

ML51 Series IAR BSP Guide

Directory Introduction for NuMicro™ 8051 Family

Directory Information

Please extract the “ML51Series_BSP_IAR_V1.00.zip” file firstly, and confirm the following folder all contain.

This BSP folder contents:

Document\	Driver reference manual and reversion history.
Library\	Device driver header and source files
SampleCode\	Device driver sample code.

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1 .\Document\

Nuvoton_ML51_IAR_BSP
_Revision_History.pdf

This document shows the revision history of ML51 BSP for IAR.

2 .\Library\

Device\	Compliant device header file
Startup\	A51 startup file and executable file
StdDriver\	All peripheral driver header and source files.

3 .\SampleCode\

StdDriver\	Demonstrate the usage of ML51 series MCU peripheral driver.
Template\	A project template for ML51 series MCU

4 .\SampleCode\RegBased

ACMP_CRV	ACMP negative input is CRV input with interrupt enabled.
ADC_Bandgap	ADC input is Bandgap initial and convert code.
ADC_Bandgap_VDD	ADC converts demo code with band-gap value to calculate the VDD value.
ADC_GPIO _Trig	ADC trig start by GPIO demo. External GPIO level change will trig ADC convert start.
ADC_Multi_channel	ADC sampling from different channel demo code.
ADC_PWM_Trig	ADC convert start trig by PWM period demo. Each PWM period over will trig ADC by hardware.
ADC_Simple	ADC convert start by trig SFR bit and convert finish by check flag.
Fsys_Select	ML51 system clock select from HIRC/HXT/LIRC/LXT demo. For low power application change Fsys is necessary.
GPIO_ClockOut	ML51 system clock output from GPIO demo. ML51 can output Fsys clock from 3 special defined GPIO output.
GPIO_InputOutput	ML51 gpio simple toggle out demo. This demo is easy to confirm ML51 normal run status.
GPIO_PowerDown_BODdisable	ML51 power down mode demo. For confirm power down current of each MCU. With disable BOD module for the lower power consumption.
IAP_APROM_program_DataFlash	ML51 Data flash demo code. all APROM memory can be used as Dataflash.
IAP_APROM_program_LDROM	IAP run in APROM to program LDROM. First need confirm the LDROM is enabled.
IAP_Dataflash_EEPROM	Customer use this macro, each time call this subroutine, can use Data flash as EEPROM mode, the process include read old data / erase / modify new code/ write in.
IAP_LDROM_Program_APROM	IAP run in LDROM to program APROM. This function is use in ISP function.

IAP_program_Config	Use code IAP function to modify CONFIG area.
IAP_Read_UCID	Use IAP command to read the UCID of each ML51. Only for customer special order ML51 MCU. One UCID is only for one customer.
IAP_Read_UID	Use IAP command to read the UID of each ML51. Each pieces of ML51 UID is different.
INT0_ExtInt	External INT0 function demo. The basic 8501 EXT0 function.
INT1_ExtInt	External INT1 function demo. The basic 8051 EXT1 function.
Pin_Interrupt	Each GPIO of ML51 use as external interrupt pin. Trig IC wakeup from idle / power down mode.
PWM_DeadTime	PWM complementary mode initial setting. All PWM channel output with different duty. And insert dead time zone sample code.
PWM_INT	PWM Independent mode initial setting. All PWM channel output with different duty with interrupt enable.
PWM_Simple	PWM Synchronous mode initial setting. All PWM channel output with different duty
Timer0_mode_0_Interrupt	Timer 0 mode 0 initial setting with interrupt enabled.
Timer0_mode_1_Interrupt	Timer 0 mode 1 initial setting with interrupt enabled.
Timer0_mode_2_Interrupt	Timer 0 mode 2 initial setting with interrupt enabled.
Timer01_mode_3_Interrupt	Timer 0 and Timer 1 mode 3 initial setting with interrupt enabled.
Timer1_mode_0_Interrupt	Timer 1 mode 0 initial setting with interrupt enabled.
Timer1_mode_1_Interrupt	Timer 1 mode 1 initial setting with interrupt enabled.
Timer1_mode_2_Interrupt	Timer 1 mode 2 initial setting with interrupt enabled.
Timer2_AutoReload_Capture	Timer 2 use as capture initial setting. With 3 channel setting.
Timer2_AutoReload_Delay	Timer 2 sets as auto reload delay setting.

Timer3	Timer 2 sets as auto reload delay setting.
UART0	UART0 demo code. Include transmit and receive demo and enable interrupt subroutine.
UART0_Interrupt_RW	UART0 with interrupt subroutine to receive and transmit.
UART1	UART1 demo code Include transmit and receive demo and enable interrupt subroutine.
WakeupTimer_INT	Wake up timer initial setting with interrupt.
Watchdog_INT	Watchdog timer over only jump into interrupt without reset function initial.
WDT_Reset	Watchdog timer over cause reset initial. Include “CONFIG” enable use IAP command and check with POF flag if reset is enabled before, not do IAP again.
WKT_Interrupt	Wakeup timer over into interrupt. Include HIRC base or HXT clock base.

5 REVISION HISTORY

Date	Revision	Description
2019.3.28	1.00	Initially issued.

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