

## Mini55 Series CMSIS BSP Directory

Directory Introduction for 32-bit NuMicro® Family

### Directory Information

<b>Document</b>	Driver reference manual and revision history.
<b>Library</b>	Driver header and source files.
<b>SampleCode</b>	Driver sample code.

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## 1 Document Information

<b>CMSIS.html</b>	Document of CMSIS version 4.5.0
<b>NuMicro Mini55 Series CMSIS BSP Revision History.pdf</b>	This document shows the revision history of Mini55 BSP.
<b>NuMicro Mini55 Driver Reference Guide.chm</b>	This document describes the usage of drivers in Mini55 BSP.

## 2 Library Information

<b>CMSIS</b>	Cortex <sup>®</sup> Microcontroller Software Interface Standard (CMSIS) V4.5 definitions by ARM <sup>®</sup> Corp.
<b>Device</b>	CMSIS compliant device header file.
<b>StdDriver</b>	All peripheral driver header and source files.

### 3 Sample Code Information

<b>Hard_Fault_Sample</b>	Show hard fault information when hard fault happened.
<b>RegBased</b>	Sample code implemented without access standard library but access registers directly.
<b>Semihost</b>	Show how to print and get character with IDE console window.
<b>StdDriver</b>	Demonstrate the usage of Mini55 MCU peripheral driver APIs.
<b>Template</b>	A project template for Mini55 MCU.

## 4 \SampleCode\RegBased

<b>ACMP</b>	Demonstrate Analog comparator (ACMP) comparison by comparing CPP0 (P1.5) with Band-gap voltage and shows the result on UART console.
<b>ACMP_TriggerTimerCapture</b>	Show how to use Analog comparator (ACMP) state change to trigger timer capture function. P1.5 is used as comparator positive input and Band-gap voltage as negative input.
<b>ADC_Compare</b>	Demonstrate ADC conversion and comparison function by monitoring the conversion result of channel 0.
<b>ADC_Convert</b>	Demonstrate ADC function by repeatedly convert the input of ADC channel 0 (P5.3) and shows the result on UART console.
<b>CLK_SwitchHCLK</b>	Demonstrate how to switch HCLK between HIRC and HXT.
<b>FMC_RW</b>	Show FMC read flash IDs, erase, read, and write functions.
<b>GPIO</b>	Use GPIO driver to control the GPIO pin direction, control their high/low state, and how to use GPIO interrupts.
<b>HDIV</b>	Show how to use hardware divider.
<b>I2C_FIFO_EEPROM</b>	Read/write EEPROM via I <sup>2</sup> C interface using FIFO mode.
<b>I2C_Interrupt_EEPROM</b>	Read/write EEPROM via I <sup>2</sup> C interface using interrupt mode.
<b>PWM_DeadZone</b>	Demonstrate the dead-zone feature with PWM.
<b>PWM_DoubleBuffer</b>	Demonstrate the PWM double buffer feature.
<b>SPI_FIFO_FLASH</b>	Access SPI Flash using FIFO mode.
<b>SPI_LoopBack</b>	Demonstrate SPI function by connect MOSI (P0.5) with MISO (P0.6).
<b>Timer_EventCounter</b>	Use pin P3.4 to demonstrates timer event counter

	function.
<b>Timer_FreeCountingMode</b>	Use the timer pin P3.2 to demonstrate timer free counting mode function. Also display the measured input frequency to UART console.
<b>Timer_Periodic</b>	Use the timer periodic mode to generate timer interrupt every 1 second.
<b>Timer_ToggleOut</b>	Demonstrate the timer 0 toggle out function on pin P3.4.
<b>Timer_TriggerCountingMode</b>	Use the timer pin P3.2 to demonstrate timer trigger counting mode function. And displays the measured input frequency to UART console.
<b>Timer_Wakeup</b>	Use Timer to wake up system from Power-down mode periodically.
<b>UART_AutoFlow</b>	Show how to transmit and receive data using auto flow control.
<b>UART_IrDA</b>	Show how to transmit and receive UART data in UART IrDA mode.
<b>UART_RS485</b>	Transmit and receive data in UART RS485 mode.
<b>UART_TxRx_Function</b>	Transmit and receive data from PC terminal through RS232 interface.
<b>WDT_Polling</b>	Use polling mode to check WDT time-out state and reset WDT after time out occurs.
<b>WDT_Wakeup</b>	Use WDT to wake up system from Power-down mode periodically.

## 5 \SampleCode\StdDriver

<b>ACMP</b>	Demonstrate Analog comparator (ACMP) comparison by comparing CPP0 (P1.5) with Band-gap voltage and shows the result on UART console.
<b>ADC_Compare</b>	Demonstrate ADC conversion and comparison function by monitoring the conversion result of channel 0.
<b>ADC_Convert</b>	Demonstrate ADC function by repeatedly convert the input of ADC channel 0 (P5.3) and shows the result on UART console.
<b>CLK_SwitchHCLK</b>	Demonstrate how to switch HCLK between HIRC and HXT.
<b>FMC_IAP</b>	This sample code includes LDROM image (fmc_ld_iap) and APROM image (fmc_ap_main). It shows how to branch between APROM and LDROM. To run this sample code, the boot mode must be "Boot from APROM with IAP".
<b>FMC_RW</b>	Show FMC read flash IDs, erase, read, and write functions.
<b>GPIO</b>	Use GPIO driver to control the GPIO pin direction, control their high/low state, and how to use GPIO interrupts.
<b>HDIV</b>	Show how to use hardware divider.
<b>I2C_FIFO_EEPROM</b>	Read/write EEPROM via I <sup>2</sup> C interface using FIFO mode.
<b>I2C_Interrupt_EEPROM</b>	Read/write EEPROM via I <sup>2</sup> C interface using interrupt mode.
<b>PWM_DeadZone</b>	Demonstrate the dead-zone feature with PWM.
<b>PWM_DoubleBuffer</b>	Demonstrate the PWM double buffer feature.
<b>SPI_FIFO_FLASH</b>	Access SPI Flash using FIFO mode.
<b>SPI_LoopBack</b>	Demonstrate SPI function by connect MOSI (P0.5) with MISO (P0.6).

<b>SYS_Control</b>	Demonstrate how to get PDID, get and clear reset source, configure BOD, and output system clock to CKO pin with the system clock / 4 frequency.
<b>SYS_TrimRC</b>	Demonstrate how to use LXT to trim HIRC.
<b>Timer_EventCounter</b>	Use pin P3.4 to demonstrates timer event counter function.
<b>Timer_FreeCountingMode</b>	Use the timer pin P3.2 to demonstrate timer free counting mode function. Also display the measured input frequency to UART console.
<b>Timer_Periodic</b>	Use the timer periodic mode to generate timer interrupt every 1 second.
<b>Timer_ToggleOut</b>	Demonstrate the timer 0 toggle out function on pin P3.4.
<b>Timer_TriggerCountingMode</b>	Use the timer pin P3.2 to demonstrate timer trigger counting mode function. And displays the measured input frequency to UART console.
<b>Timer_Wakeup</b>	Use Timer to wake up system from Power-down mode periodically.
<b>UART_AutoFlow</b>	Show how to transmit and receive data using auto flow control.
<b>UART_IrDA</b>	Show how to transmit and receive UART data in UART IrDA mode.
<b>UART_RS485</b>	Transmit and receive data in UART RS485 mode.
<b>UART_TxRx_Function</b>	Transmit and receive data from PC terminal through RS232 interface.
<b>WDT_Polling</b>	Use polling mode to check WDT time-out state and reset WDT after time out occurs.
<b>WDT_Wakeup</b>	Use WDT to wake up system from Power-down mode periodically.



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