

Release Notes for SPC2168 Standard Peripherals Library Drivers

V2.1.0/ 26- May -2025

Main Change

1. Bug fix

- clock.c
 - Modify CLOCK_ConfigurePLL ()
- ecap.h
 - Modify ECAP_SetEventTriggeredOnRisingEdge()
 - Modify ECAP_SetEventTriggeredOnFallingEdge ()

2. Other Change

- pwm.c
 - Modify PWM_ComplementaryPairChannelInit ()
 - Modify PWM_SingleChannelInit ()
- aes.c
 - Modify AES_EncryptData ()
 - Modify AES_DecryptData ()
- uart.c
 - Modify UART_WriteText ()
- flash.h
 - Add FLASH_IfHaveCache()
- system.h
 - Add SYSTEM_IfHaveCAU()
- adc.c
 - Modify ADC_Init()
- crc.c/h
 - Modify CRC_CalculateWithInitValuelsNotZero
- I2c.c
 - Modify I2C_MasterWrite
 - Modify I2C_MasterRead
 - Modify I2C_MasterBulkWrite
 - Modify I2C_MasterBulkRead
- clock.c
 - Modify CLOCK_Init()
 - Modify CLOCK_InitWithRCO()
 - Modify CLOCK_InitWithXO()
- gpio.c/h
 - Add GPIO_SetOpenDrainOutputHigh()
 - Add GPIO_SetOpenDrainOutputLow()
- uart.c

- Modify UART_Write ()
- Example Code
 - Modify DualCore_MainCPU_Access_UART_With_INT
 - Modify DualCore_MainCPU_Access_UART_With_Message
 - Modify DualCore_MainCPU_ToggleGPIO
 - Modify DualCore_CAU_Access_UART_With_INT
 - Modify DualCore_CAU_Access_UART_With_Message
 - Modify DualCore_CAU_ToggleGPIO
 - Modify Flash_With_INT
 - Modify Flash_EEPROM_Emulation
 - Modify Flash_Frequency_Reduction
 - Modify Flash_Operation
 - Modify Flash_Sector_Protect
 - Modify Flash_User_FuncWrap
 - Modify Flash_With_INT
 - Modify CRC_Calculate
- 1_Application
 - Add Tool
 - Move IAPLoader.exe to Tool
 - Modify IAP_UART
 - Modify IAP_UART/IAP_App
 - Modify IAP_UART/IAP_Loader

V2.0.0/ 29- Jan -2024**Main Change****1. Bug fix**

- comp.c
 - Modify COMP_SetFilterWindowTimeNs()
- i2c.c/h
 - Modify I2C_MasterWrite()
 - Modify I2C_MasterRead()
 - Modify I2C_MasterBulkWrite()
 - Modify I2C_MasterBulkRead()
 - Modify I2C_SpeedInit()
- ssp.c/h
 - Delete SSP_EnableRxTimeoutInt()
 - Delete SSP_DisableRxTimeoutInt()
 - Modify SSP_GetRxFIFOLevel()
- spc2168_reg.h
 - Modify SSPCTL1_REG
- spc2168_bitfield.h
 - Delete SSPCTL1.RXTOIE bit related codes
 - Delete SSPCTL1.RXONLY bit related codes
- SPC2168.svd
 - Delete SSPCTL1.RXTOIE bit related codes
 - Delete SSPCTL1.RXONLY bit related codes
- SPC2168.SFR
 - Delete SSPCTL1.RXTOIE bit related codes
 - Delete SSPCTL1.RXONLY bit related codes
- pwm.h
 - Modify PWM_ClearOneShotTripInt()
 - Modify PWM_ClearCBCTripInt()
 - Modify PWM_ClearDCAEVT0TripInt()
 - Modify PWM_ClearDCAEVT1TripInt()
 - Modify PWM_ClearDCBEVT0TripInt()
 - Modify PWM_ClearDCBEVT1TripInt()
 - Modify PWM_ClearTripGlobalInt()
- wtd.h
 - Modify WDT_FeedDog()
- 1_Application
 - Modify AT24C02_EEPROM/at24c02.c

2. Other Change

- `adc.c/h`
 - Add `ADC_SH_PositiveInputEnum`
 - Add `ADC_SH_NegativeInputEnum`
 - Add `ADC_Init()`
 - Modify `ADC_CalculateTemperature()`
 - Modify `ADC_PowerUp()`
 - Modify `ADC_CalculatePreciseTemperature()`
 - Modify `ADC_TrigFromPWMxSOCA()`
 - Modify `ADC_TrigFromPWMxSOCB()`
 - Modify `ADC_TrigFromPWMxSOCC()`
- `clock.c/h`
 - Add `CLOCK_InitWithXO()`
 - Modify `CLOCK_ConfigurePLL()`
 - Modify `CLOCK_InitWithRCO()`
 - Modify `CLOCK_Init()`
 - Modify `CLOCK_GetModuleClock()`
- `comp.c`
 - Modify `COMP_Init()`
- `gpio.h`
 - Add `GPIO_SetHigh()`
 - Add `GPIO_SetLow()`
- `i2c.c/h`
 - Add `I2C_SpeedModeEnum`
 - Modify `I2C_MasterInit()`
 - Modify `I2C_SlaveInit()`
- `pwm.h`
 - Add `PWM_TimeBaseEventEnum`
 - Add `PWM_GetTimeBaseEventFlag()`
 - Add `PWM_ClearTimeBaseEventFlag()`
 - Modify `PWM_LoadTimingEnum`
 - Delete `PWM_SyncEventEnum`
 - Add `PWM_SyncOutputEventEnum`
 - Modify `PWM_SetOneShotTripEvent()`
- `system_spc2168.c/h`
 - Delete `SystemCoreClock`
 - Delete `SystemCoreClockUpdate()`
 - Modify `SystemInit()`
 - Initialize `SysInfo`
- `spc2168_bitfield.h`
 - Modify `TBCTL_BIT_SYNCOSSEL`
- `SPC2168.svd`
 - Modify `SYNCI_AND_FRCSYNC` to `SYNCI_OR_FRCSYNC`
- `SPC2168.SFR`

- Modify SYNCI_AND_FRCSYNC to SYNCI_OR_FRCSYNC
- spc2168.h
 - Modify WRITE_FIELD()
 - Modify ErrorStatus
- ssp.c/h
 - Modify SSP_Init()
 - Modify SSP_Send()
 - Modify SSP_MasterTransceive()
 - Add SSP_HalfDuplexTx()
 - Add SSP_HalfDuplexRx()
 - Add SSP_FullDuplexTransceive()
- Example Code
 - Modify ADC_Calibration
 - Modify ADC_Continuous_Mode
 - Modify ADC_Conversion_Priority
 - Modify ADC_Differential_Trim_Result
 - Modify ADC_Sequential_Mode
 - Modify ADC_SHA_Open_Detect
 - Modify ADC_SHA_PPU
 - Modify ADC_SHA_Short_Detect
 - Modify ADC_Simultaneous
 - Modify ADC_Single_End_Result
 - Modify ADC_With_PGA
 - Modify AES
 - Modify Comparator
 - Modify CRC_Calculate
 - Modify DAC
 - Modify DMA_M2M
 - Modify DMA_M2P
 - Modify DMA_P2M
 - Modify DMA_P2P_Peripheral_SSP_Master
 - Modify DMA_P2P_Peripheral_SSP_Slave
 - Modify DualCore_CAU_Access_UART_With_INT
 - Modify DualCore_CAU_Access_UART_With_Message
 - Modify DualCore_CAU_ToggleGPIO
 - Modify DualCore_MainCPU_Access_UART_With_INT
 - Modify DualCore_MainCPU_Access_UART_With_Message
 - Modify DualCore_MainCPU_ToggleGPIO
 - Add ECAP_APWM_Function
 - Modify ECAP_Continue_Absolute
 - Modify ECAP_Continue_Delta
 - Modify ECAP_Oneshot_Absolute
 - Add Flash_EEPROM_Emulation
 - Add Flash_Frequency_Reduction

- Add Flash_M_Access_User
- Add Flash_Operation
- Add Flash_Sector_Protect
- Add Flash_User_FuncWrap
- Add Flash_With_INT
- Modify FreeRTOS_No_CAU
- Modify FreeRTOS_With_CAU
- Modify GPIO_Edge_Detect
- Modify GPIO_Level_Test
- Add GTimer_Extren_Gpio_Input_Clk
- Add GTimer_Extren_Gpio_Input_Enable
- Modify GTimer_INT
- Modify I2C_Master_Bulk_Polling_TxRx
- Modify I2C_Master_INT_TxRx
- Modify I2C_Master_Polling_TxRx
- Modify I2C_Slave_Bulk_Polling_TxRx
- Modify I2C_Slave_INT_TxRx
- Modify I2C_Slave_Polling_TxRx
- Modify PGA_Calibration
- Modify PWM_Complementary_Pair_Channel
- Modify PWM_Current_Protect_Trigger_TZ
- Modify PWM_Force_SYNC
- Modify PWM_Global_GPIO_SYNC
- Modify PWM_Global_Software_Force_SYNC
- Modify PWM_Global_Timer_SYNC
- Modify PWM_GPIO_Trigger_Trip_Zone
- Add PWM_Independent_Trigger_TZ
- Modify PWM_Single_Output_With_Down_Counting_Mode
- Modify PWM_Single_Output_With_Up_Counting_Mode
- Modify PWM_Single_Output_With_Up_Down_Counting_Mode
- Modify PWM_TBCNT_0_SYNC
- Modify PWM_TBCNT_CMPD_SYNC
- Modify PWM_Trigger_ADC_Sample
- Modify PWM_TriPhase_Waveform
- Modify SECURITY_Config
- Modify SSP_Master_B2B_TxRx_Polling
- Modify SSP_Master_TxRx_INT
- Modify SSP_Master_TxRx_Polling
- Modify SSP_Slave_B2B_TxRx_Polling
- Modify SSP_Slave_TxRx_INT
- Modify SSP_Slave_TxRx_Polling
- Modify Template
- Modify TSenser
- Modify UART_RX_and_SentBack

- Modify UART_RX_INT
- Modify UART_TX_and_CheckRX
- Modify WDT0_INT
- Modify WDT1_Feed_DOG
- Modify WDT1_Rset_SYS
- 1_Application
 - Modify AT24C02_EEPROM
 - Modify IAP_UART
 - Add Math_Lib
 - Add RTT_Printf

V1.7.0/ 25- Aug -2022**Main Changes****1. Bug Fix**

- Example Code
 - Modify I2C_Master_INT_Rx

2. Other Change

- Add SPC2168_CAU.FLM
- system_spc2168.h
 - Add #include "stdint.h"
- Example Code
 - Modify Flash_M_Access_User
 - Modify Flash_User_FuncWrap
 - Modify I2C_Master_Bulk_Polling_TxRx
 - Modify I2C_Slave_Bulk_Polling_TxRx
 - Modify I2C_Master_Polling_TxRx
 - Modify I2C_Slave_Polling_TxRx
 - Add I2C_Slave_INT_TxRx
 - Modify DualCore_MainCPU_Access_UART_With_INT
 - Modify DualCore_MainCPU_Access_UART_With_Message
 - Modify DualCore_MainCPU_ToggleGPIO
 - Modify ECAP_Continue_Absolute
 - Modify ECAP_Continue_Delta
 - Modify ECAP_Oneshot_Absolute
 - Modify Flash_EEPROM_Emulation
- Application Code
 - Add AT24C02_EEPROM
 - Add IAP_UART

V1.6.0/ 31- Dec -2021

Main Changes

1. Bug Fix

- gpio.c
 - Modify GPIO_ResetAllPin()
- comp.h/.c
 - Modify COMP_Init(), add code to enable bandgap
 - Modify COMP_EnableDAC(), add code to enable bandgap
 - Modify COMP_DACBuffer0Init() and COMP_DACBuffer1Init(), add code to enable bandgap
- adc.c
 - Modify ADC_SetSampleAndConvertTime()
 - Modify ADC_PowerUp(), add code to enable bandgap
- pga.c
 - Modify PGA_DifferentialInit(), add code to enable bandgap
- clock.c
 - Modify CLOCK_ConfigurePLL()
- timer.h
 - Delete TIMER_EnableCounterHold() and TIMER_DisableCounterHold()
- uart.h
 - Modify UART_ClearRxFIFO() and UART_ClearTxFIFO()
- spc2168_reg.h/spc2168_bitfield.h
 - Reserve TMRCTL.HOLD register bit-field
 - Modify the width of UARTFOR.BYTECNT register bit-field

2. Other Change

- pga.c
 - Add PGA_EnableSensorMode() and PGA_DisableSensorMode()
- flash.h/.c
 - Add FLASH_EraseBlock()
 - Modify FLASH_ProgramWord()
 - Add macro definition *FLASH_CMD_ERASE_BLOCK*
- clock.c
 - Add note for CLOCK_TrimPLL()
 - Modify CLOCK_Init()
- adc.h/.c
 - Modify ADC_CalculatePreciseTemperature() and ADC_CalculateTemperature()
 - Add ADC_EnableBandgap() and ADC_DisableBandgap()
- spc2168_reg.h/spc2168_bitfield.h
 - Reserve XOCTL.FREQSEL register bit-field
 - Rename XOCTL.FEEDXOUT register bit-field to XOCTL.FEEDXIO
- crc.h
 - Modify CRC_ModeEnum

- gpio.h
 - Modify the post-fix of const number
- Update SPC2168.svd, SPC2168.SFR, SPC2168.FLM and SPC2168_NVR.FLM files
- iar/startup_spc2168.s
 - Add code comment
- Example Code
 - Modify Flash_M_Access_User
 - Modify Flash_User_FuncWrap
 - Modify AES/main.c
 - Modify TSenser/main.c

V1.5.0/ 26-May-2021**Main Changes**

- Spc2168.h
 - Add macro function READ_BITS().
 - Add macro function WRITE_FIELD(), READ_FIELD() and CLEAR_FIELD().
 - Add macro function POSITION_VAL().
 - Add macro function UNUSED().
- flash.c
 - Update function FLASH_SetTiming().
- i2c.c
 - Update function I2C_MasterWrite(), I2C_MasterRead(), I2C_MasterBulkWrite() and I2C_MasterBulkRead().
 - Update function I2C_SlaveBulkWrite().
- clock.c
 - Update CLOCK_Init(), CLOCK_InitWithRCO(), CLOCK_ConfigurePLL() and CLOCK_ConfigurePLLWithRCO().
 - Update CLOCK_HCLKSelEnum, CLOCK_RefSelEnum definitions.
- comp.c
 - Update function COMP_Init() and COMP_SetFilterWindowTimeNs().
- delay.h/delay.c
 - Update Delay method control macros.
- ssp.c
 - Update function SSP_MasterB2BTransceive() and SSP_SlaveTransceive().
- ecap.c
 - Update function ECAP_CaptureModelInit().
 - Rename function ECAP_SetInputPin() to ECAP_SetInput().
 - Update function ECAP_SetInput().
- pwm.c
 - Update function PWM_ComplementaryPairChannellInit() and PWM_SingleChannellInit().
- Demo code
 - Update ECAP_Continue_Absolute\main.c
 - Update ECAP_Continue_Delta\main.c
 - Update ECAP_Oneshot_Absolute\main.c
 - Update UART_TX_and_CheckRX\main.c
 - Update UART_RX_and_SentBack\main.c
 - Update SSP_Master_B2B_TxRx_Polling\main.c
 - Update SSP_Master_TxRx_INT\main.c
 - Update SSP_Master_TxRx_Polling\main.c
 - Update SSP_Slave_B2B_TxRx_Polling\main.c
 - Update SSP_Slave_TxRx_INT\main.c
 - Update SSP_Slave_TxRx_Polling\main.c
 - Update PWM_Trigger_ADC_Sample\main.c
 - Update PWM_Current_Protect_Trigger_TZ\main.c

- Update PGA_Calibration\main.c
- Update I2C_Master_Polling_TxRx\main.c
- Update I2C_Master_Bulk_Polling_TxRx\main.c
- Update I2C_Master_INT_Rx\main.c
- Update GPIO_Edge_Detect\main.c
- Update DAC\main.c

V1.4.0/ 06-May-2020**Main Changes**

- **adc.h**
 - Update comments on `ADC_GetResult()`, `ADC_GetTrimResult1()` and `ADC_GetTrimResult2()`.
- **clock.h/.c**
 - Add macro definition `__RCO0_CLOCK` and `__RCO1_CLOCK` for RCO clocks.
 - Remove macro definition `__RCO_CLOCK` and `__XO_CLOCK`.
 - Update 3 functions `CLOCK_Init()`, `CLOCK_InitWithRCO()` and `CLOCK_GetModuleClock()` for configuring WDT clock.
- **comp.h**
 - Fix bug in function `COMP_Init()`.
 - Fix bug in function `COMP_ClearAllFilterOutputStatus()`.
 - Rename function `COMP_EnableOutputInvert()` to `COMP_SetOutputActiveLow()`.
 - Rename function `COMP_DisableOutputInvert()` to `COMP_SetOutputActiveHigh()`.
- **pwm.h**
 - Rename function `PWM_SetTimeEventTiming()` to `PWM_SetTimeEventIntTiming()`.
 - Rename function `PWM_SetTimeEventPeriod()` to `PWM_SetTimeEventIntPeriod()`.
 - Add member value `ON_SYNC_PERIOD` to definition `PWM_LoadTimingEnum`.
- **system_spc2168.c**
 - Remove macro definition `__SYSTEM_CLOCK`.
- **timer.h**
 - Add function `TIMER_SetCounterValue()`.
- **wdt.c**
 - Update function `WDT_Init()` for enabling watchdog halted-run and lockup-run mode.
- **dma.h/.c**
 - Update function `DMA_EnableTransferCompleteInt()`.
 - Fix bug in function `DMA_DisableTransferCompleteInt()`.
 - Update function `DMA_EnableErrorInt()`.
 - Fix bug in function `DMA_DisableErrorInt()`.
 - Update function `DMA_EnableChannelTransfer()`.
 - Remove definition `DMA_SourcePerEnum` and `DMA_DestinationPerEnum`.
 - Add definition `DMA_PeripheralEnum`.
 - Replace functions `DMA_SetHandShakeWithSSPTx()`, `DMA_SetHandShakeWithSSPRx()`, `DMA_SetHandShakeWithUARTTx()` and `DMA_SetHandShakeWithUARTRx()` with function `DMA_SetHandShakeWithPeripheral()`.

V1.3.0/ 18-November-2019**Main Changes**

- **adc.c**
 - Update function `ADC_ConfigureSimultaneousTiming()`.
- **comp.c**
 - Update function `COMP_DACBuffer0Init()`.
 - Update function `COMP_DACBuffer1Init()`.
- **ecap.h**
 - Rename definition `ECAP_EvtEnum` to `ECAP_EventEnum`.
 - Update function `ECAP_APWMSetDuty()`.
- **flash.c**
 - Update function `FLASH_WriteProtect()`.
- **pwm.h**
 - Update macro function `PWM_SetOneShotTripEvent()`.
 - Update macro function `PWM_SetCBCTripEvent()`.
 - Update member values of definition `PWM_TripActionEnum`.
- **system.h**
 - Rename definition `SYSTEM_ResetEvtEnum` to `SYSTEM_ResetEventEnum`.
- **wdt.h**
 - Rename macro function `WDT_GetRawIntFlag()` to `WDT_GetIntRawFlag()`.
- **spc1068_reg.h/spc1168_bitfield.h**
 - Update `UARTISR.XMITIR` bit-field macro definitions.
 - Remove `UARTFCR.TRAIL` bit-field.
 - Rename `DMACHCTL2.FIFODAV` to `DMACHCTL2.FIFOEMPTY`.
- Add FreeRTOS middle-wares.

V1.2.0/ 18-July-2019**Main Changes**

- **aes.h**
 - Rename function AES_EnableInputFIFOFullInt() to AES_EnableInputFullInt().
 - Rename function AES_DisableInputFIFOFullInt() to AES_DisableInputFullInt().
 - Rename function AES_EnableOutputFIFOEmptyInt() to AES_EnableOutputEmptyInt().
 - Rename function AES_DisableOutputFIFOEmptyInt() to AES_DisableOutputEmptyInt().
 - Rename function AES_ClearInputFIFOFullInt() to AES_ClearInputFullInt().
 - Rename function AES_ClearOutputFIFOEmptyInt() to AES_ClearOutputEmptyInt().
 - Rename function AES_GetInputFIFOFullIntFlag() to AES_GetInputFullIntFlag().
 - Rename function AES_GetOutputFIFOEmptyIntFlag() to AES_GetOutputEmptyIntFlag().
 - Rename function AES_GetInputFIFOFullIntRawFlag() to AES_GetInputFullIntRawFlag().
 - Rename function AES_GetOutputFIFOEmptyIntRawFlag() to AES_GetOutputEmptyIntRawFlag().
 - Rename function AES_IsInputFIFOFull() to AES_IsInputFull().
 - Rename function AES_IsOutputFIFOReady() to AES_IsOutputReady().
 - Rename function AES_IsOutputFIFOEmpty() to AES_IsOutputEmpty().
- **comp.h**
 - Rename function COMP_SetFilterClkDiv() to COMP_SetFilterClockDiv().
- **i2c.h**
 - Rename function I2C_EnableRxFullInt() to I2C_EnableRxDataAvailableInt().
 - Rename function I2C_DisableRxFullInt() to I2C_DisableRxDataAvailableInt().
 - Rename function I2C_EnableTxEmptyInt() to I2C_EnableTxDataRequestInt().
 - Rename function I2C_DisableTxEmptyInt() to I2C_DisableTxDataRequestInt().
 - Rename function I2C_GetRxFullIntFlag() to I2C_GetRxDataAvailableIntFlag().
 - Rename function I2C_GetTxEmptyIntFlag() to I2C_GetTxDataRequestIntFlag().
 - Rename function I2C_GetRxFullIntRawFlag() to I2C_GetRxDataAvailableIntRawFlag().
 - Rename function I2C_GetTxEmptyIntRawFlag() to I2C_GetTxDataRequestIntRawFlag().
 - Rename function I2C_IsTxFIFOFull() to I2C_IsTxFull().
 - Rename function I2C_IsTxFIFOEmpty() to I2C_IsTxEmpty().
 - Rename function I2C_IsRxFIFOFull() to I2C_IsRxFull().
 - Rename function I2C_IsRxFIFOEmpty() to I2C_IsRxEmpty().
- **ssp.h**
 - Add 4 new functions for controlling DMA service requests: SSP_EnableDMATransmitService(), SSP_DisableDMATransmitService(), SSP_EnableDMAReceiveService() and SSP_DisableDMAReceiveService().
 - Rename function SSP_EnableRxFIFOOverflowInt() to SSP_EnableRxOverflowInt().
 - Rename function SSP_DisableRxFIFOOverflowInt() to SSP_DisableRxOverflowInt().
 - Rename function SSP_EnableTxFIFOUnderflowInt() to SSP_EnableTxUnderflowInt().
 - Rename function SSP_DisableTxFIFOUnderflowInt() to SSP_DisableTxUnderflowInt().
 - Rename function SSP_EnableTxFIFOEmptyInt() to SSP_EnableTxDataRequestInt().
 - Rename function SSP_DisableTxFIFOEmptyInt() to SSP_DisableTxDataRequestInt().
 - Rename function SSP_EnableRxFIFOFullInt() to SSP_EnableRxDataAvailableInt().
 - Rename function SSP_DisableRxFIFOFullInt() to SSP_DisableRxDataAvailableInt().

- Rename function `SSP_SetRxFIFOTriggerLevel()` to `SSP_SetRxFIFOTriggerThreshold()`.
- Rename function `SSP_SetTxFIFOTriggerLevel()` to `SSP_SetTxFIFOTriggerThreshold()`.
- Rename function `SSP_IsTxFIFONotFull()` to `SSP_IsTxNotFull()`.
- Rename function `SSP_IsRxFIFONotEmpty()` to `SSP_IsRxNotEmpty()`.
- Rename function `SSP_IsTxFIFOServiceRequest()` to `SSP_IsTxServiceRequest()`.
- Rename function `SSP_IsRxFIFOServiceRequest()` to `SSP_IsRxServiceRequest()`.
- Rename function `SSP_IsRxFIFOOverflow()` to `SSP_IsRxOverflow()`.
- Rename function `SSP_IsTxFIFOUnderflow()` to `SSP_IsTxUnderflow()`.
- Rename function `SSP_IsTxFIFOHasOddSample()` to `SSP_IsTxHasOddSample()`.
- Rename function `SSP_IsRxFIFOHasOddSample()` to `SSP_IsRxHasOddSample()`.
- Rename function `SSP_ClearRxFIFOOverflowInt()` to `SSP_ClearRxOverflowInt()`.
- Rename function `SSP_ClearTxFIFOUnderflowInt()` to `SSP_ClearTxUnderflowInt()`.

■ `uart.h/.c`

- Add 2 new functions for controlling DMA service requests: `UART_EnabledDMAService()` and `UART_DisableDMAService()`.
- Rename definition `UART_TxTriggerLevelEnum` to `UART_TxThresholdEnum`.
- Rename definition `UART_RxTriggerLevelEnum` to `UART_RxThresholdEnum`.
- Rename function `UART_ResetRxFIFO()` to `UART_ClearRxFIFO()`.
- Rename function `UART_ResetTxFIFO()` to `UART_ClearTxFIFO()`.
- Rename function `UART_IsTxFIFOEmpty()` to `UART_IsTxDone()`.
- Rename function `UART_IsBreakReceived()` to `UART_IsRxBreak()`.
- Rename function `UART_IsFrameError()` to `UART_IsRxFrameError()`.
- Rename function `UART_IsParityError()` to `UART_IsRxParityError()`.
- Rename function `UART_IsRxDataLost()` to `UART_IsRxOverflow()`.
- Rename function `UART_IsRxDataReady()` to `UART_IsRxNotEmpty()`.
- Rename function `UART_SetFIFOTriggerLevel()` to `UART_SetFIFOTriggerThreshold()`.

■ `spc2168.h`

- Add 9 new functions
 - 2 new functions to set register bits: `SET_BIT()` and `SET_BITS()`.
 - 2 new functions to clear register bits: `CLEAR_BIT()` and `CLEAR_BITS()`.
 - 1 new function to read register bit value: `READ_BIT()`.
 - 1 new function to clear register: `CLEAR_REG()`.
 - 1 new function to write value to register: `WRITE_REG()`.
 - 1 new function to read register value: `READ_REG()`.
 - 1 new function to modify register value: `MODIFY_REG()`.

■ `spc2168_reg.h/spc2168_bitfield.h`

- Rename bit definition `NRZE` to `NRZME` in `UARTIER` register.
- Rename bit definition `RSTRF` to `CLRRF` in `UARTFCR` register.
- Rename bit definition `RSTTF` to `CLRTF` in `UARTFCR` register.
- Rename bit definition `ITL` to `RXTH` in `UARTFCR` register.
- Rename bit definition `TIL` to `TXTH` in `UARTFCR` register.
- Rename bit definition `BUS` to `BUS32` in `UARTFCR` register.
- Rename bit definition `TXEMPTY` to `TXDONE` in `UARTLSR` register.
- Rename bit definition `RXFULL` to `RXDAV` in `I2CIF/I2CRAWIF/I2CIE` register.

- Rename bit definition TXEMPTY to TXDREQ in I2CIF/I2CRAWIF/I2CIE register.
 - Rename bit definition TTFC to TT in DMACHCTL0 register.
 - Rename bit definition FIFOEMPTY to FIFODAV in DMACHCTL2 register.
 - Rename bit definition FIFOMODE to FIFOTH in DMACHCTL3 register.
 - Rename register DMATCSTS to DMATCRAWIF.
 - Rename register DMAERRSTS to DMAERRRAWIF.
- dma.h/.c
- Rename function DMA_SetFIFOMode() to DMA_SetFIFOThreshold().
 - Rename function DMA_GetTransferCompleteStatus() to DMA_GetTransferCompleteIntRawFlag().
 - Rename function DMA_GetErrorStatus() to DMA_GetErrorIntRawFlag().
 - Rename function DMA_GetGlobalErrorIntFlag() to DMA_GetErrorGlobalIntFlag().
 - Rename function DMA_GetGlobalTransferCompleteIntFlag() to DMA_GetTransferCompleteGlobalIntFlag().
 - Rename function DMA_EnableChannel() to DMA_EnableChannelTransfer().
 - Add 4 new functions: DMA_SetHandShakeWithSSPTx(), DMA_SetHandShakeWithSSPRx(), DMA_SetHandShakeWithUARTTx and DMA_SetHandShakeWithUARTRx().
- Add IAR for ARM project support for examples.

V1.1.0/ 02-July-2019**Main Changes**

- **adc.h/.c**
 - Rename function ADC_PowerUP() to ADC_PowerUp().
 - Rename function ADC_SetSampleAndConvTime() to ADC_SetSampleAndConvertTime().
 - Rename function ADC_SelectPinSingleEnd() to ADC_SelectPinSingleEnded().
- **aes.h**
 - Rename function AES_ClearInputFifo() to AES_ClearInputFIFO().
 - Rename function AES_ClearOutputFifo() to AES_ClearOutputFIFO().
 - Rename function AES_EnableInputFifoFullInt() to AES_EnableInputFIFOFullInt().
 - Rename function AES_DisableInputFifoFullInt() to AES_DisableInputFIFOFullInt().
 - Rename function AES_EnableOutputFifoEmptyInt() to AES_EnableOutputFIFOEmptyInt().
 - Rename function AES_DisableOutputFifoEmptyInt() to AES_DisableOutputFIFOEmptyInt().
 - Rename function AES_ClearInputFifoFullInt() to AES_ClearInputFIFOFullInt().
 - Rename function AES_ClearOutputFifoEmptyInt() to AES_ClearOutputFIFOEmptyInt().
 - Rename function AES_GetInputFifoFullIntFlag() to AES_GetInputFIFOFullIntFlag().
 - Rename function AES_GetOutputFifoEmptyIntFlag() to AES_GetOutputFIFOEmptyIntFlag().
 - Rename function AES_GetInputFifoFullIntRawFlag() to AES_GetInputFIFOFullIntRawFlag().
 - Rename function AES_GetOutputFifoEmptyIntRawFlag() to AES_GetOutputFIFOEmptyIntRawFlag().
 - Rename function AES_IsInputFifoFull() to AES_IsInputFIFOFull().
 - Rename function AES_IsOutputFifoReady() to AES_IsOutputFIFOReady().
 - Rename function AES_IsOutputFifoEmpty() to AES_IsOutputFIFOEmpty().
- **clock.h/.c**
 - Rename macro function CLOCK_NstoCounter() to CLOCK_NsToCounter().
 - Rename function CLOCK_PLLConfig() to CLOCK_ConfigurePLL().
 - Rename function CLOCK_PLLQuickConfigWithRCO() to CLOCK_ConfigurePLLWithRCO().
 - Rename function CLOCK_GetModuleClk() to CLOCK_GetModuleClock().
- **comp.h**
 - Update function COMP_ResetFilter().
 - Rename function COMP_SetDACValueMV() to COMP_SetDACVoltage().
- **dma.h**
 - Rename function DMA_IsFifoEmpty() to DMA_IsFIFOEmpty().
 - Rename function DMA_SetFifoMode() to DMA_SetFIFOMode().
- **ecap.h/.c**
 - Rename function ECAP_APwmActiveHigh() to ECAP_APWMSetActiveHigh().
 - Rename function ECAP_APwmActiveLow() to ECAP_APWMSetActiveLow().
 - Rename function ECAP_CounterRun() to ECAP_RunCounter().
 - Rename function ECAP_CounterStop() to ECAP_StopCounter().
 - Rename function ECAP_EventTriggeredOnRisingEdge() to ECAP_SetEventTriggeredOnRisingEdge().
 - Rename function ECAP_EventTriggeredOnFallingEdge() to ECAP_SetEventTriggeredOnFallingEdge().

- Rename function ECAP_SetCounterVal() to ECAP_SetCounterValue().
- Rename function ECAP_EnableCntOverflowInt() to ECAP_EnableCounterOverflowInt().
- Rename function ECAP_DisableCntOverflowInt() to ECAP_DisableCounterOverflowInt().
- Rename function ECAP_EnableCntEqualPrdInt() to ECAP_EnableCounterEqualPRDInt().
- Rename function ECAP_DisableCntEqualPrdInt() to ECAP_DisableCounterEqualPRDInt().
- Rename function ECAP_EnableCntEqualCmplInt() to ECAP_EnableCounterEqualCMPInt().
- Rename function ECAP_DisableCntEqualCmplInt() to ECAP_DisableCounterEqualCMPInt().
- Rename function ECAP_GetCntOverflowIntFlag() to ECAP_GetCounterOverflowIntFlag().
- Rename function ECAP_GetCntEqualPrdIntFlag() to ECAP_GetCounterEqualPRDIntFlag().
- Rename function ECAP_GetCntEqualCmplIntFlag() to ECAP_GetCounterEqualCMPIntFlag().
- Rename function ECAP_ForceCntOverflowInt() to ECAP_ForceCounterOverflowInt().
- Rename function ECAP_ForceCntEqualPrdInt() to ECAP_ForceCounterEqualPRDInt().
- Rename function ECAP_ForceCntEqualCmplInt() to ECAP_ForceCounterEqualCMPInt().
- Rename function ECAP_ClearCntOverflowInt() to ECAP_ClearCounterOverflowInt().
- Rename function ECAP_ClearCntEqualPrdInt() to ECAP_ClearCounterEqualPRDInt().
- Rename function ECAP_ClearCntEqualCmplInt() to ECAP_ClearCounterEqualCMPInt().
- Rename function ECAP_APwmModelInit() to ECAP_APWMMModelInit().
- Rename function ECAP_APwmSetDuty() to ECAP_APWMSetDuty().

■ gpio.h

- Rename macro function GpioPinPort() to __GPIO_PIN_PORT().
- Rename macro function GpioPinIndex() to __GPIO_PIN_INDEX().
- Rename macro function GPIO_OUTPUT_REG_ADDR() to __GPIO_OUTPUT_REG_ADDR().
- Rename macro function GpioGplrAddr() to __GPIO_GPLR_ADDR().
- Rename function GPIO_LevelIntActiveHigh() to GPIO_SetLevelIntActiveHigh().
- Rename function GPIO_LevelIntActiveLow() to GPIO_SetLevelIntActiveLow().

■ i2c.h/.c

- Rename function I2C_IsTxFifoNotFull() to I2C_IsTxFIFONotFull().
- Rename function I2C_IsTxFifoEmpty() to I2C_IsTxFIFOEmpty().
- Rename function I2C_IsRxFifoNotEmpty() to I2C_IsRxFIFONotEmpty().
- Rename function I2C_IsRxFifoFull() to I2C_IsRxFIFOFull().
- Rename function I2C_SetTxFifoThreshold() to I2C_SetTxFIFOThreshold().
- Rename function I2C_SetRxFifoThreshold() to I2C_SetRxFIFOThreshold().
- Rename function I2C_GetTxFifoLevel() to I2C_GetTxFIFOLevel().
- Rename function I2C_GetRxFifoLevel() to I2C_GetRxFIFOLevel().

■ pga.h/.c

- Rename function PGA_DiffInit() to PGA_DifferentialInit().
- Rename function PGA_SelecPositiveCHAsComInput() to PGA_SelectPositiveChannelAsCommonInput().
- Rename function PGA_SelecNegativeCHAsComInput() to PGA_SelectNegativeChannelAsCommonInput().

■ pwm.h/.c

- Rename function PWM_GetPeriodValue() to PWM_GetPRD().
- Rename function PWM_SetPeriodValue() to PWM_SetPRD().
- Rename function PWM_EnableSyncFromTimer0() to PWM_EnableSyncFromTIMER0().

- Rename function PWM_EnableSyncFromTimer1() to PWM_EnableSyncFromTIMER1().
- Rename function PWM_EnableSyncFromTimer2() to PWM_EnableSyncFromTIMER2().
- Rename function PWM_DisableSyncFromTimer0() to PWM_DisableSyncFromTIMER0().
- Rename function PWM_DisableSyncFromTimer1() to PWM_DisableSyncFromTIMER1().
- Rename function PWM_DisableSyncFromTimer2() to PWM_DisableSyncFromTIMER2().
- Rename function PWM_CalSyncReloadValue() to PWM_CalculateSyncReloadValue().

■ ssp.h/.c

- Rename function SSP_EnableFifoPackMode() to SSP_EnableFIFOPackMode().
- Rename function SSP_DisableFifoPackMode() to SSP_DisableFIFOPackMode().
- Rename function SSP_EnableRxFifoOverflowInt() to SSP_EnableRxFIFOOverflowInt().
- Rename function SSP_DisableRxFifoOverflowInt() to SSP_DisableRxFIFOOverflowInt().
- Rename function SSP_EnableTxFifoUnderflowInt() to SSP_EnableTxFIFOUnderflowInt().
- Rename function SSP_DisableTxFifoUnderflowInt() to SSP_DisableTxFIFOUnderflowInt().
- Rename function SSP_EnableTxFifoEmptyInt() to SSP_EnableTxFIFOEmptyInt().
- Rename function SSP_DisableTxFifoEmptyInt() to SSP_DisableTxFIFOEmptyInt().
- Rename function SSP_EnableRxFifoFullInt() to SSP_EnableRxFIFOFullInt().
- Rename function SSP_DisableRxFifoFullInt() to SSP_DisableRxFIFOFullInt().
- Rename function SSP_GetTxFifoLevel() to SSP_GetTxFIFOLevel().
- Rename function SSP_GetRxFifoLevel() to SSP_GetRxFIFOLevel().
- Rename function SSP_SetRxFifoTriggerLevel() to SSP_SetRxFIFOTriggerLevel().
- Rename function SSP_SetTxFifoTriggerLevel() to SSP_SetTxFIFOTriggerLevel().
- Rename function SSP_IsTxFifoNotFull() to SSP_IsTxFIFONotFull().
- Rename function SSP_IsRxFifoNotEmpty() to SSP_IsRxFIFONotEmpty().
- Rename function SSP_IsTxFifoServiceRequest() to SSP_IsTxFIFOServiceRequest().
- Rename function SSP_IsRxFifoServiceRequest() to SSP_IsRxFIFOServiceRequest().
- Rename function SSP_IsRxFifoOverflow() to SSP_IsRxFIFOOverflow().
- Rename function SSP_IsTxFifoUnderflow() to SSP_IsTxFIFOUnderflow().
- Rename function SSP_IsBusySyncSlaveClk() to SSP_IsBusySyncSlaveClock().
- Rename function SSP_IsTxFifoHasOddSample() to SSP_IsTxFIFOHasOddSample().
- Rename function SSP_IsRxFifoHasOddSample() to SSP_IsRxFIFOHasOddSample().
- Rename function SSP_ClearRxFifoOverflowInt() to SSP_ClearRxFIFOOverflowInt().
- Rename function SSP_ClearTxFifoUnderflowInt() to SSP_ClearTxFIFOUnderflowInt().
- Update 2 functions: SSP_Init() and SSP_MasterB2BTransceive().

■ uart.h/.c

- Rename function UART_DisableFifo() to UART_DisableFIFO().
- Rename function UART_ResetRxFifo() to UART_ResetRxFIFO().
- Rename function UART_ResetTxFifo() to UART_ResetTxFIFO().
- Rename function UART_GetRxFifoLevel() to UART_GetRxFIFOLevel().
- Rename function UART_IsFifoError() to UART_IsFIFOError().
- Rename function UART_IsTxFifoEmpty() to UART_IsTxFIFOEmpty().
- Rename function UART_SetFifoTriggerLevel() to UART_SetFIFOTriggerLevel().

■ wdt.h

- Rename function WDT_SetLoadVal() to WDT_SetReloadValue().
- Rename function WDT_GetLoadVal() to WDT_GetReloadValue().

- Rename function WDT_GetCounterVal() to WDT_GetCounterValue().
- Add IAR for ARM tool-chain support.

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- **Created.**