

Mini55 Series CMSIS BSP Guide

Directory Introduction for 32-bit NuMicro® Family

Directory Information

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

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1 Document

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

2 Library

CMSIS	Cortex® Microcontroller Software Interface Standard (CMSIS) V4.5.0 definitions by Arm® Corp.
Device	CMSIS compliant device header file.
StdDriver	All peripheral driver header and source files.

3 SampleCode

Hard_Fault_Sample	Show hard fault information when hard fault happened.
ISP	ISP firmware samples.
NuTiny-SDK-MINI55	Sample code for Mini55 Tiny Board
RegBased	Sample codes implemented without access standard library but access registers directly.
Semihost	Show how to print and get character through IDE console window.
StdDriver	Demonstrate the usage of Mini55 MCU peripheral driver APIs.
Template	A project template for Mini55 MCU.

4 SampleCode\ISP

ISP_I2C	In-System-Programming sample code through I ² C 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\NuTiny-SDK-Mini55

LED_Toggle

This sample toggles P1.5 to turn on board LED on and off.

6 SampleCode\RegBased

Clock Controller (CLK)

CLK_SwitchHCLK	Demonstrate how to switch HCLK between HIRC and HXT.
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Flash Memory Controller (FMC)

FMC_RW	Show FMC read flash IDs, erase, read, and write functions.
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General Purpose I/O (GPIO)

GPIO	Use GPIO driver to control the GPIO pin direction, control their high/low state, and how to use GPIO interrupts.
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Timer Controller (TIMER)

Timer_EventCounter	Use pin P3.4 to demonstrates timer event counter function.
Timer_FreeCountingMode	Use the timer pin P3.2 to demonstrate timer free counting mode function. Also display the measured input frequency to UART console.
Timer_Periodic	Use the timer periodic mode to generate timer interrupt every 1 second.
Timer_ToggleOut	Demonstrate the timer 0 toggle out function on pin P3.4.
Timer_TriggerCountingMode	Use the timer pin P3.2 to demonstrate timer trigger counting mode function. And displays the measured input frequency to UART console.
Timer_Wakeup	Use Timer to wake up system from Power-down mode periodically.

Watchdog Timer (WDT)

WDT_Polling	Use polling mode to check WDT time-out state and reset WDT after time out occurs.
WDT_Wakeup	Use WDT to wake up system from Power-down mode periodically.

PWM Generator (PWM)

PWM_DeadZone	Demonstrate the dead-zone feature with PWM.
PWM_DoubleBuffer	Demonstrate the PWM double buffer feature.

UART Interface Controller (UART)

UART_AutoFlow	Show how to transmit and receive data using auto flow control.
UART_IrDA	Show how to transmit and receive UART data in UART IrDA mode.
UART_RS485	Transmit and receive data in UART RS485 mode.
UART_TxRx_Function	Transmit and receive data from PC terminal through RS232 interface.

Serial Peripheral Interface (SPI)

SPI_FIFO_FLASH	Access SPI Flash using FIFO mode.
SPI_LoopBack	Demonstrate SPI function by connect MOSI (P0.5) with MISO (P0.6).

I²C Serial Interface Controller (I²C)

I2C_FIFO_EEPROM	Read/write EEPROM via I ² C interface using FIFO mode.
I2C_Interrupt_EEPROM	Read/write EEPROM via I ² C interface using interrupt mode.

Hardware Divider (HDIV)

HDIV	Show how to use hardware divider.
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Analog-to-Digital Converter (ADC)

ADC_Compare	Demonstrate ADC conversion and comparison function by monitoring the conversion result of channel 0.
ADC_Convert	Demonstrate ADC function by repeatedly convert the input of ADC channel 0 (P5.3) and shows the result on UART console.

Analog Comparator Controller (ACMP)

ACMP	Demonstrate Analog comparator (ACMP) comparison by comparing CPP0 (P1.5) with Band-gap voltage and shows the result on UART console.
ACMP_TriggerTimerCapture	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.

7 SampleCode\StdDriver

System Manager (SYS)

SYS_Control	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.
SYS_PowerDown_MinCurrent	Demonstrate how to minimize power consumption when entering power down mode.
SYS_TrimRC	Demonstrate how to use LXT to trim HIRC.

Clock Controller (CLK)

CLK_SwitchHCLK	Demonstrate how to switch HCLK between HIRC and HXT.
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Flash Memory Controller (FMC)

FMC_IAP	<p>This sample code includes LDROM image (fmc_Id_iap) and APROM image (fmc_ap_main).</p> <p>It shows how to branch between APROM and LDROM. To run this sample code, the boot mode must be "Boot from APROM with IAP".</p>
FMC_RW	Show FMC read flash IDs, erase, read, and write functions.

General Purpose I/O (GPIO)

GPIO	Use GPIO driver to control the GPIO pin direction, control their high/low state, and how to use GPIO interrupts.
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Timer Controller (TIMER)

Timer_Delay	Demonstrate the usage of TIMER_Delay() API to generate a 1 second delay
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Timer_EventCounter	Use pin P3.4 to demonstrates timer event counter function.
Timer_FreeCountingMode	Use the timer pin P3.2 to demonstrate timer free counting mode function. Also display the measured input frequency to UART console.
Timer_Periodic	Use the timer periodic mode to generate timer interrupt every 1 second.
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ADC_Convert	Demonstrate ADC function by repeatedly convert the input of ADC channel 0 (P5.3) and shows the result on UART console.

Analog Comparator Controller (ACMP)

ACMP	Demonstrate Analog comparator (ACMP) comparison by comparing CPP0 (P1.5) with Band-gap voltage and shows the result on UART console.
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