
ASF: Release ASF-3.32

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).



**8/32-bits Atmel
Microcontrollers**

Release ASF-3.32

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

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- SAM D09
 - SAM D10
 - SAM D11
 - SAM D20
 - SAM D21
 - SAM G51
 - SAM G53
 - SAM G54
 - SAM G55
 - SAM L21
 - SAM L22
 - SAM R21
 - SAM DA
 - SAM C20
 - SAM C21
 - SAM V71
 - SAM V70
 - SAM S70
 - SAM E70
 - SAM B11
 - SAM R30

Supported Tools

- Atmel Studio 6.2/7.0 using GCC compiler - Visit www.atmel.com/atmelstudio -:
- IAR EWAVR32 version 4.30
- IAR EWAVR version 6.60
- IAR EWARM version 7.50

Note:

- Atmel Studio 6.0 version is not supported since ASF-3.6 extension.
- 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.
- SAM D21 B&L series and SAMD21G17AU/SAMD21G17AU/SAMD21E15BU/SAMD21E16BU devices support for Atmel Studio 6 requires the related Part Pack.
- SAM C20/C21 devices support for Atmel Studio 6 requires the related Part Pack.
- SAM L22 devices support for Atmel Studio 6 requires the related Part Pack.
- SAM B11 devices support only for Atmel Studio 7 and requires the related Part Pack.
- SAM R30 devices support only for Atmel Studio 7 and requires the related Part Pack.

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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 ASF3.32 (Jul 2016)

- Add SAMR30 support in ASF
- Add SAM B11 ZR support in ASF
- Add BLU_SDK_SMART v5.2 support

Release ASF3.31 (Apr 2016)

- Update WINC3400 firmware to 1.0.2
- Add BluSDK Smart 5.1
- SAM L21 application examples:
 - SAM L21 OPAMP as ADC Gain Amplifier
 - SAM L21 CCL application example
- SAM-BA use USB interface on SAM L21 XPRO board
- SAM E70/V71: Enable the Cache on part of examples(Check the detail on "Issue #ASFP-5891" below)

Release ASF3.30 (Feb 2016)

- Add BluSDK Smart 5.0
- Update BluSDK5.0
- SAM L22 application examples:
 - CPU usage demonstration using DMAC
 - Smart card example
 - Low power application
 - TCC features example
- SAM4S XPRO examples:
 - NAND flash examples
 - SD/MMC examples
- SAM-BA use USB interface on SAM D21 and L22 XPRO board
- ADP: SAM4S and SAM L21 XPRO board support

Release ASF3.29 (Dec 2015)

- Add SAM L22 RevB support
- Add SAM E70 full support
 - Service: USB HID/CDC/MSC/PHDC/Vendor device, GFX
 - Component: Wifi WINC1500, MXT112S, AT30tse75x
 - Third party: FreeRTOS 8.2.3, Sensor B0N055,
- Add Atmega 48PB,88PB,168PB devices and 168PB XMINI board support
- Add SAMD11D14A-UUT device support
- Add ATSAMR21ZLL-EK board support
- Add ATSAMR21B18-MZ210PA and ATSAMR21G18-MR210UA module support
- Add BluSDK4.0 (BLE 4.1) support
- Add WINC3400 support and updating WINC1500 firmware to 19.4.4
- Add WILC1000/3000 support

Release ASF3.28 (Nov 2015)

- Add SAM B11 device and Xplained Pro board support

- Add SAM E70 XPLD board and examples support
- Add ATmega328PB device and XMINI board support
- Add SAM4ECB device support
- TAL and Performance Analyzer application support for RF215v3(Rev. D)

Release ASF3.27.3 (Sep 2015)

- BluSDK3.0 Beta (BLE 4.1) support
- Add Module config file for Performance analyzer application component

Release ASF3.27 (Sep 2015)

- Add SAM L22 device and Xplained Pro kit support
- Add SAM D09 device support
- Add more modules support for SAM V70/V71/E70/S70
 - Drivers: MCAN, USBHS
 - Service: USB
 - Component: s25flxx, sd_mmc, ili9488, wm8904, is42s16100e
 - Third party: FreeRTOS, lwip, fatfs, CMSIS
- Add ADP service and example on SAM D21 Xplained Pro kit

Release ASF3.26 (Aug 2015)

- Add SAML21 revB device support
- Add SAMR21E19 device support
- Add SAMD21GxL device support
- Add MEGA328P XMINI board support
- Add more modules support for SAM V70/V71/E70/S70
 - Drivers: XDMA, GMAC, USART
 - Component: at24macxx, ksz8061rnb
- Support for Proximity Cloud solution in SmartConnect 6LoWPAN Stack
- WINC1500 driver update to rev 19.3.0

Release ASF3.25 (Jul 2015)

- Add SAMC20/SAMC21 device and SAMC21 Xplained Pro kit support in ASF:
 - Drivers: AC, ADC, BOD, CAN, CCL, DAC, DIVAS, DMA, EVENTS, EXTINT, NVM, PAC, PORT, RTC, SDADC, SERCOM(SPI, USART, I2C), System(clock, interrupt, pinmux, power, reset), TC, TCC, WDT
 - Services: eeprom, delay
 - Third party: CMSIS, freertos, fatfs
 - Applications: led_toggle, getting-started, dac_sound_player, sleepwalking_adc, xosc32k_failure_detector
- SAM V70/V71/E70/S70 devices and SAMV71-ULTR board support
 - Drivers: AFEC, ACC, CHIPID, AES, DAC, EFC, GPBR, ICM, MATRIX, PIO, PMC, PWM, RSTC, RTC, RTT, SMC, SSC, SUPC, SPI, TC, TRNG, TWIHS, UART, USART, WDT
 - Services: flash_efc, delay, clock, ioport, serial, sleepmgr
 - Applications: xplained_pro_user_application, getting-started
- SAM D21 Analog Comparator modes example
- WINC1500 driver update to rev 19.2.1 and add IoT sensor/cloud demos

Release ASF3.24 (May 2015)

- SAM DA devices support

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- Update SAM D20 SPI Master bootloader to use SD card
 - Advanced Features of SAMD21 Timer/Counter for Control Applications
 - DAC Examples - Waveform Generator & WAV audio player
 - SmartConnect 6Lowpan Reassembly feature
 - WINC1500 driver update to rev 18.3.0

Release ASF3.23 (Apr 2015)

- SAM4C/CM 256k devices support
- SAML21 - Low power application
- USB MultiTouch HID Example
- BLE SDK Support
- SmartConnect 6Lowpan stack support
- TAL Support For RF215 and Performance Analyzer Application
- WINC1500 driver update to rev 18.1.1

Release ASF3.22 (Mar 2015)

- SAMD21 B&L series support in drivers, service and thirdparty.
- SAMD21G17AU/SAMD21G18AU/SAMD21E15BU/SAMD21E16BU devices support
- SAML21 fix and maintenance
- SAMD10-Xmini board support
- SAMW25 and WINC1500 support

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_etc, 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.

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, DAC, 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 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, DAC, 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-3977:** Add CRC32 support for the SAM D21 device (via DSU).

Add CRC32 driver support (via DSU).

Folder added:

sam0/driver/dsu

- **Issue #ASFP-4479:** SAM0: Fix disable function to shutdown module correctly.

Fix disable function to shutdown module correctly.

Files modified:

sam0\drivers\ac\ac.h

sam0\drivers\adc\adc.h

sam0\drivers\aes\aes.c

sam0\drivers\bod\bod_sam_c\bod_feature.h

sam0\drivers\bod\bod_sam_d_r\bod_feature.h

sam0\drivers\bod\bod_sam_l\bod_feature.h

sam0\drivers\dac\dac_sam_d_c\dac.c

sam0\drivers\dac\dac_sam_l\dac.c

sam0\drivers\freqm\freqm.h

sam0\drivers\rtc\rtc_sam_d_r\rtc_calendar.c

sam0\drivers\rtc\rtc_sam_d_r\rtc_count.c

sam0\drivers\rtc\rtc_sam_l_c\rtc_calendar.c

sam0\drivers\rtc\rtc_sam_l_c\rtc_count.c

sam0\drivers\sdadc\sdadc.h

sam0\drivers\sercom\i2c\i2c_master.h

sam0\drivers\sercom\spi\spi.h

sam0\drivers\sercom\spi_master_vec\spi_master_vec.c

sam0\drivers\sercom\usart\usart.h

sam0\drivers\slcd\slcd.c

sam0\drivers\tc\tc.h

sam0\drivers\tcc\tcc.h

sam0\drivers\trng\trng.h

sam0\drivers\tsens\tsens.h

sam0\drivers\usb\usb_sam_d_r\usb.c

sam0\drivers\usb\usb_sam_l\usb.c

sam0\drivers\i2s\i2s.h

- **Issue #ASFP-4658:** Add reference implementation of sys_now() for lwIP 1.4.1.

Files Modified:

thirdparty/lwip/lwip-port-1.4.1/at32uc3/sys_arch.c

thirdparty/lwip/lwip-port-1.4.1/sam/sys_arch.c

- **Issue #ASFP-4904:** SAM ADC driver function naming should be reset not stop.

Files modified:

sam/drivers/adc/adc.h

sam/drivers/adc/adc.c

sam/drivers/adc/adc_sam3u.c

- **Issue #ASFP-5283:** SAML21 - Add i2c_slave_bootloader application.

Add SAML21 Xpro I2C slave bootloader application.

File modified:

sam0/applications/i2c_slave_bootloader/i2c_slave_bootloader.c

Folders added:

sam0/applications/i2c_slave_bootloader/saml21_xplained_pro\

sam0/applications/i2c_slave_bootloader/saml21_xplained_pro_b\

- **Issue #ASFP-5347:** sam0 - EEPROM service Improvement .

Check invalid logical page in eeprom initial API.

Files modified:

sam0/services/eeprom/emulator/rwwee_array/rww_eeprom.c

sam0/services/eeprom/emulator/main_array/eeprom.c

sam0/drivers/nvm/nvm.c

- **Issue #ASFP-5738:** Programmable clock prescaler macro definitions in pmc.h for SAMG55 is wrong.

File modified:

common/services/clock/samg/genclk.h

sam/applications/getting-started/main.c

sam/drivers/adc/adc_enhanced_resolution_example/adc_enhanced_resolution_example.c

sam/drivers/flexcom/flexcom.c

sam/drivers/tc/tc_capture_waveform_example/tc_capture_waveform_example.c

sam/utils/cmsis/samg/samg55/include/component/pmc.h

- **Issue #ASFP-5853:** CAN - Add APIs to change Baud rate at runtime.

File modified:

sam/drivers/mcan/quick_start/qs_mcan_basic.c

sam/drivers/mcan/quick_start_fd/qs_mcan_fd.c

sam/drivers/mcan/mcan.c

sam/drivers/mcan/mcan.h

sam0/drivers/can/quick_start/qs_can_basic.c

sam0/drivers/can/quick_start_fd/qs_can_fd.c

sam0/drivers/can/can.c

sam0/drivers/can/can.h

- **Issue #ASFP-5909:** SAM L21 low power example has workarounds for erratas should only be applied to Rev A.

File modified:

sam0/applications/low_power/saml_low_power/low_power_demo.c

- **Issue #ASFP-6014:** SAM0: USART comments wrong and out of place.

File modified:

sam0/drivers/sercom/usart/usart_interrupt.c

- **Issue #ASFP-6028:** SAM: delay is hard code in UDP CSR operation.

File modified:

sam/drivers/udp/udp_device.h

- **Issue #ASFP-6041:** Two "GMAC Examples of SAME70-XPLD" show up in the studio.

File modified:

sam/drivers/gmac/unit_tests/asf.xml

- **Issue #ASFP-6044:** Add SAM B11 ZR board support in ASFv3 master.

Folders added:

common2/applications/xplained_pro_user_application/samb11zr_samb11zr_xplained_pro
 common2/components/memory/eeeprom/at30tse75x/example/samb11zr_xplained_pro
 sam0/applications/getting-started/samb11zr_samb11_xplained_pro
 sam0/boards/samb11zr_xplained_pro
 sam0/drivers/adcd/quick_start_samb_b/samb11zr_xplained_pro
 sam0/drivers/aon_sleep_timer/quick_start/samb11zr_xplained_pro
 sam0/drivers/dma/quick_start_samb_b/samb11zr_xplained_pro
 sam0/drivers/dualtimer/quick_start/samb11zr_xplained_pro
 sam0/drivers/gpio/quick_start/samb11zr_xplained_pro
 sam0/drivers/gpio/quick_start_callback/samb11zr_xplained_pro
 sam0/drivers/i2c/quick_start_master/samb11zr_xplained_pro
 sam0/drivers/i2c/quick_start_master_callback/samb11zr_xplained_pro
 sam0/drivers/i2c/quick_start_slave/samb11zr_xplained_pro
 sam0/drivers/i2c/quick_start_slave_callback/samb11zr_xplained_pro
 sam0/drivers/pwm/quick_start/samb11zr_xplained_pro
 sam0/drivers/quad_decoder/quick_start/samb11zr_xplained_pro
 sam0/drivers/spi/quick_start_master/samb11zr_xplained_pro
 sam0/drivers/spi/quick_start_master_callback/samb11zr_xplained_pro
 sam0/drivers/spi/quick_start_slave/samb11zr_xplained_pro
 sam0/drivers/spi/quick_start_slave_callback/samb11zr_xplained_pro
 sam0/drivers/spi_flash/quick_start/samb11zr_xplained_pro
 sam0/drivers/timer/quick_start/samb11zr_xplained_pro
 sam0/drivers/uart/quick_start_basic/samb11zr_xplained_pro
 sam0/drivers/uart/quick_start_dma/samb11zr_xplained_pro
 sam0/drivers/wdt/quick_start_samb_b/samb11zr_xplained_pro

Folder modified:

sam0/utils/cmsis/samb11/include/component
 sam0/utils/cmsis/samb11/include/instance

Files modified:

common/boards/board.h
 common2/components/memory/eeeprom/at30tse75x/example/samb11_xplained_pro/conf_at30tse75x.h
 common2/components/memory/eeeprom/at30tse75x/module_config/conf_at30tse75x.h
 sam0/boards/samb11_xplained_pro/samb11_xplained_pro.h
 sam0/drivers/aon_sleep_timer/quick_start/qs_aon_sleep_timer_basic.c
 sam0/drivers/dma/dma_samb_b.h
 sam0/drivers/dualtimer/dualtimer.c
 sam0/drivers/gpio/quick_start_callback/samb11_xplained_pro/conf_uart_serial.h
 sam0/drivers/gpio/quick_start_callback/qs_gpio_callback.c
 sam0/drivers/gpio/gpio.c
 sam0/drivers/i2c/quick_start_slave/qs_i2c_slave_basic_use.c
 sam0/drivers/i2c/i2c_common.h
 sam0/drivers/i2c/i2c_master.c
 sam0/drivers/i2c/i2c_master_interrupt.c
 sam0/drivers/i2c/i2c_slave.c
 sam0/drivers/pwm/quick_start/samb11_xplained_pro/conf_board.h
 sam0/drivers/pwm/pwm.c
 sam0/drivers/quad_decoder/quick_start/samb11_xplained_pro/conf_board.h

sam0/drivers/quad_decoder/quad_decoder.c
 sam0/drivers/spi/quick_start_master/samb11_xplained_pro/conf_spi.h
 sam0/drivers/spi/quick_start_master_callback/samb11_xplained_pro/conf_spi.h
 sam0/drivers/spi/quick_start_slave/samb11_xplained_pro/conf_spi.h
 sam0/drivers/spi/quick_start_slave_callback/samb11_xplained_pro/conf_spi.h
 sam0/drivers/spi/spi.c
 sam0/drivers/spi/spi.h
 sam0/drivers/spi/spi_callback.c
 sam0/drivers/spi_flash/spi_flash.c
 sam0/drivers/system/system_sam_b.c
 sam0/drivers/uart/uart.c
 sam0/drivers/uart/uart.h
 sam0/utils/cmsis/samb11/include/asf.xml
 sam0/utils/cmsis/samb11/include/samb11g18a.h
 sam0/utils/cmsis/samb11/include/samb11zr.h
 sam0/utils/linker_scripts/asf.xml
 thirdparty/wireless/ble_smart_sdk/apps/htpt_temperature_sensor/samb11_xplained_pro/
 conf_at30tse75x.h
 thirdparty/wireless/ble_smart_sdk/services/aon_sleep_timer/aon_sleep_timer_basic.c

- **Issue #ASFP-6052:** Syntax error in OPTIMIZE_HIGH macro.

Files Modified:

sam/utils/compiler.h
 sam0/utils/compiler.h

- **Issue #ASFP-6057:** Inappropriate printf in syscalls.c.

File modified:

sam/utils/syscalls/gcc/syscalls.c
 sam0/utils/syscalls/gcc/syscalls.c

- **Issue #ASFP-6075:** SAMR30 - Add SAMR30 support in ASF and PG.

Add SAMR30 support in ASF including drivers, services, component, thirdpart, applications

- **Issue #ASFP-6084:** Use the long message to memory region 1 in icm_example.c.

File modified:

sam/drivers/icm/example/icm_example.c

- **Issue #ASFP-6085:** AVR32: SD/MMC card access using SPI (component) not working >4GB.

File Modified:

avr32/components/memory/sd_mmc/sd_mmc_spi/sd_mmc_spi.c

- **Issue #ASFP-6101:** ASF BLU_SDK_SMART v5.2 support.

BluSDK Smart Release features

BluSDK Smart v5.2 release supports the following profiles and services.

- Profiles

- o OTAU Profile
- o Alert Notification
- o Apple Alert Notification Center Service
- o Blood Pressure
- o Custom Serial Chat

- o Find Me Target
- o Heart Rate
- o HOGP (HID Over GATT Profile)
- o Health Thermometer
- o Phone Alert Status
- o Scan Parameters
- o Time
- Services Support
- o OTAU Service
- o OTAU Flash Manager
- o Alert Notification Service
- o BLE Manager-Common BLE Event framework
- o Apple Alert Notification Service (ANCS)
- o Battery Service (BAS)
- o Current Time Service(CTS)
- o Device Information Service (DIS)
- o Immediate Alert Service (IAS)
- o Link Loss Service (LLS)
- o Scan Parameter Service (SPS)
- o Tx Power Service (TXPS)
- o HID Device (HOGP Service)
- o Blood Pressure
- o Custom Serial Chat Service
- o Heart Rate Service
- o Next DST Service
- o Phone Alert Service
- o Reference Time Service

Supported Hardware Platform:
SAMB11G18A Xplained Pro

• **Issue #ASFP-6103:** Performance Analyzer Support for SAMR30.

Performance Analyzer Application Support for SAMR30

Files Modified:

- 1.sam0/boards/samr30_xplained_pro/board_init.c
- 2.sam0/boards/samr30_xplained_pro/samr30_xplained_pro.h
- 3.sam0/utils/cmsis/samr30/include/component/asf.xml
- 4.sam0/utils/cmsis/samr30/include/component/mclk.h
- 5.sam0/utils/cmsis/samr30/include/instance/asf.xml
- 6.sam0/utils/cmsis/samr30/include/pio/samr30e18a.h
- 7.sam0/utils/cmsis/samr30/include/pio/samr30g18a.h
- 8.sam0/utils/cmsis/samr30/include/samr30e18a.h
- 9.sam0/utils/cmsis/samr30/include/samr30g18a.h
- 10.thirdparty/wireless/addons/sio2host/module_config/conf_sio2host.h
- 11.thirdparty/wireless/addons/sio2host/uart/sio2host.c
- 12.thirdparty/wireless/addons/sio2host/uart/sio2host.h
- 13.thirdparty/wireless/avr2025_mac/apps/tal/performance_analyzer/src/per_mode_common_utils.c
- 14.thirdparty/wireless/avr2025_mac/apps/tal/performance_analyzer/src/per_mode_receptor.c
- 15.thirdparty/wireless/avr2025_mac/apps/tal/performance_analyzer/src/performance_main.c
- 16.thirdparty/wireless/avr2025_mac/apps/tal/performance_analyzer/src/user_interface.c
- 17.thirdparty/wireless/avr2025_mac/apps/tal/performance_analyzer/main.c
- 18.thirdparty/wireless/avr2025_mac/include/return_val.h

19.thirdparty/wireless/avr2025_mac/source/pal/pal.c
 20.thirdparty/wireless/services/common_hw_timer/module_config/conf_hw_timer.h
 21.thirdparty/wireless/services/common_hw_timer/sam0/hw_timer.c
 22.thirdparty/wireless/services/trx_access/module_config/conf_trx_access.h
 23.thirdparty/wireless/services/trx_access/trx_access.c
 24.thirdparty/wireless/services/trx_access/trx_access.h

Notable bugs fixed

- **Issue #ASFP-2084:** MACB example: Invalid CPU speed for EVK1100 & EVK1105.

Files Modified:

avr32/drivers/macb/example/at32uc3a0512_evk1100/conf_eth.h
 avr32/drivers/macb/example/at32uc3a0512_evk1105/conf_eth.h
 avr32/drivers/macb/example/macb_example.c

- **Issue #ASFP-2085:** FreeRTOS lwIP demos: Invalid CPU speed for EVK1100 & EVK1105.

Files Modified:

thirdparty/freertos/demo/lwip_avr32_uc3_dhcp_example/at32uc3a0512_evk1100/conf_clock.h
 thirdparty/freertos/demo/lwip_avr32_uc3_dhcp_example/at32uc3a0512_evk1100/conf_eth.h
 thirdparty/freertos/demo/lwip_avr32_uc3_dhcp_example/at32uc3a0512_evk1105/conf_clock.h
 thirdparty/freertos/demo/lwip_avr32_uc3_dhcp_example/at32uc3a0512_evk1105/conf_eth.h

- **Issue #ASFP-3713:** FreeRTOS SAM header files are not C++ compliant.

File modified:

common/services/freertos/sam/freertos_peripheral_control.h
 common/services/freertos/sam/freertos_peripheral_control_private.h
 common/services/freertos/sam/freertos_twihs_master.h

- **Issue #ASFP-4043:** XMEGA - Loop count incorrect for udd_ep_abort.

Modified file:

\xmega\drivers\usb\usb_device.c

- **Issue #ASFP-4162:** ASF quick start documentaton for Xmega E: "Clear interrupt flag" should be mentioned in the interrupt callbacks.

File modified:

xmega/drivers/tc/tc.h
 xmega/drivers/tc45/tc45.h

- **Issue #ASFP-4187:** SAM4L - Disabling USB host should disable USBC irqs as well.

Modified file:

\sam\drivers\usbc\usbc_host.c

- **Issue #ASFP-4348:** SAMG PDM driver asserts non-existing struct parameter.

Modified files:

\sam\drivers\pdm\pdm.h
 \sam\drivers\pdm\pdm.c

- **Issue #ASFP-4396:** bug in TWI megaRF driver - twi_master_read() function.

Modified file:

\mega\drivers\twi\twi_megarf.c

- **Issue #ASFP-4473:** gmac_wait_phy() can not wait for ever.

File Modified:

sam/drivers/gmac/gmac_phy.c

- **Issue #ASFP-4551:** SAM4L: Make USART operation consistent with datasheet.

Files modified:

sam/drivers/usart/usart.c

sam/utils/cmsis/sam4l/include/component/component_usart.h

- **Issue #ASFP-4806:** Wrong assignment of seconds on FatFS library.

File modified:

thirdparty/fatfs/fatfs-port-r0.09/sam/fattime_ast.c

thirdparty/fatfs/fatfs-port-r0.09/sam/fattime_rtc.c

thirdparty/fatfs/fatfs-port-r0.09/sam0/fattime_rtc.c

thirdparty/fatfs/fatfs-port-r0.09/xmega/fattime.c

- **Issue #ASFP-4860:** SAM4E header file issue.

File modified:

sam/utils/cmsis/sam4e/include/pio/sam4e16c.h

sam/utils/cmsis/sam4e/include/pio/sam4e16e.h

sam/utils/cmsis/sam4e/include/pio/sam4e8c.h

sam/utils/cmsis/sam4e/include/pio/sam4e8e.h

sam/utils/cmsis/sam4e/include/sam4e8c.h

sam/utils/cmsis/sam4e/include/sam4e8cb.h

sam/utils/cmsis/sam4e/include/sam4e8e.h

- **Issue #ASFP-4883:** SAM rtt_read_timer_value can potentially return wrong RTT value.

Modified file:

sam/drivers/rtt/rtt.c

- **Issue #ASFP-4893:** SAM3U:HX8347A Display Controller set_display_direction Function Bug.

Files Modified: sam/components/display/hx8347a/hx8347a.c

- **Issue #ASFP-5254:** ATmega640/1280/1281/2560/2561: wrong IOPORT port numbers in mega/ioport.h.

File modified:

common/services/ioport/mega/ioport.h

- **Issue #ASFP-5263:** Update SAM D21 header files.

Updated SAMD21 header files:

Files modified:

sam0\utils\cmsis\samd21\include\component\ac.h

sam0\utils\cmsis\samd21\include\component\adc.h

sam0\utils\cmsis\samd21\include\component\dac.h

sam0\utils\cmsis\samd21\include\component\dmac.h

sam0\utils\cmsis\samd21\include\component\dsu.h

sam0\utils\cmsis\samd21\include\component\eic.h

sam0\utils\cmsis\samd21\include\component\evsys.h

sam0\utils\cmsis\samd21\include\component\gclk.h

sam0\utils\cmsis\samd21\include\component\hmatrixb.h

sam0\utils\cmsis\samd21\include\component\i2s.h

```
sam0\utils\cmsis\samd21\include\component\mtb.h
sam0\utils\cmsis\samd21\include\component\nvmctrl.h
sam0\utils\cmsis\samd21\include\component\pac.h
sam0\utils\cmsis\samd21\include\component\pm.h
sam0\utils\cmsis\samd21\include\component\port.h
sam0\utils\cmsis\samd21\include\component\rtc.h
sam0\utils\cmsis\samd21\include\component\sercom.h
sam0\utils\cmsis\samd21\include\component\sysctrl.h
sam0\utils\cmsis\samd21\include\component\tc.h
sam0\utils\cmsis\samd21\include\component\tcc.h
sam0\utils\cmsis\samd21\include\component\tcc_lighting.h
sam0\utils\cmsis\samd21\include\component\usb.h
sam0\utils\cmsis\samd21\include\component\wdt.h
sam0\utils\cmsis\samd21\include\instance\ac.h
sam0\utils\cmsis\samd21\include\instance\ac1.h
sam0\utils\cmsis\samd21\include\instance\adc.h
sam0\utils\cmsis\samd21\include\instance\dac.h
sam0\utils\cmsis\samd21\include\instance\dmac.h
sam0\utils\cmsis\samd21\include\instance\dsu.h
sam0\utils\cmsis\samd21\include\instance\eic.h
sam0\utils\cmsis\samd21\include\instance\evsys.h
sam0\utils\cmsis\samd21\include\instance\gclk.h
sam0\utils\cmsis\samd21\include\instance\i2s.h
sam0\utils\cmsis\samd21\include\instance\mtb.h
sam0\utils\cmsis\samd21\include\instance\nvmctrl.h
sam0\utils\cmsis\samd21\include\instance\pac0.h
sam0\utils\cmsis\samd21\include\instance\pac1.h
sam0\utils\cmsis\samd21\include\instance\pac2.h
sam0\utils\cmsis\samd21\include\instance\pm.h
sam0\utils\cmsis\samd21\include\instance\port.h
sam0\utils\cmsis\samd21\include\instance\rtc.h
sam0\utils\cmsis\samd21\include\instance\sbmatrix.h
sam0\utils\cmsis\samd21\include\instance\sercom0.h
sam0\utils\cmsis\samd21\include\instance\sercom1.h
sam0\utils\cmsis\samd21\include\instance\sercom2.h
sam0\utils\cmsis\samd21\include\instance\sercom3.h
sam0\utils\cmsis\samd21\include\instance\sercom4.h
sam0\utils\cmsis\samd21\include\instance\sercom5.h
sam0\utils\cmsis\samd21\include\instance\sysctrl.h
sam0\utils\cmsis\samd21\include\instance\tc3.h
sam0\utils\cmsis\samd21\include\instance\tc4.h
sam0\utils\cmsis\samd21\include\instance\tc5.h
sam0\utils\cmsis\samd21\include\instance\tc6.h
sam0\utils\cmsis\samd21\include\instance\tc7.h
sam0\utils\cmsis\samd21\include\instance\tcc0.h
sam0\utils\cmsis\samd21\include\instance\tcc1.h
sam0\utils\cmsis\samd21\include\instance\tcc2.h
sam0\utils\cmsis\samd21\include\instance\usb.h
sam0\utils\cmsis\samd21\include\instance\wdt.h
sam0\utils\cmsis\samd21\include\samd21e15a.h
sam0\utils\cmsis\samd21\include\samd21e15b.h
```

sam0\utils\cmsis\samd21\include\samd21e15bu.h
sam0\utils\cmsis\samd21\include\samd21e15l.h
sam0\utils\cmsis\samd21\include\samd21e16a.h
sam0\utils\cmsis\samd21\include\samd21e16b.h
sam0\utils\cmsis\samd21\include\samd21e16bu.h
sam0\utils\cmsis\samd21\include\samd21e16l.h
sam0\utils\cmsis\samd21\include\samd21e17a.h
sam0\utils\cmsis\samd21\include\samd21e18a.h
sam0\utils\cmsis\samd21\include\samd21g15a.h
sam0\utils\cmsis\samd21\include\samd21g15b.h
sam0\utils\cmsis\samd21\include\samd21g15l.h
sam0\utils\cmsis\samd21\include\samd21g16a.h
sam0\utils\cmsis\samd21\include\samd21g16b.h
sam0\utils\cmsis\samd21\include\samd21g16l.h
sam0\utils\cmsis\samd21\include\samd21g17a.h
sam0\utils\cmsis\samd21\include\samd21g17au.h
sam0\utils\cmsis\samd21\include\samd21g18a.h
sam0\utils\cmsis\samd21\include\samd21g18au.h
sam0\utils\cmsis\samd21\include\samd21j15a.h
sam0\utils\cmsis\samd21\include\samd21j15b.h
sam0\utils\cmsis\samd21\include\samd21j16a.h
sam0\utils\cmsis\samd21\include\samd21j16b.h
sam0\utils\cmsis\samd21\include\samd21j17a.h
sam0\utils\cmsis\samd21\include\samd21j18a.h
sam0\utils\cmsis\samd21\source\gcc\startup_samd21.c
sam0\utils\cmsis\samd21\source\iar\startup_samd21.c

- **Issue #ASFP-5269:** GMAC: wrong TxTd buffer check in gmac_dev_write().

File modified:

sam/drivers/gmac/gmac_raw.c

- **Issue #ASFP-5358:** For SAM devices, 'twi_set_speed' function not setting the LOW period as per I2C spec.

File modified:

sam/drivers/twi/twi.c

sam/drivers/twihs/twihs.c

- **Issue #ASFP-5383:** Erroneous calculation of gclk_index for sercom5 in usart.c for SAML21.

Files Modified:

sam0/drivers/sercom/usart/usart.c

- **Issue #ASFP-5414:** lwIP project not working as expected in the latest version of ASF.

File Modified:

sam0/components/ethernet_phy/ksz8851snl/ksz8851snl.c

- **Issue #ASFP-5549:** TCC DMA quickstart writes to unbuffered registers.

Modified file:

- sam0/drivers/tcc/quick_start_dma/qs_tcc_dma.c

- **Issue #ASFP-5550:** SAMD21 SERCOM SPI: In Slave mode, when the SPI_CALLBACK_SLAVE_SELECT_LOW is registered, the INTENSET.SSL flag is not set.

Files Modified: sam0/drivers/sercom/spi/spi_interrupt.c

- **Issue #ASFP-5565:** SAML21 RevB - TC unit test failed.

Files Modified:

sam0/drivers/tc/unit_test/saml21j18b_saml21_xplained_pro/conf_test.h

- **Issue #ASFP-5594:** at30tse75x example at30tes_example.c logical error. .

Modified file:

- common/components/memory/eeeprom/at30tse75x/example/at30tes_example.c

- **Issue #ASFP-5618:** L21 DAC refresh period must be changed.

Modified file:

- sam0/drivers/dac/dac_sam_l/dac.c

- **Issue #ASFP-5621:** SAM L22 core clock should not be over 32MHz.

Files Modified:

common/services/usb/class/cdc/device/example/saml22n18a_saml22_xplained_pro/conf_clocks.h
 common/services/usb/class/cdc/device/example/saml22n18a_saml22_xplained_pro_b/conf_clocks.h
 common/services/usb/class/cdc/device/unit_tests/saml22n18a_saml22_xplained_pro/conf_clocks.h
 common/services/usb/class/cdc/device/unit_tests/saml22n18a_saml22_xplained_pro_b/conf_clocks.h
 common/services/usb/class/composite/device/example1/saml22n18a_saml22_xplained_pro/
 conf_clocks.h
 common/services/usb/class/composite/device/example1/saml22n18a_saml22_xplained_pro_b/
 conf_clocks.h
 common/services/usb/class/composite/device/example2/saml22n18a_saml22_xplained_pro/
 conf_clocks.h
 common/services/usb/class/composite/device/example2/saml22n18a_saml22_xplained_pro_b/
 conf_clocks.h
 common/services/usb/class/composite/device/example3/saml22n18a_saml22_xplained_pro/
 conf_clocks.h
 common/services/usb/class/composite/device/example3/saml22n18a_saml22_xplained_pro_b/
 conf_clocks.h
 common/services/usb/class/composite/device/example4/saml22n18a_saml22_xplained_pro/
 conf_clocks.h
 common/services/usb/class/composite/device/example4/saml22n18a_saml22_xplained_pro_b/
 conf_clocks.h
 common/services/usb/class/hid/device/generic/example/saml22n18a_saml22_xplained_pro/
 conf_clocks.h
 common/services/usb/class/hid/device/generic/example/saml22n18a_saml22_xplained_pro_b/
 conf_clocks.h
 common/services/usb/class/hid/device/kbd/example/saml22n18a_saml22_xplained_pro/conf_clocks.h
 common/services/usb/class/hid/device/kbd/example/saml22n18a_saml22_xplained_pro_b/
 conf_clocks.h
 common/services/usb/class/hid/device/kbd/unit_tests/saml22n18a_saml22_xplained_pro/
 conf_clocks.h
 common/services/usb/class/hid/device/kbd/unit_tests/saml22n18a_saml22_xplained_pro_b/
 conf_clocks.h
 common/services/usb/class/hid/device/mouse/example/saml22n18a_saml22_xplained_pro/
 conf_clocks.h

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common/services/usb/class/hid/device/mouse/example/saml22n18a_saml22_xplained_pro_b/  
conf_clocks.h  
common/services/usb/class/hid/device/mouse/unit_tests/saml22n18a_saml22_xplained_pro/  
conf_clocks.h  
common/services/usb/class/hid/device/mouse/unit_tests/saml22n18a_saml22_xplained_pro_b/  
conf_clocks.h  
common/services/usb/class/msc/device/example/saml22n18a_saml22_xplained_pro/conf_clocks.h  
common/services/usb/class/msc/device/example/saml22n18a_saml22_xplained_pro_b/conf_clocks.h  
common/services/usb/class/msc/device/unit_tests/saml22n18a_saml22_xplained_pro/conf_clocks.h  
common/services/usb/class/msc/device/unit_tests/saml22n18a_saml22_xplained_pro_b/conf_clocks.h  
common/services/usb/class/phdc/device/example/saml22n18a_saml22_xplained_pro/conf_clocks.h  
common/services/usb/class/phdc/device/example/saml22n18a_saml22_xplained_pro_b/conf_clocks.h  
common/services/usb/class/vendor/device/example/saml22n18a_saml22_xplained_pro/conf_clocks.h  
common/services/usb/class/vendor/device/example/saml22n18a_saml22_xplained_pro_b/  
conf_clocks.h
```

- **Issue #ASFP-5623:** events system(polled) compiling failed.

Fix events system polled compile issue.

- **Issue #ASFP-5699:** Wrong behaviour of ASF __portable_avr_delay_cycles() function.

Files modified:

```
common/services/delay/mega/cycle_counter.h  
common/services/delay/xmega/cycle_counter.h  
common/services/delay/delay.h  
common2/services/delay/delay.h
```

- **Issue #ASFP-5772:** SAM0 nvm driver: nvm_erase_row() does not check error interrupt flag/status flag when done.

Check error status in NVM erase operation.

File modified:

```
sam0\drivers\nvm\nvm.c
```

- **Issue #ASFP-5788:** Use sysclk_get_peripheral_hz() in SPI/TWI/USART.

Modified files:

```
\common\services\spi\sam_usart_spi\usart_spi.c  
\common\services\twi\sam_twi\twi_master.h  
\common\services\twi\sam_twihs\twihs_master.h  
\sam\drivers\twi\twi_eeeprom_example\twi_eeeprom_example.c  
\sam\drivers\twi\twi_eeeprom_pdc_example\twi_eeeprom_pdc_example.c  
\sam\drivers\twihs\twihs_master_example\twihs_master_example.c  
\sam\drivers\usart\unit_tests\unit_tests.c  
\sam\drivers\usart\usart_dmac_example\usart_example_dmac.c  
\sam\drivers\usart\usart_hard_handshaking_example\usart_hard_handshaking_example.c  
\sam\drivers\usart\usart_irda_example\usart_irda_example.c  
\sam\drivers\usart\usart_iso7816_example\usart_iso7816_example.c  
\sam\drivers\usart\usart_rs485_example\usart_rs485_example_canopus.c  
\sam\drivers\usart\usart_rs485_example\usart_rs485_example_pdc.c  
\sam\drivers\usart\usart_serial_example\usart_serial_example_pdc.c  
\sam\drivers\usart\usart_synchronous_example\usart_synchronous_example.c
```

- **Issue #ASFP-5810:** Documentation error on OV7740 CMOS image sensor.

Fix documentation error about OV7740 CMOS image sensor.

Files modified:

sam\components\cmos_image_sensor\ov7740\ov7740.c
sam\components\cmos_image_sensor\ov7740\ov7740_1.c
sam\components\cmos_image_sensor\ov7740\ov7740_table_registers.c

- **Issue #ASFP-5874:** Update SAML22 header files and drivers.

Update SAML22 header files.

Files modified:

sam0\drivers\adc\adc_sam_l_c\adc_feature.h
sam0\drivers\slcd\slcd.c
sam0\drivers\slcd\slcd.h
sam0\drivers\rtc\rtc_calendar.h
sam0\drivers\rtc\rtc_count.h
sam0\utils\cmsis\saml22\include\component\ac.h
sam0\utils\cmsis\saml22\include\component\adc.h
sam0\utils\cmsis\saml22\include\component\aes.h
sam0\utils\cmsis\saml22\include\component\ccl.h
sam0\utils\cmsis\saml22\include\component\dmac.h
sam0\utils\cmsis\saml22\include\component\dsu.h
sam0\utils\cmsis\saml22\include\component\aic.h
sam0\utils\cmsis\saml22\include\component\evsys.h
sam0\utils\cmsis\saml22\include\component\freqm.h
sam0\utils\cmsis\saml22\include\component\gclk.h
sam0\utils\cmsis\saml22\include\component\mclk.h
sam0\utils\cmsis\saml22\include\component\mtb.h
sam0\utils\cmsis\saml22\include\component\nvmctrl.h
sam0\utils\cmsis\saml22\include\component\osc32kctrl.h
sam0\utils\cmsis\saml22\include\component\oscctrl.h
sam0\utils\cmsis\saml22\include\component\pac.h
sam0\utils\cmsis\saml22\include\component\pm.h
sam0\utils\cmsis\saml22\include\component\port.h
sam0\utils\cmsis\saml22\include\component\rstc.h
sam0\utils\cmsis\saml22\include\component\rtc.h
sam0\utils\cmsis\saml22\include\component\sercom.h
sam0\utils\cmsis\saml22\include\component\slcd.h
sam0\utils\cmsis\saml22\include\component\supc.h
sam0\utils\cmsis\saml22\include\component\tai.h
sam0\utils\cmsis\saml22\include\component\tc.h
sam0\utils\cmsis\saml22\include\component\tcc.h
sam0\utils\cmsis\saml22\include\component\trng.h
sam0\utils\cmsis\saml22\include\component\usb.h
sam0\utils\cmsis\saml22\include\component\wdt.h
sam0\utils\cmsis\saml22\include\instance\ac.h
sam0\utils\cmsis\saml22\include\instance\adc.h
sam0\utils\cmsis\saml22\include\instance\aes.h
sam0\utils\cmsis\saml22\include\instance\ccl.h
sam0\utils\cmsis\saml22\include\instance\dmac.h
sam0\utils\cmsis\saml22\include\instance\dsu.h

sam0\utils\cmsis\saml22\include\instance\eic.h
sam0\utils\cmsis\saml22\include\instance\evsys.h
sam0\utils\cmsis\saml22\include\instance\freqm.h
sam0\utils\cmsis\saml22\include\instance\gclk.h
sam0\utils\cmsis\saml22\include\instance\mclk.h
sam0\utils\cmsis\saml22\include\instance\mtb.h
sam0\utils\cmsis\saml22\include\instance\nvmctrl.h
sam0\utils\cmsis\saml22\include\instance\osc32kctrl.h
sam0\utils\cmsis\saml22\include\instance\oscctrl.h
sam0\utils\cmsis\saml22\include\instance\pac.h
sam0\utils\cmsis\saml22\include\instance\pm.h
sam0\utils\cmsis\saml22\include\instance\port.h
sam0\utils\cmsis\saml22\include\instance\rstc.h
sam0\utils\cmsis\saml22\include\instance\rtc.h
sam0\utils\cmsis\saml22\include\instance\sercom0.h
sam0\utils\cmsis\saml22\include\instance\sercom1.h
sam0\utils\cmsis\saml22\include\instance\sercom2.h
sam0\utils\cmsis\saml22\include\instance\sercom3.h
sam0\utils\cmsis\saml22\include\instance\sercom4.h
sam0\utils\cmsis\saml22\include\instance\sercom5.h
sam0\utils\cmsis\saml22\include\instance\slcd.h
sam0\utils\cmsis\saml22\include\instance\supc.h
sam0\utils\cmsis\saml22\include\instance\tal.h
sam0\utils\cmsis\saml22\include\instance\tc0.h
sam0\utils\cmsis\saml22\include\instance\tc1.h
sam0\utils\cmsis\saml22\include\instance\tc2.h
sam0\utils\cmsis\saml22\include\instance\tc3.h
sam0\utils\cmsis\saml22\include\instance\tcc0.h
sam0\utils\cmsis\saml22\include\instance\trng.h
sam0\utils\cmsis\saml22\include\instance\usb.h
sam0\utils\cmsis\saml22\include\instance\wdt.h
sam0\utils\cmsis\saml22\include\pio\saml22g16a.h
sam0\utils\cmsis\saml22\include\pio\saml22g17a.h
sam0\utils\cmsis\saml22\include\pio\saml22g18a.h
sam0\utils\cmsis\saml22\include\pio\saml22j16a.h
sam0\utils\cmsis\saml22\include\pio\saml22j17a.h
sam0\utils\cmsis\saml22\include\pio\saml22j18a.h
sam0\utils\cmsis\saml22\include\pio\saml22n16a.h
sam0\utils\cmsis\saml22\include\pio\saml22n17a.h
sam0\utils\cmsis\saml22\include\pio\saml22n18a.h
sam0\utils\cmsis\saml22\include\saml22g16a.h
sam0\utils\cmsis\saml22\include\saml22g17a.h
sam0\utils\cmsis\saml22\include\saml22g18a.h
sam0\utils\cmsis\saml22\include\saml22j16a.h
sam0\utils\cmsis\saml22\include\saml22j17a.h
sam0\utils\cmsis\saml22\include\saml22j18a.h
sam0\utils\cmsis\saml22\include\saml22n16a.h
sam0\utils\cmsis\saml22\include\saml22n17a.h
sam0\utils\cmsis\saml22\include\saml22n18a.h
sam0\utils\cmsis\saml22\source\gcc\startup_saml22.c
sam0\utils\cmsis\saml22\source\iar\startup_saml22.c

- **Issue #ASFP-5877:** SAMD10 - ADC negative Mux input error.

Files Modified:

sam0\utils\cmsis\samd10\include\component\adc.h

- **Issue #ASFP-5881:** Wrong register definitions for ASF 'System Clock Control (service)' module, ATmega16U4.

File modified:

common/services/clock/mega/sysclk.h

mega/drivers/cpu/mega_reset_cause.h

- **Issue #ASFP-5892:** SAMC21 SERCOM5 is not work in ASF3.29.

Files Modified:

sam0/drivers/sercom/usart/usart.c

sam0/drivers/sercom/spi/spi.c

- **Issue #ASFP-5895:** sam0 nvm driver has typo for BOD12 fuse setting.

Modified files:

sam0/drivers/nvm/nvm.c

- **Issue #ASFP-5896:** ASF Sample OLED FreeRTOS bug.

Modified files:

common2/components/display/ssd1306/ssd1306.c

- **Issue #ASFP-5897:** V71: Controller Area Network (MCAN) issue.

File modified:

sam/drivers/mcan/mcan.c

sam0/drivers/can/can.c

- **Issue #ASFP-5914:** Problems in efc driver for SAM4CMP32/SAM4CMS32.

Fix EFC issue about SAM4CMS32 and SAM4CMP32.

File modified:

sam\drivers\efc\efc.c

- **Issue #ASFP-5917:** Wrong using ifdef in lwip port.

File modified:

thirdparty/lwip/lwip-port-1.4.1/sam/sys_arch.c

thirdparty/lwip/lwip-port-1.4.1-dev/sam/sys_arch.c

- **Issue #ASFP-5918:** SAM L22: maximum CPU clock frequency for PL0 issue.

File Modified:

sam0/drivers/system/clock/clock_saml22/clock.c

- **Issue #ASFP-5921:** SAMC21 : clock.c has no gain setting above 30M for Xosc.

File modified:

sam0/drivers/system/clock/clock_samc20_c21/clock.c

sam0/drivers/system/clock/clock_samd09_d10_d11/clock.c

sam0/drivers/system/clock/clock_samd20/clock.c

sam0/drivers/system/clock/clock_samd21_r21_da/clock.c

sam0/drivers/system/clock/clock_saml21/clock.c
sam0/drivers/system/clock/clock_saml22/clock.c

- **Issue #ASFP-5926:** SAM PIO driver - Clearing the pin interrupt before enabling should be application dependent.

File modified:
sam/drivers/pio/pio.c

- **Issue #ASFP-5970:** SAM V/S/E: Use cpu_irq_save()/cpu_irq_restore() in mpu.c.

File Modified:
sam/drivers/mpu/mpu.c

- **Issue #ASFP-5980:** common delay service: almost unlimited loop in case of 0 us delay.

Files modified:
common/services/delay/mega/cycle_counter.h
common/services/delay/xmega/cycle_counter.h
common/services/delay/delay.h
common2/services/delay/delay.h

- **Issue #ASFP-5982:** BNO055 Component API documentation not working (404 not found error) .

Files modified:
thirdparty/sensor/bno055/asf.xml
thirdparty/sensor/bno055/example/same70q21_same70_xplained/asf.xml
Files added:
thirdparty/sensor/bno055/bno055_doc.h

- **Issue #ASFP-5984:** SAM D10,D11: FEATURE_SYSTEM_PINMUX_DRIVE_STRENGTH is not implemented.

File modified:
sam0/drivers/system/pinmux/pinmux.h

- **Issue #ASFP-5985:** SAM D10 : CONF_CLOCK_OSC32K_ENABLE wont work.

File modified:
sam0/utils/cmsis/samd10/include/component/nvmctrl.h

- **Issue #ASFP-5986:** SAMV71: CAN example Option 2 and 3 only send 8 byte payloads, not 64 bytes.

File modified:
sam/drivers/mcan/quick_start_fd/qs_mcan_fd.c
sam/drivers/mcan/mcan.c
sam/drivers/mcan/mcan.h
sam0/drivers/can/can.c
sam0/drivers/can/can.h

- **Issue #ASFP-5987:** SAM: Reconfiguring an interrupt on the same pin does not overwrite the previous interrupt.

File modified:
sam/drivers/pio/pio_handler.c

- **Issue #ASFP-6002:** Issue in slcd_set_seg_data() function in SAML22 SLCD driver.

Fix SLCD indirect access issue,

File modified:
sam0\drivers\slcd\slcd.c

- **Issue #ASFP-6008:** SAM D11 SPI Master polled ASF example: wrong pin muxing.

Files modified:

sam0/drivers/sercom/spi/quick_start_dma/qs_spi_dma_use.c
 sam0/drivers/sercom/spi/quick_start_master/samc21_xplained_pro/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_master/samd11_xplained_pro/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_master/samd20_xplained_pro/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_master/samd21_xplained_pro/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_master/samda1_xplained_pro/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_master/saml21_xplained_pro/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_master/saml21_xplained_pro_b/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_master/saml22_xplained_pro/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_master/saml22_xplained_pro_b/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_master/samr21_xplained_pro/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_master/qs_spi_master_basic.c
 sam0/drivers/sercom/spi/quick_start_master_callback/samc21_xplained_pro/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_master_callback/samd11_xplained_pro/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_master_callback/samd20_xplained_pro/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_master_callback/samd21_xplained_pro/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_master_callback/samda1_xplained_pro/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_master_callback/saml21_xplained_pro/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_master_callback/saml21_xplained_pro_b/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_master_callback/saml22_xplained_pro/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_master_callback/saml22_xplained_pro_b/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_master_callback/samr21_xplained_pro/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_master_callback/qs_spi_master_callback.c
 sam0/drivers/sercom/spi/quick_start_slave/samc21_xplained_pro/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_slave/samd11_xplained_pro/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_slave/samd20_xplained_pro/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_slave/samd21_xplained_pro/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_slave/samda1_xplained_pro/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_slave/saml21_xplained_pro/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_slave/saml21_xplained_pro_b/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_slave/saml22_xplained_pro/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_slave/saml22_xplained_pro_b/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_slave/samr21_xplained_pro/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_slave/qs_spi_slave_basic.c
 sam0/drivers/sercom/spi/quick_start_slave_callback/samc21_xplained_pro/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_slave_callback/samd11_xplained_pro/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_slave_callback/samd20_xplained_pro/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_slave_callback/samd21_xplained_pro/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_slave_callback/samda1_xplained_pro/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_slave_callback/saml21_xplained_pro/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_slave_callback/saml21_xplained_pro_b/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_slave_callback/saml22_xplained_pro/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_slave_callback/saml22_xplained_pro_b/conf_spi.h
 sam0/drivers/sercom/spi/quick_start_slave_callback/samr21_xplained_pro/conf_spi.h

- **Issue #ASFP-6017:** Uninitialized NVM module pointer .

File modified:

thirdparty/wireless/avr2025_mac/source/pal/common/drivers/nvm/sam0/sam_nvm.c

- **Issue #ASFP-6018:** Invalid SPI baudrate used for ATWINC1500-XPRO with ATSAM4S-XPRO.

Files Modified:

common/components/wifi/winc1500/bus_wrapper/source/nm_bus_wrapper_sam4s.c

- **Issue #ASFP-6022:** CDC device example can't show the send data in console immediately when length is equal to endpoint.

File modified:

common/services/usb/class/cdc/device/example/conf_usb.h

- **Issue #ASFP-6034:** sam0 - __I bit can't be access.

The __I bit can't be access, fix this issue.

Files modified:

sam0/applications/tcc_advanced_features_example/ramp2c.c

sam0/applications/tcc_examples/main.c

sam0/applications/tcc_features_example/main.c

sam0/applications/usb_msc_device/usb_msc.c

sam0/applications/waveform_generator/main.c

sam0/drivers/tcc/tcc.c

sam0/drivers/tcc/tcc.h

thirdparty/freertos/demo/oled1_tickless_xpro_example/tickless.c

- **Issue #ASFP-6035:** tcc_set_ramp_index() function issue.

File modified:

sam0/drivers/tcc/tcc.h

- **Issue #ASFP-6036:** RAMP index not checked in the tcc_get_status function in SAM D21 TCC driver.

File modified:

sam0/drivers/tcc/tcc.c

- **Issue #ASFP-6043:** board_init() for SD card detect pin is not correct for SAM V7 and SAME7 xplained board.

Files modified:

sam/boards/sam4e_ek/init.c

sam/boards/same70_xplained/init.c

sam/boards/samv71_xplained_ultra/init.c

- **Issue #ASFP-6047:** QSPI driver implementation has mixed up DLYCS and DLYBCT registers.

File Modified:

sam/drivers/qspi/qspi.c

- **Issue #ASFP-6048:** SDRAM not operating correctly on SAME70-XPLD.

Files modified:

sam/components/memory/sdram/is42s16100e/example/same70q21_same70_xplained/conf_board.h

sam/components/memory/sdram/is42s16100e/example/samv71q21_samv71_xplained_ultra/

conf_board.h

sam/components/memory/sdram/is42s16100e/example/is42s16100e_example.c

sam/components/memory/sdram/is42s16100e/is42s16100e.h
sam/drivers/pio/pio.c
sam/drivers/pio/pio.h
sam/drivers/sdramc/sdramc.c
sam/drivers/sdramc/sdramc.h
sam/utils/cmsis/same70/include/component/sdramc.h
sam/utils/cmsis/samv71/include/component/sdramc.h

- **Issue #ASFP-6049:** SPI Master service for SAM should use peripheral clock to compute baudrate divisor.

File Modified:

common/services/spi/sam_spi/spi_master.c

- **Issue #ASFP-6051:** SAMB11 Xplained pro board file #define empty .

Files Modified:

sam0/boards/samb11_xplained_pro/samb11_xplained_pro.h

sam0/boards/samb11zr_xplained_pro/samb11zr_xplained_pro.h

- **Issue #ASFP-6053:** cpu_ms_2_cy rounding error causing underflow.

Files modified:

common/services/delay/mega/cycle_counter.h

common/services/delay/xmega/cycle_counter.h

- **Issue #ASFP-6054:** PM.PLCFG.PLDIS and SUPC.VREG.STDBYPL0 and should be supported for SAML21.

File modified:

sam0/drivers/system/power/power_sam_l/power.h

sam0/utils/cmsis/saml21/include/component/pm_100.h

sam0/utils/cmsis/saml21/include/component/supc_100.h

- **Issue #ASFP-6055:** Continuous update property not working in RTC driver for SAM D/R.

Files modified:

sam0/drivers/rtc/rtc_sam_d_r/rtc_calendar.c

sam0/drivers/rtc/rtc_sam_d_r/rtc_count.c

- **Issue #ASFP-6056:** "IFLASH_LOCK_REGION_SIZE" is wrongly defined in SAM V/S/E device files.

File modified:

sam/utils/cmsis/same70/include/same70j19.h

sam/utils/cmsis/same70/include/same70j20.h

sam/utils/cmsis/same70/include/same70j21.h

sam/utils/cmsis/same70/include/same70n19.h

sam/utils/cmsis/same70/include/same70n20.h

sam/utils/cmsis/same70/include/same70n21.h

sam/utils/cmsis/same70/include/same70q19.h

sam/utils/cmsis/same70/include/same70q20.h

sam/utils/cmsis/same70/include/same70q21.h

sam/utils/cmsis/sams70/include/sams70j19.h

sam/utils/cmsis/sams70/include/sams70j20.h

sam/utils/cmsis/sams70/include/sams70j21.h

sam/utils/cmsis/sams70/include/sams70n19.h

sam/utils/cmsis/sams70/include/sams70n20.h

sam/utils/cmsis/sams70/include/sams70n21.h
sam/utils/cmsis/sams70/include/sams70q19.h
sam/utils/cmsis/sams70/include/sams70q20.h
sam/utils/cmsis/sams70/include/sams70q21.h
sam/utils/cmsis/samv70/include/samv70j19.h
sam/utils/cmsis/samv70/include/samv70j20.h
sam/utils/cmsis/samv70/include/samv70n19.h
sam/utils/cmsis/samv70/include/samv70n20.h
sam/utils/cmsis/samv70/include/samv70q19.h
sam/utils/cmsis/samv70/include/samv70q20.h
sam/utils/cmsis/samv71/include/samv71j19.h
sam/utils/cmsis/samv71/include/samv71j20.h
sam/utils/cmsis/samv71/include/samv71j21.h
sam/utils/cmsis/samv71/include/samv71n19.h
sam/utils/cmsis/samv71/include/samv71n20.h
sam/utils/cmsis/samv71/include/samv71n21.h
sam/utils/cmsis/samv71/include/samv71q19.h
sam/utils/cmsis/samv71/include/samv71q20.h
sam/utils/cmsis/samv71/include/samv71q21.h

- **Issue #ASFP-6058:** FreeRTOS example project for SAMG55 XPRO: USART0 pins should be initialized.

File modified:

thirdparty/freertos/demo/peripheral_control/samg55j19_samg_xplained_pro/conf_board.h

- **Issue #ASFP-6059:** SAMV71 - PIO need update.

Files modified:

sam/utils/cmsis/same70/include/component/pio.h
sam/utils/cmsis/sams70/include/component/pio.h
sam/utils/cmsis/samv70/include/component/pio.h
sam/utils/cmsis/samv71/include/component/pio.h

- **Issue #ASFP-6061:** Incorrect RMW in CAN drivers.

File modified:

sam/components/cmos_image_sensor/ov7740/unit_tests/unit_tests.c
sam/drivers/mcan/mcan.h
sam0/drivers/can/can.h

- **Issue #ASFP-6063:** SAM V/E/S GMAC: gs_tx_desc_null should be initialized.

Files Modified:

sam/drivers/gmac/gmac_raw_2.c
thirdparty/lwip/lwip-port-1.4.1/sam/netif/same70_gmac.c
thirdparty/lwip/lwip-port-1.4.1/sam/netif/samv71_gmac.c

- **Issue #ASFP-6064:** Improvement in udp_device.c.

File Modified:

sam/drivers/udp/udp_device.c

- **Issue #ASFP-6066:** SAM FreeRTOS peripheral drivers issue on version higher than 8.2.

File modified:

```

common/services/freertos/sam/unit_tests/freertos_spi_master/spi_unit_tests.c
common/services/freertos/sam/unit_tests/freertos_twi_master/twi_unit_tests.c
common/services/freertos/sam/unit_tests/freertos_usart_master/usart_unit_tests.c
common/services/freertos/sam/freertos_peripheral_control.c
common/services/freertos/sam/freertos_peripheral_control.h
common/services/freertos/sam/freertos_peripheral_control_private.h
common/services/freertos/sam/freertos_spi_master.c
common/services/freertos/sam/freertos_spi_master.h
common/services/freertos/sam/freertos_twi_master.c
common/services/freertos/sam/freertos_twi_master.h
common/services/freertos/sam/freertos_twihs_master.c
common/services/freertos/sam/freertos_twihs_master.h
common/services/freertos/sam/freertos_uart_serial.c
common/services/freertos/sam/freertos_uart_serial.h
common/services/freertos/sam/freertos_usart_serial.c
common/services/freertos/sam/freertos_usart_serial.h
thirdparty/freertos/demo/peripheral_control/demo-tasks/SPI-FLASH-task.c
thirdparty/freertos/demo/peripheral_control/demo-tasks/TWI-EEPROM-task.c
thirdparty/freertos/demo/peripheral_control/demo-tasks/UART-CLI-task.c
thirdparty/freertos/demo/peripheral_control/demo-tasks/USART-CLI-task.c
thirdparty/freertos/demo/peripheral_control/demo-tasks/USART-echo-tasks.c

```

- **Issue #ASFP-6068:** mega: the function `usart_enable_module_clock` in usart driver becomes empty.

File modified:

`mega/drivers/usart/usart_mega.c`

- **Issue #ASFP-6070:** SAM : HSMCI driver bugs.

Files Modified:

`common/components/memory/sd_mmc/sd_mmc.c`

`sam/drivers/hsmci/hsmci.c`

- **Issue #ASFP-6073:** Add SAM G51/53/54 Sleep Mode support.

File modified:

`common/services/sleepmgr/example/sleepmgr_example_sam_rtt.c`

`common/services/sleepmgr/sam/sleepmgr.h`

`sam/applications/sam_low_power/samg53g19_samg53_xplained_pro/low_power_board.h`

`sam/applications/sam_low_power/main.c`

`sam/drivers/pmc/pmc.c`

`sam/drivers/pmc/pmc.h`

`sam/drivers/pmc/sleep.c`

`sam/drivers/pmc/sleep.h`

- **Issue #ASFP-6074:** `__builtin_ctz()` issue when parameter is 0.

File modified:

- **Issue #ASFP-6078:** SAM L21: DMA Descriptor should be put into LPSRAM.

Using low power ram in SAML21 TC/TCC/SERCOM DMA examples

Files modified:

`sam0/drivers/sercom/i2c/quick_start_master_dma/qs_i2c_master_dma.c`

sam0\drivers\sercom\i2c\quick_start_slave_dma\qs_i2c_slave_dma.c
sam0\drivers\sercom\spi\quick_start_dma\qs_spi_dma_use.c
sam0\drivers\sercom\usart\quick_start_dma\qs_usart_dma_use.c
sam0\drivers\tc\quick_start_dma\qs_tc_dma.c
sam0\drivers\tcc\quick_start_dma\qs_tcc_dma.c
sam0\drivers\aes\unit_test\unit_test.c

- **Issue #ASFP-6079:** SAM B11 - PWM driver glitch.

Files modified:

sam0\drivers\pwm\pwm.h
sam0\drivers\pwm\pwm.c
sam0\drivers\pwm\quick_start\samb11_xplained_pro\conf_board.h
sam0\drivers\system\system_sam_b.h
sam0\drivers\system\system_sam_b.c

- **Issue #ASFP-6081:** Add warning for sysclk_init() disable debugWIRE module clock in some MEGA device.

File modified:

common/services/clock/mega/sysclk.c

- **Issue #ASFP-6086:** #if defined issue in afec.h.

File Modified:

sam/drivers/afec/afec.h

- **Issue #ASFP-6087:** Wrong enum tc45_cc_channel_mask_enable_t inside tc45 driver.

File Modified:

xmega/drivers/tc45/tc45.h

- **Issue #ASFP-6088:** i2c_master_bootloader_bridge example doesn't work (USB CDC can't be recognized).

Fix i2c_master_bootloader_bridge application issue.

Files modified:

sam0\applications\i2c_master_bootloader_bridge\main.c
sam0\applications\i2c_master_bootloader_bridge\samd21j18a_samd21_xplained_pro\conf_clocks.h

- **Issue #ASFP-6089:** Fix compile issue when GCC tool chain update.

Files modified:

sam/drivers/pdm/example1/pdm_example1.c
thirdparty/freertos/demo/lwip_sam_example/lwipopts.h
thirdparty/lwip/lwip-1.4.0/src/module_config/lwipopts.h
thirdparty/lwip/lwip-1.4.1-dev/src/module_config/lwipopts.h
thirdparty/lwip/lwip-1.4.1/src/module_config/lwipopts.h

- **Issue #ASFP-6097:** pmc_enable_cpbmck() and pmc_disable_cpbmck() use wrong bit.

File modified:

sam/drivers/pmc/pmc.c

- **Issue #ASFP-6098:** RSTC_CPMR_KEY_PASSWD is not defined for SAM4CM.

File modified:

sam/drivers/rstc/rstc.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-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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