NUC029xEE CMSIS BSP Directory

Directory Introduction for 32-bit NuMicro™ Family

Directory Information

Document	Driver reference manual and revision history.
Library	Driver header and source files.
SampleCode	Driver sample code.

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TABLE OF CONTENTS

1 DOCUMENT INFORMATION 4

2 LIBRARY INFORMATION 5

3 SAMPLE CODE INFORMATION 6

4 SAMPLECODE\ISP 7

5 SAMPLECODE\REGBASED 8

System Manager (SYS) 8
Flash Memory Controller (FMC) 8
General Purpose I/O (GPIO) 8
PDMA Controller (PDMA) 8
Timer Controller (TIMER) 8
Watchdog Timer (WDT) 9
Window Watchdog Timer (WWDT) 9
Real Timer Clock (RTC) 9
PWM Generator and Capture Timer (PWM) 9
UART Interface Controller (UART) 10
Serial Peripheral Interface (SPI) 11
I²C Serial Interface Controller (I²C) 11
External Bus Interface (EBI) 12
CRC Controller (CRC) 12
Analog-to-Digital Converter (ADC) 12

6 SAMPLECODE\STDDRIVER 13

System Manager (SYS) 13
Flash Memory Controller (FMC) 13
General Purpose I/O (GPIO) 13
PDMA Controller (PDMA) 13
Timer Controller (TIMER) 14
Watchdog Timer (WDT) 14
Window Watchdog Timer (WWDT) 14

Real Timer Clock (RTC) 14
PWM Generator and Capture Timer (PWM) 15
UART Interface Controller (UART) 15
USB Device Controller (USBD) 16
Serial Peripheral Interface (SPI) 17
I²C Serial Interface Controller (I²C) 18
External Bus Interface (EBI) 19
CRC Controller (CRC) 19
Analog-to-Digital Converter (ADC) 19

1 Document Information

Revision History	Show all the revision history about specific BSP.
NuMicro NUC029xEE Series Driver Reference Guide.chm	The usage of drivers in NUC029xEE Series BSP.

2 Library Information

CMSIS	CMSIS definitions by ARM® Corp.
Device	CMSIS compliant device header file.
StdDriver	All peripheral driver header and source files.

3 Sample Code Information

Hard_Fault_Sample	Show hard fault information when hard fault happened.
ISP	Sample codes for In-System-Programming.
Template	Software Development Template.
Semihost	A sample code to show how to debug with semihost message print.
RegBased	The sample codes which access control registers directly.
StdDriver	NUC029xEE Series Driver Samples

4 SampleCode\ISP

ISP_DFU	In-System-Programming Sample code through USB interface and following Device Firmware Upgrade Class Specification.
ISP_HID	In-System-Programming Sample code through USB HID interface.
ISP_I2C	In-System-Programming Sample code through I2C interface.
ISP_RS485	In-System-Programming Sample code through RS485 interface.
ISP_SPI	In-System-Programming Sample code through SPI interface.
ISP_UART	In-System-Programming Sample code through UART interface.

5 SampleCode\RegBased

System Manager (SYS)

SYS	Demonstrate how to change system clock to different PLL frequency and output system clock from CLKO pin.
SYS_PowerDown_MinCurrent	Demonstrate how to minimize power consumption when entering power down mode

Flash Memory Controller (FMC)

FMC_RW	Demonstrate how to read/program embedded flash by ISP function.

General Purpose I/O (GPIO)

GPIO_EINTAndDebounce	Demonstrate how to use GPIO external interrupt function and de-bounce function.
GPIO_INT	Demonstrate how to use GPIO interrupt function.
GPIO_OutputInput	Demonstrate how to set GPIO pin mode and use pin data input/output control.
GPIO_PowerDown	Demonstrate how to wake-up form Power-down mode by GPIO interrupt.

PDMA Controller (PDMA)

PDMA	Demonstrate how to use PDMA channel 6 to transfer data from memory to memory.

Timer Controller (TIMER)

TIMER_Capture	Demonstrate how to use timer2 capture event to capture timer2 counter value.

TIMER_Counter	Demonstrate how to use timer1 counter input function to count the input event.
TIMER_PeriodicINT	Demonstrate how to perform timer counting in periodic mode.
TIMER_PowerDown	Demonstrate how to use timer0 toggle-output interrupt event to wake up system.

Watchdog Timer (WDT)

WDT_PowerDown	Demonstrate how to use WDT time-out interrupt event to wake-up system.
WDT_TimeoutINT	Select one WDT time-out interval period time to generate time-out interrupt event.
WDT_TimeoutReset	Demonstrate how to cause WDT time-out reset system event while WDT time-out reset delay period expired.

Window Watchdog Timer (WWDT)

WWDT_CompareINT	Select one WWDT window compare value to generate window compare match interrupt event.

Real Timer Clock (RTC)

RTC_PowerDown	Demonstrate how to use RTC alarm interrupt event to wake-up system.
RTC_TimeAndTick	Demonstrate how to get the current RTC date/time per tick.

PWM Generator and Capture Timer (PWM)

PWM_Capture	Demonstrate how to use PWMB Channel 2 captures PWMB Channel 1 Waveform.
PWM_DeadZone	Demonstrate how to use PWM Dead Zone function.

PWM_DoubleBuffer	Use PWM Double Buffer function to change duty cycle and period of output waveform.

UART Interface Controller (UART)

UART_Autoflow_Master	Demonstrate how to transmit and receive data with auto flow control. The sample code needs to work with UART_Autoflow_Slave.
UART_Autoflow_Slave	Demonstrate how to transmit and receive data with auto flow control. The sample code needs to work with UART_Autoflow_Master.
UART_IrDA_Master	Demonstrate how to transmit and receive data in UART IrDA mode. The sample code needs to work with UART_IrDA_Slave.
UART_IrDA_Slave	Demonstrate how to transmit and receive data in UART IrDA mode. The sample code needs to work with UART_IrDA_Master.
UART_LIN	Demonstrate how to transmit LIN header and response.
UART_PDMA	Transmit and receive UART data with PDMA.
UART_RS485_Master	Demonstrate how to transmit and receive data in UART RS485 mode. The sample code needs to work with UART_RS485_Slave.
UART_RS485_Slave	Demonstrate how to transmit and receive data in UART RS485 mode. The sample code needs to work with UART_RS485_Master.
UART_TxRx_Function	Demonstrate how UART transmit and receive data from PC terminal through RS232 interface.
UART_Wakeup	Show how to wake up system form Power-down mode by UART interrupt.

Serial Peripheral Interface (SPI)

SPI_Loopback	Implement SPI Master loop back transfer. This sample code needs to connect SPI0_MISO0 pin and SPI0_MOSI0 pin together. It will compare the received data with transmitted data.
SPI_MasterFifoMode	Demonstrate how to communicate with an off-chip SPI slave device with FIFO mode. This sample code needs to work with SPI_SlaveFifoMode sample code.
SPI_PDMA_Loopback	Demonstrate SPI data transfer with PDMA. SPI0 will be configured as Master mode and SPI1 will be configured as Slave mode. Both TX PDMA function and RX PDMA function will be enabled.
SPI_SlaveFifoMode	Demonstrate how to communicate with an off-chip SPI master device with FIFO mode. This sample code needs to work with SPI_MasterFifoMode sample code.

I²C Serial Interface Controller (I²C)

I2C_EEPROM	Demonstrate how to access EEPROM by I²C interface.
I2C_GCMode_Master	Demonstrate how a Master uses I²C address 0x0 to write data to I²C Slave. Needs to work with I2C_GCMode_SLAVE sample code.
I2C_GCMode_Slave	Demonstrate how to receive Master data in GC (General Call) mode. Needs to work with I2C_GCMode_MASTER sample code.
I2C_Master	Demonstrate how a Master access Slave. Needs to work with I2C_SLAVE sample code.
I2C_Slave	Demonstrate how to set I²C in slave mode to receive the data of a Master. Needs to work with I2C_MASTER sample code.
I2C_Wakeup_Master	Demonstrate how to set I2C to wake up MCU from Power-down mode. This sample code needs to work with I2C_Wakeup_Slave.

I2C_Wakeup_Slave	Demonstrate how to set I2C to wake up MCU from Power-down mode. This sample code needs to work with I2C_Wakeup_Master.

External Bus Interface (EBI)

EBI_NOR	Configure EBI interface to access W39L040P (NOR Flash) on the EBI interface.
EBI_SRAM	Configure EBI interface to access BS616LV4017 (SRAM) with PDMA transfer on the EBI interface.

CRC Controller (CRC)

CRC_CCITT	Perform CRC_CCITT operation and get the CRC checksum result.
CRC_8	Perform CRC-8 operation and get the CRC checksum result.

Analog-to-Digital Converter (ADC)

ADC_ContinuousScanMode	Perform A/D Conversion with ADC continuous scan mode.
ADC_MeasureAVDD	Measure AVDD voltage by ADC.
ADC_PwmTrigger	Demonstrate how to trigger ADC by PWM.
ADC_ResultMonitor	Monitor the conversion result of Channel 2 by the digital compare function.
ADC_SingleCycleScanMode	Perform A/D Conversion with ADC single cycle scan mode.
ADC_SingleMode	Perform A/D Conversion with ADC single mode.

6 SampleCode\StdDriver

System Manager (SYS)

SYS	Demonstrate how to change system clock to different PLL frequency and output system clock from CLKO pin.
SYS_PowerDown_MinCurrent	Demonstrate how to minimize power consumption when entering power down mode

Flash Memory Controller (FMC)

FMC_IAP	Show how to call LDROM functions from APROM. The code in APROM will look up the table at 0x100E00 to get the address of function of LDROM and call the function.
FMC_RW	Demonstrate how to read/program embedded flash by ISP function.

General Purpose I/O (GPIO)

GPIO_EINTAndDebounce	Demonstrate how to use GPIO external interrupt function and de-bounce function.
GPIO_INT	Demonstrate how to use GPIO interrupt function.
GPIO_OutputInput	Demonstrate how to set GPIO pin mode and use pin data input/output control.
GPIO_PowerDown	Demonstrate how to wake-up form Power-down mode by GPIO interrupt.

PDMA Controller (PDMA)

PDMA	Demonstrate how to use PDMA channel 6 to transfer data from memory to memory.

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TIMER_Capture	Demonstrate how to use timer2 capture event to capture timer2 counter value.
TIMER_Counter	Demonstrate how to use timer1 counter input function to count the input event.
TIMER_PeriodicINT	Demonstrate how to perform timer counting in periodic mode.
TIMER_PowerDown	Demonstrate how to use timer0 toggle-output interrupt event to wake-up system.

Watchdog Timer (WDT)

WDT_PowerDown	Demonstrate how to use WDT time-out interrupt event to wake-up system.
WDT_TimeoutINT	Select one WDT time-out interval period time to generate time-out interrupt event.
WDT_TimeoutReset	Demonstrate how to cause WDT time-out reset system event while WDT time-out reset delay period expired.

Window Watchdog Timer (WWDT)

WWDT_CompareINT	Select one WWDT window compare value to generate window compare match interrupt event.

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RTC_PowerDown	Demonstrate how to use RTC alarm interrupt event to wake-up system.
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PWM_Capture	Demonstrate how to use PWMB Channel 2 captures PWMB Channel 1 Waveform.
PWM_DeadZone	Demonstrate how to use PWM Dead Zone function.
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UART_Autoflow_Slave	Demonstrate how to transmit and receive data with auto flow control. The sample code needs to work with UART_Autoflow_Master.
UART_IrDA_Master	Demonstrate how to transmit and receive data in UART IrDA mode. The sample code needs to work with UART_IrDA_Slave.
UART_IrDA_Slave	Demonstrate how to transmit and receive data in UART IrDA mode. The sample code needs to work with UART_IrDA_Master.
UART_LIN	Demonstrate how to transmit LIN header and response.
UART_PDMA	Transmit and receive UART data with PDMA.
UART_RS485_Master	Demonstrate how to transmit and receive data in UART RS485 mode. The sample code needs to work with UART_RS485_Slave.
UART_RS485_Slave	Demonstrate how to transmit and receive data in UART RS485 mode. The sample code needs to work with UART_RS485_Master.
UART_TxRx_Function	Demonstrate how UART transmit and receive data from PC terminal through RS232 interface.

UART_Wakeup	Show how to wake up system form Power-down mode by UART interrupt.

USB Device Controller (USBD)

USBD_Audio_NAU8822	Demonstrate how to implement a USB audio class device. NAU8822 is used in this sample code to play the audio data from Host. It also supports to record data from NAU8822 to Host.
USBD_HID_Keyboard	Demonstrate how to implement a USB keyboard device. It supports to use GPIO to simulate key input.
USBD_HID_Mouse	Demonstrate how to implement a USB mouse device. The mouse cursor will move automatically when this mouse device connecting to PC by USB.
USBD_HID_Mouse2	Demonstrate how to implement a USB mouse device. It uses PA0 ~ PA5 to control mouse direction and mouse key. It also supports USB suspend and remote wakeup.
USBD_HID_MouseKeyboard	Demonstrate how to implement a USB mouse function and a USB keyboard on the same USB device. The mouse cursor will move automatically when this mouse device connecting to PC. This sample code uses a GPIO to simulate key input.
USBD_HID_Transfer	Transfer data between USB device and PC through USB HID interface. A windows tool is also included in this sample code to connect with USB device.
USBD_HID_Transfer_and_Keyboard	Demonstrate how to implement a composite device. (HID Transfer and keyboard) Transfer data between USB device and PC through USB HID interface. A windows tool is also included in this sample code to connect with USB device.
USBD_HID_Transfer_and_MSC	Demonstrate how to implement a composite device. (HID Transfer and Mass storage) Transfer data between USB device and PC through USB HID interface. A windows tool is also included in this

	sample code to connect with a USB device.
USBD_MassStorage_CDROM	Demonstrate how to simulate a USB CD-ROM device.
USBD_MassStorage_DataFlash	Demonstrate how to implement a USB Mass-Storage. It uses embedded data flash as storage.
USBD_MassStorage_SDCard	Implement a SD card reader.
USBD_Micro_Printer	Show how to implement a USB micro printer device.
USBD_Printer_and_HID_Transfer	Demonstrate how to implement a composite device (USB micro printer device and HID Transfer). Transfer data between a USB device and PC through a USB HID interface. A windows tool is also included in this sample code to connect with a USB device.
USBD_VCOM_and_HID_Keyboard	Implement a USB composite device with virtual COM port and keyboard functions.
USBD_VCOM_and_HID_Transfer	Demonstrate how to implement a composite device (VCOM and HID Transfer). It supports one virtual COM port and transfers data between a USB device and PC through a USB HID interface. A windows tool is also included in this sample code to connect with a USB device.
USBD_VCOM_and_MassStorage	Implement a USB composite device. It supports one virtual COM port and one USB Mass-Storage device.
USBD_VCOM_DualPort	Demonstrate how to implement a USB dual virtual COM port device.
USBD_VCOM_SinglePort	Implement a USB virtual COM port device. It supports one virtual COM port.

Serial Peripheral Interface (SPI)

SPI_Loopback	Implement SPI Master loop back transfer. This sample code needs to connect SPI0_MISO0 pin and SPI0_MOSI0 pin together. It will compare the received data with transmitted data.

SPI_MasterFIFOMode	Configure SPI0 as Master mode and demonstrate how to communicate with an off-chip SPI Slave device with FIFO mode. This sample code needs to work with SPI_SlaveFifoMode sample code.
SPI_PDMA_Loopback	Demonstrate SPI data transfer with PDMA. SPI0 will be configured as Master mode and SPI1 will be configured as Slave mode. Both TX PDMA function and RX PDMA function will be enabled.
SPI_SlaveFIFOMode	Configure SPI0 as Slave mode and demonstrate how to communicate with an off-chip SPI Master device with FIFO mode. This sample code needs to work with SPI_MasterFifoMode sample code.

I²C Serial Interface Controller (I²C)

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I2C_GCMode_Slave	Demonstrate how to receive Master data in GC (General Call) mode. Needs to work with I2C_GCMode_MASTER sample code.
I2C_Master	Demonstrate how a Master access Slave. Needs to work with I2C_SLAVE sample code.
I2C_Slave	Demonstrate how to set I²C in slave mode to receive the data of a Master. Needs to work with I2C_MASTER sample code.
I2C_Wakeup_Master	Demonstrate how to wake-up MCU from power-down. Needs to work with I2C_Wakeup_Slave sample code.
I2C_Wakeup_Slave	Demonstrate how to set I²C to wake-up MCU from power-down mode. Needs to work with I2C_Wakeup_Master sample code.

External Bus Interface (EBI)

EBI_NOR	Configure EBI interface to access W39L040P (NOR Flash) on EBI interface.
EBI_SRAM	Configure EBI interface to access BS616LV4017 (SRAM) with PDMA transfer on EBI interface.

CRC Controller (CRC)

CRC_8	Perform CRC-8 operation and get the CRC checksum result.
CRC_CCITT	Perform CRC_CCITT operation and get the CRC checksum result.

Analog-to-Digital Converter (ADC)

ADC_ContinuousScanMode	Demonstrate how to use continuous scan mode and finishes two cycles of conversion for the specified channels.
ADC_MeasureAVDD	Measure AVDD voltage by ADC.
ADC_PwmTrigger	Demonstrate how to trigger ADC by PWM.
ADC_ResultMonitor	Demonstrate how to use the digital compare function to monitor the conversion result of channel 2.
ADC_SingleCycleScanMode	Demonstrate how to use single cycle scan mode and finishes one cycle of conversion for the specified channels.
ADC_SingleMode	Demonstrate how to use single mode and finishes the conversion of the specified channel.

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