Release Notes for SPD1179 Standard Peripherals Library Drivers

V8.1.3/ 5- September -2024

<u>Main Changes</u>

1. Bug Fix

2. Other Change

- ■ Project / 1_Application
  - Delete IAP_LIN_Phy
  - Add IAP_LIN
  - Modify IAP_CAN
  - Modify IAP_UART
  - IAPLoader.exe

V8.0.3/ 16- July -2024

Main Changes

1. Bug Fix

■   lin_stack/src/lin_lld_uart.c
  •   Modify UART1_IRQHandler()
  •   Modify lin_lld_uart_init()
  •   Modify lin_lld_uart_tx_response()
  •   Modify TIMER1_IRQHandler()
■   Project /0_Examples
  •   Modify 24_1_LIN_Slave_RX
  •   Modify 24_2_LIN_Slave_TX

2. Other Change

■   system_spc1169.c
  •   Modify SystemInit()
■   Project / 1_Application
  •   Modify Math_Lib
  •   Modify LIN_Slave_Auto_Baud

V7.0.3/ 1- June -2024

Main Changes

1. Bug Fix

■ pin.c
- Modify PIN_SetPinAsECAPO()

■ system.c
- Modify SYSTEM_SetMonitorThreshold ()

■ adc.h
- Modify ADC_InputSelectEnum

2. Other Change

■ crc.h
- Modify CRC_ModeEnum
- Delete CRC_EndianEnum
- Delete CRC_DataOperationEnum
- Delete CRC_SetInputFormat()
- Delete CRC_SetOutputFormat()
- Delete CRC_Calculate()
- Delete CRC_FeedStream()
- Add CRC_DataReverseEnum
- Add CRC_OutputDataXorEnum
- Add CRC_ReverseData()
- Add CRC_XorOutputData()
- Add CRC_CalculateWithInitValueIsNotZero()
- Add CRC_CalculateWithInitValueIsZero()

■ crc.c
- Modify CRC_Init()
- Delete CRC_Calculate()
- Delete CRC_FeedStream()
- Add CRC_CalculateWithInitValueIsNotZero()
- Add CRC_CalculateWithInitValueIsZero()

■ hwlib.h
- Modify note of FLASHC_VerifyRead()
- Modify note of FLASHC_VerifyErase()

■ clock.c
- Modify CLOCK_ConfigurePLL()

■ ecap.c
- Modify ECAP_APWMModeInit ()

■ adc.c
- Modify ADC_Init()

■ Project /0_Examples
- Delete 28_1_CRC_16_CCITT
- Add 28_1_CRC

- Add 19_6_System_ECC_Validation
- Modify 18_6_Flash_EEPROM_Emulation_Controller
- Add 18_7_Flash_MEEPROM_Emulation_Controller
- Modify note of 26_1_CAN_Standard_And_Extended_Frame_TX
- Modify note of 26_1_CAN_Standard_Frame_RX
- Modify note of 26_1_CAN_Extended_Frame_RX
- Modify note of 26_2_CANFD_Standard_And_Extended_Frame_TX
- Modify note of 26_2_CANFD_Standard_Frame_RX
- Modify note of 26_2_CANFD_Extended_Frame_RX
- Modify 19_1_System_Voltage_Monitor
- Modify Math_Lib
- Modify 23_10_Predriver_PMUCLKERR_Trigger_TZ
- Modify 26_1_CAN_Standard_And_Extended_Frame_TX
- Modify 26_2_CANFD_Standard_And_Extended_Frame_TX

■ Project / 1_Application
- Modify EEPROM_Data_Storage_Upon_VBAT_UV_Event
- Add MEEPROM_Data_Storage_Upon_VBAT_UV_Event
- Delete IAP_LIN_Phy2

V6.0.2/ 20- January -2024

Main Changes

1. **Bug Fix**

■ hwlib.h
- Reserve MEEPROM_WriteWord ()
- Reserve MEEPROM_ReadWord ()

■ Project /0_Examples
- Modify 18_6_Flash_EEPROM_Emulation_Controller

■ Project / 1_Application
- Modify EEPROM_Data_Storage_Upon_VBAT_UV_Event

2. **Other Change**

V5.0.2/ 17- January -2024

Main Changes

1. Bug Fix

■ hwlib.h
   - Reserve MEEPROM_Init()
   - Reserve MEEPROM_Format()
■ Project /0_Examples
   - Modify 20_6_DMA_ADC_to_Memory
   - Modify 20_7_DMA_SPI_to_UART
   - Modify 20_1_DMA_Memory_to_Memory
   - Modify 20_2_DMA_Memory_to_SPI
   - Modify 20_4_DMA_SPI_to_Memory
   - Modify 20_3_DMA_Memory_to_UART
   - Modify 20_5_DMA_UART_to_Memory
   - Modify 20_8_DMA_UART_to_SPI
   - Modify 20_10_DMA_ADC_to_UART
   - Modify 20_9_DMA_ADC_to_SPI
   - Modify 18_6_Flash_EEPROM_Emulation_Controller
■ Project / 1_Application
   - Modify EEPROM_Data_Storage_Upon_VBAT_UV_Event

2. Other Change

■ epwr.h/.c
   - Delete EPWR_Stop()
   - Delete EPWR_Sleep()
■ lin_stack/inc/lin.h
   - Add #define LIN_N_AS_AND_N_CR_TIMEOUT   1000
■ lin_stack/src/lin_lld_uart.c
   - Add #ifdef LOAD_ID_NAD_FROM_FLASH #else #endif for lin_init_id_or_nad_from_flash() and lin_save_configuration()
■ Project / 1_Application
   - Modify LIN_Slave_node

V4.0.1/ 24- December -2023

Main Changes

1. Bug Fix

■   adc.c
- •   Modify ADC_Init()
- •   Modify ADC_EasyInit1()
- •   Modify ADC_EasyInit2()
- •   Modify ADC_GetInputPinCode()

■   pin.c
- •   Modify PIN_SetPinAsAnalog()

■   i2c.c
- •   Modify I2C_MasterBulkRead()

■   pwm.h
- •   Modify interface of PWM_EnableSYNCOToGPIO()
- •   Modify interface of PWM_DisableSYNCOToGPIO()
- •   Modify interface of PWM_EnableSOCAToGPIO()
- •   Modify interface of PWM_DisableSOCAToGPIO()
- •   Modify interface of PWM_EnableSOCBToGPIO()
- •   Modify interface of PWM_DisableSOCBToGPIO()
- •   Modify interface of PWM_EnableSOCCToGPIO()
- •   Modify interface of PWM_DisableSOCCToGPIO()

■   SPC1169.svd/.SFR
- •   Modify GPIO register

■   Project /0_Examples
- •   Delete 23_8_Predriver_VDD5_UVOV_Trigger_TZ
- •   Add 23_8_Predriver_VDD5_OV_Trigger_TZ

2. Other Change

■   i2c.c
- •   Modify I2C_InitSpeed()
- •   Modify I2C_MasterWrite()
- •   Modify I2C_MasterRead()
- •   Modify I2C_MasterBulkWrite()

■   phcomp.c
- •   Modify PHCOMP_SetFilterWindow()

■   pin.h
- •   Modify PIN_EnableInputChannel()
- •   Modify PIN_DisableInputChannel()

■   .vscode/arm-none-eabi-gcc.cmake
- •   Delete Absolute Path

■   SPC1169.svd/.SFR
- •   Modify note from SSP to SPI

■   SPC1169_bitfield.h

- Modify note from SSP to SPI
- **system.c**
  - Modify the note of SYSTEM_SetSleepWakeUpByGPIO()
- **clock.c**
  - Modify CLOCK_InitWithXO()
  - Modify CLOCK_Init()
  - Modify CLOCK_InitWithRCO()
  - Modify CLOCK_ConfigurePLL()
- **dma.c**
  - Rename SSP to SPI
- **epwr.c**
  - Modify EPWR_ReadRegister()
- **pwm.h**
  - Modify PWM_LoadTimingEnum
- **Libraries**
  - Modify lin_stack
- **Project /0_Examples**
  - Delete 17_3_SSP_Master_TxRx_Int
  - Delete 20_8_DMA_UART_to_SSP
  - Delete 17_2_SSP_Master_TxRx_Polling
  - Delete 20_9_DMA_ADC_to_SSP
  - Delete 17_2_SSP_Slave_TxRx_Polling
  - Delete 17_1_SSP_Master_B2B_TxRx_Polling
  - Delete 20_7_DMA_SSP_to_UART
  - Delete 10_5_ADC_Differential_Abs_Result
  - Delete 20_2_DMA_Memory_to_SSP
  - Delete 20_4_DMA_SSP_to_Memory
  - Delete 10_4_ADC_Single_End_Abs_Result
  - Delete 17_1_SSP_Slave_B2B_TxRx_Polling
  - Delete 17_3_SSP_Slave_TxRx_Int
  - Modify 18_5_Flash_With_ISR_In_RAM
  - Add 17_3_SPI_Master_TxRx_Int
  - Add 20_8_DMA_UART_to_SPI
  - Add 17_2_SPI_Master_TxRx_Polling
  - Add 20_9_DMA_ADC_to_SPI
  - Add 17_2_SPI_Slave_TxRx_Polling
  - Add 17_1_SPI_Master_B2B_TxRx_Polling
  - Add 20_7_DMA_SPI_to_UART
  - Add 10_5_ADC_Differential_Result
  - Add 20_2_DMA_Memory_to_SPI
  - Add 20_4_DMA_SPI_to_Memory
  - Add 10_4_ADC_Single_Ended_Result
  - Add 17_1_SPI_Slave_B2B_TxRx_Polling
  - Add 17_3_SPI_Slave_TxRx_Int

- Modify 18_1_Flash_Operation
- Modify 18_2_Flash_Sector_Protect
- Modify 18_3_Flash_Call_User_Func
- Modify 18_5_Flash_With_ISR_In_RAM
- Modify 19_5_System_Sleep_Wakeup
- Modify isr.h/.c
- Modify CMakeLists.txt

■ Project / 1_Application
- Add IAP_CAN
- Modify IAPLoader.exe
- Modify Math_Lib
- Modify LIN_Slave_node
- Modify CMakeLists.txt

V3.0.0/ 7- December -2023

Main Changes

1. Bug Fix

- ■ hwlib.h
  - • Hide EEPROM_Init, EEPROM_WriteWord, EEPROM_ReadWord, EEPROM_Format
- ■ Project /0_Examples
  - • Modify 18_6_Flash_EEPROM_Emulation_Controller

2. Other Change

- ■ Project / 1_Application
  - • Add EEPROM_Data_Storage_Upon_VBAT_UV_Event

V2.11.0/ 22- October -2023

Main Changes

1. **Bug Fix**

- Project.uvprojx
  - Modify \<uGnu>1\</uGnu> to \<uGnu>0\</uGnu>
- Project /0_Examples
  - Delete 23_9_Predriver_VDD5_OC_Trigger_TZ

2. **Other Change**

- Libraries/drivers/inc/
  - Modify note in adc.h, can.h, clock.h, comp.h, dma.h, ecap.h, engr.h, i2c.h, pwm.h, spi.h, system.h, uart.h
- spi.h/.c
  - Modify SPI_InitSpeed()
- clock.h/.c
  - Modify CLOCK_InitWithXO()
- .vscode
  - Delete spintrol.bat
  - Modify launch.json
- Project /0_Examples
  - Add download.bat in GCC
  - Modify 19_2_System_GPIO_Trigger_NMI
  - Modify 4_1_GPIO_Edge_Detect
  - Modify 4_2_GPIO_Level_Test
- Project /1_Application
  - Add Math_Lib
  - Add RTT_Printf
- Utilities/delay.c
  - Modify note of Delay_Us
- IDE_Support/EWARM/SPC1169.svd
- IDE_Support/MDK-ARM/SPC1169.SFR
- Libraries/drivers/inc/reg/spc1169_bitfield.h
- spd1179_hv.c
  - Modify HV_InitRegister()

V2.10.0/ 20- September -2023

Main Changes

1. Bug Fix

2. Other Change

■ Libraries/lin_stack/inc/lin_commontl_proto.h
  • Modify lin_tl_make_multi_slaveres_pdu()
■ Libraries/lin_stack/inc/lin_commontl_proto.c
  • Modify lin_tl_make_multi_slaveres_pdu()
  • Modify lin_tl_attach_service()
■ Libraries/lin_stack/src/lin_lld_uart.c
  • Add lin_init_id_or_nad_from_flash()
  • Modify lin_lld_uart_init()
  • Modify lin_lld_uart()
■ 1_Application/LIN_Slave_node/lin_cfg.h
  • Add #define LOAD_ID_NAD_FROM_FLASH

V2.9.0/ 15- September -2023

Main Changes

1. **Bug Fix**

2. **Other Change**

- .vscode
  - Add spintrol.bat
  - Modify launch.json
  - Modify arm-none-eabi-gcc.cmake
- IDE_Support/MDK-ARM/SPC1169_128M.FLM
  - Rename to SPC1169_128K.FLM
- IDE_Support/MDK-ARM/SPC1169_64M.FLM
  - Rename to SPC1169_64K.FLM
- Libraries/CMSIS/device/startup/gcc
  - Modify startup_spc1169.S
- Libraries/CMSIS/device/startup/iar
  - Modify startup_spc1169.s
- Libraries/CMSIS/device/system_spc1169.c
  - Modify SysInfo
- Libraries/lin_stack/src/ lin_lld_uart.c
  - Modify UART1_IRQHandler()
- ecap.h, i2c.h, spi.h
  - Note code in /* */ instead of //
- Project /0_Examples
  - Modify CMakeLists.txt
  - Modify project.ld
  - Modify Project.uvprojx
  - Delete file build
  - Modify download.jlink
- Utilities / retarget.c
  - Modify _write()
  - Delete __io_putchar()
  - Add void _close()
  - Add void _fstat()
  - Add void _getpid()
  - Add void _isatty()
  - Add void _kill()
  - Add void _lseek()
  - Add void _read()

V2.8.0/ 3- September -2023

Main Changes

1. **Bug Fix**

2. **Other Change**

- ◼ .vscode
  - • Add arm-none-eabi-gcc.cmake
- ◼ Libraries/lin_stack/inc/ lin_lld_uart.h
  - • Delete gpio_init()
- ◼ Libraries/lin_stack/src/ lin_lld_uart.c
  - • Add lin_save_configuration()
  - • Add lin_Cr_or_As_timeout()
  - • Modify lin_lld_uart()
  - • Modify TIMER2_IRQHandler()
  - • Modify TIMER1_IRQHandler()
  - • Modify UART1_IRQHandler()
  - • Modify lin_lld_uart_init()
  - • Modify timer_init()
  - • Modify lin_lld_uart_set_low_power_mode()
  - • Modify lin_lld_uart_tx_response()
- ◼ 1_Application/LIN_Slave_node/main.c
  - • Delete gpio_init()
- ◼ Project /0_Examples
  - • Modify gcc configuration files of all demos
  - • Delete arm-none-eabi-gcc.cmake
  - • Add J-Link download
- ◼ Utilities / retarget.c
  - • Add _write()
  - • Add __io_putchar()

V2.7.0/ 28- August -2023

Main Changes

1. **Bug Fix**

2. **Other Change**

- Clock.h
  - Add CLOCK_InitWithXO()
- Clock.c
  - Add CLOCK_InitWithXO()
  - Modify CLOCK_ConfigurePLL()
- pwm.h
  - Modify PWM_LoadTimingEnum
- Libraries/CMSIS/device/startup/gcc
  - Add startup_spc1169.S
- Project /0_Examples
  - Add gcc configuration files to all demos

V2.6.0/ 11- August -2023

Main Changes

1. **Bug Fix**

■ clock.c
- Modify CLOCK_ConfigurePLL ()

2. **Other Change**

■ can.h
- Add CAN_EnableAutoBusOffRecovery()
- Add CAN_DisabeAutoBusOffRecovery()
■ pwm.h
- Modify PWM_LoadTimingEnum
■ spd1179_hv_bitfield.h
- Rename ATESTCTL to HV ATESTCTL
■ spd1179_hv.h
- Rename ATESTCTL to HVATESTCTL
■ uart.h
- Rename UART_BaudCounterUpdateEnum to UART_BaudCountUpdateEnum
- Add LIN_RxFIFOModeEnum
- Modify UART_IntEnum
- Rename UART_UpdateBaudCounterByHW() to UART_UpdateBaudCountByHW()
- Rename UART_UpdateBaudCounterBySW() to UART_UpdateBaudCountBySW()
- Rename UART_SetBaudCounterUpdateMethod() to UART_SetBaudCountUpdateMethod()
- Rename UART_GetBaudCounterUpdateMethod() to UART_GetBaudCountUpdateMethod()
- Add UART_EnableErrorReportWhenRxFull()
- Add UART_DisableErrorReportWhenRxFull()
- Add UART_IsEnableErrorReportWhenRxFull()
- Add UART_EnablePinSwap()
- Add UART_DisablePinSwap()
- Add UART_IsEnablePinSwap()
- Add LIN_SetRxFIFOMode()
■ uart.c
- Modify UART_WaitAutoBaudReady()
■ IDE_Support/EWARM/SPC1169.svd
■ IDE_Support/MDK-ARM/SPC1169.SFR
■ Project /0_Examples
- Modify 10_1_ADC_Calibration
- Modify 19_1_System_Voltage_Monitor
■ Project/1_Application
- Add LIN_Master_Auto_Baud
- Add LIN_Slave_Auto_Baud

V2.5.0/ 28- July -2023

Main Changes

1. **Bug Fix**

■ clock.c
- Modify CLOCK_Init()
- Modify CLOCK_InitWithRCO()
- Modify CLOCK_ConfigurePLL()

2. **Other Change**

■ uart.c
- Modify LIN_Init()
■ lin_lld_uart.c
- Modify lin_lld_uart()
- Modify UART1_IRQHandler()
- Modify lin_lld_uart_set_low_power_mode()
■ system.h
- Delete SYSTEM_GetFlashOption()
■ flashc.h
- Rename FLASH_SIZE to FLASH_CHIP_SIZE
■ pin.h
- Rename PIN_GPIO2_CLKMON to PIN_GPIO2_DCLK
■ spd1179_hv.c
- Modify HV_InitRegister()
■ Project/0_Examples
- Modify 23_6_Predriver_VBAT_UVOV_Trigger_TZ
- Modify 24_1_LIN_Master_TX
- Modify 24_1_LIN_Slave_RX
- Modify 24_2_LIN_Master_RX
- Modify 24_2_LIN_Slave_TX
- Modify 24_3_LIN_TX_Timeout_Shutdown
- Modify 19_1_System_Voltage_Monitor
■ Project/1_Application
- Modify AT24C02_EEPROM
- Modify IAP_LIN_Phy2
- Modify IAP_UART

V2.4.1/ 15- June -2023

Main Changes

1. Bug Fix

2. Other Change

- Project /1_Application
  - Modify LIN_Slave_node

V2.4.0/ 12- May -2023

Main Changes

1. Bug Fix

- clock.c
  - Modify CLOCK_Init ()
  - Modify CLOCK_InitWithRCO()
- spc1169_bitfield.h
  - Delete NINJLEN
- Project/0_Examples
  - Modify 10_1_ADC_Calibration
  - Delete 19_7_System_Sleep_Wakeup_by_Event
  - Add 19_5_System_Sleep_Wakeup

2. Other Change

- Project/0_Examples
  - Modify 11_1_SPGA_Calibration
  - Modify 11_2_DPGA_Calibration
  - Delete 19_4_System_Stop_Wakeup_Cycliclly
  - Delete 19_5_System_Stop_Wakeup_by_Event
  - Delete 19_6_System_Sleep_Wakeup_Cycliclly
  - Add 19_4_System_Stop_Wakeup

V2.3.0/ 23- Apr -2023

<u>**Main Changes**</u>

1. Bug Fix

2. Other Change

■ Project
- Modify the default Flash size to 64k
- Modify the default RAM size to 16k

V2.2.0/ 16- Mar -2023

Main Changes

1. **Bug Fix**

2. **Other Change**

- Project/0_Examples
    - Modify 2_4_MCU_Sleep_Wakeup_by_Event
    - Modify 7_3_WDT_Rset_System
    - Modify 8_4_PWM_Complementary_Pair_Channel
    - Modify 8_5_PWM_TriPhase_Waveform
    - Modify 8_6_PWM_Software_Global_SYNC
    - Modify 8_7_PWM_Software_Group_SYNC
    - Modify 8_8_PWM_GPIO_SYNC
    - Modify 8_9_PWM_Timer_SYNC
    - Modify 8_10_PWM_TBCNT_0_SYNC_and_Signal_Observe
    - Modify 8_12_PWM_GPIO_Trigger_TZ
    - Modify 9_1_ECAP_Continue_Absolute
    - Modify 9_4_ECAP_APWM_Function
    - Modify 9_5_ECAP_Continue_Absolute_Dual_Pin
    - Modify 10_1_ADC_Calibration
    - Modify 10_3_ADC_Short_Detect
    - Modify 10_4_ADC_Single_End_Abs_Result
    - Modify 10_5_ADC_Differential_Abs_Result
    - Modify 10_6_ADC_Triggered_by_Timer
    - Modify 10_7_ADC_Continous_Mode_and_Conversion_Priority
    - Modify 10_8_ADC_PPU
    - Modify 10_9_ADC_With_SPGA
    - Modify 10_10_ADC_With_DPGA
    - Modify 14_1_DAC_to_ADC
    - Modify 14_2_ADC_to_DAC
    - Modify 17_1_SSP_Master_B2B_TxRx_Polling
    - Modify 17_1_SSP_Slave_B2B_TxRx_Polling
    - Modify 17_2_SSP_Master_TxRx_Polling
    - Modify 17_2_SSP_Slave_TxRx_Polling
    - Modify 17_3_SSP_Master_TxRx_Int
    - Modify 17_3_SSP_Slave_TxRx_Int
    - Modify 18_5_Flash_With_ISR_In_RAM
    - Add 18_6_Flash_EEPROM_Emulation_Controller
    - Modify 26_1_CAN_Extended_Frame_RX
    - Modify 26_1_CAN_Standard_And_Extended_Frame_TX
    - Modify 26_1_CAN_Standard_Frame_RX
    - Modify 26_2_CANFD_Extended_Frame_RX
    - Modify 26_2_CANFD_Standard_And_Extended_Frame_TX

- Modify 26_2_CANFD_Standard_Frame_RX
- Modify 27_1_I2C_Master_Bulk_Polling_TxRx
- Modify 27_1_I2C_Slave_Bulk_Polling_TxRx
- Modify 27_2_I2C_Master_Polling_TxRx
- Modify 27_2_I2C_Slave_Polling_TxRx
- Modify 27_3_I2C_Master_INT_TxRx
- Modify 27_3_I2C_Slave_INT_TxRx

V2.1.0/ 2- Mar -2023

Main Changes

1. **Bug Fix**

■ can.h
- Modify CAN_GetTxPinTestMode ()
- Modify CAN_SetTxPinTestMode ()

■ clock.c
- Modify CLOCK_ConfigurePLL ()

■ Phcomp.h
- Modify PHCOMP_GetOriginalOutputStatus ()

2. **Other Change**

■ Project/0_Examples
- Modify 8_1_PWM_Single_Output_With_Up_Counting_Mode
- Modify 8_2_PWM_Single_Output_With_Down_Counting_Mode
- Modify 8_3_PWM_Single_Output_With_Up_Down_Counting_Mode
- Modify 8_5_PWM_TriPhase_Waveform
- Modify 8_6_PWM_Software_Global_SYNC
- Modify 8_7_PWM_Software_Group_SYNC
- Modify 8_8_PWM_GPIO_SYNC
- Modify 8_9_PWM_Timer_SYNC
- Modify 8_10_PWM_TBCNT_0_SYNC_and_Signal_Observe
- Modify 8_11_PWM_Trigger_ADC_Sample_and_Signal_Observe
- Modify 8_12_PWM_GPIO_Trigger_TZ
- Modify 8_13_PWM_Current_Protect_Trigger_TZ
- Modify 8_14_PWM_ADC_PPU_Trigger_TZ
- Modify 10_7_ADC_Continous_Mode_and_Conversion_Priority
- Modify 10_8_ADC_PPU
- Modify 12_1_Comparator
- Delete 15_1_LV_TSensor
- Modify 19_1_System_Voltage_Monitor
- Modify 19_7_System_Sleep_Wakeup_by_Event
- Delete 26_1_CAN_TX_Data
- Delete 26_1_CAN_RX_Data1
- Delete 26_1_CAN_RX_Data2
- Add 26_1_CAN_Standard_And_Extended_Frame_TX
- Add 26_1_CAN_Standard_Frame_RX
- Add 26_1_CAN_Extended_Frame_RX
- Add 26_2_CANFD_Standard_And_Extended_Frame_TX
- Add 26_2_CANFD_Standard_Frame_RX
- Add 26_2_CANFD_Extended_Frame_RX

■ clock.c
- Add CLOCK_UpdateInfo ()

- Delete __XO_CLOCK variable
- **can.c**
  - Delete CAN_SetMessageErrorStateIndicator ()
  - Add CAN_ForceSendDominantErrorStateIndicator ()
  - Add CAN_ForceSendRecessiveErrorStateIndicator ()
  - Add CAN_DisableForceSendErrorStateIndicator ()
  - Add CAN_IsForceSendErrorStateIndicator ()
  - Add CAN_GetMessageErrorStateIndicator()
  - Modify CAN_SetMessage ()
- **system_spc1169.c**
  - Modify SystemInit()
  - Modify SysInfoStruct SysInfo
- **pwm.h**
  - Modify PWM_SetPRDLoadTiming ()
  - Modify PWM_SetAQCSFRCLoadTiming ()
  - Modify PWM_SetDBCTLLoadTiming ()
  - Modify PWM_SetDBREDLoadTiming ()
  - Modify PWM_SetDBFEDLoadTiming ()
  - Modify PWM_LoadTimingEnum
- **Clock.h**
  - Modify CLOCK_GetModuleDiv ()
- **pga.h**
  - Modify PGA_InputSelEnum
- **adc.h**
  - Delete ADC_PPU_TriggerSourceEnum
- **can.h**
  - Modify CAN_GetMessageFrameFormat ()
- **spc1169.h**
  - Add CEIL_DIV ()
  - Add FLOOR_DIV ()
- **License.txt**
  - Modify license.txt

V2.0.0/ 11- Feb -2023

Main Changes

1. **Bug Fix**

■ can.c
   - CAN_SetMessage ()
■ IDE_Support
   - Modify SPC1169.svd
   - Modify SPC1169.SFR

2. **Other Change**

■ Project/0_Examples
   - Modify 19_1_System_Voltage_Monitor
   - Add 9_5_ECAP_Continue_Absolute_Dual_Pin
   - Add 9_6_ECAP_Continue_Delta_LIN
■ Libraries/lin_stack/src/lin_lld_uart.c
   - Modify lin_lld_uart()
   - Modify lin_lld_uart_set_low_power_mode()

V1.9.0/ 10- Jan -2023

Main Changes

1. **Bug Fix**

■   spd1179_hv.c
  •   Modify HV_InitRegister()
■   IDE_Support
  •   Modify DebugCtrl.mac
  •   Modify SPC1169.svd
  •   Modify FlashSPC1169.board
  •   Modify FlashSPC1169.flash
  •   Modify FlashSPC1169.out
  •   Modify SPC1169.FLM
  •   Modify SPC1169.SFR
■   adc.c
  •   Modify ADC_SetSampleAndConvertTime()
  •   Modify ADC_InputSelectEnum
  •   Modify ADC_EasyInit1()
  •   Modify ADC_EasyInit2()
  •   Modify ADC_Init()
  •   Modify ADC_GetInputPinCode()
■   system.h
  •   Modify SYSTEM_MonitorItemEnum
  •   Modify SYSTEM_GetADCREFLowThreshold()
  •   Modify SYSTEM_GetADCREFHighThreshold()
  •   Modify SYSTEM_GetADCREFMonitorValue()
■   i2c.h
  •   Modify I2C_GetTxAbortSource()
■   phcomp.h
  •   Modify PHCOMP_ReferenceEnum
■   can.h
  •   Modify CAN_StatusEnum
  •   Modify CAN_GetStatus()
■   pga.h
  •   Modify D2S_Enable()
  •   Modify D2S_Disable()
■   clock.c
  •   Modify CLOCK_SetModuleDiv()

2. **Other Change**

■   adc.h
  •   Modify ADC_Enable()
■   comp.h
  •   Modify COMP_SetDACBufferInput()

- **pga.c**
  - Modify PGA_InitDPGA()
  - Modify PGA_InitSPGA()
- **spi.c**
  - Modify SPI_InitSpeed()
- **ecap.c**
  - Modify ECAP_CaptureModeInit()
  - Modify ECAP_APWMModeInit()
- **wdt.c**
  - Modify WDT_Init()
- **uart.h**
  - Add UART_SetRxTimeoutThreshold()
  - Add UART_GetRxTimeoutThreshold()
- **spi.c**
  - Delete SSP_MasterB2BTransceive ()
- **Project/1_Application**
  - Add IAP_LIN_Phy
  - Modify IAP_UART
- **Project/0_Examples**
  - Modify 10_10_ADC_With_DPGA
  - Modify 10_1_ADC_Calibration
  - Modify 10_2_ADC_Open_Detect
  - Modify 10_3_ADC_Short_Detect
  - Modify 10_4_ADC_Single_End_Abs_Result
  - Modify 10_5_ADC_Differential_Abs_Result
  - Modify 10_6_ADC_Triggered_by_Timer
  - Modify 10_7_ADC_Continous_Mode_and_Conversion_Priority
  - Modify 10_8_ADC_PPU
  - Modify 10_9_ADC_With_SPGA
  - Modify 11_1_SPGA_Calibration
  - Modify 11_2_DPGA_Calibration
  - Modify 12_1_Comparator
  - Modify 13_1_BEMF_Comparator
  - Modify 14_1_DAC_to_ADC
  - Modify 14_2_ADC_to_DAC
  - Modify 15_1_LV_TSensor
  - Modify 16_1_UART_RX_Int
  - Modify 16_2_UART_RX_and_SentBack
  - Modify 16_2_UART_TX_and_CheckRX
  - Modify 17_1_SSP_Master_B2B_TxRx_Polling
  - Modify 17_1_SSP_Slave_B2B_TxRx_Polling
  - Modify 17_2_SSP_Master_TxRx_Polling
  - Modify 17_2_SSP_Slave_TxRx_Polling
  - Modify 17_3_SSP_Master_TxRx_Int

- Modify 17_3_SSP_Slave_TxRx_Int
- Modify 18_1_Flash_Operation
- Modify 18_2_Flash_Sector_Protect
- Modify 18_3_Flash_Call_User_Func
- Modify 18_3_Flash_User_Func
- Modify 18_4_Flash_EEPROM_Emulation
- Modify 18_5_Flash_With_ISR_In_RAM
- Modify 19_1_System_Voltage_Monitor
- Modify 19_2_System_GPIO_Trigger_NMI
- Modify 19_3_System_Boot_Log_and_ECC_Error
- Modify 19_4_System_Stop_Wakeup_Cycliclly
- Modify 19_5_System_Stop_Wakeup_by_Event
- Modify 19_6_System_Sleep_Wakeup_Cycliclly
- Modify 19_7_System_Sleep_Wakeup_by_Event
- Modify 20_10_DMA_ADC_to_UART
- Modify 20_1_DMA_Memory_to_Memory
- Modify 20_2_DMA_Memory_to_SSP
- Modify 20_3_DMA_Memory_to_UART
- Modify 20_4_DMA_SSP_to_Memory
- Modify 20_5_DMA_UART_to_Memory
- Modify 20_6_DMA_ADC_to_Memory
- Modify 20_7_DMA_SSP_to_UART
- Modify 20_8_DMA_UART_to_SSP
- Modify 20_9_DMA_ADC_to_SSP
- Modify 23_10_Predriver_PMUCLKERR_Trigger_TZ
- Modify 23_11_Predriver_PMUOT_Trigger_TZ
- Modify 23_1_Predriver_Operation
- Modify 23_3_Predriver_VDS_Monitor_Trigger_TZ
- Modify 23_4_Predriver_Strength_Optimize
- Modify 23_5_Predriver_Propagation_Delay
- Modify 23_6_Predriver_VBAT_UVOV_Trigger_TZ
- Modify 23_7_Predriver_LIN_TX_Timeout_Trigger_TZ
- Modify 23_8_Predriver_VDD5_UVOV_Trigger_TZ
- Modify 23_9_Predriver_VDD5_OC_Trigger_TZ
- Modify 24_1_LIN_Master_TX
- Modify 24_1_LIN_Slave_RX
- Modify 24_2_LIN_Master_RX
- Modify 24_2_LIN_Slave_TX
- Modify 24_3_LIN_TX_Timeout_Shutdown
- Modify 25_1_MON_Int
- Add 26_1_CAN_RX_Data1
- Add 26_1_CAN_RX_Data2
- Add 26_1_CAN_TX_Data
- Add 27_1_I2C_Master_Bulk_Polling_TxRx

- Add 27_1_I2C_Slave_Bulk_Polling_TxRx
- Add 27_2_I2C_Master_Polling_TxRx
- Add 27_2_I2C_Slave_Polling_TxRx
- Add 27_3_I2C_Master_INT_TxRx
- Add 27_3_I2C_Slave_INT_TxRx
- Add 28_1_CRC_16_CCITT
- Modify 2_1_BOD_UVOV_Int
- Modify 2_2_BOD_UVOV_Reset
- Modify 2_3_MCU_Stop_Wakeup_by_Event
- Modify 2_4_MCU_Sleep_Wakeup_by_Event
- Modify 3_1_PLL_unlock_Int
- Modify 3_2_PLL_unlock_Reset
- Modify 3_3_Clock_Detect_Error_Int
- Modify 3_4_Clock_Detect_Error_Reset
- Modify 4_1_GPIO_Edge_Detect
- Modify 4_2_GPIO_Level_Test
- Modify 6_1_GTimer_Int
- Modify 7_1_WDT_Int
- Modify 7_2_WDT_Feed_DOG
- Modify 7_3_WDT_Rset_System
- Modify 8_10_PWM_TBCNT_0_SYNC_and_Signal_Observe
- Modify 8_11_PWM_Trigger_ADC_Sample_and_Signal_Observe
- Modify 8_12_PWM_GPIO_Trigger_TZ
- Modify 8_13_PWM_Current_Protect_Trigger_TZ
- Modify 8_14_PWM_ADC_PPU_Trigger_TZ
- Modify 8_1_PWM_Single_Output_With_Up_Counting_Mode
- Modify 8_2_PWM_Single_Output_With_Down_Counting_Mode
- Modify 8_3_PWM_Single_Output_With_Up_Down_Counting_Mode
- Modify 8_4_PWM_Complementary_Pair_Channel
- Modify 8_5_PWM_TriPhase_Waveform
- Modify 8_6_PWM_Software_Global_SYNC
- Modify 8_7_PWM_Software_Group_SYNC
- Modify 8_8_PWM_GPIO_SYNC
- Modify 8_9_PWM_Timer_SYNC
- Modify 9_1_ECAP_Continue_Absolute
- Modify 9_2_ECAP_Continue_Delta
- Modify 9_3_ECAP_Oneshot_Absolute
- Modify 9_4_ECAP_APWM_Function
- Delete IAP_LIN_Phy

V1.8.0/ 29- Dec -2022

Main Changes

1. **Bug Fix**

- spi.h
  - Modify SPI_SetTestSFRMLock()
- iar
  - Modify startup_spc1169.s

2. **Other Change**

- adc.h
  - Modify ADC_SetChannelIntTriggerSOC ()
  - Modify ADC_SetChannelSOCTriggerSource()
- uart.c
  - Modify LIN_Init()
- hwlib.h
  - Modify Note
- Project/1_Application
  - Add LIN_Slave_node

V1.7.0/ 25- Oct -2022

Main Changes

1. **Bug Fix**

■ Example Code
   • Modify 18_4_Flash_EEPROM_Emulation

2. **Other Change**

■ clock.h
   • Modify CLOCK_SetPLLInputDiv()
   • Modify CLOCK_SetPLLFeedbackDiv()
   • Modify CLOCK_SetWDT0ClockSource()
   • Modify CLOCK_SetWDT1ClockSource()
■ power.c
   • Modify POWER_SetVDD12UVThreshold()
   • Modify POWER_SetVDD12OVThreshold()
   • Modify POWER_SetVDD33UVThreshold()
   • Modify POWER_SetVDD33OVThreshold()
■ adc.h
   • Modify ADC_SH0_P_VBAT_DIV to ADC_SH0_P_VBATM_DIV
■ delay.h/.c
   • Modify Delay_Init()
   • Modify Delay_Us()
■ comp.c
   • Modify COMP_Init()
   • Modify COMP_SetFilterWindowTimeNs()
■ phcomp.c
   • Modify PHCOMP_SetFilterWindowTimeNs()
■ spc1169_bitfield.h
   • Modify ADCCHCTL0_SHINSELP_VBAT_DIV to ADCCHCTL0_SHINSELP_VBATM_DIV
■ spd1179_hv_bitfield.h
   • Modify EVTTHCTL0_PMUOTFATAL_XXC
   • Modify EVTTHCTL0_PMUOTWARN_XXC
   • Modify EVTTHCTL1_VCPUV_VBAT_ADD_XXdotXX_V
   • Modify EVTTHCTL1_VCPOV_VBAT_ADD_XXdotXX_V
   • Delete PDRVPDEVTEN
■ spd1179_hv.h
   • Delete HV_REG_PDRVPDEVTEN
■ Example Code
   • Modify 23_11_Predriver_PMUOT_Trigger_TZ
   • Delete 23_2_Predriver_VBAT_UV_Shutdown
   • Modify 18_1_Flash_Operation
   • Modify 18_2_Flash_Sector_Protect

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- Modify 18_3_Flash_Call_User_Func
- Modify 18_3_Flash_User_Func
- Modify 18_4_Flash_EEPROM_Emulation
- Modify 18_5_Flash_With_ISR_In_RAM
- Application code
  - Add IAP_UART
- SPC1169.svd/.SFR
  - Rename PHC to VBATM_DIV

V1.6.0/ 26- Aug -2022

Main Changes

1. **Bug Fix**

■ Example Code
- Modify 20_10_DMA_ADC_to_UART/main.c
- Modify 20_9_DMA_ADC_to_SSP/main.c
- Modify 20_6_DMA_ADC_to_Memory/main.c
- Modify 23_5_Predriver_Propagation_Delay/main.c

2. **Other Change**

■ hv.h
- Rename to spd1179_hv.h
■ hv.c
- Rename to spd1179_hv.c
■ hv_bitfield.h
- Rename to spd1179_hv_bitfield.h
■ spd1179.h
- Add #define SPD1179
■ Example Code
- Modify 18_4_Flash_EEPROM_Emulation/data_manage.c
- Modify 18_4_Flash_EEPROM_Emulation/data_manage.h
- Modify 18_4_Flash_EEPROM_Emulation/main.c
- Modify 19_1_System_Voltage_Monitor/main.c
- Modify Template/main.c
- Modify 20_6_DMA_ADC_to_Memory/main.c
- Modify 20_10_DMA_ADC_to_UART/main.c
- Modify 20_1_DMA_Memory_to_Memory/main.c
- Modify 20_2_DMA_Memory_to_SSP/main.c
- Modify 20_3_DMA_Memory_to_UART/main.c
- Modify 20_4_DMA_SSP_to_Memory/main.c
- Modify 20_5_DMA_UART_to_Memory/main.c
- Modify 20_7_DMA_SSP_to_UART/main.c
- Modify 20_8_DMA_UART_to_SSP/main.c
- Modify 20_9_DMA_ADC_to_SSP/main.c
- Modify 24_1_LIN_Master_TX/isr.c
- Modify 24_1_LIN_Master_TX/main.c
- Modify 24_1_LIN_Slave_RX/main.c
- Modify 24_2_LIN_Master_RX/main.c
- Modify 24_2_LIN_Slave_TX/isr.c
- Modify 24_2_LIN_Slave_TX/main.c
- Modify 9_1_ECAP_Continue_Absolute/main.c

- Modify 9_2_ECAP_Continue_Delta/main.c
- Modify 9_3_ECAP_Oneshot_Absolute/main.c

V1.5.0/ 20- May -2022

Main Changes

■ epwr.c
- Modify EPWR_ReadRegister() function

V1.4.0/ 20- May -2022

Main Changes

1. Bug Fix

■　adc.h
- Rename ADC_SH0_P_PHC to VBAT_DIV to ADC_SH0_P_VBAT_DIV

2. Other Change

■　epwr.h
- Add EPWR_SelectTZEventOutputToGPIO()

■　pwm.h
- Rename PWM_RISING_EDGE_DELAT_PATH to PWM_RISING_EDGE_DELAY_PATH

V1.3.0/ 17- December -2021

Main Changes

1. **Bug Fix**

◼ adc.c
  - Modify the ADC_SetSampleAndConvertTime()

2. **Other Change**

◼ pga.c
  - Add D2S_Enable() and D2S_Disable()
◼ hv.c
  - In HV_ConnectTPMUToAnalogTest(), use (__IO uint32_t *) instead of (uint32_t *)
◼ Example Code
  - Modify 13_1_BEMF_Comparator/main.c
  - Modify 23_1_Predriver_Operation/main.c
  - Modify 23_2_Predriver_VBAT_UV_Shutdown/main.c
  - Modify 23_3_Predriver_VDS_Monitor_Trigger_TZ/main.c
  - Modify 23_4_Predriver_Strength_Optimize/main.c
  - Modify 23_5_Predriver_Propagation_Delay/main.c
  - Modify 23_6_Predriver_VBAT_UVOV_Trigger_TZ/main.c
  - Modify 23_7_Predriver_LIN_TX_Timeout_Trigger_TZ/main.c
  - Modify 23_8_Predriver_VDD5_UVOV_Trigger_TZ/main.c
  - Modify 23_9_Predriver_VDD5_OC_Trigger_TZ/main.c
  - Modify 23_10_Predriver_PMUCLKERR_Trigger_TZ/main.c
  - Modify 23_11_Predriver_PMUOT_Trigger_TZ/main.c

V1.2.0/ 26- September -2021

Main Changes

1. Bug Fix

- adc.h
  - Add parameter ADCx in ADC_ForceMultiChannelSOC()
  - Add parameter ADCx in ADC_DisablePPUInt()
- dma.h
  - Modify DMA_GetTransferType()
  - Modify DMA_IsFIFOEmpty()
- epwr.h
  - Modify EPWR_SetSyncEvent()
- pin.h
  - Modify defination PIN_EXTPU5V_Msk and PIN_EXTPU5V_Pos
- epwr.c
  - Modify EPWR_ReadRegister()
- uart.h
  - Modify LIN_SetSyncBreak()
  - Modify parameter UARTx in UART_WDIS()
- phcomp.h
  - Modify input parameter of PHCOMP_SelectReference()
- pwm.h
  - Modify PWM_EnableTripWhenDebug()

2. Other Change

- adc.h
  - Add definition ADC_MAX_SAMPLE_TIME and ADC_MAX_CONVERSION_TIME
  - Delete definition __ADC_RESOLUTION_BITS
- clock.h
  - Rename CLOCK_IsXOEnabled() to CLOCK_IsEnableXO()
- phcomp.h
  - Add enum PHCOMP_IntEnum
  - Add enum PHCOMP_ModeEnum
  - Delete PHCOMP_SetNormalComparatorMode()
  - Delete PHCOMP_SetPhaseComparatorMode()
  - Add PHCOMP_SetMode()
  - Delete PHCOMP_EnableIntU(), PHCOMP_EnableIntV(), PHCOMP_EnableIntW()
  - Delete PHCOMP_DisableIntU(), PHCOMP_DisableIntV(), PHCOMP_DisableIntW()
  - Delete PHCOMP_ClearIntU(), PHCOMP_ClearIntV(), PHCOMP_ClearIntW()
  - Delete PHCOMP_GetIntRawFlagU(), PHCOMP_GetIntRawFlagV(), PHCOMP_GetIntRawFlagW()
  - Delete PHCOMP_GetIntFlagU(), PHCOMP_GetIntFlagV(), PHCOMP_GetIntFlagW()
  - Delete PHCOMP_GetGlobalIntFlag(), PHCOMP_GetAllIntFlag()
  - Modify input parameter of PHCOMP_EnableInt()
  - Modify input parameter of PHCOMP_DisableInt()

- Modify input parameter of PHCOMP_GetIntRawFlag()
- Modify input parameter of PHCOMP_GetIntFlag()
- Modify input parameter of PHCOMP_ClearInt()
- Delete PHCOMP_ClearGlobalInt() and PHCOMP_GetAllIntRawFlag()

■ pwm.h

- Rename enum PWM_EdgeEnum to PWM_DeadBandOutputSourceEnum
- Rename enum PWM_TripIntEventEnum to PWM_TripIntEnum
- Add TRIP_INT_GLOBAL and TRIP_INT_ALL in PWM_TripIntEnum
- Rename PWM_SetCHAContinuesForceOutputAction()
  to PWM_SetCHAContinuousForceOutputAction()
- Rename PWM_SetCHBContinuesForceOutputAction()
  to PWM_SetCHBContinuousForceOutputAction()
- Rename PWM_GetCHAContinuesForceOutputAction()
  to PWM_GetCHAContinuousForceOutputAction()
- Rename PWM_GetShadowCHAContinuesForceOutputAction()
  to PWM_GetShadowCHAContinuousForceOutputAction()
- Rename PWM_GetCHBContinuesForceOutputAction()
  to PWM_GetCHBContinuousForceOutputAction()
- Rename PWM_GetShadowCHBContinuesForceOutputAction()
  to PWM_GetShadowCHBContinuousForceOutputAction()
- Rename PWM_EnableDBDelayDualEdge() to PWM_EnableDBDualEdgeDelayMode()
- Rename PWM_DisableDBDelayDualEdge() to PWM_DisableDBDualEdgeDelayMode()
- Rename PWM_SetDBOutputChannelASource() to PWM_SetDBOutputASource()
- Rename PWM_SetDBOutputChannelBSource() to PWM_SetDBOutputBSource()
- Modify input parameter of PWM_SetCHAOneShotForceOutputAction()
- Modify input parameter of PWM_SetCHBOneShotForceOutputAction()
- Modify input parameter of PWM_GetCHAOneShotForceOutputAction()
- Modify input parameter of PWM_GetCHBOneShotForceOutputAction()
- Delete PWM_EnableOneShotTripInt()
- Delete PWM_DisableOneShotTripInt()
- Delete PWM_EnableCBCTripInt()
- Delete PWM_DisableCBCTripInt()
- Delete PWM_EnableDCAEVT0TripInt()
- Delete PWM_DisableDCAEVT0TripInt()
- Delete PWM_EnableDCAEVT1TripInt()
- Delete PWM_DisableDCAEVT1TripInt()
- Delete PWM_EnableDCBEVT0TripInt()
- Delete PWM_DisableDCBEVT0TripInt()
- Delete PWM_EnableDCBEVT1TripInt()
- Delete PWM_DisableDCBEVT1TripInt()
- Delete PWM_GetOneShotTripIntRawFlag()
- Delete PWM_GetCBCTripIntRawFlag()
- Delete PWM_GetDCAEVT0TripIntRawFlag()
- Delete PWM_GetDCAEVT1TripIntRawFlag()

- Delete PWM_GetDCBEVT0TripIntRawFlag()
- Delete PWM_GetDCBEVT1TripIntRawFlag()
- Delete PWM_GetOneShotTripIntFlag()
- Delete PWM_GetCBCTripIntFlag()
- Delete PWM_GetDCAEVT0TripIntFlag()
- Delete PWM_GetDCAEVT1TripIntFlag()
- Delete PWM_GetDCBEVT0TripIntFlag()
- Delete PWM_GetDCBEVT1TripIntFlag()
- Delete PWM_GetGlobalTripIntFlag()
- Delete PWM_ClearOneShotTripInt()
- Delete PWM_ClearCBCTripInt()
- Delete PWM_ClearDCAEVT0TripInt()
- Delete PWM_ClearDCAEVT1TripInt()
- Delete PWM_ClearDCBEVT0TripInt()
- Delete PWM_ClearDCBEVT1TripInt()
- Delete PWM_ClearGlobalTripInt()

■ comp.h

- Delete COMP_ClearAllFilterOutputFlag()
- Delete COMP_SetDAC0RampReloadValue()
- Delete COMP_SetDAC1RampReloadValue()
- Delete COMP_GetDAC0RampReloadValue()
- Delete COMP_GetDAC1RampReloadValue()
- Delete COMP_SetDAC0RampDelay()
- Delete COMP_SetDAC1RampDelay()
- Delete COMP_GetDAC0RampDelay()
- Delete COMP_GetDAC1RampDelay()
- Delete COMP_GetDAC0RampDecrement()
- Delete COMP_GetDAC1RampDecrement()

■ dma.h

- Rename DMA_GetChannelInt() to DMA_IsEnableChannelInt() and the return value form (0 or 1) to (0 or not 0)
- Rename DMA_GetSuspend() to DMA_IsEnableSuspend() and the return value form (0 or 1) to (0 or not 0)
- Rename DMA_GetTransferCompleteInt() to DMA_IsEnableTransferCompleteInt()
- Rename DMA_GetTransferErrorInt() to DMA_IsEnableTransferErrorInt()
- Rename DMA_IsEnabled() to DMA_IsEnable()
- Rename DMA_GetChannelTransfer() to DMA_IsEnableChannelTransfer()
- Use the defination DMATCIE_CH0WE_Pos, DMAERRIE_CH0WE_Pos, DMACHEN_CH0WE_Pos to replace NUM_OF_DMA_CHANNEL

■ ecap.h

- Rename ECAP_APWMSetActiveHigh() to ECAP_SetAPWMOutputActiveHigh()
- Rename ECAP_APWMSetActiveLow() to ECAP_SetAPWMOutputActiveLow()

■ ssp.h

- Modify PSP_SlotEnum

- Rename SSP_IsSetPSPNetFrameTxActiveSlot() to SSP_IsEnablePSPNetFrameTxActiveSlot()
- Rename SSP_IsSetPSPNetFrameRxActiveSlot() to SSP_IsEnablePSPNetFrameRxActiveSlot()
- Rename SSP_EnableLockSFRMOutput() to SSP_EnableSFRMLock()
- Rename SSP_DisableLockSFRMOutput() to SSP_DisableSFRMLock()
- Rename SSP_IsEnableLockSFRMOutput() to SSP_IsEnableSFRMLock()
- Delete enum SSP_TrailingBytesHandlerEnum
- Delete SSP_SetTrailingBytesHandler()
- Delete SSP_GetTrailingBytesHandler()

■ timer.h
- Add TIMER_WALLOW() and TIMER_WDIS()

■ uart.h
- Rename enum UART_BusWidthEnum to UART_FIFOAccessWidthEnum
- Modify UART_WriteByte(), LIN_WriteByte(), UART_ReadByte(), LIN_ReadByte()
- Rename UART_GetRx() to UART_IsEnableRx()
- Rename UART_GetTx() to UART_IsEnableTx()
- Rename UART_GetRxDMA() to UART_IsEnableRxDMA()
- Rename UART_GetTxDMA() to UART_IsEnableTxDMA()
- Delete UART_GetBreak()
- Delete UART_GetAutoBaud()
- Rename UART_IsAutoBaudEnabled() to UART_IsEnableAutoBaud()
- Rename UART_SetBusWidth() to UART_SetFIFOAccessWidth()
- Rename UART_GetBusWidth() to UART_GetFIFOAccessWidth()
- Rename LIN_Get() to LIN_IsEnable()
- Rename UART_GetRxSIR() to UART_IsEnableRxSIR()
- Rename UART_GetTxSIR() to UART_IsEnableTxSIR()
- Rename UART_GetInt() to UART_IsEnableInt()

■ system.h
- Add enum MemoryEnum
- Rename SSYTEM_GetGPIONMIInputSourcePolarity()
  to SYSTEM_GetGPIONMIInputSourcePolarity()
- Rename SYSTEM_GetNonMaskableInt() to SYSTEM_IsEnableNonMaskableInt()
- Rename SYSTEM_GetResetEvent() to SYSTEM_IsEnableResetEvent()
- Delete SYSTEM_GetROMErrorAddress()
- Delete SYSTEM_GetFlashErrorAddress()
- Delete SYSTEM_GetIRAMErrorAddress()
- Delete SYSTEM_GetDRAMErrorAddress()
- Add SYSTEM_GetMemoryErrorAddress()

■ epwr.h
- Modify EPWR_GetFilteredTripEventStatus() the return value form (0 or 1) to (0 or not 0)
- Modify EPWR_GetTripEventFlag() the return value form (0 or 1) to (0 or not 0)

■ Example Code
- Modify 12_1_Comparator/main.c
- Modify 13_1_BEMF_Comparator/main.c
- Modify 20_10_DMA_ADC_to_UART/main.c

- Modify 20_2_DMA_Memory_to_SSP/main.c
- Modify 20_3_DMA_Memory_to_UART/main.c
- Modify 20_4_DMA_SSP_to_Memory/main.c
- Modify 20_5_DMA_UART_to_Memory/main.c
- Modify 20_6_DMA_ADC_to_Memory/main.c
- Modify 20_7_DMA_SSP_to_UART/main.c
- Modify 20_8_DMA_UART_to_SSP/main.c
- Modify 20_9_DMA_ADC_to_SSP/main.c
- Modify 23_10_Predriver_PMUCLKERR_Trigger_TZ/main.c
- Modify 23_11_Predriver_PMUOT_Trigger_TZ/main.c
- Modify 23_3_Predriver_VDS_Monitor_Trigger_TZ/main.c
- Modify 23_6_Predriver_VBAT_UVOV_Trigger_TZ/main.c
- Modify 23_8_Predriver_VDD5_UVOV_Trigger_TZ/main.c
- Modify 23_9_Predriver_VDD5_OC_Trigger_TZ/main.c
- Modify 8_12_PWM_GPIO_Trigger_TZ/main.c
- Modify 8_13_PWM_Current_Protect_Trigger_TZ/main.c
- Modify 8_14_PWM_ADC_PPU_Trigger_TZ/main.c

SPIN TROL

Main Changes

- ■ spc1169_bitfield.h
  - • Raname TXDREQ/RXDAV to TXREQ/RXRED in UARTRAWIF/IF/IE registers
  - • Update TXREQ/RXRED description in SSPRAWIF/IF/IE registers
  - • Raname TXDREQ/RXDAV to TXREQ/RXRED in I2CRAWIF/IF/IE/IC registers
- ■ ecap.c
  - • Update ECAP_CaptureModeInit()
- ■ ecap.h
  - • Delete ECAP_SetRunMode().
  - • Rename ECAP_SetCounterModeOnCPUHaltCMP() to ECAP_SetCounterModeOnCPUHalt()
  - • Delete ECAP_GetCEVT0IntRawFlag(ECAPx)
  - • Delete ECAP_GetCEVT1IntRawFlag(ECAPx)
  - • Delete ECAP_GetCEVT2IntRawFlag(ECAPx)
  - • Delete ECAP_GetCEVT3IntRawFlag(ECAPx)
  - • Delete ECAP_GetCounterOverflowIntRawFlag(ECAPx)
  - • Delete ECAP_GetCounterEqualPRDIntRawFlag(ECAPx)
  - • Delete ECAP_GetCounterEqualCMPIntRawFlag(ECAPx)
  - • Delete ECAP_GetAllIntRawFlag(ECAPx)
  - • Delete ECAP_GetCEVT0IntFlag(ECAPx)
  - • Delete ECAP_GetCEVT1IntFlag(ECAPx)
  - • Delete ECAP_GetCEVT2IntFlag(ECAPx)
  - • Delete ECAP_GetCEVT3IntFlag(ECAPx)
  - • Delete ECAP_GetCounterOverflowIntFlag(ECAPx)
  - • Delete ECAP_GetCounterEqualPRDIntFlag(ECAPx)
  - • Delete ECAP_GetCounterEqualCMPIntFlag(ECAPx)
  - • Delete ECAP_GetGlobalIntFlag(ECAPx)
  - • Delete ECAP_IsGlobalIntPending(ECAPx)
  - • Delete ECAP_GetAllIntFlag(ECAPx)
  - • Delete ECAP_EnableCEVT0Int(ECAPx)
  - • Delete ECAP_DisableCEVT0Int(ECAPx)
  - • Delete ECAP_EnableCEVT1Int(ECAPx)
  - • Delete ECAP_DisableCEVT1Int(ECAPx)
  - • Delete ECAP_EnableCEVT2Int(ECAPx)
  - • Delete ECAP_DisableCEVT2Int(ECAPx)
  - • Delete ECAP_EnableCEVT3Int(ECAPx)
  - • Delete ECAP_DisableCEVT3Int(ECAPx)
  - • Delete ECAP_EnableCounterOverflowInt(ECAPx)
  - • Delete ECAP_DisableCounterOverflowInt(ECAPx)
  - • Delete ECAP_EnableCounterEqualPRDInt(ECAPx)
  - • Delete ECAP_DisableCounterEqualPRDInt(ECAPx)
  - • Delete ECAP_EnableCounterEqualCMPInt(ECAPx)
  - • Delete ECAP_DisableCounterEqualCMPInt(ECAPx)

- Delete ECAP_EnableAllInt(ECAPx)
- Delete ECAP_DisableAllInt(ECAPx)
- Delete ECAP_ForceCEVT0Int(ECAPx)
- Delete ECAP_ForceCEVT1Int(ECAPx)
- Delete ECAP_ForceCEVT2Int(ECAPx)
- Delete ECAP_ForceCEVT3Int(ECAPx)
- Delete ECAP_ForceCounterOverflowInt(ECAPx)
- Delete ECAP_ForceCounterEqualPRDInt(ECAPx)
- Delete ECAP_ForceCounterEqualCMPInt(ECAPx)
- Delete ECAP_ClearCEVT0Int(ECAPx)
- Delete ECAP_ClearCEVT1Int(ECAPx)
- Delete ECAP_ClearCEVT2Int(ECAPx)
- Delete ECAP_ClearCEVT3Int(ECAPx)
- Delete ECAP_ClearCounterOverflowInt(ECAPx)
- Delete ECAP_ClearCounterEqualPRDInt(ECAPx)
- Delete ECAP_ClearCounterEqualCMPInt(ECAPx)
- Delete ECAP_ClearGlobalInt(ECAPx)
- Delete ECAP_ClearAllInt(ECAPx)

■ comp.c
- Update COMP_Init().
- Update COMP_SetFilterWindowTimeNs()

■ comp.h
- Delete COMP_SetOutputActiveHigh().
- Delete COMP_SetOutputActiveLow().
- Delete COMP_SetOutputActiveHighForPWM().
- Delete COMP_SetOutputActiveLowForPWM().
- Delete COMP_SetOutputActiveHighForGPIO().
- Delete COMP_SetOutputActiveLowForGPIO().
- Add COMP_SetOutputPolarity().
- Add COMP_SetOutputPolarityForPWM().
- Add COMP_SetOutputPolarityForGPIO()

■ power.h
- Delete POWER_DeepSleepMode()
- Delete POWER_StopMode()

■ ssp.h
- Delete SSP_IsTxNotFull(SSPx)
- Delete SSP_IsTxEmpty(SSPx)
- Delete SSP_IsRxFull(SSPx)
- Delete SSP_IsRxNotEmpty(SSPx)
- Delete SSP_IsBusy(SSPx)
- Delete SSP_IsBusySyncSlaveClock(SSPx)
- Delete SSP_IsSlaveNotReady(SSPx)
- Delete SSP_IsTxHasEvenSample(SSPx)
- Delete SSP_IsRxHasEvenSample(SSPx)

- Delete SSP_IsNetworkBusy(SSPx)
- Delete SSP_IsSFRMLocked(SSPx)
- Delete SSP_GetRxUnderflowIntRawFlag(SSPx)
- Delete SSP_GetRxOverflowIntRawFlag(SSPx)
- Delete SSP_GetRxServiceRequestIntRawFlag(SSPx)
- Delete SSP_GetRxTimeoutIntRawFlag(SSPx)
- Delete SSP_GetTxUnderflowIntRawFlag(SSPx)
- Delete SSP_GetTxOverflowIntRawFlag(SSPx)
- Delete SSP_GetTxServiceRequestIntRawFlag(SSPx)
- Delete SSP_GetBitCountErrorIntRawFlag(SSPx)
- Delete SSP_GetTrailByteIntRawFlag(SSPx)
- Delete SSP_GetDMAEndOfChainIntRawFlag(SSPx)
- Delete SSP_GetRxUnderflowIntFlag(SSPx)
- Delete SSP_GetRxOverflowIntFlag(SSPx)
- Delete SSP_GetRxServiceRequestIntFlag(SSPx)
- Delete SSP_GetRxTimeoutIntFlag(SSPx)
- Delete SSP_GetTxUnderflowIntFlag(SSPx)
- Delete SSP_GetTxOverflowIntFlag(SSPx)
- Delete SSP_GetTxServiceRequestIntFlag(SSPx)
- Delete SSP_GetBitCountErrorIntFlag(SSPx)
- Delete SSP_GetTrailByteIntFlag(SSPx)
- Delete SSP_GetDMAEndOfChainIntFlag(SSPx)
- Delete SSP_GetGlobalIntFlag(SSPx)
- Delete SSP_EnableRxUnderflowInt(SSPx)
- Delete SSP_DisableRxUnderflowInt(SSPx)
- Delete SSP_EnableRxOverflowInt(SSPx)
- Delete SSP_DisableRxOverflowInt(SSPx)
- Delete SSP_EnableRxServiceRequestInt(SSPx)
- Delete SSP_DisableRxServiceRequestInt(SSPx)
- Delete SSP_EnableRxTimeoutInt(SSPx)
- Delete SSP_DisableRxTimeoutInt(SSPx)
- Delete SSP_EnableTxUnderflowInt(SSPx)
- Delete SSP_DisableTxUnderflowInt(SSPx)
- Delete SSP_EnableTxOverflowInt(SSPx)
- Delete SSP_DisableTxOverflowInt(SSPx)
- Delete SSP_EnableTxServiceRequestInt(SSPx)
- Delete SSP_DisableTxServiceRequestInt(SSPx)
- Delete SSP_EnableBitCountErrorInt(SSPx)
- Delete SSP_DisableBitCountErrorInt(SSPx)
- Delete SSP_EnableTrailByteInt(SSPx)
- Delete SSP_DisableTrailByteInt(SSPx)
- Delete SSP_EnableDMAEndOfChainInt(SSPx)
- Delete SSP_DisableDMAEndOfChainInt(SSPx)
- Delete SSP_ClearRxUnderflowInt(SSPx)

- Delete SSP_ClearRxOverflowInt(SSPx)
- Delete SSP_ClearRxTimeoutInt(SSPx)
- Delete SSP_ClearTxUnderflowInt(SSPx)
- Delete SSP_ClearTxOverflowInt(SSPx)
- Delete SSP_ClearBitCountErrorInt(SSPx)
- Delete SSP_ClearTrailByteInt(SSPx)
- Delete SSP_ClearDMAEndOfChainInt(SSPx)
- Delete SSP_ClearGlobalInt(SSPx)

■ system.h
- Delete SYSTEM_EnableSingleMonitorItem(eItem)
- Delete SYSTEM_EnableSingleNonMaskableInt(eNMIEvt)
- Delete SYSTEM_EnableAllNonMaskableInt()
- Delete SYSTEM_DisableAllNonMaskableInt()
- Delete SYSTEM_ClearNonMaskableGlobalInt()
- Delete SYSTEM_GetAllNonMaskableIntRawFlag()
- Delete SYSTEM_GetNonMaskableGlobalIntFlag()
- Delete SYSTEM_GetAllNonMaskableIntFlag()
- Delete SYSTEM_EnableSingleResetEvent(eRSTEvt)
- Delete SYSTEM_EnableAllResetEvent()
- Delete SYSTEM_DisableAllResetEvent()
- Delete SYSTEM_GetAllResetEventFlag()

■ uart.h
- Delete UART_IsRxNotEmpty(UARTx)
- Delete UART_IsRxFull(UARTx)
- Delete UART_IsTxEmpty(UARTx)
- Delete UART_IsTxNotFull(UARTx)
- Delete UART_IsRxParityError(UARTx)
- Delete UART_IsRxFrameError(UARTx)
- Delete UART_IsRxBreak(UARTx)
- Delete UART_IsRxError(UARTx)
- Delete UART_IsRxBusy(UARTx)
- Delete UART_IsTxBusy(UARTx)
- Delete UART_GetRxOverflowIntRawFlag(UARTx)
- Delete UART_GetRxUnderflowIntRawFlag(UARTx)
- Delete UART_GetRxDataAvailableIntRawFlag(UARTx)
- Delete UART_GetRxParityErrorIntRawFlag(UARTx)
- Delete UART_GetRxFrameErrorIntRawFlag(UARTx)
- Delete UART_GetRxBreakIntRawFlag(UARTx)
- Delete UART_GetRxTimeoutIntRawFlag(UARTx)
- Delete UART_GetTxOverflowIntRawFlag(UARTx)
- Delete UART_GetTxDataRequestIntRawFlag(UARTx)
- Delete UART_GetAutoBaudLockedIntRawFlag(UARTx)
- Delete UART_GetLINRxIDMatchIntRawFlag(UARTx)
- Delete UART_GetLINBitErrorIntRawFlag(UARTx)

- Delete UART_GetLINChecksumErrorIntRawFlag(UARTx)
- Delete UART_GetDMAEndOfChainIntRawFlag(UARTx)
- Delete UART_GetRxOverflowIntFlag(UARTx)
- Delete UART_GetRxUnderflowIntFlag(UARTx)
- Delete UART_GetRxDataAvailableIntFlag(UARTx)
- Delete UART_GetRxParityErrorIntFlag(UARTx)
- Delete UART_GetRxFrameErrorIntFlag(UARTx)
- Delete UART_GetRxBreakIntFlag(UARTx)
- Delete UART_GetRxTimeoutIntFlag(UARTx)
- Delete UART_GetTxOverflowIntFlag(UARTx)
- Delete UART_GetTxDataRequestIntFlag(UARTx)
- Delete UART_GetAutoBaudLockedIntFlag(UARTx)
- Delete UART_GetLINRxIDMatchIntFlag(UARTx)
- Delete UART_GetLINBitErrorIntFlag(UARTx)
- Delete UART_GetLINChecksumErrorIntFlag(UARTx)
- Delete UART_GetDMAEndOfChainIntFlag(UARTx)
- Delete UART_GetGlobalIntFlag(UARTx)
- Delete UART_ClearRxOverflowInt(UARTx)
- Delete UART_ClearRxUnderflowInt(UARTx)
- Delete UART_ClearRxParityErrorInt(UARTx)
- Delete UART_ClearRxFrameErrorInt(UARTx)
- Delete UART_ClearRxBreakInt(UARTx)
- Delete UART_ClearRxTimeoutInt(UARTx)
- Delete UART_ClearTxOverflowInt(UARTx)
- Delete UART_ClearAutoBaudLockedInt(UARTx)
- Delete UART_ClearLINRxIDMatchInt(UARTx)
- Delete UART_ClearLINBitErrorInt(UARTx)
- Delete UART_ClearLINChecksumErrorInt(UARTx)
- Delete UART_ClearDMAEndOfChainInt(UARTx)
- Delete UART_ClearGlobalInt(UARTx)
- Delete UART_EnableRxOverflowInt(UARTx)
- Delete UART_DisableRxOverflowInt(UARTx)
- Delete UART_EnableRxUnderflowInt(UARTx)
- Delete UART_DisableRxUnderflowInt(UARTx)
- Delete UART_EnableRxAvaliableInt(UARTx)
- Delete UART_DisableRxAvaliableInt(UARTx)
- Delete UART_EnableRxParityErrorInt(UARTx)
- Delete UART_DisableRxParityErrorInt(UARTx)
- Delete UART_EnableRxFrameErrorInt(UARTx)
- Delete UART_DisableRxFrameErrorInt(UARTx)
- Delete UART_EnableRxBreakInt(UARTx)
- Delete UART_DisableRxBreakInt(UARTx)
- Delete UART_EnableRxTimeoutInt(UARTx)
- Delete UART_DisableRxTimeoutInt(UARTx)

- Delete UART_EnableTxOverflowInt(UARTx)
- Delete UART_DisableTxOverflowInt(UARTx)
- Delete UART_EnableTxDataRequestInt(UARTx)
- Delete UART_DisableTxDataRequestInt(UARTx)
- Delete UART_EnableAutoBaudLockedInt(UARTx)
- Delete UART_DisableAutoBaudLockedInt(UARTx)
- Delete UART_EnableLINRxIDMatchInt(UARTx)
- Delete UART_DisableLINRxIDMatchInt(UARTx))
- Delete UART_EnableLINBitErrorInt(UARTx)
- Delete UART_DisableLINBitErrorInt(UARTx)
- Delete UART_EnableLINChecksumErrorInt(UARTx)
- Delete UART_DisableLINChecksumErrorInt(UARTx)
- Delete UART_EnableDMAEndOfChainInt(UARTx)
- Delete UART_DisableDMAEndOfChainInt(UARTx)

■ Example Code
- Modify 10_10_ADC_With_DPGA/main.c
- Modify 10_4_ADC_Single_End_Abs_Result/main.c
- Modify 10_5_ADC_Differential_Abs_Result/main.c
- Modify 10_6_ADC_Triggered_by_Timer/main.c
- Modify 10_7_ADC_Continous_Mode and Conversion_Priority/main.c
- Modify 10_9_ADC_With_SPGA/main.c
- Modify 14_1_DAC_to_ADC/main.c
- Modify 14_2_ADC_to_DAC/main.c
- Modify 15_1_LV_TSensor/main.c
- Modify 16_1_UART_RX_Int/main.c
- Modify 16_1_UART_RX_Int/main.c
- Modify 16_2_UART_RX_and_SentBack/main.c
- Modify 17_1_SSP_Master_B2B_TxRx_Polling/main.c
- Modify 17_1_SSP_Slave_B2B_TxRx_Polling/main.c
- Modify 17_2_SSP_Master_TxRx_Polling/main.c
- Modify 17_2_SSP_Slave_TxRx_Polling/main.c
- Modify 17_3_SSP_Master_TxRx_Int/main.c
- Modify 17_3_SSP_Slave_TxRx_Int/main.c
- Modify 18_1_Flash_Operation/main.c
- Modify 18_2_Flash_Sector_Protect/main.c
- Modify 18_3_Flash_ User_Func/main.c
- Modify 18_3_Flash_Call_User_Func/main.c
- Modify 19_2_System_GPIO_Trigger_NMI/main.c
- Modify 20_10_DMA_ADC_to_UART/main.c
- Modify 20_1_DMA_Memory_to_Memory/main.c
- Modify 20_2_DMA_Memory_to_SSP/main.c
- Modify 20_3_DMA_Memory_to_UART/main.c
- Modify 20_4_DMA_SSP_to_Memory/main.c
- Modify 20_5_DMA_UART_to_Memory/main.c

- Modify 20_6_DMA_ADC_to_Memory/main.c
- Modify 20_7_DMA_SSP_to_UART/main.c
- Modify 20_8_DMA_UART_to_SSP/main.c
- Modify 20_9_DMA_ADC_to_SSP/main.c
- Modify 23_10_Predriver_PMUCLKERR_Trigger_TZ/main.c
- Modify 23_11_Predriver_PMUOT_Trigger_TZ/main.c
- Modify 23_3_Predriver_VDS_Monitor_Trigger_TZ/main.c
- Modify 23_7_Predriver_LIN_TX_Timeout_Trigger_TZ/main.c
- Modify 23_8_Predriver_VDD5_UVOV_Trigger_TZ/main.c
- Modify 23_9_Predriver_VDD5_OC_Trigger_TZ/main.c
- Modify 24_1_LIN_Master_TX/main.c
- Modify 24_1_LIN_Slave_RX/main.c
- Modify 24_2_LIN_Master_RX/main.c
- Modify 24_2_LIN_Slave_TX/main.c
- Modify 24_3_LIN_TX_Timeout_Shutdown/main.c
- Modify 25_1_MON_Int/main.c
- Modify 3_1_PLL_unlock_Int/main.c
- Modify 3_2_PLL_unlock_Reset/main.c
- Modify 3_3_Clock_Detect_Error_Int/main.c
- Modify 3_4_Clock_Detect_Error_Reset/main.c
- Modify 4_1_GPIO_Edge_Detect/main.c
- Modify 4_2_GPIO_Level_Test/main.c
- Modify 6_1_GTimer_Int/main.c
- Modify 7_1_WDT_Int/main.c
- Modify 7_2_WDT_Feed_DOG/main.c
- Modify 8_10_PWM_TBCNT_0_SYNC_and_Signal_Observe/main.c
- Modify 8_12_PWM_GPIO_Trigger_TZ/main.c
- Modify 8_13_PWM_Current_Protect_Trigger_TZ/main.c
- Modify 8_14_PWM_ADC_PPU_Trigger_TZ/main.c
- Modify 9_1_ECAP_Continue_Absolute/main.c
- Modify 9_2_ECAP_Continue_Delta/main.c
- Modify 9_3_ECAP_Oneshot_Absolute/main.c

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<u>Main Changes</u>

- Created