- SAM G55 device family and SAMG55-XPRO support : USB OHCI host stack support, Full set of drivers support of adc, chipid, cmcc, crccu, efc, flexcom, gpbr, i2sc, matrix, mem2mem, pdc, pdm, pio, pmc, rstc, rtc, rtt, spi, supc, tc, twi, udp, uhp, usart, wdt, added applications of xplained\_pro\_user\_application, getting-started, sam\_low\_power, starter\_kit\_bootloader\_demo, added services support for flash\_efc, clock, delay, ioport, serial, sleepmgr, spi, twi, usb, added components support for ssd1306, at30tse75x, sd\_mmc, added Thirdparty support for CMSIS DSP lib, FreeRTOS.
- Performance Analyzer Firmware : Support for Remote Node Configuration Feature

### Release ASF3.20 (Oct 2014)

- SAMD1x family ASF Quick Start documentation
- USB Stack Quick Start documentation updates
- SAMD11 USB MSC/TCC examples
- SAMD1x 32 bit TC support
- AVR2025MAC, LWMesh support for SAMD21-XPRO, SAMR21 IAR support for AVR2025/AVR2102

### Release ASF3.19 (Aug 2014)

- SAM D10, SAM D11 device family and SAMD11-XPRO support
- USB quick start documentation
- SAM4 ASF drivers quick start documentation
- PLC and PRIME support to SAM4C/SAM4CP16/SAM4CMP/SAM4CMS kits
- LwIP RAW HTTP example with AJAX support
- SAM D21 DMAC Demo Application - Data Logger
- Add Xmega A1U-XPRO board support to ASF

### Release ASF3.18.1 (Jul 2014)

- PRIME stack support for SAM4C family

### Release ASF3.18 (Jun 2014)

- SAM4CM32 new device support
- SAM4C32E USB support
- SAM4C IPC support
- FreeRTOS 8.0.1 support
- OLED support for SAM4L-XPRO
- Demo for TWI information interface of EDBG
- Device series maintain of SAMD20/D21/R21

## 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, SLCD, 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 ctrl 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.

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## 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, switches, 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 DSPI 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-4921:** SAM0: improve power consumption in clock init.

Files modified:

sam0/drivers/system/clock/clock\_samd10\_d11/clock.c

sam0/drivers/system/clock/clock\_samd20/clock.c

sam0/drivers/system/clock/clock\_samd21\_r21/clock.c

- **Issue #ASFP-4924:** RTC need some new APIs.

Modified files:

- sam\drivers\rtc\rtc.h

- sam\drivers\rtc\rtc.c

- **Issue #ASFP-4947:** SAM D11 DMAC Application note.

Add SAM D11 DMAC Application note

Folder added:

sam0/applications/dmac\_cpu\_usage\_demo

- **Issue #ASFP-4965:** SAMG55 - Add device family support in ASF.

SAMG55 ASF support:

\* Device family in ASF

\* Full set of drivers:

sam\drivers\adc

sam\drivers\chipid

sam\drivers\cmcc

sam\drivers\crccu

sam\drivers\efc

sam\drivers\flexcom

sam\drivers\gpbr

sam\drivers\i2sc

sam\drivers\matrix

sam\drivers\mem2mem

sam\drivers\pdc

sam\drivers\pdm

sam\drivers\pio

sam\drivers\pmc

sam\drivers\rstc

sam\drivers\rtc

sam\drivers\rtt

sam\drivers\sbi

sam\drivers\spi

sam\drivers\supc

sam\drivers\tc

sam\drivers\twi

sam\drivers\udp

sam\drivers\uhp

sam\drivers\usart

sam\drivers\wdt

\* Applications:

common/applications/xplained\_pro\_user\_application/

sam/applications/getting-started  
sam/applications/sam\_low\_power  
sam/applications/starter\_kit\_bootloader\_demo  
\* Services:  
sam/services/flash\_efc  
common/services/clock  
common/services/delay  
common/services/freertos/sam  
common/services/ioport  
common/services/serial  
common/services/sleepmgr  
common/services/spi  
common/services/twi  
common/services/usb  
\* components:  
common/components/display/ssd1306/  
ommon/components/memory/eeeprom/at30tse75x  
ommon/components/memory/sd\_mmc  
\* Third party:  
thirdparty/CMSIS/DSP\_Lib  
thirdparty/freertos

- **Issue #ASFP-4978:** SAMD1X - Update document after 2nd techpub reiew.

Files modified:

sam0/applications/asf\_programmers\_manual/samd10/revhistory.h  
sam0/applications/asf\_programmers\_manual/samd11/revhistory.h  
sam0/drivers/ac/ac.h  
sam0/drivers/adac/adac.h  
sam0/drivers/bod/bod.h  
sam0/drivers/dac/dac.h  
sam0/drivers/dma/dma.h  
sam0/drivers/events/quick\_start\_interrupt\_hook/qs\_events\_interrupt\_hook.c  
sam0/drivers/events/events.h  
sam0/drivers/extint/extint.h  
sam0/drivers/nvm/nvm.h  
sam0/drivers/pac/pac.h  
sam0/drivers/port/port.h  
sam0/drivers/rtc/rtc\_calendar.h  
sam0/drivers/rtc/rtc\_count.h  
sam0/drivers/sercom/i2c/i2c\_common.h  
sam0/drivers/sercom/spi/spi.h  
sam0/drivers/sercom/spi\_master\_vec/spi\_master\_vec.h  
sam0/drivers/sercom/usart/usart.h  
sam0/drivers/system/clock/clock.h  
sam0/drivers/system/interrupt/system\_interrupt.h  
sam0/drivers/system/pinmux/pinmux.h  
sam0/drivers/system/system.h  
sam0/drivers/tc/quick\_start\_dma/qs\_tc\_dma.c  
sam0/drivers/tc/quick\_start\_dma/qs\_tc\_dma.h  
sam0/drivers/tc/tc.h  
sam0/drivers/tcc/tcc.h

sam0/drivers/wdt/wdt.h  
 sam0/drivers/wdt/wdt\_callback.h  
 sam0/services/eeeprom/emulator/eeeprom.h

- **Issue #ASFP-5014:** SAMD21 - Change default QOS value in startup file.

Updated SAMD21 header files and changed default QOS value in startup file to have the best performance and correct USB behavior.

Modified files:

- sam0/utils/cmsis/samd21/include folder for SAMD21 header file update
- sam0/drivers/usb/usb.c
- sam0/utils/cmsis/samd21/source/gcc/startup\_samd21.c
- sam0/utils/cmsis/samd21/source/iar/startup\_samd21.c

- **Issue #ASFP-5034:** SAML21 - Add SAML21 Device Support in ASF.

Add SAM L21 devices and SAM L21 Xplained Pro support in ASF:

- Drivers: AC, ADC, BOD, DAC, DMA, EVENTS, EXTINT, I2S, NVM, PAC, PORT, RTC, SERCOM(SPI, USART, I2C), System(clock, interrupt, pinmux, power, reset), TC, TCC, USB, WDT, AES, CCL, OPAMP, TRNG
- Services: eeeprom, delay, gfx\_mono, ctrl\_access, USB host, USB device
- Components: serial\_flash, at30ts75, ssd1306, serial\_flash
- Third party: CMSIS, freertos, fatfs
- Applications: led\_toggle, osc8\_calib, sleepwalking\_adc, tictactoe, xosc32k\_failure\_detector

- **Issue #ASFP-5047:** 8M Osc is always enabled in ASF for SAMD in clock.c.

Update clock function description.

Modified files:

sam0/drivers/system/clock/clock\_samd20/clock.c  
 sam0/drivers/system/clock/clock\_samd21\_r21/clock.c  
 sam0/drivers/system/clock/clock\_samd10\_d11/clock.c  
 sam0/drivers/system/clock/clock\_saml21/clock.c

- **Issue #ASFP-5048:** EEPROM Emulation Example in SAMD.

Update EEPROM example appnote.

Modified files:

sam0/services/eeeprom/emulator/quick\_start/qs\_emulator\_basic.h  
 sam0/services/eeeprom/emulator/unit\_test/unit\_test.c

- **Issue #ASFP-5052:** SAMD1X - Update document after 3rd techpub review.

Files Modified:

sam0/applications/asf\_programmers\_manual/samd10/revhistory.h  
 sam0/applications/asf\_programmers\_manual/samd11/revhistory.h  
 sam0/drivers/ac/ac.h  
 sam0/drivers/adc/adc.h  
 sam0/drivers/bod/bod.h  
 sam0/drivers/dac/dac.h  
 sam0/drivers/dma/dma.h  
 sam0/drivers/events/events.h  
 sam0/drivers/extint/extint.h  
 sam0/drivers/nvm/nvm.h  
 sam0/drivers/pac/pac.h

sam0/drivers/port/port.h  
sam0/drivers/rtc/rtc\_calendar.h  
sam0/drivers/rtc/rtc\_count.h  
sam0/drivers/sercom/i2c/i2c\_common.h  
sam0/drivers/sercom/spi/spi.h  
sam0/drivers/sercom/spi\_master\_vec/spi\_master\_vec.h  
sam0/drivers/sercom/usart/usart.h  
sam0/drivers/system/clock/clock.h  
sam0/drivers/system/interrupt/system\_interrupt.h  
sam0/drivers/system/pinmux/pinmux.h  
sam0/drivers/system/system.h  
sam0/drivers/tc/tc.h  
sam0/drivers/tcc/tcc.h  
sam0/drivers/wdt/wdt.h  
sam0/services/eeeprom/emulator/eeeprom.h

## Notable bugs fixed

- **Issue #ASFP-4849:** sam0: parameter issue of `adc_set_gain()` in adc driver.

Modified files:

- sam0\drivers\adc\adc.h

- **Issue #ASFP-4852:** The application hangs up when compare value is 0 in function `tc_set_compare_value`.  
Remove one assert in `tc_set_compare_value()` to allow 0 to be set into Compare/Capture register.

Modified file: sam0/drivers/tc/tc.c

- **Issue #ASFP-4859:** USB Documentation - Publish AN in Atmel website.

Update USB documentation for publishing

- **Issue #ASFP-4865:** D20 Usart driver does not support 9bit transfer.

Modified files:

- sam0\drivers\sercom\usart\usart.c

- sam0\drivers\sercom\usart\usart\_interrupt.c

- **Issue #ASFP-4889:** SAM D20: `adc_set_negative_input` writes wrong field in reg.

Modified files:

- sam0\drivers\adc\adc.h

- **Issue #ASFP-4901:** Unclear note description about function `pmc_switch_sclk_to_32kxtal()` in SAMG pmc.c.

Modified files:

- \sam\drivers\pmc\pmc.c

- **Issue #ASFP-4911:** `component_tc.h` contains wrong definitions for TC2XC2S.

Files Modified:

sam/drivers/adc/adc.c

sam/utils/cmsis/sam4s/include/component/component\_adc.h

sam/utils/cmsis/sam4s/include/component/component\_dacc.h

sam/utils/cmsis/sam4s/include/component/component\_pmc.h

sam/utils/cmsis/sam4s/include/component/component\_rtc.h

sam/utils/cmsis/sam4s/include/component/component\_tc.h  
 sam/utils/cmsis/sam4s/include/instance/instance\_adc.h  
 sam/utils/cmsis/sam4s/include/instance/instance\_pmc.h

- **Issue #ASFP-4916:** Input pull up enabled by default on SPI lines.

modified file:

- sam0/drivers/sercom/spi/spi.c

- **Issue #ASFP-4927:** AT09333 - Fix techpub comments(2th round).

Files modified:

common/services/usb/class/cdc/host/example/at32uc3c0512c\_uc3c\_ek/conf\_clock.h  
 common/services/usb/class/cdc/host/example/sam3x8e\_arduino\_due\_x/conf\_clock.h  
 common/services/usb/class/cdc/host/example/sam3x8h\_sam3x\_ek/conf\_clock.h  
 common/services/usb/class/cdc/host/example/sam4lc4c\_sam4l\_ek/conf\_clock.h  
 common/services/usb/class/cdc/host/example/sam4lc4c\_sam4l\_xplained\_pro/conf\_clock.h  
 common/services/usb/class/cdc/host/example/sam4lc8c\_sam4l8\_xplained\_pro/conf\_clock.h  
 common/services/usb/class/cdc/host/example/samd21j18a\_samd21\_xplained\_pro/conf\_clocks.h  
 common/services/usb/class/composite/host/example1/at32uc3c0512c\_uc3c\_ek/conf\_clock.h  
 common/services/usb/class/composite/host/example2/sam3x8e\_arduino\_due\_x/conf\_clock.h  
 common/services/usb/class/composite/host/example2/sam3x8h\_sam3x\_ek/conf\_clock.h  
 common/services/usb/class/composite/host/example2/sam4lc4c\_sam4l\_ek/conf\_clock.h  
 common/services/usb/class/composite/host/example2/sam4lc4c\_sam4l\_xplained\_pro/conf\_clock.h  
 common/services/usb/class/composite/host/example2/sam4lc8c\_sam4l8\_xplained\_pro/conf\_clock.h  
 common/services/usb/class/composite/host/example2/samd21j18a\_samd21\_xplained\_pro/  
 conf\_clocks.h  
 common/services/usb/class/hid/dual/mouse/example/at32uc3c0512c\_uc3c\_ek/conf\_clock.h  
 common/services/usb/class/hid/dual/mouse/example/sam3x8h\_sam3x\_ek/conf\_clock.h  
 common/services/usb/class/hid/dual/mouse/example/sam4lc4c\_sam4l\_ek/conf\_clock.h  
 common/services/usb/class/hid/dual/mouse/example/sam4lc4c\_sam4l\_xplained\_pro/conf\_clock.h  
 common/services/usb/class/hid/dual/mouse/example/sam4lc8c\_sam4l8\_xplained\_pro/conf\_clock.h  
 common/services/usb/class/hid/dual/mouse/example/samd21j18a\_samd21\_xplained\_pro/  
 conf\_clocks.h  
 common/services/usb/class/hid/host/mouse/example/at32uc3c0512c\_uc3c\_ek/conf\_clock.h  
 common/services/usb/class/hid/host/mouse/example/sam3x8h\_sam3x\_ek/conf\_clock.h  
 common/services/usb/class/hid/host/mouse/example/sam4lc4c\_sam4l\_ek/conf\_clock.h  
 common/services/usb/class/hid/host/mouse/example/sam4lc4c\_sam4l\_xplained\_pro/conf\_clock.h  
 common/services/usb/class/hid/host/mouse/example/sam4lc8c\_sam4l8\_xplained\_pro/conf\_clock.h  
 common/services/usb/class/hid/host/mouse/example/samd21j18a\_samd21\_xplained\_pro/  
 conf\_clocks.h  
 common/services/usb/class/msc/host/example/at32uc3c0512c\_uc3c\_ek/conf\_clock.h  
 common/services/usb/class/msc/host/example2/sam3x8e\_arduino\_due\_x/conf\_clock.h  
 common/services/usb/class/msc/host/example2/sam3x8h\_sam3x\_ek/conf\_clock.h  
 common/services/usb/class/msc/host/example2/sam4lc4c\_sam4l\_ek/conf\_clock.h  
 common/services/usb/class/msc/host/example2/sam4lc4c\_sam4l\_xplained\_pro/conf\_clock.h  
 common/services/usb/class/msc/host/example2/sam4lc8c\_sam4l8\_xplained\_pro/conf\_clock.h  
 common/services/usb/class/msc/host/example2/samd21j18a\_samd21\_xplained\_pro/conf\_clocks.h  
 common/services/usb/class/vendor/host/example/sam3x8h\_sam3x\_ek/conf\_clock.h  
 common/services/usb/class/vendor/host/example/sam4lc4c\_sam4l\_ek/conf\_clock.h  
 common/services/usb/class/vendor/host/example/sam4lc4c\_sam4l\_xplained\_pro/conf\_clock.h  
 common/services/usb/class/vendor/host/example/sam4lc8c\_sam4l8\_xplained\_pro/conf\_clock.h

common/services/usb/class/vendor/host/example/samd21j18a\_samd21\_xplained\_pro/conf\_clocks.h  
common/services/usb/uhc/unit\_tests/target/at32uc3c0512c\_uc3c\_ek\_host/conf\_clock.h  
common/services/usb/uhc/unit\_tests/target/sam3x8h\_sam3x\_ek\_host/conf\_clock.h  
common/services/usb/uhc/unit\_tests/target/sam4lc4c\_sam4l\_ek\_host/conf\_clock.h  
common/services/usb/uhc/unit\_tests/target/sam4lc4c\_sam4l\_xplained\_pro\_host/conf\_clock.h  
common/services/usb/uhc/unit\_tests/target/sam4lc8c\_sam4l8\_xplained\_pro\_host/conf\_clock.h  
common/services/usb/uhc/unit\_tests/target/samd21j18a\_samd21\_xplained\_pro/conf\_clocks.h  
common/services/usb/uhc/unit\_tests/usb\_device\_generator/sam3x8h\_sam3x\_ek/conf\_clock.h

- **Issue #ASFP-4933:** AT09332 - Fix comments of techpub review (2th round).

Modified files:

common/services/usb/class/cdc/device/example/sam3s4c\_sam3s\_ek/conf\_clock.h  
common/services/usb/class/cdc/device/example/sam3u4e\_sam3u\_ek/conf\_clock.h  
common/services/usb/class/cdc/device/example/sam3x8h\_sam3x\_ek/conf\_clock.h  
common/services/usb/class/cdc/device/example/samd21j18a\_samd21\_xplained\_pro/conf\_clocks.h  
common/services/usb/class/cdc/device/udi\_cdc\_doc.h  
common/services/usb/udc/udc\_doc.h

- **Issue #ASFP-4934:** FATFS Example project for SAM3S-EK2 build error.

Modified files:

conf\_access.h in example folders(including sam/sam0/xmega series).  
total 186 files.

- **Issue #ASFP-4939:** Fix bugs in startup\_sam4e.c for GCC and update SAM4E header files.

Modified files:

- sam/drivers/aes/aes.c  
- sam/drivers/afec/afec.h  
- sam/drivers/dacc/dacc.c  
- sam/drivers/dmac/dmac.c  
- sam/drivers/gmac/gmac.h  
- sam/drivers/twi/twi.c  
- sam/utils/cmsis/sam4e/include folder  
- sam/utils/cmsis/sam4e/source/templates/gcc/startup\_sam4e.c  
- sam/utils/cmsis/sam4e/source/templates/system\_sam4e.c

- **Issue #ASFP-4942:** Clock Failure Detection feature to be removed in SAM D21 clock driver.

Modified files:

- sam0\drivers\system\clock\clock.h  
- sam0\drivers\system\clock\clock\_samd21\_r21\clock.c  
- sam0\drivers\system\clock\clock\_samd10\_d11\clock.c  
- sam0\drivers\system\clock\clock\_samd20\clock.c

- **Issue #ASFP-4944:** SAM D I2C callback mode driver implements wrong data handling for last byte .

Modified file: sam0\drivers\sercom\i2c\i2c\_samd21\_r21\_d10\_d11\i2c\_master\_interrupt.c

- **Issue #ASFP-4948:** "rtc\_set\_time-alam" function in RTC driver and example should be updated as in datasheet.

Modified files:

- sam\drivers\rtc\rtc.c

- **Issue #ASFP-4967:** twihs\_slave\_read / twihs\_slave\_write is non functional.

Modified file:

- sam/drivers/twihs/twihs.c

- **Issue #ASFP-4968:** The errata fix implementaion in flash\_write function in flash\_efc.c is not device specific.

Modified files:

- sam\services\flash\_efc\flash\_efc.c

- **Issue #ASFP-4970:** Entry in Wait mode for SAM4S/N/E and SAM G5x is not coherent with Product Datasheet .

Modified files:

sam\drivers\pmc\pmc.c

- **Issue #ASFP-4991:** ASF SERCOM does not build with SAMR21E18A.

Modified one file:

- sam0/drivers/sercom/sercom\_pinout.h

- **Issue #ASFP-5005:** J1 header pins of ATZB-X0-256-4-0-CN mapped wrongly.

In the file xmega\_rf212b\_zigbit.h and xmega\_rf233\_zigbit.h of Xmega Zigbits Board of RF233 and RF212Bpin mapping for the J1 header is wrong.From the schematics of the zigbit, USARTD0 is the default serial port for the zigbit but in the header file serial port has been mapped with USARTE0.

Files Changed :

- xmega\boards\xmega\_rf212b\_zigbit\xmega\_rf212b\_zigbit.h

- xmega\boards\xmega\_rf233\_zigbit\xmega\_rf233\_zigbit.h

- **Issue #ASFP-5009:** Creation of user board project for ATSAMD20G17U .

Include header file of ATSAMD20G17U and ATSAMD20G18U

Modified file: sam0/utils/cmsis/samd20/include/samd20.h

- **Issue #ASFP-5016:** SAM - Write protection function error in some module.

Modified files:

- sam/drivers/adc/adc.c

- sam/drivers/adc/adc2.h

- sam/drivers/afec/afec.h

- sam/drivers/pio/pio.c

- sam/drivers/pmc/pmc.c

- sam/drivers/ssc/ssc.c

- sam/drivers/usart/usart.c

- **Issue #ASFP-5019:** USB doc - Fix issue in the appnote generated by build server.

Files modified:

common\services\usb\class\cdc\device\example\at32uc3c0512c\_uc3c\_ek\conf\_clock.h conf\_clock.h

common\services\usb\class\cdc\device\example\atuc128d3\_stk600-rcuc3d\conf\_clock.h

common\services\usb\class\cdc\device\example\atuc256l4u\_stk600-rcuc3l4\conf\_clock.h

common\services\usb\class\cdc\device\example\atxmega128a1u\_stk600-rc100x\conf\_clock.h

common\services\usb\class\cdc\device\example\atxmega128a1u\_xmega\_a1u\_xplained\_pro  
\conf\_clock.h

common\services\usb\class\cdc\device\example\atxmega128a4u\_stk600-rc044x\conf\_clock.h

common\services\usb\class\cdc\device\example\atxmega128b1\_stk600-rc100x\conf\_clock.h

common\services\usb\class\cdc\device\example\atxmega128b1\_xmega\_b1\_xplained\conf\_clock.h

common\services\usb\class\cdc\device\example\atxmega256a3bu\_stk600-rc064x\conf\_clock.h



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common\services\usb\class\cdc\device\example\atxmega256a3bu_xmega_a3bu_xplained
\conf_clock.h
common\services\usb\class\cdc\device\example\atxmega32a4u_stk600-rc044x\conf_clock.h
common\services\usb\class\cdc\device\example\atxmega384c3_stk600-rc064x\conf_clock.h
common\services\usb\class\cdc\device\example\sam3sd8c_sam3s_ek2\conf_clock.h
common\services\usb\class\cdc\device\example\sam3x8e_arduino_due_x\conf_clock.h
common\services\usb\class\cdc\device\example\sam4e16e_sam4e_ek\conf_clock.h
common\services\usb\class\cdc\device\example\sam4e16e_sam4e_xplained_pro\conf_clock.h
common\services\usb\class\cdc\device\example\sam4lc4c_sam4l_ek\conf_clock.h
common\services\usb\class\cdc\device\example\sam4lc4c_sam4l_xplained_pro\conf_clock.h
common\services\usb\class\cdc\device\example\sam4lc8c_sam4l8_xplained_pro\conf_clock.h
common\services\usb\class\cdc\device\example\sam4s16c_sam4s_ek\conf_clock.h
common\services\usb\class\cdc\device\example\sam4s16c_sam4s_xplained\conf_clock.h
common\services\usb\class\cdc\device\example\sam4sd32c_sam4s_ek2\conf_clock.h
common\services\usb\class\cdc\device\example\samr21g18a_samr21_xplained_pro\conf_clocks.h
common\services\usb\class\cdc\device\example2\sam3s4c_sam3s_ek\conf_clock.h
common\services\usb\class\cdc\device\example2\sam3sd8c_sam3s_ek2\conf_clock.h
common\services\usb\class\cdc\device\example2\sam3u4e_sam3u_ek\conf_clock.h
common\services\usb\class\cdc\device\example2\sam3x8e_arduino_due_x\conf_clock.h
common\services\usb\class\cdc\device\example2\sam3x8h_sam3x_ek\conf_clock.h
common\services\usb\class\cdc\device\example2\sam4e16e_sam4e_ek\conf_clock.h
common\services\usb\class\cdc\device\example2\sam4s16c_sam4s_ek\conf_clock.h
common\services\usb\class\cdc\device\example2\sam4sd32c_sam4s_ek2\conf_clock.h
common\services\usb\class\cdc\device\example3\atxmega128b1_xmega_b1_xplained\conf_clock.h
common\services\usb\class\cdc\device\example4\samd11d14a_samd11_xplained_pro\conf_clocks.h
common\services\usb\class\cdc\device\unit_tests\at32uc3c0512c_uc3c_ek\conf_clock.h
common\services\usb\class\cdc\device\unit_tests\atuc128d3_stk600-rcuc3d\conf_clock.h
common\services\usb\class\cdc\device\unit_tests\atuc256l4u_stk600-rcuc3l4\conf_clock.h
common\services\usb\class\cdc\device\unit_tests\atxmega128a1u_stk600-rc100x\conf_clock.h
common\services\usb\class\cdc\device\unit_tests\atxmega128b1_xmega_b1_xplained\conf_clock.h
common\services\usb\class\cdc\device\unit_tests\atxmega256a3bu_xmega_a3bu_xplained
\conf_clock.h conf_clock.h
common\services\usb\class\cdc\device\unit_tests\atxmega32a4u_stk600-rc044x\conf_clock.h
conf_clock.h
common\services\usb\class\cdc\device\unit_tests\sam3s4c_sam3s_ek\conf_clock.h
common\services\usb\class\cdc\device\unit_tests\sam3sd8c_sam3s_ek2\conf_clock.h
common\services\usb\class\cdc\device\unit_tests\sam3u4e_sam3u_ek\conf_clock.h
common\services\usb\class\cdc\device\unit_tests\sam3x8e_arduino_due_x\conf_clock.h
common\services\usb\class\cdc\device\unit_tests\sam3x8h_sam3x_ek\conf_clock.h
common\services\usb\class\cdc\device\unit_tests\sam4e16e_sam4e_ek\conf_clock.h
common\services\usb\class\cdc\device\unit_tests\sam4e16e_sam4e_xplained_pro\conf_clock.h
common\services\usb\class\cdc\device\unit_tests\sam4lc4c_sam4l_ek\conf_clock.h
common\services\usb\class\cdc\device\unit_tests\sam4lc4c_sam4l_xplained_pro\conf_clock.h
common\services\usb\class\cdc\device\unit_tests\sam4lc8c_sam4l8_xplained_pro\conf_clock.h
common\services\usb\class\cdc\device\unit_tests\sam4s16c_sam4s_ek\conf_clock.h
common\services\usb\class\cdc\device\unit_tests\sam4s16c_sam4s_xplained\conf_clock.h
common\services\usb\class\cdc\device\unit_tests\sam4sd32c_sam4s_ek2\conf_clock.h
common\services\usb\class\cdc\device\unit_tests\samd21j18a_samd21_xplained_pro\conf_clocks.h
common\services\usb\class\cdc\device\unit_tests\samr21g18a_samr21_xplained_pro\conf_clocks.h
common\services\usb\class\composite\device\example1\sam3s4c_sam3s_ek\conf_clock.h
common\services\usb\class\composite\device\example1\sam3sd8c_sam3s_ek2\conf_clock.h

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common\services\usb\class\composite\device\example4\sam4e16e_sam4e_xplained_pro\conf_clock.h
common\services\usb\class\composite\device\example4\sam4lc4c_sam4l_ek\conf_clock.h
common\services\usb\class\composite\device\example4\sam4lc4c_sam4l_xplained_pro\conf_clock.h
common\services\usb\class\composite\device\example4\sam4lc8c_sam4l8_xplained_pro\conf_clock.h
common\services\usb\class\composite\device\example4\sam4s16c_sam4s_ek\conf_clock.h
common\services\usb\class\composite\device\example4\sam4s16c_sam4s_xplained\conf_clock.h
common\services\usb\class\composite\device\example4\sam4sd32c_sam4s_ek2\conf_clock.h
common\services\usb\class\composite\device\example4\samd21j18a_samd21_xplained_pro
\conf_clocks.h
common\services\usb\class\composite\device\example4\samr21g18a_samr21_xplained_pro
\conf_clocks.h
common\services\usb\class\dfu_flip\device\bootloader\xmega\conf\conf_clock.h
common\services\usb\class\hid\device\generic\example\atuc128d3_stk600-rcuc3d\conf_clock.h
common\services\usb\class\hid\device\generic\example\atxmega32a4u_stk600-rc044x\conf_clock.h
common\services\usb\class\hid\device\generic\example\sam3s4c_sam3s_ek\conf_clock.h
common\services\usb\class\hid\device\generic\example\sam3sd8c_sam3s_ek2\conf_clock.h
common\services\usb\class\hid\device\generic\example\sam3u4e_sam3u_ek\conf_clock.h
common\services\usb\class\hid\device\generic\example\sam3x8e_arduino_due_x\conf_clock.h
common\services\usb\class\hid\device\generic\example\sam4e16e_sam4e_ek\conf_clock.h
common\services\usb\class\hid\device\generic\example\sam4e16e_sam4e_xplained_pro\conf_clock.h
common\services\usb\class\hid\device\generic\example\sam4lc4c_sam4l_ek\conf_clock.h
common\services\usb\class\hid\device\generic\example\sam4lc4c_sam4l_xplained_pro\conf_clock.h
common\services\usb\class\hid\device\generic\example\sam4lc8c_sam4l8_xplained_pro\conf_clock.h
common\services\usb\class\hid\device\generic\example\sam4s16c_sam4s_ek\conf_clock.h
common\services\usb\class\hid\device\generic\example\sam4s16c_sam4s_xplained\conf_clock.h
common\services\usb\class\hid\device\generic\example\sam4sd32c_sam4s_ek2\conf_clock.h
common\services\usb\class\hid\device\generic\example\samd11d14a_samd11_xplained_pro
\conf_clocks.h
common\services\usb\class\hid\device\generic\example\samr21g18a_samr21_xplained_pro
\conf_clocks.h
common\services\usb\class\hid\device\generic\example_hid_qtouch
\atxmega256a3bu_xmega_a3bu_xplained\conf_clock.h
common\services\usb\class\hid\device\kbd\example\atxmega128a1u_stk600-rc100x\conf_clock.h
common\services\usb\class\hid\device\kbd\example\atxmega128a4u_stk600-rc044x\conf_clock.h
common\services\usb\class\hid\device\kbd\example\atxmega128b1_stk600-rc100x\conf_clock.h
common\services\usb\class\hid\device\kbd\example\atxmega128b1_xmega_b1_xplained\conf_clock.h
common\services\usb\class\hid\device\kbd\example\atxmega256a3bu_stk600-rc064x\conf_clock.h
common\services\usb\class\hid\device\kbd\example\atxmega256a3bu_xmega_a3bu_xplained
\conf_clock.h
common\services\usb\class\hid\device\kbd\example\atxmega32a4u_stk600-rc044x\conf_clock.h
common\services\usb\class\hid\device\kbd\example\atxmega384c3_stk600-rc064x\conf_clock.h
common\services\usb\class\hid\device\kbd\example\sam3s4c_sam3s_ek\conf_clock.h
common\services\usb\class\hid\device\kbd\example\sam3sd8c_sam3s_ek2\conf_clock.h
common\services\usb\class\hid\device\kbd\example\sam3u4e_sam3u_ek\conf_clock.h
common\services\usb\class\hid\device\kbd\example\sam3x8e_arduino_due_x\conf_clock.h
common\services\usb\class\hid\device\kbd\example\sam4e16e_sam4e_ek\conf_clock.h
common\services\usb\class\hid\device\kbd\example\sam4e16e_sam4e_xplained_pro\conf_clock.h
common\services\usb\class\hid\device\kbd\example\sam4lc4c_sam4l_ek\conf_clock.h
common\services\usb\class\hid\device\kbd\example\sam4lc4c_sam4l_xplained_pro\conf_clock.h
common\services\usb\class\hid\device\kbd\example\sam4lc8c_sam4l8_xplained_pro\conf_clock.h
common\services\usb\class\hid\device\kbd\example\sam4s16c_sam4s_ek\conf_clock.h

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common\services\usb\class\hid\device\kbd\example\sam4s16c_sam4s_xplained\conf_clock.h
common\services\usb\class\hid\device\kbd\example\sam4sd32c_sam4s_ek2\conf_clock.h
common\services\usb\class\hid\device\kbd\example\samd11d14a_samd11_xplained_pro
\conf_clocks.h
common\services\usb\class\hid\device\kbd\example\samr21g18a_samr21_xplained_pro\conf_clocks.h
common\services\usb\class\hid\device\kbd\unit_tests\at32uc3c0512c_uc3c_ek\conf_clock.h
common\services\usb\class\hid\device\kbd\unit_tests\atuc128d3_stk600-rcuc3d\conf_clock.h
common\services\usb\class\hid\device\kbd\unit_tests\atuc256l4u_stk600-rcuc3l4\conf_clock.h
common\services\usb\class\hid\device\kbd\unit_tests\atxmega128a1u_stk600-rc100x\conf_clock.h
common\services\usb\class\hid\device\kbd\unit_tests\atxmega128b1_xmega_b1_xplained
\conf_clock.h
common\services\usb\class\hid\device\kbd\unit_tests\atxmega256a3bu_xmega_a3bu_xplained
\conf_clock.h
common\services\usb\class\hid\device\kbd\unit_tests\atxmega32a4u_stk600-rc044x\conf_clock.h
common\services\usb\class\hid\device\kbd\unit_tests\sam3s4c_sam3s_ek\conf_clock.h
common\services\usb\class\hid\device\kbd\unit_tests\sam3sd8c_sam3s_ek2\conf_clock.h
common\services\usb\class\hid\device\kbd\unit_tests\sam3u4e_sam3u_ek\conf_clock.h
common\services\usb\class\hid\device\kbd\unit_tests\sam3x8e_arduino_due_x\conf_clock.h
common\services\usb\class\hid\device\kbd\unit_tests\sam3x8h_sam3x_ek\conf_clock.h
common\services\usb\class\hid\device\kbd\unit_tests\sam4e16e_sam4e_ek\conf_clock.h
common\services\usb\class\hid\device\kbd\unit_tests\sam4e16e_sam4e_xplained_pro\conf_clock.h
common\services\usb\class\hid\device\kbd\unit_tests\sam4lc4c_sam4l_ek\conf_clock.h
common\services\usb\class\hid\device\kbd\unit_tests\sam4lc4c_sam4l_xplained_pro\conf_clock.h
common\services\usb\class\hid\device\kbd\unit_tests\sam4lc8c_sam4l8_xplained_pro\conf_clock.h
common\services\usb\class\hid\device\kbd\unit_tests\sam4s16c_sam4s_ek\conf_clock.h
common\services\usb\class\hid\device\kbd\unit_tests\sam4s16c_sam4s_xplained\conf_clock.h
common\services\usb\class\hid\device\kbd\unit_tests\sam4sd32c_sam4s_ek2\conf_clock.h
common\services\usb\class\hid\device\kbd\unit_tests\samd21j18a_samd21_xplained_pro
\conf_clocks.h
common\services\usb\class\hid\device\kbd\unit_tests\samr21g18a_samr21_xplained_pro
\conf_clocks.h
common\services\usb\class\hid\device\mouse\example\atuc128d3_stk600-rcuc3d\conf_clock.h
common\services\usb\class\hid\device\mouse\example\atuc256l4u_stk600-rcuc3l4\conf_clock.h
common\services\usb\class\hid\device\mouse\example\atxmega128a1u_stk600-rc100x\conf_clock.h
common\services\usb\class\hid\device\mouse\example\atxmega128a4u_stk600-rc044x\conf_clock.h
common\services\usb\class\hid\device\mouse\example\atxmega128b1_stk600-rc100x\conf_clock.h
common\services\usb\class\hid\device\mouse\example\atxmega128b1_xmega_b1_xplained
\conf_clock.h
common\services\usb\class\hid\device\mouse\example\atxmega256a3bu_stk600-rc064x\conf_clock.h
common\services\usb\class\hid\device\mouse\example\atxmega256a3bu_xmega_a3bu_xplained
\conf_clock.h
common\services\usb\class\hid\device\mouse\example\atxmega32a4u_stk600-rc044x\conf_clock.h
common\services\usb\class\hid\device\mouse\example\atxmega384c3_stk600-rc064x\conf_clock.h
common\services\usb\class\hid\device\mouse\example\sam3s4c_sam3s_ek\conf_clock.h
common\services\usb\class\hid\device\mouse\example\sam3sd8c_sam3s_ek2\conf_clock.h
common\services\usb\class\hid\device\mouse\example\sam3u4e_sam3u_ek\conf_clock.h
common\services\usb\class\hid\device\mouse\example\sam3x8e_arduino_due_x\conf_clock.h
common\services\usb\class\hid\device\mouse\example\sam4e16e_sam4e_ek\conf_clock.h
common\services\usb\class\hid\device\mouse\example\sam4e16e_sam4e_xplained_pro\conf_clock.h
common\services\usb\class\hid\device\mouse\example\sam4lc4c_sam4l_ek\conf_clock.h
common\services\usb\class\hid\device\mouse\example\sam4lc4c_sam4l_xplained_pro\conf_clock.h
```

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common\services\usb\class\hid\device\mouse\example\sam4lc8c_sam4l8_xplained_pro\conf_clock.h
common\services\usb\class\hid\device\mouse\example\sam4s16c_sam4s_ek\conf_clock.h
common\services\usb\class\hid\device\mouse\example\sam4s16c_sam4s_xplained\conf_clock.h
common\services\usb\class\hid\device\mouse\example\sam4sd32c_sam4s_ek2\conf_clock.h
common\services\usb\class\hid\device\mouse\example\samd11d14a_samd11_xplained_pro
\conf_clocks.h
common\services\usb\class\hid\device\mouse\example\samr21g18a_samr21_xplained_pro
\conf_clocks.h
common\services\usb\class\hid\device\mouse\unit_tests\at32uc3c0512c_uc3c_ek\conf_clock.h
common\services\usb\class\hid\device\mouse\unit_tests\atuc128d3_stk600-rcuc3d\conf_clock.h
common\services\usb\class\hid\device\mouse\unit_tests\atuc256l4u_stk600-rcuc3l4\conf_clock.h
common\services\usb\class\hid\device\mouse\unit_tests\atxmega128a1u_stk600-rc100x\conf_clock.h
common\services\usb\class\hid\device\mouse\unit_tests\atxmega128b1_stk600-rc100x\conf_clock.h
common\services\usb\class\hid\device\mouse\unit_tests\atxmega128b1_xmega_b1_xplained
\conf_clock.h
common\services\usb\class\hid\device\mouse\unit_tests\atxmega256a3bu_stk600-rc064x\conf_clock.h
common\services\usb\class\hid\device\mouse\unit_tests\atxmega256a3bu_xmega_a3bu_xplained
\conf_clock.h
common\services\usb\class\hid\device\mouse\unit_tests\atxmega32a4u_stk600-rc044x\conf_clock.h
common\services\usb\class\hid\device\mouse\unit_tests\atxmega384c3_stk600-rc064x\conf_clock.h
common\services\usb\class\hid\device\mouse\unit_tests\sam3s4c_sam3s_ek\conf_clock.h
common\services\usb\class\hid\device\mouse\unit_tests\sam3sd8c_sam3s_ek2\conf_clock.h
common\services\usb\class\hid\device\mouse\unit_tests\sam3u4e_sam3u_ek\conf_clock.h
common\services\usb\class\hid\device\mouse\unit_tests\sam3x8e_arduino_due_x\conf_clock.h
common\services\usb\class\hid\device\mouse\unit_tests\sam3x8h_sam3x_ek\conf_clock.h
common\services\usb\class\hid\device\mouse\unit_tests\sam4e16e_sam4e_ek\conf_clock.h
common\services\usb\class\hid\device\mouse\unit_tests\sam4e16e_sam4e_xplained_pro\conf_clock.h
common\services\usb\class\hid\device\mouse\unit_tests\sam4lc4c_sam4l_ek\conf_clock.h
common\services\usb\class\hid\device\mouse\unit_tests\sam4lc4c_sam4l_xplained_pro\conf_clock.h
common\services\usb\class\hid\device\mouse\unit_tests\sam4lc8c_sam4l8_xplained_pro\conf_clock.h
common\services\usb\class\hid\device\mouse\unit_tests\sam4s16c_sam4s_ek\conf_clock.h
common\services\usb\class\hid\device\mouse\unit_tests\sam4s16c_sam4s_xplained\conf_clock.h
common\services\usb\class\hid\device\mouse\unit_tests\sam4sd32c_sam4s_ek2\conf_clock.h
common\services\usb\class\hid\device\mouse\unit_tests\samd21j18a_samd21_xplained_pro
\conf_clocks.h
common\services\usb\class\hid\device\mouse\unit_tests\samr21g18a_samr21_xplained_pro
\conf_clocks.h
common\services\usb\class\msc\device\example\atuc128d3_stk600-rcuc3d\conf_clock.h
common\services\usb\class\msc\device\example\atxmega128a1u_stk600-rc100x\conf_clock.h
common\services\usb\class\msc\device\example\atxmega128a4u_stk600-rc044x\conf_clock.h
common\services\usb\class\msc\device\example\atxmega128b1_stk600-rc100x\conf_clock.h
common\services\usb\class\msc\device\example\atxmega256a3bu_stk600-rc064x\conf_clock.h
common\services\usb\class\msc\device\example\atxmega256a3bu_xmega_a3bu_xplained
\conf_clock.h
common\services\usb\class\msc\device\example\atxmega32a4u_stk600-rc044x\conf_clock.h
common\services\usb\class\msc\device\example\atxmega384c3_stk600-rc064x\conf_clock.h
common\services\usb\class\msc\device\example\atxmega384c3_xmega_c3_xplained\conf_clock.h
common\services\usb\class\msc\device\example\sam3sd8c_sam3s_ek2\conf_clock.h
common\services\usb\class\msc\device\example\sam3x8e_arduino_due_x\conf_clock.h
common\services\usb\class\msc\device\example\sam4e16e_sam4e_ek\conf_clock.h
common\services\usb\class\msc\device\example\sam4e16e_sam4e_xplained_pro\conf_clock.h
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common\services\usb\class\msc\device\example\sam4lc4c\_sam4l\_ek\conf\_clock.h  
common\services\usb\class\msc\device\example\sam4lc4c\_sam4l\_xplained\_pro\conf\_clock.h  
common\services\usb\class\msc\device\example\sam4lc8c\_sam4l8\_xplained\_pro\conf\_clock.h  
common\services\usb\class\msc\device\example\sam4s16c\_sam4s\_ek\conf\_clock.h  
common\services\usb\class\msc\device\example\sam4s16c\_sam4s\_xplained\conf\_clock.h  
common\services\usb\class\msc\device\example\sam4sd32c\_sam4s\_ek2\conf\_clock.h  
common\services\usb\class\msc\device\example\samr21g18a\_samr21\_xplained\_pro\conf\_clocks.h  
common\services\usb\class\msc\device\example\_freertos\at32uc3c0512c\_uc3c\_ek\conf\_clock.h  
common\services\usb\class\msc\device\example\_freertos\sam3s4c\_sam3s\_ek\conf\_clock.h  
common\services\usb\class\msc\device\example\_freertos\sam3sd8c\_sam3s\_ek2\conf\_clock.h  
common\services\usb\class\msc\device\example\_freertos\sam3u4e\_sam3u\_ek\conf\_clock.h  
common\services\usb\class\msc\device\example\_freertos\sam3x8e\_arduino\_due\_x\conf\_clock.h  
common\services\usb\class\msc\device\example\_freertos\sam3x8h\_sam3x\_ek\conf\_clock.h  
common\services\usb\class\msc\device\example\_freertos\sam4e16e\_sam4e\_ek\conf\_clock.h  
common\services\usb\class\msc\device\example\_freertos\sam4e16e\_sam4e\_xplained\_pro  
\conf\_clock.h  
common\services\usb\class\msc\device\example\_freertos\sam4s16c\_sam4s\_ek\conf\_clock.h  
common\services\usb\class\msc\device\example\_freertos\sam4s16c\_sam4s\_xplained\conf\_clock.h  
common\services\usb\class\msc\device\example\_freertos\sam4sd32c\_sam4s\_ek2\conf\_clock.h  
common\services\usb\class\msc\device\unit\_tests\at32uc3c0512c\_uc3c\_ek\conf\_clock.h  
common\services\usb\class\msc\device\unit\_tests\atuc128d3\_stk600-rcuc3d\conf\_clock.h  
common\services\usb\class\msc\device\unit\_tests\atxmega128a1u\_stk600-rc100x\conf\_clock.h  
common\services\usb\class\msc\device\unit\_tests\atxmega128a4u\_stk600-rc044x\conf\_clock.h  
common\services\usb\class\msc\device\unit\_tests\atxmega128b1\_xmega\_b1\_xplained\conf\_clock.h  
common\services\usb\class\msc\device\unit\_tests\atxmega256a3bu\_xmega\_a3bu\_xplained  
\conf\_clock.h  
common\services\usb\class\msc\device\unit\_tests\atxmega384c3\_stk600-rc064x\conf\_clock.h  
common\services\usb\class\msc\device\unit\_tests\sam3s4c\_sam3s\_ek\conf\_clock.h  
common\services\usb\class\msc\device\unit\_tests\sam3sd8c\_sam3s\_ek2\conf\_clock.h  
common\services\usb\class\msc\device\unit\_tests\sam3u4e\_sam3u\_ek\conf\_clock.h  
common\services\usb\class\msc\device\unit\_tests\sam3x8e\_arduino\_due\_x\conf\_clock.h  
common\services\usb\class\msc\device\unit\_tests\sam3x8h\_sam3x\_ek\conf\_clock.h  
common\services\usb\class\msc\device\unit\_tests\sam4e16e\_sam4e\_ek\conf\_clock.h  
common\services\usb\class\msc\device\unit\_tests\sam4e16e\_sam4e\_xplained\_pro\conf\_clock.h  
common\services\usb\class\msc\device\unit\_tests\sam4lc4c\_sam4l\_ek\conf\_clock.h  
common\services\usb\class\msc\device\unit\_tests\sam4lc4c\_sam4l\_xplained\_pro\conf\_clock.h  
common\services\usb\class\msc\device\unit\_tests\sam4lc8c\_sam4l8\_xplained\_pro\conf\_clock.h  
common\services\usb\class\msc\device\unit\_tests\sam4s16c\_sam4s\_ek\conf\_clock.h  
common\services\usb\class\msc\device\unit\_tests\sam4s16c\_sam4s\_xplained\conf\_clock.h  
common\services\usb\class\msc\device\unit\_tests\sam4sd32c\_sam4s\_ek2\conf\_clock.h  
common\services\usb\class\msc\device\unit\_tests\samd21j18a\_samd21\_xplained\_pro\conf\_clocks.h  
common\services\usb\class\msc\device\unit\_tests\samr21g18a\_samr21\_xplained\_pro\conf\_clocks.h  
common\services\usb\class\phdc\device\example\atxmega256a3bu\_xmega\_a3bu\_xplained  
\conf\_clock.h  
common\services\usb\class\phdc\device\example\sam4e16e\_sam4e\_ek\conf\_clock.h  
common\services\usb\class\phdc\device\example\sam4e16e\_sam4e\_xplained\_pro\conf\_clock.h  
common\services\usb\class\phdc\device\example\sam4lc4c\_sam4l\_ek\conf\_clock.h  
common\services\usb\class\phdc\device\example\sam4lc4c\_sam4l\_xplained\_pro\conf\_clock.h  
common\services\usb\class\phdc\device\example\sam4lc8c\_sam4l8\_xplained\_pro\conf\_clock.h  
common\services\usb\class\phdc\device\example\sam4s16c\_sam4s\_ek\conf\_clock.h  
common\services\usb\class\phdc\device\example\samd21j18a\_samd21\_xplained\_pro\conf\_clocks.h



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common\services\usb\class\phdc\device\example\samr21g18a_samr21_xplained_pro\conf_clocks.h
common\services\usb\class\vendor\device\example\at32uc3c0512c_uc3c_ek\conf_clock.h
common\services\usb\class\vendor\device\example\atuc128d3_stk600-rcuc3d\conf_clock.h
common\services\usb\class\vendor\device\example\atxmega256a3bu_stk600-rc064x\conf_clock.h
common\services\usb\class\vendor\device\example\atxmega256a3bu_xmega_a3bu_xplained
\conf_clock.h
common\services\usb\class\vendor\device\example\atxmega32a4u_stk600-rc044x\conf_clock.h
common\services\usb\class\vendor\device\example\atxmega384c3_stk600-rc064x\conf_clock.h
common\services\usb\class\vendor\device\example\sam3s4c_sam3s_ek\conf_clock.h
common\services\usb\class\vendor\device\example\sam3sd8c_sam3s_ek2\conf_clock.h
common\services\usb\class\vendor\device\example\sam3u4e_sam3u_ek\conf_clock.h
common\services\usb\class\vendor\device\example\sam3x8e_arduino_due_x\conf_clock.h
common\services\usb\class\vendor\device\example\sam3x8h_sam3x_ek\conf_clock.h
common\services\usb\class\vendor\device\example\sam4e16e_sam4e_ek\conf_clock.h
common\services\usb\class\vendor\device\example\sam4e16e_sam4e_xplained_pro\conf_clock.h
common\services\usb\class\vendor\device\example\sam4lc4c_sam4l_ek\conf_clock.h
common\services\usb\class\vendor\device\example\sam4lc4c_sam4l_xplained_pro\conf_clock.h
common\services\usb\class\vendor\device\example\sam4lc8c_sam4l8_xplained_pro\conf_clock.h
common\services\usb\class\vendor\device\example\sam4s16c_sam4s_ek\conf_clock.h
common\services\usb\class\vendor\device\example\sam4s16c_sam4s_wpir_rd\conf_clock.h
common\services\usb\class\vendor\device\example\sam4s16c_sam4s_xplained\conf_clock.h
common\services\usb\class\vendor\device\example\sam4sd32c_sam4s_ek2\conf_clock.h
common\services\usb\class\vendor\device\example\samd21j18a_samd21_xplained_pro\conf_clocks.h
common\services\usb\class\vendor\device\example\samr21g18a_samr21_xplained_pro\conf_clocks.h
```

- **Issue #ASFP-5020:** Update SAMR21 header files.  
Update SAMR21 header files.
- **Issue #ASFP-5023:** USB doc : Fix 3th round techpub comments.  
Update USB documents
- **Issue #ASFP-5028:** SAMD2x usart\_write\_job bug.  
Modified files:  
- \sam0\drivers\sercom\usart\usart\_interrupt.h  
- \sam0\drivers\sercom\usart\usart\_interrupt.c
- **Issue #ASFP-5029:** Default multiplier factor and gclk source for DFLL48M should have relvant values in SAMD.  
Modified files:  
\asf\_master\sam0\drivers\system\clock\clock\_samd21\_r21\module\_config\conf\_clocks.h and similar d10\_d11\_d20  
\asf\_master\common2\applications\user\_application\user\_board\config\_samd21\conf\_clocks.h and similar d11\_d20\_r21  
\asf\_master\common2\applications\xplained\_pro\_user\_application\samd21j18a\_samd21\_xplained\_pro\config\conf\_clocks.h and similar and similar d10\_d11\_d20\_r21  
other "conf\_clocks.h" in related examples, total 114 files.
- **Issue #ASFP-5033:** Improper SPI configuration in Wireless Stacks for SAM0 boards ( AT86RFx\_SPI\_config()).  
The Transceiver MCU pin configurations for SAM0 are done in the respective board files rather than in the transceiver access files.This needs to be modified for ease of use.  
Files modified :

sam0/boards/samd20\_xplained\_pro/samd20\_xplained\_pro.h  
 sam0/boards/samd21\_xplained\_pro/samd21\_xplained\_pro.h  
 sam0/boards/samr21\_xplained\_pro/samr21\_xplained\_pro.h  
 thirdparty/wireless/services/trx\_access/trx\_access.c  
 thirdparty/wireless/services/trx\_access/module\_config/conf\_trx\_access.h

• **Issue #ASFP-5038:** Support for Remote Node Configuration Feature in Performance Analyzer Firmware .

Add support for a new Performance analyzer mode to be used for remote wireless commanding of a DUT for the purpose of FCC or other RF regulatory testing.

The following functionality needs to be implemented:

1. The Ability to initiate the CW test mode over an RF wireless link to the remote DUT.
2. The ability to set on remote DUT for parameters like TX power level, Select antenna, select CW vs PRBS transmission mode, Set duration of CW test or timeout.
3. The ability to configure DUT continuous packet transmissions with programmable delay between frames..
4. Continuous RX\_ON mode. This is used to make RX only measurements of digital emissions where the DUT must be in RX mode but cannot transmit for any reason when in this mode.

File Changed :

- thirdparty/wireless/avr2025\_mac/apps/tal/performance\_analyzer/inc/app\_config.h  
 - thirdparty/wireless/avr2025\_mac/apps/tal/performance\_analyzer/inc/app\_frame\_format.h  
 - thirdparty/wireless/avr2025\_mac/apps/tal/performance\_analyzer/inc/app\_init.h  
 - thirdparty/wireless/avr2025\_mac/apps/tal/performance\_analyzer/inc/app\_per\_mode.h  
 - thirdparty/wireless/avr2025\_mac/apps/tal/performance\_analyzer/inc/perf\_api.h  
 - thirdparty/wireless/avr2025\_mac/apps/tal/performance\_analyzer/inc/perf\_api\_serial\_handler.h  
 - thirdparty/wireless/avr2025\_mac/apps/tal/performance\_analyzer/inc/perf\_msg\_const.h  
 - thirdparty/wireless/avr2025\_mac/apps/tal/performance\_analyzer/inc/user\_interface.h  
 - thirdparty/wireless/avr2025\_mac/apps/tal/performance\_analyzer/src/init\_state.c  
 - thirdparty/wireless/avr2025\_mac/apps/tal/performance\_analyzer/src/peer\_search\_initiator.c  
 - thirdparty/wireless/avr2025\_mac/apps/tal/performance\_analyzer/src/peer\_search\_receptor.c  
 - 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/perf\_api\_serial\_handler.c  
 - thirdparty/wireless/avr2025\_mac/apps/tal/performance\_analyzer/src/range\_measure.c  
 - thirdparty/wireless/avr2025\_mac/apps/tal/performance\_analyzer/src/user\_interface.c  
 - thirdparty/wireless/avr2025\_mac/apps/tal/performance\_analyzer/PerformanceAnalyzerProtocol.pdf

• **Issue #ASFP-5039:** USB doc - Fix Techpub comment(4th round).

File modified:

common\services\usb\class\cdc\device\example\sam3u4e\_sam3u\_ek\conf\_clock.h  
 common\services\usb\class\cdc\device\example\sam3x8e\_arduino\_due\_x\conf\_clock.h  
 common\services\usb\class\cdc\device\example\sam3x8h\_sam3x\_ek\conf\_clock.h  
 common\services\usb\class\cdc\device\example2\sam3u4e\_sam3u\_ek\conf\_clock.h  
 common\services\usb\class\cdc\device\example2\sam3x8e\_arduino\_due\_x\conf\_clock.h  
 common\services\usb\class\cdc\device\example2\sam3x8h\_sam3x\_ek\conf\_clock.h  
 common\services\usb\class\cdc\device\unit\_tests\sam3u4e\_sam3u\_ek\conf\_clock.h  
 common\services\usb\class\cdc\device\unit\_tests\sam3x8e\_arduino\_due\_x\conf\_clock.h  
 common\services\usb\class\cdc\device\unit\_tests\sam3x8h\_sam3x\_ek\conf\_clock.h  
 common\services\usb\class\cdc\host\example\sam3x8e\_arduino\_due\_x\conf\_clock.h  
 common\services\usb\class\cdc\host\example\sam3x8h\_sam3x\_ek\conf\_clock.h

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common\services\usb\class\composite\device\example1\sam3u4e_sam3u_ek\conf_clock.h
common\services\usb\class\composite\device\example1\sam3x8e_arduino_due_x\conf_clock.h
common\services\usb\class\composite\device\example1\sam3x8h_sam3x_ek\conf_clock.h
common\services\usb\class\composite\device\example2\sam3x8e_arduino_due_x\conf_clock.h
common\services\usb\class\composite\device\example2\sam3x8h_sam3x_ek\conf_clock.h
common\services\usb\class\composite\device\example3\sam3u4e_sam3u_ek\conf_clock.h
common\services\usb\class\composite\device\example3\sam3x8e_arduino_due_x\conf_clock.h
common\services\usb\class\composite\device\example3\sam3x8h_sam3x_ek\conf_clock.h
common\services\usb\class\composite\device\example4\sam3u4e_sam3u_ek\conf_clock.h
common\services\usb\class\composite\device\example4\sam3x8e_arduino_due_x\conf_clock.h
common\services\usb\class\composite\device\example4\sam3x8h_sam3x_ek\conf_clock.h
common\services\usb\class\composite\host\example2\sam3x8e_arduino_due_x\conf_clock.h
common\services\usb\class\composite\host\example2\sam3x8h_sam3x_ek\conf_clock.h
common\services\usb\class\hid\device\generic\example\sam3u4e_sam3u_ek\conf_clock.h
common\services\usb\class\hid\device\generic\example\sam3x8e_arduino_due_x\conf_clock.h
common\services\usb\class\hid\device\generic\example\sam3x8h_sam3x_ek\conf_clock.h
common\services\usb\class\hid\device\kbd\example\sam3u4e_sam3u_ek\conf_clock.h
common\services\usb\class\hid\device\kbd\example\sam3x8e_arduino_due_x\conf_clock.h
common\services\usb\class\hid\device\kbd\example\sam3x8h_sam3x_ek\conf_clock.h
common\services\usb\class\hid\device\kbd\unit_tests\sam3u4e_sam3u_ek\conf_clock.h
common\services\usb\class\hid\device\kbd\unit_tests\sam3x8e_arduino_due_x\conf_clock.h
common\services\usb\class\hid\device\kbd\unit_tests\sam3x8h_sam3x_ek\conf_clock.h
common\services\usb\class\hid\device\mouse\example\sam3u4e_sam3u_ek\conf_clock.h
common\services\usb\class\hid\device\mouse\example\sam3x8e_arduino_due_x\conf_clock.h
common\services\usb\class\hid\device\mouse\example\sam3x8h_sam3x_ek\conf_clock.h
common\services\usb\class\hid\device\mouse\unit_tests\sam3u4e_sam3u_ek\conf_clock.h
common\services\usb\class\hid\device\mouse\unit_tests\sam3x8e_arduino_due_x\conf_clock.h
common\services\usb\class\hid\device\mouse\unit_tests\sam3x8h_sam3x_ek\conf_clock.h
common\services\usb\class\hid\dual\mouse\example\sam3x8h_sam3x_ek\conf_clock.h
common\services\usb\class\hid\host\mouse\example\sam3x8h_sam3x_ek\conf_clock.h
common\services\usb\class\msc\device\example\sam3u4e_sam3u_ek\conf_clock.h
common\services\usb\class\msc\device\example\sam3x8e_arduino_due_x\conf_clock.h
common\services\usb\class\msc\device\example\sam3x8h_sam3x_ek\conf_clock.h
common\services\usb\class\msc\device\example_freertos\sam3u4e_sam3u_ek\conf_clock.h
common\services\usb\class\msc\device\example_freertos\sam3x8e_arduino_due_x\conf_clock.h
common\services\usb\class\msc\device\example_freertos\sam3x8h_sam3x_ek\conf_clock.h
common\services\usb\class\msc\device\unit_tests\sam3u4e_sam3u_ek\conf_clock.h
common\services\usb\class\msc\device\unit_tests\sam3x8e_arduino_due_x\conf_clock.h
common\services\usb\class\msc\device\unit_tests\sam3x8h_sam3x_ek\conf_clock.h
common\services\usb\class\msc\host\example2\sam3x8e_arduino_due_x\conf_clock.h
common\services\usb\class\msc\host\example2\sam3x8h_sam3x_ek\conf_clock.h
common\services\usb\class\msc\host\uhi_msc_mem.h
common\services\usb\class\vendor\device\example\sam3u4e_sam3u_ek\conf_clock.h
common\services\usb\class\vendor\device\example\sam3x8e_arduino_due_x\conf_clock.h
common\services\usb\class\vendor\device\example\sam3x8h_sam3x_ek\conf_clock.h
common\services\usb\class\vendor\host\example\sam3x8h_sam3x_ek\conf_clock.h
common\services\usb\uhc\unit_tests\target\sam3x8h_sam3x_ek_host\conf_clock.h
common\services\usb\uhc\unit_tests\usb_device_generator\sam3x8h_sam3x_ek\conf_clock.h

```

- **Issue #ASFP-5049:** WSNDemo and Performance Analyzer Application-Components cannot be reused with other components in Application.



Performance Analyzer and WSNDemo(LWMesh) applications are available as components in ASF. But it is not possible to use them along with other components since the component has a while(1) and hence other components cannot be added along with them. Hence these need to be modified into a component init and component task functions so as to support adding other components along with this component.

Files changed :

- thirdparty\wireless\avr2025\_mac\apps\ta\performance\_analyzer\main.c
- thirdparty\wireless\avr2025\_mac\apps\ta\performance\_analyzer\inc\performance\_main.h
- thirdparty\wireless\avr2025\_mac\apps\ta\performance\_analyzer\src\performance\_main.c
- thirdparty\wireless\avr2130\_lwmesh\apps\wsndemo\main.c
- thirdparty\wireless\avr2130\_lwmesh\apps\wsndemo\wsndemoc.
- thirdparty\wireless\avr2130\_lwmesh\apps\wsndemo\wsndemo.h

- **Issue #ASFP-5066:** Update the support link in files.

Add the support link "<http://www.atmel.com/design-support>" to document

## 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.

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## 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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