|  |  |
| --- | --- |
| **FblUpdUsr SW Detailed Design** | |
| **Summary** | Software Detailed Design Document of the FblUpdUsr Component |

|  |  |  |
| --- | --- | --- |
| **Author** | **Review** | **Approval** |
| Title: Andreea Suiu | See Project Master Document for the roles and Project Members List for the name of people | See Project Master Document for the roles and Project Members List for the name of people |
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| **Distribution** | | |
| See Project Master Document for the roles and Project Members List for the name of people | See Project Master Document for the roles and Project Members List for the name of people | See Project Master Document for the roles and Project Members List for the name of people |

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# General Information

## Revision history \*

|  |  |  |  |
| --- | --- | --- | --- |
| **Revision** | **Date** | **Author(s)** | **Description/comment** |
| 1.0. | 19.01.2022 | Andreea Suiu | First revision. |
|  |  |  |  |
|  |  |  |  |

*\* Template history is found in the CM tool used for templates*

## Purpose and Scope

The purpose of this document is to provide an overview of the FblUpdUsr SW Component operation principle, and to present the implementation choices in terms of module and function splitting.

## Referenced documents

### External documents

|  |  |  |
| --- | --- | --- |
| **Id** | **Title** | **Reference** |
|  |  |  |
|  |  |  |
|  |  |  |

### Internal Documents

|  |  |  |
| --- | --- | --- |
| **Id** | **Title** | **Reference** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

## Terminology and definitions

The generic acronyms are available in the [AEM process and method wiki](https://alvteams.alv.autoliv.int/sites/aeuaeequalityassurance/AEM%20Process%20wiki/acronyms.aspx)

|  |  |
| --- | --- |
| **Terminology** | **Meaning** |
| AAU | Atomic architectural unit |
| SW | software |
|  |  |

# SW Module Detailed Design

## Overview

The aim of the FblUpdUsr component is to configure startup conditions and to start the main execution (to start the bootloader updater activity). The startup conditions consist of initialization memory sections, configuration clocks, reset, timers and interrupts. The bootloader updater activity consists in invalidation of bootloader and flashing the updated version of bootloader.

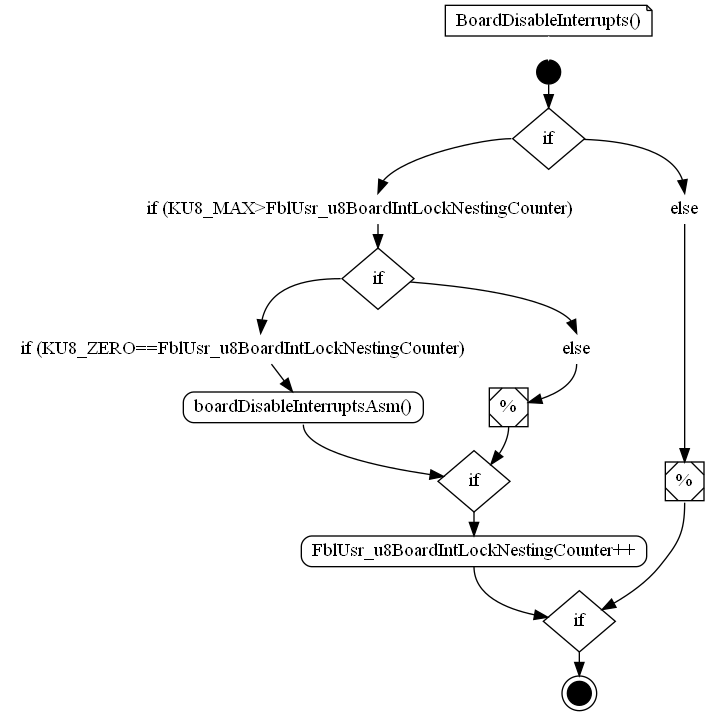
## Traceability

# Features

## Services

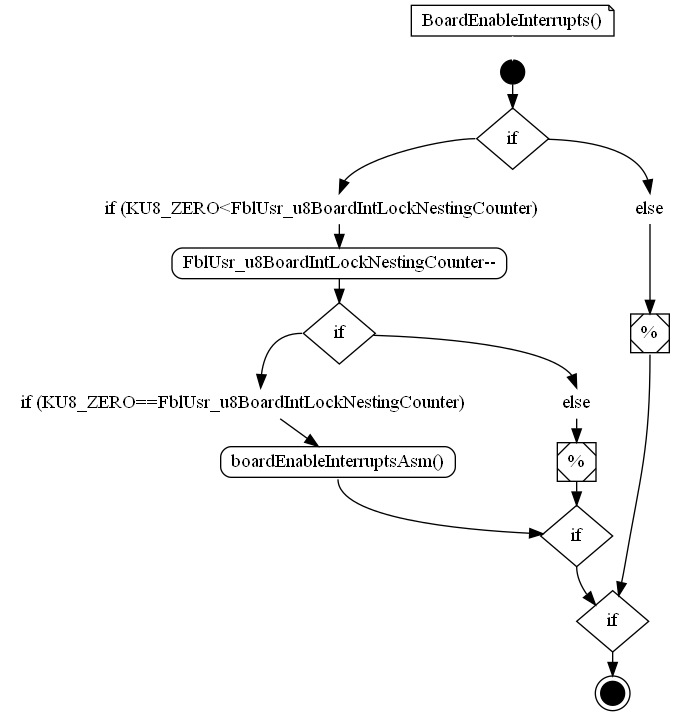
### BoardDisableInterrupts

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| This function is used to manage interruptions disabling by taking into consideration the interrupt nesting. | | | |
| **Prototype** | | | |
| void BoardDisableInterrupts (void) | | | |
| **Precondition** | | | |
| None. | | | |
| **Detailed Design Requirement** | | | |
| DSG\_FblUpdUsr\_BoardDisableInterrupts | | | |
| **Architecture Requirement** | | | |
| ARCH\_SW\_FblUpdUsr\_BoardDisableInterrupts | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| NA | None. | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| SchM module. | Called when is necessary to disable interrupts. | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
| None. | | | |



### BoardEnableInterrupts

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| This function is used to manage interruptions enabling by taking into consideration the interrupt nesting. | | | |
| **Prototype** | | | |
| void BoardEnableInterrupts (void) | | | |
| **Precondition** | | | |
| None. | | | |
| **Detailed Design Requirement** | | | |
| DSG\_FblUpdUsr\_BoardEnableInterrupts | | | |
| **Architecture Requirement** | | | |
| ARCH\_SW\_FblUpdUsr\_BoardEnableInterrupts | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| NA | None. | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| SchM module. | Called when is necessary to enable interrupts. | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
| None. | | | |



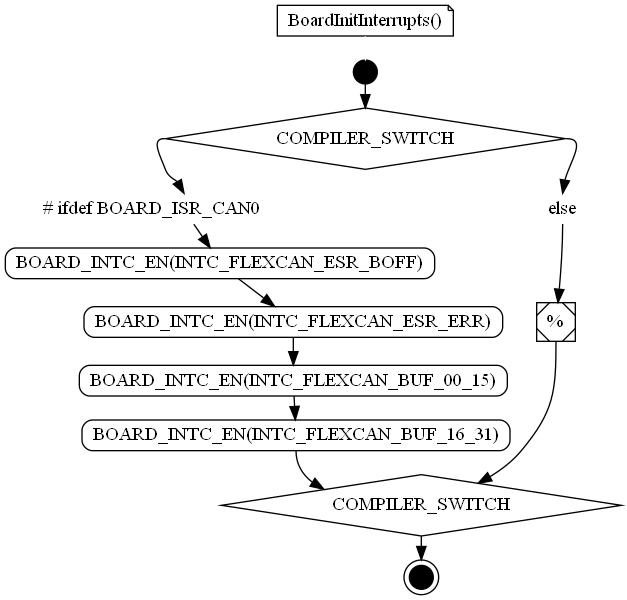
### BoardInitializationTimers

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| This function is used to set to configure and start the timers. | | | |
| **Prototype** | | | |
| uint8 BoardInitializationTimers (const uint16 u16Timer) | | | |
| **Precondition** | | | |
| None. | | | |
| **Return values** | | | |
| BOARD\_TRUE - Timer configuration successful  BOARD\_FALSE - Timer configuration failed | | | |
| **Detailed Design Requirement** | | | |
| DSG\_FblUpdUsr\_BoardInitializationTimers | | | |
| **Architecture Requirement** | | | |
| None. | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| u16Timer | const u16 | u16Timer timer value |  |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| uint8 | u8RetVal. | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| Startup module. | Called by main function. | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
| None. | | | |



### BoardInitInterrupts

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| This function is used to initialize the interrupt controller and sets a default priority in all interrupt vectors, integrator shall ensure that each integrated software using interrupts shall verify the interrupt settings or set them to a correct value. | | | |
| **Prototype** | | | |
| void BoardInitInterrupts (void) | | | |
| **Precondition** | | | |
| None. | | | |
| **Detailed Design Requirement** | | | |
| DSG\_FblUpdUsr\_BoardInitInterrupts | | | |
| **Architecture Requirement** | | | |
| None. | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| NA | None. | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| FblUsr module. | Called in BoardStart function. | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
| None. | | | |



### BoardInitMemorySections

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Initialize memory sections. | | | |
| **Prototype** | | | |
| static void BoardInitMemorySections (void) [static] | | | |
| **Precondition** | | | |
| None. | | | |
| **Detailed Design Requirement** | | | |
| DSG\_FblUpdUsr\_BoardInitMemorySections | | | |
| **Architecture Requirement** | | | |
| None. | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| NA | None. | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| FblUsr module. | Called in BoardStart function. | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
| None. | | | |

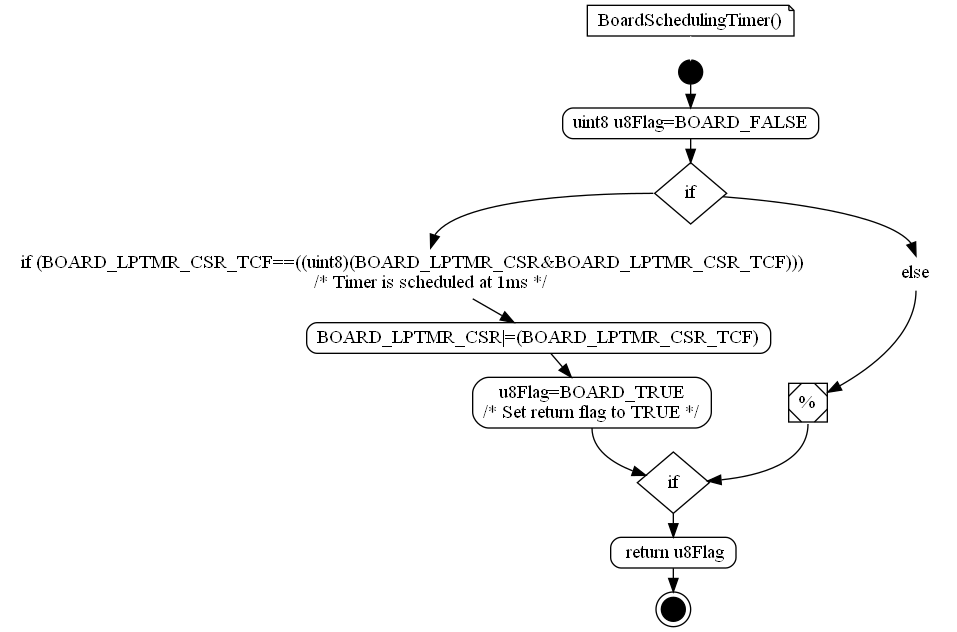
### BoardIsSwReset

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| This function is used to get the reset reason. | | | |
| **Prototype** | | | |
| Platforms\_ResetType BoardIsSwReset (void) | | | |
| **Precondition** | | | |
| None. | | | |
| **Return values** | | | |
| PLATFORMS\_SW\_RESET - software reset  PLATFORMS\_POWER\_ON\_RESET - power on reset  PLATFORMS\_WATCHDOG\_RESET- watchdog reset | | | |
| **Detailed Design Requirement** | | | |
| DSG\_FblUpdUsr\_BoardIsSwReset | | | |
| **Architecture Requirement** | | | |
| ARCH\_SW\_FblUpdUsr\_BoardIsSwReset | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| Platforms\_ResetType | BoardResetReturn = reset type | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| FblUsr module. | Called in InitNoInitRam function. | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
| None. | | | |



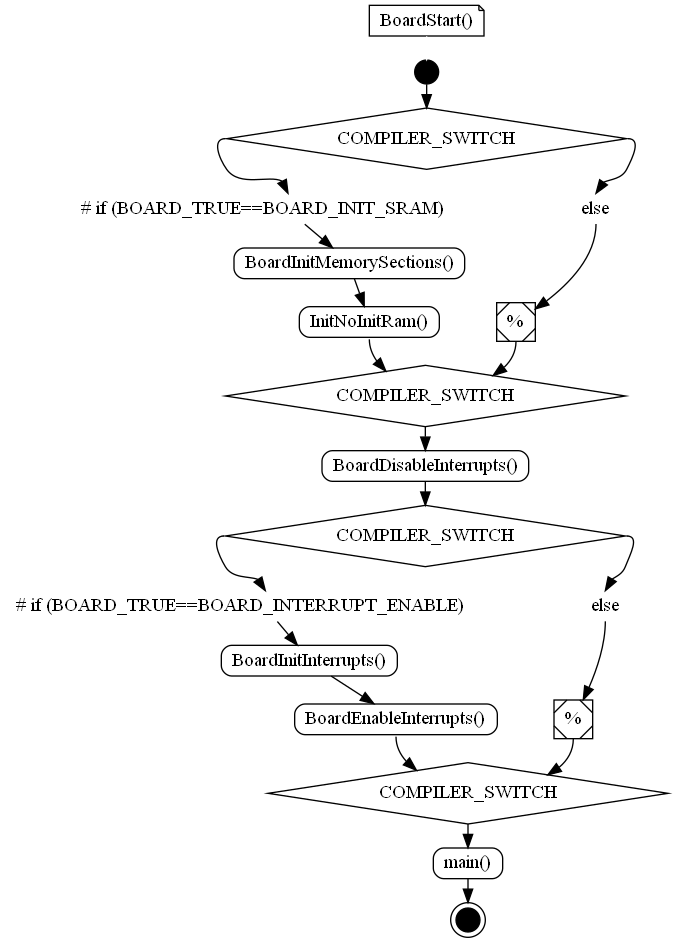
### BoardSchedulingTimer

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Scheduling Timer used to have a time reference (ex: flag is set every u8Timer, parameter passed to BoardInitialisationTimers(u8Timer)) | | | |
| **Prototype** | | | |
| uint8 BoardSchedulingTimer (void) | | | |
| **Precondition** | | | |
| None. | | | |
| **Detailed Design Requirement** | | | |
| DSG\_FblUpdUsr\_BoardSchedulingTimer | | | |
| **Architecture Requirement** | | | |
| None. | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| uint8 | u8Flag = flag for scheduling timer. | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| Startup module. | Called by main function. | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
| None. | | | |



### BoardStart

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Realize board initial startup conditions for correct main execution. Function used to start the bootloader updater activity. | | | |
| **Prototype** | | | |
| void BoardStart (void) | | | |
| **Precondition** | | | |
| None. | | | |
| **Detailed Design Requirement** | | | |
| DSG\_FblUpdUsr\_BoardStart | | | |
| **Architecture Requirement** | | | |
| None. | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| NA | None. | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| None. | None. | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
| None. | | | |



### InitNoInitRam

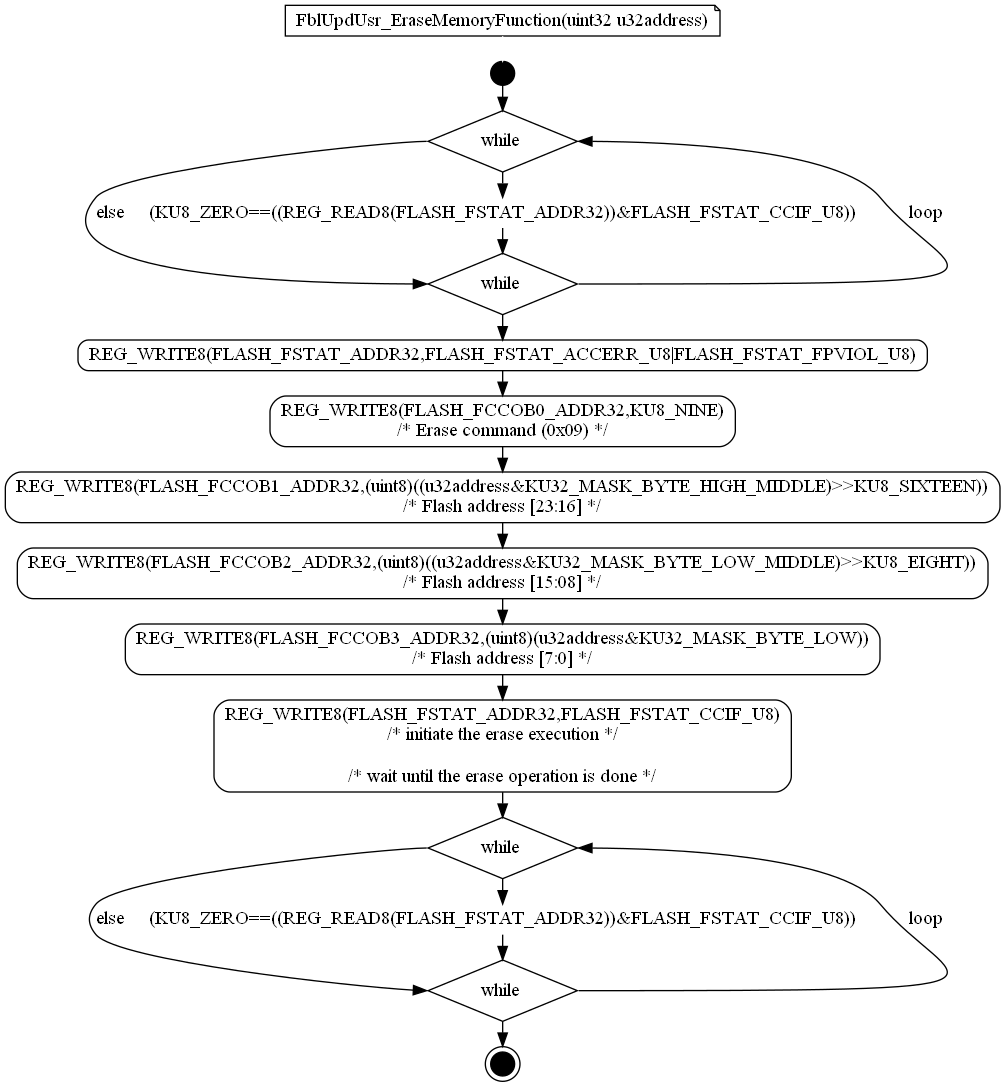
|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Initialize RAM if reset was not a SW reset initialization. | | | |
| **Prototype** | | | |
| static void InitNoInitRam (void) [static] | | | |
| **Precondition** | | | |
| None. | | | |
| **Detailed Design Requirement** | | | |
| DSG\_FblUpdUsr\_InitNoInitRam | | | |
| **Architecture Requirement** | | | |
| None. | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| NA | None. | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| FblUsr module. | Called in BoardStart function. | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
| None. | | | |

### boardResetStart

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| The function contains the reset vector for S32K14X: reset vector is two 32-bit words, linked to a hardware-specific location, that tell the hardware: 1) Reset value of main stack pointer 2) Address of the boardResetStart function. | | | |
| **Prototype** | | | |
| void boardResetStart (void) | | | |
| **Precondition** | | | |
| None. | | | |
| **Detailed Design Requirement** | | | |
| DSG\_FblUpdUsr\_boardResetStart | | | |
| **Architecture Requirement** | | | |
| None. | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| NA | None. | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| None. | None. | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
| None. | | | |

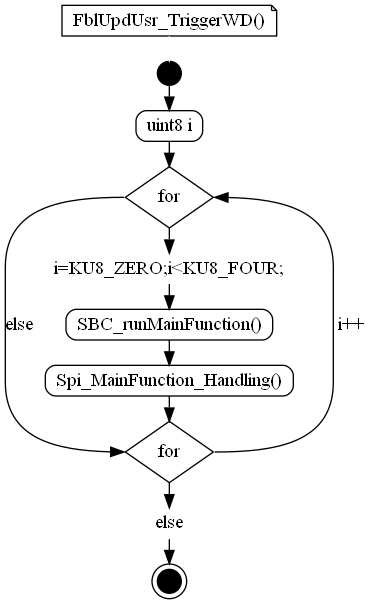
### FblUpdUsr\_EraseMemoryFunction

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Function used to erase the flash memory. | | | |
| **Prototype** | | | |
| static \_\_ramfunc void FblUpdUsr\_EraseMemoryFunction (uint32 u32address) [static] | | | |
| **Detailed Design Requirement** | | | |
| DSG\_FblUpdUsr\_FblUpdUsr\_EraseMemoryFunction | | | |
| **Architecture Requirement** | | | |
| None. | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| address | uint32 | the register address |  |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| NA | NA | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| FblUpdUsr module. | Called locally in main function via direct call. | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
| None. | | | |



### FblUpdUsr\_TriggerWD

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Function used to trigger watchdog. | | | |
| **Prototype** | | | |
| static void FblUpdUsr\_TriggerWD (void) [static] | | | |
| **Detailed Design Requirement** | | | |
| DSG\_FblUpdUsr\_FblUpdUsr\_TriggerWD | | | |
| **Architecture Requirement** | | | |
| None. | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| NA | NA | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| FblUpdUsr module. | Called locally in main function via direct call. | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
| None. | | | |



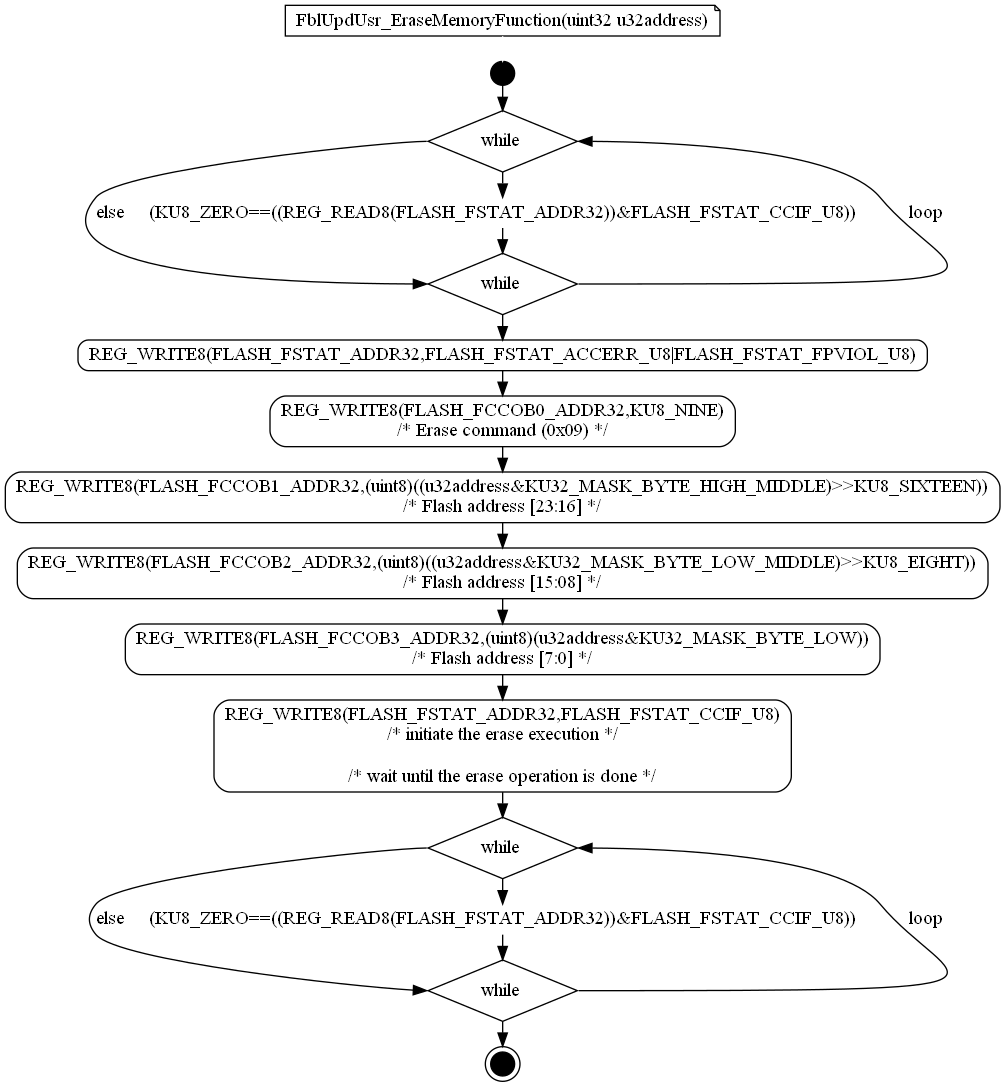
### FblUpdUsr\_WriteMemoryFunction

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Function used to write the flash memory. | | | |
| **Prototype** | | | |
| static \_\_ramfunc void FblUpdUsr\_WriteMemoryFunction (void) [static] | | | |
| **Detailed Design Requirement** | | | |
| DSG\_FblUpdUsr\_FblUpdUsr\_WriteMemoryFunction | | | |
| **Architecture Requirement** | | | |
| None. | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| NA | NA | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| FblUpdUsr module. | Called locally in main function via direct call. | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
| None. | | | |



### main

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Function used to start the execution (activation of PLL clock, initialization of port, start up bootloader updater activity). | | | |
| **Prototype** | | | |
| int main (void) | | | |
| **Parameters** | | | |
| None. | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| int | None. | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| None. | None. | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
| None. | | | |



## Variabiles

### FblUsr\_u8BoardIntLockNestingCounter

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| uint8 | ((uint8) 0x00) | |
| **Description** | | |
| The counter for enabling/disabling interrupts. | | |
| **Definition** | | |
| uint8 FblUsr\_u8BoardIntLockNestingCounter = ((uint8) 0x00) | | |

### PLATFORMS\_TOOL\_STARTNOINIT

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| uint32 PLATFORMS\_TOOL\_ENDBSS [extern] uint32 PLATFORMS\_TOOL\_ENDDATA [extern] uint32 PLATFORMS\_TOOL\_ENDDATARW [extern] uint32 PLATFORMS\_TOOL\_INITDATA [extern] uint32 PLATFORMS\_TOOL\_INITDATARW [extern] uint32 PLATFORMS\_TOOL\_STARTBSS [extern] uint32 PLATFORMS\_TOOL\_STARTDATA [extern] uint32 PLATFORMS\_TOOL\_STARTDATARW [extern] uint32 | (uint32 \*)0x1fff91c0uL | |
| **Description** | | |
| Constant with external linkage. | | |
| **Definition** | | |
| uint32 PLATFORMS\_TOOL\_ENDBSS [extern] uint32 PLATFORMS\_TOOL\_ENDDATA [extern] uint32 PLATFORMS\_TOOL\_ENDDATARW [extern] uint32 PLATFORMS\_TOOL\_INITDATA [extern] uint32 PLATFORMS\_TOOL\_INITDATARW [extern] uint32 PLATFORMS\_TOOL\_STARTBSS [extern] uint32 PLATFORMS\_TOOL\_STARTDATA [extern] uint32 PLATFORMS\_TOOL\_STARTDATARW [extern] uint32 PLATFORMS\_TOOL\_STARTNOINIT [extern] uint32\* u32PlatformsAddressBase = (uint32 \*)0x1fff91c0uL | | |

### u32PlatformsAddressBaseInit

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| uint32 | (uint32 \*)0x62060uL | |
| **Description** | | |
| Constant with external linkage. | | |
| **Definition** | | |
| uint32\* u32PlatformsAddressBaseInit = (uint32 \*)0x62060uL | | |

### u32PlatformsAddressBaseLimit

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| uint32 | (uint32 \*)0x1fff925cuL | |
| **Description** | | |
| Constant with external linkage. | | |
| **Definition** | | |
| uint32\* u32PlatformsAddressBaseLimit = (uint32 \*)0x1fff925cuL | | |

### u32PlatformsAddressBSSBase

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| uint32 | (uint32 \*)0x1fff8700uL | |
| **Description** | | |
| Constant with external linkage. | | |
| **Definition** | | |
| uint32\* u32PlatformsAddressBSSBase = (uint32 \*)0x1fff8700uL | | |

### u32PlatformsAddressBSSLimit

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| uint32 | (uint32 \*)0x1fff91b4uL | |
| **Description** | | |
| Constant with external linkage. | | |
| **Definition** | | |
| uint32\* u32PlatformsAddressBSSLimit = (uint32 \*)0x1fff91b4uL | | |

### u32PlatformsAddressExtraBase

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| uint32 | (uint32 \*)0x1fff8000uL | |
| **Description** | | |
| Constant with external linkage. | | |
| **Definition** | | |
| uint32\* u32PlatformsAddressExtraBase = (uint32 \*)0x1fff8000uL | | |

### u32PlatformsAddressExtraBaseInit

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| uint32 | (uint32 \*)0x40000uL | |
| **Description** | | |
| Constant with external linkage. | | |
| **Definition** | | |
| uint32\* u32PlatformsAddressExtraBaseInit = (uint32 \*)0x40000uL | | |

### u32PlatformsAddressExtraBaseLimit

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| uint32 | (uint32 \*)0x1fff8130uL | |
| **Description** | | |
| Constant with external linkage. | | |
| **Definition** | | |
| uint32\* u32PlatformsAddressExtraBaseLimit = (uint32 \*)0x1fff8130uL | | |

### u32PlatformsAddressNoInitBase

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| uint32 | (uint32 \*) 0x20003f00uL | |
| **Description** | | |
| Constant with external linkage. | | |
| **Definition** | | |
| uint32\* u32PlatformsAddressNoInitBase = (uint32 \*) 0x20003f00uL | | |

### BoardStack[ISTACKLEN]

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| uint32 | NA | |
| **Description** | | |
| const uint32 reset\_vector[2] | | |
| **Definition** | | |
| uint32 BoardStack[ISTACKLEN] | | |

## Macros

### FBLUSR\_KU32\_BYTE

|  |  |
| --- | --- |
| Name | Value |
| FBLUSR\_KU32\_BYTE | ((uint32) 0xFF) |
| **Definition** | |
| #define FBLUSR\_KU32\_BYTE ((uint32) 0xFF) | |
| **Description** | |
| NA | |

### FBLUSR\_KU32\_MAX\_VAL

|  |  |
| --- | --- |
| Name | Value |
| FBLUSR\_KU32\_MAX\_VAL | (0xFFFFFFFFu) |
| **Definition** | |
| #define FBLUSR\_KU32\_MAX\_VAL (0xFFFFFFFFu) | |
| **Description** | |
| NA | |

### FBLUSR\_KU32\_VAL\_12

|  |  |
| --- | --- |
| Name | Value |
| FBLUSR\_KU32\_VAL\_12 | (12U) |
| **Definition** | |
| #define FBLUSR\_KU32\_VAL\_12 (12U) | |
| **Description** | |
| NA | |

### FBLUSR\_KU32\_VAL\_16

|  |  |
| --- | --- |
| Name | Value |
| FBLUSR\_KU32\_VAL\_16 | (16U) |
| **Definition** | |
| #define FBLUSR\_KU32\_VAL\_16 (16U) | |
| **Description** | |
| NA | |

### FBLUSR\_KU32\_VAL\_4

|  |  |
| --- | --- |
| Name | Value |
| FBLUSR\_KU32\_VAL\_4 | ((uint32) 0x4) |
| **Definition** | |
| #define FBLUSR\_KU32\_VAL\_4 ((uint32) 0x4) | |
| **Description** | |
| This file contains board-specific startup code. | |

### BOARD\_START\_STACK\_CODE

|  |  |
| --- | --- |
| Name | Value |
| BOARD\_START\_STACK\_CODE | NA |
| **Definition** | |
| #define BOARD\_START\_STACK\_CODE | |
| **Description** | |
| NA | |

### BOARD\_STOP\_STACK\_CODE

|  |  |
| --- | --- |
| Name | Value |
| BOARD\_STOP\_STACK\_CODE | NA |
| **Definition** | |
| #define BOARD\_STOP\_STACK\_CODE | |
| **Description** | |
| NA | |

### B\_FALSE

|  |  |
| --- | --- |
| Name | Value |
| B\_FALSE | ((boolean)0x55) |
| **Definition** | |
| #define B\_FALSE ((boolean)0x55) | |
| **Description** | |
| NA | |

### B\_TRUE

|  |  |
| --- | --- |
| Name | Value |
| B\_TRUE | ((boolean)0xAA) |
| **Definition** | |
| #define B\_TRUE ((boolean)0xAA) | |
| **Description** | |
| NA | |

### EXPORTED

|  |  |
| --- | --- |
| Name | Value |
| EXPORTED | NA |
| **Definition** | |
| #define EXPORTED | |
| **Description** | |
| NA | |

### KAC\_DAY\_VERSION

|  |  |
| --- | --- |
| Name | Value |
| KAC\_DAY\_VERSION | '22' |
| **Definition** | |
| #define KAC\_DAY\_VERSION '22' | |
| **Description** | |
| NA | |

### KAC\_MONTH\_VERSION

|  |  |
| --- | --- |
| Name | Value |
| KAC\_MONTH\_VERSION | '1' |
| **Definition** | |
| #define KAC\_MONTH\_VERSION '1' | |
| **Description** | |
| NA | |

### KAC\_SOFT\_VERSION

|  |  |
| --- | --- |
| Name | Value |
| KAC\_SOFT\_VERSION | 'ER\_001CO.000' |
| **Definition** | |
| #define KAC\_SOFT\_VERSION 'ER\_001CO.000' | |
| **Description** | |
| NA | |

### KAC\_YEAR\_VERSION

|  |  |
| --- | --- |
| Name | Value |
| KAC\_YEAR\_VERSION | '14' |
| **Definition** | |
| #define KAC\_YEAR\_VERSION '14' | |
| **Description** | |
| NA | |

### KB\_ZERO

|  |  |
| --- | --- |
| Name | Value |
| KB\_ZERO | ((boolean) 0) |
| **Definition** | |
| #define KB\_ZERO ((boolean) 0) | |
| **Description** | |
| NA | |

### KPF\_NULL

|  |  |
| --- | --- |
| Name | Value |
| KPF\_NULL | ((void \*) 0) |
| **Definition** | |
| #define KPF\_NULL ((void \*) 0) | |
| **Description** | |
| NA | |

### KPU8\_NULL

|  |  |
| --- | --- |
| Name | Value |
| KPU8\_NULL | ((uint8\*) 0) |
| **Definition** | |
| #define KPU8\_NULL ((uint8\*) 0) | |
| **Description** | |
| NA | |

### KS16\_MAX

|  |  |
| --- | --- |
| Name | Value |
| KS16\_MAX | ((sint16) 32767) |
| **Definition** | |
| #define KS16\_MAX ((sint16) 32767) | |
| **Description** | |
| NA | |

### KS16\_MAX\_S8

|  |  |
| --- | --- |
| Name | Value |
| KS16\_MAX\_S8 | ((sint16) 127) /\* 0x007F \*/ |
| **Definition** | |
| #define KS16\_MAX\_S8 ((sint16) 127) /\* 0x007F \*/ | |
| **Description** | |
| NA | |

### KS16\_MIN

|  |  |
| --- | --- |
| Name | Value |
| KS16\_MIN | ((sint16) (-32767)) |
| **Definition** | |
| #define KS16\_MIN ((sint16) (-32767)) | |
| **Description** | |
| NA | |

### KS16\_MIN\_S8

|  |  |
| --- | --- |
| Name | Value |
| KS16\_MIN\_S8 | ((sint16) -128) /\* 0xFF80 \*/ |
| **Definition** | |
| #define KS16\_MIN\_S8 ((sint16) -128) /\* 0xFF80 \*/ | |
| **Description** | |
| NA | |

### KS16\_ZERO

|  |  |
| --- | --- |
| Name | Value |
| KS16\_ZERO | ((sint16) 0) |
| **Definition** | |
| #define KS16\_ZERO ((sint16) 0) | |
| **Description** | |
| NA | |

### KS32\_MAX

|  |  |
| --- | --- |
| Name | Value |
| KS32\_MAX | ((sint32) 2147483647) |
| **Definition** | |
| #define KS32\_MAX ((sint32) 2147483647) | |
| **Description** | |
| NA | |

### KS32\_MAX\_S16

|  |  |
| --- | --- |
| Name | Value |
| KS32\_MAX\_S16 | ((sint32) 32767) |
| **Definition** | |
| #define KS32\_MAX\_S16 ((sint32) 32767) | |
| **Description** | |
| NA | |

### KS32\_MAX\_U16

|  |  |
| --- | --- |
| Name | Value |
| KS32\_MAX\_U16 | ((sint32) 0xFFFF) |
| **Definition** | |
| #define KS32\_MAX\_U16 ((sint32) 0xFFFF) | |
| **Description** | |
| NA | |

### KS32\_MAX\_U8

|  |  |
| --- | --- |
| Name | Value |
| KS32\_MAX\_U8 | ((sint32) 0xFF) |
| **Definition** | |
| #define KS32\_MAX\_U8 ((sint32) 0xFF) | |
| **Description** | |
| NA | |

### KS32\_MIN

|  |  |
| --- | --- |
| Name | Value |
| KS32\_MIN | ((sint32) (-2147483647)) |
| **Definition** | |
| #define KS32\_MIN ((sint32) (-2147483647)) | |
| **Description** | |
| NA | |

### KS32\_MIN\_S16

|  |  |
| --- | --- |
| Name | Value |
| KS32\_MIN\_S16 | ((sint32) -32768) |
| **Definition** | |
| #define KS32\_MIN\_S16 ((sint32) -32768) | |
| **Description** | |
| NA | |

### KS32\_ZERO

|  |  |
| --- | --- |
| Name | Value |
| KS32\_ZERO | ((sint32) 0) |
| **Definition** | |
| #define KS32\_ZERO ((sint32) 0) | |
| **Description** | |
| NA | |

### KS8\_MAX

|  |  |
| --- | --- |
| Name | Value |
| KS8\_MAX | ((uint8) 127) |
| **Definition** | |
| #define KS8\_MAX ((uint8) 127) | |
| **Description** | |
| NA | |

### KS8\_MIN

|  |  |
| --- | --- |
| Name | Value |
| KS8\_MIN | ((sint8) (-127)) |
| **Definition** | |
| #define KS8\_MIN ((sint8) (-127)) | |
| **Description** | |
| NA | |

### KS8\_ZERO

|  |  |
| --- | --- |
| Name | Value |
| KS8\_ZERO | ((sint8) 0x00) |
| **Definition** | |
| #define KS8\_ZERO ((sint8) 0x00) | |
| **Description** | |
| NA | |

### KU16\_MASK\_BYTE\_HIGH

|  |  |
| --- | --- |
| Name | Value |
| KU16\_MASK\_BYTE\_HIGH | ((uint16) 0xFF00) |
| **Definition** | |
| #define KU16\_MASK\_BYTE\_HIGH ((uint16) 0xFF00) | |
| **Description** | |
| NA | |

### KU16\_MASK\_BYTE\_LOW

|  |  |
| --- | --- |
| Name | Value |
| KU16\_MASK\_BYTE\_LOW | ((uint16) 0x00FF) |
| **Definition** | |
| #define KU16\_MASK\_BYTE\_LOW ((uint16) 0x00FF) | |
| **Description** | |
| NA | |

### KU16\_MAX

|  |  |
| --- | --- |
| Name | Value |
| KU16\_MAX | ((uint16) 65535) |
| **Definition** | |
| #define KU16\_MAX ((uint16) 65535) | |
| **Description** | |
| NA | |

### KU16\_MAX\_U8

|  |  |
| --- | --- |
| Name | Value |
| KU16\_MAX\_U8 | ((uint16) 0xFF) |
| **Definition** | |
| #define KU16\_MAX\_U8 ((uint16) 0xFF) | |
| **Description** | |
| NA | |

### KU16\_MIN

|  |  |
| --- | --- |
| Name | Value |
| KU16\_MIN | ((uint16) 0) |
| **Definition** | |
| #define KU16\_MIN ((uint16) 0) | |
| **Description** | |
| NA | |

### KU16\_ONE

|  |  |
| --- | --- |
| Name | Value |
| KU16\_ONE | ((uint16) 0x0001) |
| **Definition** | |
| #define KU16\_ONE ((uint16) 0x0001) | |
| **Description** | |
| NA | |

### KU16\_RAM\_MEMORY\_END

|  |  |
| --- | --- |
| Name | Value |
| KU16\_RAM\_MEMORY\_END | ((uint16)0x3FFF) |
| **Definition** | |
| #define KU16\_RAM\_MEMORY\_END ((uint16)0x3FFF) | |
| **Description** | |
| NA | |

### KU16\_RAM\_MEMORY\_START

|  |  |
| --- | --- |
| Name | Value |
| KU16\_RAM\_MEMORY\_START | ((uint16)0x1000) |
| **Definition** | |
| #define KU16\_RAM\_MEMORY\_START ((uint16)0x1000) | |
| **Description** | |
| NA | |

### KU16\_ZERO

|  |  |
| --- | --- |
| Name | Value |
| KU16\_ZERO | ((uint16) 0) |
| **Definition** | |
| #define KU16\_ZERO ((uint16) 0) | |
| **Description** | |
| NA | |

### KU32\_MASK\_BYTE\_HIGH

|  |  |
| --- | --- |
| Name | Value |
| KU32\_MASK\_BYTE\_HIGH | ((uint32) 0xFF000000uL) |
| **Definition** | |
| #define KU32\_MASK\_BYTE\_HIGH ((uint32) 0xFF000000uL) | |
| **Description** | |
| NA | |

### KU32\_MASK\_BYTE\_HIGH\_MIDDLE

|  |  |
| --- | --- |
| Name | Value |
| KU32\_MASK\_BYTE\_HIGH\_MIDDLE | ((uint32) 0x00FF0000uL) |
| **Definition** | |
| #define KU32\_MASK\_BYTE\_HIGH\_MIDDLE ((uint32) 0x00FF0000uL) | |
| **Description** | |
| NA | |

### KU32\_MASK\_BYTE\_LOW

|  |  |
| --- | --- |
| Name | Value |
| KU32\_MASK\_BYTE\_LOW | ((uint32) 0x000000FFuL) |
| **Definition** | |
| #define KU32\_MASK\_BYTE\_LOW ((uint32) 0x000000FFuL) | |
| **Description** | |
| NA | |

### KU32\_MASK\_BYTE\_LOW\_MIDDLE

|  |  |
| --- | --- |
| Name | Value |
| KU32\_MASK\_BYTE\_LOW\_MIDDLE | ((uint32) 0x0000FF00uL) |
| **Definition** | |
| #define KU32\_MASK\_BYTE\_LOW\_MIDDLE ((uint32) 0x0000FF00uL) | |
| **Description** | |
| NA | |

### KU32\_MASK\_WORD\_HIGH

|  |  |
| --- | --- |
| Name | Value |
| KU32\_MASK\_WORD\_HIGH | ((uint32) 0xFFFF0000uL) |
| **Definition** | |
| #define KU32\_MASK\_WORD\_HIGH ((uint32) 0xFFFF0000uL) | |
| **Description** | |
| NA | |

### KU32\_MASK\_WORD\_LOW

|  |  |
| --- | --- |
| Name | Value |
| KU32\_MASK\_WORD\_LOW | ((uint32) 0x0000FFFFuL) |
| **Definition** | |
| #define KU32\_MASK\_WORD\_LOW ((uint32) 0x0000FFFFuL) | |
| **Description** | |
| NA | |

### KU32\_MAX

|  |  |
| --- | --- |
| Name | Value |
| KU32\_MAX | ((uint32) 4294967295uL) |
| **Definition** | |
| #define KU32\_MAX ((uint32) 4294967295uL) | |
| **Description** | |
| NA | |

### KU32\_MAX\_U16

|  |  |
| --- | --- |
| Name | Value |
| KU32\_MAX\_U16 | ((uint32) 0xFFFFuL) |
| **Definition** | |
| #define KU32\_MAX\_U16 ((uint32) 0xFFFFuL) | |
| **Description** | |
| NA | |

### KU32\_MAX\_U8

|  |  |
| --- | --- |
| Name | Value |
| KU32\_MAX\_U8 | ((uint32) 0x000000FF) |
| **Definition** | |
| #define KU32\_MAX\_U8 ((uint32) 0x000000FF) | |
| **Description** | |
| NA | |

### KU32\_MIN

|  |  |
| --- | --- |
| Name | Value |
| KU32\_MIN | ((uint32) 0) |
| **Definition** | |
| #define KU32\_MIN ((uint32) 0) | |
| **Description** | |
| NA | |

### KU32\_ONE

|  |  |
| --- | --- |
| Name | Value |
| KU32\_ONE | ((uint32) 0x00000001) |
| **Definition** | |
| #define KU32\_ONE ((uint32) 0x00000001) | |
| **Description** | |
| NA | |

### KU32\_ZERO

|  |  |
| --- | --- |
| Name | Value |
| KU32\_ZERO | ((uint32) 0) |
| **Definition** | |
| #define KU32\_ZERO ((uint32) 0) | |
| **Description** | |
| NA | |

### KU8\_BIT\_0

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_0 | ((uint8) 0) |
| **Definition** | |
| #define KU8\_BIT\_0 ((uint8) 0) | |
| **Description** | |
| NA | |

### KU8\_BIT\_1

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_1 | ((uint8) 1) |
| **Definition** | |
| #define KU8\_BIT\_1 ((uint8) 1) | |
| **Description** | |
| NA | |

### KU8\_BIT\_10

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_10 | ((uint8) 10) |
| **Definition** | |
| #define KU8\_BIT\_10 ((uint8) 10) | |
| **Description** | |
| NA | |

### KU8\_BIT\_11

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_11 | ((uint8) 11) |
| **Definition** | |
| #define KU8\_BIT\_11 ((uint8) 11) | |
| **Description** | |
| NA | |

### KU8\_BIT\_12

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_12 | ((uint8) 12) |
| **Definition** | |
| #define KU8\_BIT\_12 ((uint8) 12) | |
| **Description** | |
| NA | |

### KU8\_BIT\_13

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_13 | ((uint8) 13) |
| **Definition** | |
| #define KU8\_BIT\_13 ((uint8) 13) | |
| **Description** | |
| NA | |

### KU8\_BIT\_14

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_14 | ((uint8) 14) |
| **Definition** | |
| #define KU8\_BIT\_14 ((uint8) 14) | |
| **Description** | |
| NA | |

### KU8\_BIT\_15

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_15 | ((uint8) 15) |
| **Definition** | |
| #define KU8\_BIT\_15 ((uint8) 15) | |
| **Description** | |
| NA | |

### KU8\_BIT\_16

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_16 | ((uint8) 16) |
| **Definition** | |
| #define KU8\_BIT\_16 ((uint8) 16) | |
| **Description** | |
| NA | |

### KU8\_BIT\_17

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_17 | ((uint8) 17) |
| **Definition** | |
| #define KU8\_BIT\_17 ((uint8) 17) | |
| **Description** | |
| NA | |

### KU8\_BIT\_18

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_18 | ((uint8) 18) |
| **Definition** | |
| #define KU8\_BIT\_18 ((uint8) 18) | |
| **Description** | |
| NA | |

### KU8\_BIT\_19

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_19 | ((uint8) 19) |
| **Definition** | |
| #define KU8\_BIT\_19 ((uint8) 19) | |
| **Description** | |
| NA | |

### KU8\_BIT\_2

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_2 | ((uint8) 2) |
| **Definition** | |
| #define KU8\_BIT\_2 ((uint8) 2) | |
| **Description** | |
| NA | |

### KU8\_BIT\_20

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_20 | ((uint8) 20) |
| **Definition** | |
| #define KU8\_BIT\_20 ((uint8) 20) | |
| **Description** | |
| NA | |

### KU8\_BIT\_21

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_21 | ((uint8) 21) |
| **Definition** | |
| #define KU8\_BIT\_21 ((uint8) 21) | |
| **Description** | |
| NA | |

### KU8\_BIT\_22

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_22 | ((uint8) 22) |
| **Definition** | |
| #define KU8\_BIT\_22 ((uint8) 22) | |
| **Description** | |
| NA | |

### KU8\_BIT\_23

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_23 | ((uint8) 23) |
| **Definition** | |
| #define KU8\_BIT\_23 ((uint8) 23) | |
| **Description** | |
| NA | |

### KU8\_BIT\_24

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_24 | ((uint8) 24) |
| **Definition** | |
| #define KU8\_BIT\_24 ((uint8) 24) | |
| **Description** | |
| NA | |

### KU8\_BIT\_25

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_25 | ((uint8) 25) |
| **Definition** | |
| #define KU8\_BIT\_25 ((uint8) 25) | |
| **Description** | |
| NA | |

### KU8\_BIT\_26

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_26 | ((uint8) 26) |
| **Definition** | |
| #define KU8\_BIT\_26 ((uint8) 26) | |
| **Description** | |
| NA | |

### KU8\_BIT\_27

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_27 | ((uint8) 27) |
| **Definition** | |
| #define KU8\_BIT\_27 ((uint8) 27) | |
| **Description** | |
| NA | |

### KU8\_BIT\_28

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_28 | ((uint8) 28) |
| **Definition** | |
| #define KU8\_BIT\_28 ((uint8) 28) | |
| **Description** | |
| NA | |

### KU8\_BIT\_29

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_29 | ((uint8) 29) |
| **Definition** | |
| #define KU8\_BIT\_29 ((uint8) 29) | |
| **Description** | |
| NA | |

### KU8\_BIT\_3

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_3 | ((uint8) 3) |
| **Definition** | |
| #define KU8\_BIT\_3 ((uint8) 3) | |
| **Description** | |
| NA | |

### KU8\_BIT\_30

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_30 | ((uint8) 30) |
| **Definition** | |
| #define KU8\_BIT\_30 ((uint8) 30) | |
| **Description** | |
| NA | |

### KU8\_BIT\_31

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_31 | ((uint8) 31) |
| **Definition** | |
| #define KU8\_BIT\_31 ((uint8) 31) | |
| **Description** | |
| NA | |

### KU8\_BIT\_4

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_4 | ((uint8) 4) |
| **Definition** | |
| #define KU8\_BIT\_4 ((uint8) 4) | |
| **Description** | |
| NA | |

### KU8\_BIT\_5

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_5 | ((uint8) 5) |
| **Definition** | |
| #define KU8\_BIT\_5 ((uint8) 5) | |
| **Description** | |
| NA | |

### KU8\_BIT\_6

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_6 | ((uint8) 6) |
| **Definition** | |
| #define KU8\_BIT\_6 ((uint8) 6) | |
| **Description** | |
| NA | |

### KU8\_BIT\_7

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_7 | ((uint8) 7) |
| **Definition** | |
| #define KU8\_BIT\_7 ((uint8) 7) | |
| **Description** | |
| NA | |

### KU8\_BIT\_8

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_8 | ((uint8) 8) |
| **Definition** | |
| #define KU8\_BIT\_8 ((uint8) 8) | |
| **Description** | |
| NA | |

### KU8\_BIT\_9

|  |  |
| --- | --- |
| Name | Value |
| KU8\_BIT\_9 | ((uint8) 9) |
| **Definition** | |
| #define KU8\_BIT\_9 ((uint8) 9) | |
| **Description** | |
| NA | |

### KU8\_EIGHT

|  |  |
| --- | --- |
| Name | Value |
| KU8\_EIGHT | ((uint8) 0x08) |
| **Definition** | |
| #define KU8\_EIGHT ((uint8) 0x08) | |
| **Description** | |
| NA | |

### KU8\_FIVE

|  |  |
| --- | --- |
| Name | Value |
| KU8\_FIVE | ((uint8) 0x05) |
| **Definition** | |
| #define KU8\_FIVE ((uint8) 0x05) | |
| **Description** | |
| NA | |

### KU8\_FOUR

|  |  |
| --- | --- |
| Name | Value |
| KU8\_FOUR | ((uint8) 0x04) |
| **Definition** | |
| #define KU8\_FOUR ((uint8) 0x04) | |
| **Description** | |
| NA | |

### KU8\_MASK\_BIT\_0

|  |  |
| --- | --- |
| Name | Value |
| KU8\_MASK\_BIT\_0 | ((uint8) 0x01) |
| **Definition** | |
| #define KU8\_MASK\_BIT\_0 ((uint8) 0x01) | |
| **Description** | |
| NA | |

### KU8\_MASK\_BIT\_1

|  |  |
| --- | --- |
| Name | Value |
| KU8\_MASK\_BIT\_1 | ((uint8) 0x02) |
| **Definition** | |
| #define KU8\_MASK\_BIT\_1 ((uint8) 0x02) | |
| **Description** | |
| NA | |

### KU8\_MASK\_BIT\_2

|  |  |
| --- | --- |
| Name | Value |
| KU8\_MASK\_BIT\_2 | ((uint8) 0x04) |
| **Definition** | |
| #define KU8\_MASK\_BIT\_2 ((uint8) 0x04) | |
| **Description** | |
| NA | |

### KU8\_MASK\_BIT\_3

|  |  |
| --- | --- |
| Name | Value |
| KU8\_MASK\_BIT\_3 | ((uint8) 0x08) |
| **Definition** | |
| #define KU8\_MASK\_BIT\_3 ((uint8) 0x08) | |
| **Description** | |
| NA | |

### KU8\_MASK\_BIT\_4

|  |  |
| --- | --- |
| Name | Value |
| KU8\_MASK\_BIT\_4 | ((uint8) 0x10) |
| **Definition** | |
| #define KU8\_MASK\_BIT\_4 ((uint8) 0x10) | |
| **Description** | |
| NA | |

### KU8\_MASK\_BIT\_5

|  |  |
| --- | --- |
| Name | Value |
| KU8\_MASK\_BIT\_5 | ((uint8) 0x20) |
| **Definition** | |
| #define KU8\_MASK\_BIT\_5 ((uint8) 0x20) | |
| **Description** | |
| NA | |

### KU8\_MASK\_BIT\_6

|  |  |
| --- | --- |
| Name | Value |
| KU8\_MASK\_BIT\_6 | ((uint8) 0x40) |
| **Definition** | |
| #define KU8\_MASK\_BIT\_6 ((uint8) 0x40) | |
| **Description** | |
| NA | |

### KU8\_MASK\_BIT\_7

|  |  |
| --- | --- |
| Name | Value |
| KU8\_MASK\_BIT\_7 | ((uint8) 0x80) |
| **Definition** | |
| #define KU8\_MASK\_BIT\_7 ((uint8) 0x80) | |
| **Description** | |
| NA | |

### KU8\_MASK\_BITS\_2\_7

|  |  |
| --- | --- |
| Name | Value |
| KU8\_MASK\_BITS\_2\_7 | ((uint8) 0xFC) |
| **Definition** | |
| #define KU8\_MASK\_BITS\_2\_7 ((uint8) 0xFC) | |
| **Description** | |
| NA | |

### KU8\_MASK\_HALF\_BYTE\_HIGH

|  |  |
| --- | --- |
| Name | Value |
| KU8\_MASK\_HALF\_BYTE\_HIGH | ((uint8) 0xF0) |
| **Definition** | |
| #define KU8\_MASK\_HALF\_BYTE\_HIGH ((uint8) 0xF0) | |
| **Description** | |
| NA | |

### KU8\_MASK\_HALF\_BYTE\_LOW

|  |  |
| --- | --- |
| Name | Value |
| KU8\_MASK\_HALF\_BYTE\_LOW | ((uint8) 0x0F) |
| **Definition** | |
| #define KU8\_MASK\_HALF\_BYTE\_LOW ((uint8) 0x0F) | |
| **Description** | |
| NA | |

### KU8\_MAX

|  |  |
| --- | --- |
| Name | Value |
| KU8\_MAX | ((uint8) 255) |
| **Definition** | |
| #define KU8\_MAX ((uint8) 255) | |
| **Description** | |
| NA | |

### KU8\_MIN

|  |  |
| --- | --- |
| Name | Value |
| KU8\_MIN | ((uint8) 0) |
| **Definition** | |
| #define KU8\_MIN ((uint8) 0) | |
| **Description** | |
| NA | |

### KU8\_NINE

|  |  |
| --- | --- |
| Name | Value |
| KU8\_NINE | ((uint8) 0x09) |
| **Definition** | |
| #define KU8\_NINE ((uint8) 0x09) | |
| **Description** | |
| NA | |

### KU8\_ONE

|  |  |
| --- | --- |
| Name | Value |
| KU8\_ONE | ((uint8) 0x01) |
| **Definition** | |
| #define KU8\_ONE ((uint8) 0x01) | |
| **Description** | |
| NA | |

### KU8\_ONE\_HUNDRED

|  |  |
| --- | --- |
| Name | Value |
| KU8\_ONE\_HUNDRED | ((uint8) 100) |
| **Definition** | |
| #define KU8\_ONE\_HUNDRED ((uint8) 100) | |
| **Description** | |
| NA | |

### KU8\_POS\_HIGH\_BYTE

|  |  |
| --- | --- |
| Name | Value |
| KU8\_POS\_HIGH\_BYTE | ((uint8) 8) |
| **Definition** | |
| #define KU8\_POS\_HIGH\_BYTE ((uint8) 8) | |
| **Description** | |
| NA | |

### KU8\_POS\_L\_HIGH\_BYTE

|  |  |
| --- | --- |
| Name | Value |
| KU8\_POS\_L\_HIGH\_BYTE | ((uint8) 24) |
| **Definition** | |
| #define KU8\_POS\_L\_HIGH\_BYTE ((uint8) 24) | |
| **Description** | |
| NA | |

### KU8\_POS\_L\_HIGH\_MIDDLE\_BYTE

|  |  |
| --- | --- |
| Name | Value |
| KU8\_POS\_L\_HIGH\_MIDDLE\_BYTE | ((uint8) 16) |
| **Definition** | |
| #define KU8\_POS\_L\_HIGH\_MIDDLE\_BYTE ((uint8) 16) | |
| **Description** | |
| NA | |

### KU8\_POS\_L\_LOW\_BYTE

|  |  |
| --- | --- |
| Name | Value |
| KU8\_POS\_L\_LOW\_BYTE | ((uint8) 0) |
| **Definition** | |
| #define KU8\_POS\_L\_LOW\_BYTE ((uint8) 0) | |
| **Description** | |
| NA | |

### KU8\_POS\_L\_LOW\_MIDDLE\_BYTE

|  |  |
| --- | --- |
| Name | Value |
| KU8\_POS\_L\_LOW\_MIDDLE\_BYTE | ((uint8) 8) |
| **Definition** | |
| #define KU8\_POS\_L\_LOW\_MIDDLE\_BYTE ((uint8) 8) | |
| **Description** | |
| NA | |

### KU8\_POS\_LOW\_BYTE

|  |  |
| --- | --- |
| Name | Value |
| KU8\_POS\_LOW\_BYTE | ((uint8) 0) |
| **Definition** | |
| #define KU8\_POS\_LOW\_BYTE ((uint8) 0) | |
| **Description** | |
| NA | |

### KU8\_SEVEN

|  |  |
| --- | --- |
| Name | Value |
| KU8\_SEVEN | ((uint8) 0x07) |
| **Definition** | |
| #define KU8\_SEVEN ((uint8) 0x07) | |
| **Description** | |
| NA | |

### KU8\_SHIFT\_HALF\_BYTE

|  |  |
| --- | --- |
| Name | Value |
| KU8\_SHIFT\_HALF\_BYTE | ((uint8) 4) |
| **Definition** | |
| #define KU8\_SHIFT\_HALF\_BYTE ((uint8) 4) | |
| **Description** | |
| NA | |

### KU8\_SIX

|  |  |
| --- | --- |
| Name | Value |
| KU8\_SIX | ((uint8) 0x06) |
| **Definition** | |
| #define KU8\_SIX ((uint8) 0x06) | |
| **Description** | |
| NA | |

### KU8\_SIXTEEN

|  |  |
| --- | --- |
| Name | Value |
| KU8\_SIXTEEN | ((uint8) 0x10) |
| **Definition** | |
| #define KU8\_SIXTEEN ((uint8) 0x10) | |
| **Description** | |
| NA | |

### KU8\_TEN

|  |  |
| --- | --- |
| Name | Value |
| KU8\_TEN | ((uint8) 0x0A) |
| **Definition** | |
| #define KU8\_TEN ((uint8) 0x0A) | |
| **Description** | |
| NA | |

### KU8\_THREE

|  |  |
| --- | --- |
| Name | Value |
| KU8\_THREE | ((uint8) 0x03) |
| **Definition** | |
| #define KU8\_THREE ((uint8) 0x03) | |
| **Description** | |
| NA | |

### KU8\_TWO

|  |  |
| --- | --- |
| Name | Value |
| KU8\_TWO | ((uint8) 0x02) |
| **Definition** | |
| #define KU8\_TWO ((uint8) 0x02) | |
| **Description** | |
| NA | |

### KU8\_ZERO

|  |  |
| --- | --- |
| Name | Value |
| KU8\_ZERO | ((uint8) 0x00) |
| **Definition** | |
| #define KU8\_ZERO ((uint8) 0x00) | |
| **Description** | |
| NA | |

### KUC\_SIZE\_STRING\_SOFT\_VERSION

|  |  |
| --- | --- |
| Name | Value |
| KUC\_SIZE\_STRING\_SOFT\_VERSION | ((uint8) 12) |
| **Definition** | |
| #define KUC\_SIZE\_STRING\_SOFT\_VERSION ((uint8) 12) | |
| **Description** | |
| NA | |

### KUC\_SOFT\_MINOR\_VERSION\_NB

|  |  |
| --- | --- |
| Name | Value |
| KUC\_SOFT\_MINOR\_VERSION\_NB | ((uint8) 0) |
| **Definition** | |
| #define KUC\_SOFT\_MINOR\_VERSION\_NB ((uint8) 0) | |
| **Description** | |
| NA | |

### KUC\_SOFT\_VERSION\_NB

|  |  |
| --- | --- |
| Name | Value |
| KUC\_SOFT\_VERSION\_NB | ((uint8) 0) |
| **Definition** | |
| #define KUC\_SOFT\_VERSION\_NB ((uint8) 0) | |
| **Description** | |
| NA | |

### LOCAL

|  |  |
| --- | --- |
| Name | Value |
| LOCAL | static |
| **Definition** | |
| #define LOCAL static | |
| **Description** | |
| NA | |

### ramfunc

|  |  |
| --- | --- |
| Name | Value |
| ramfunc | \_\_ramfunc |
| **Definition** | |
| #define ramfunc \_\_ramfunc | |
| **Description** | |
| NA | |

### U16\_BIT\_CLEAR(reg,

|  |  |
| --- | --- |
| Name | Value |
| U16\_BIT\_CLEAR(reg, | (reg, mask) ((reg) &= ((mask)^((uint16)0xFFFF))) |
| **Definition** | |
| #define U16\_BIT\_CLEAR(reg, mask) ((reg) &= ((mask)^((uint16)0xFFFF))) | |
| **Description** | |
| NA | |

### U16\_BIT\_SET(reg,

|  |  |
| --- | --- |
| Name | Value |
| U16\_BIT\_SET(reg, | (reg, mask) ((reg) |= (mask)) |
| **Definition** | |
| #define U16\_BIT\_SET(reg, mask) ((reg) |= (mask)) | |
| **Description** | |
| NA | |

### U16\_COMPLEMENT(val)

|  |  |
| --- | --- |
| Name | Value |
| U16\_COMPLEMENT(val) | (val) ((val) ^ ((uint16)0xFFFF)) |
| **Definition** | |
| #define U16\_COMPLEMENT(val) ((val) ^ ((uint16)0xFFFF)) | |
| **Description** | |
| NA | |

### U16\_GET\_ABSOLUTE\_VALUE\_FROM\_S16(value)

|  |  |
| --- | --- |
| Name | Value |
| U16\_GET\_ABSOLUTE\_VALUE\_FROM\_S16(value) | (value) (((value)<((sint16)(0)))?((uint16)-(value)):((uint16)(value)) |
| **Definition** | |
| #define U16\_GET\_ABSOLUTE\_VALUE\_FROM\_S16(value) (((value)<((sint16)(0)))?((uint16)-(value)):((uint16)(value)) | |
| **Description** | |
| NA | |

### U16\_GET\_HIGH\_BYTE(\_word)

|  |  |
| --- | --- |
| Name | Value |
| U16\_GET\_HIGH\_BYTE(\_word) | (\_word) ((uint8)(((\_word) & KU16\_MASK\_BYTE\_HIGH) >> KU8\_POS\_HIGH\_BYTE)) |
| **Definition** | |
| #define U16\_GET\_HIGH\_BYTE(\_word) ((uint8)(((\_word) & KU16\_MASK\_BYTE\_HIGH) >> KU8\_POS\_HIGH\_BYTE)) | |
| **Description** | |
| NA | |

### U16\_GET\_LOW\_BYTE(\_word)

|  |  |
| --- | --- |
| Name | Value |
| U16\_GET\_LOW\_BYTE(\_word) | (\_word) ((uint8)(((\_word) & KU16\_MASK\_BYTE\_LOW ) >> KU8\_POS\_LOW\_BYTE )) |
| **Definition** | |
| #define U16\_GET\_LOW\_BYTE(\_word) ((uint8)(((\_word) & KU16\_MASK\_BYTE\_LOW ) >> KU8\_POS\_LOW\_BYTE )) | |
| **Description** | |
| NA | |

### U16\_GET\_SATURATED\_VALUE\_FROM\_U32(value)

|  |  |
| --- | --- |
| Name | Value |
| U16\_GET\_SATURATED\_VALUE\_FROM\_U32(value) | (value) (((value)>((uint32)(KU16\_MAX)))?((uint16)KU16\_MAX):((uint16)(value)) /\* PRQA S 3491 \*/) |
| **Definition** | |
| #define U16\_GET\_SATURATED\_VALUE\_FROM\_U32(value) (((value)>((uint32)(KU16\_MAX)))?((uint16)KU16\_MAX):((uint16)(value)) /\* PRQA S 3491 \*/) | |
| **Description** | |
| NA | |

### U32\_BIT\_CLEAR(reg,

|  |  |
| --- | --- |
| Name | Value |
| U32\_BIT\_CLEAR(reg, | (reg, mask) ((reg) &= ((mask)^((uint32)0xFFFFFFFFuL))) |
| **Definition** | |
| #define U32\_BIT\_CLEAR(reg, mask) ((reg) &= ((mask)^((uint32)0xFFFFFFFFuL))) | |
| **Description** | |
| NA | |

### U32\_BIT\_SET(reg,

|  |  |
| --- | --- |
| Name | Value |
| U32\_BIT\_SET(reg, | (reg, mask) ((reg) |= (mask)) |
| **Definition** | |
| #define U32\_BIT\_SET(reg, mask) ((reg) |= (mask)) | |
| **Description** | |
| NA | |

### U32\_COMPLEMENT(val)

|  |  |
| --- | --- |
| Name | Value |
| U32\_COMPLEMENT(val) | (val) ((val)^((uint32)0xFFFFFFFFuL)) |
| **Definition** | |
| #define U32\_COMPLEMENT(val) ((val)^((uint32)0xFFFFFFFFuL)) | |
| **Description** | |
| NA | |

### U32\_GET\_ABSOLUTE\_VALUE\_FROM\_S32(value)

|  |  |
| --- | --- |
| Name | Value |
| U32\_GET\_ABSOLUTE\_VALUE\_FROM\_S32(value) | (value) (((value)<((sint32)(0)))?((uint32)-(value)):((uint32)(value)) |
| **Definition** | |
| #define U32\_GET\_ABSOLUTE\_VALUE\_FROM\_S32(value) (((value)<((sint32)(0)))?((uint32)-(value)):((uint32)(value)) | |
| **Description** | |
| NA | |

### U32\_GET\_HIGH\_BYTE(\_long)

|  |  |
| --- | --- |
| Name | Value |
| U32\_GET\_HIGH\_BYTE(\_long) | (\_long) ((uint8)(( (\_long) & KU32\_MASK\_BYTE\_HIGH) >> KU8\_POS\_L\_HIGH\_BYTE)) |
| **Definition** | |
| #define U32\_GET\_HIGH\_BYTE(\_long) ((uint8)(( (\_long) & KU32\_MASK\_BYTE\_HIGH) >> KU8\_POS\_L\_HIGH\_BYTE)) | |
| **Description** | |
| NA | |

### U32\_GET\_HIGH\_MIDDLE\_BYTE(\_long)

|  |  |
| --- | --- |
| Name | Value |
| U32\_GET\_HIGH\_MIDDLE\_BYTE(\_long) | (\_long) ((uint8)(( (\_long) & KU32\_MASK\_BYTE\_HIGH\_MIDDLE) >> KU8\_POS\_L\_HIGH\_MIDDLE\_BYTE)) |
| **Definition** | |
| #define U32\_GET\_HIGH\_MIDDLE\_BYTE(\_long) ((uint8)(( (\_long) & KU32\_MASK\_BYTE\_HIGH\_MIDDLE) >> KU8\_POS\_L\_HIGH\_MIDDLE\_BYTE)) | |
| **Description** | |
| NA | |

### U32\_GET\_LOW\_BYTE(\_long)

|  |  |
| --- | --- |
| Name | Value |
| U32\_GET\_LOW\_BYTE(\_long) | (\_long) ((uint8)( (\_long) & KU32\_MASK\_BYTE\_LOW)) |
| **Definition** | |
| #define U32\_GET\_LOW\_BYTE(\_long) ((uint8)( (\_long) & KU32\_MASK\_BYTE\_LOW)) | |
| **Description** | |
| NA | |

### U32\_GET\_LOW\_MIDDLE\_BYTE(\_long)

|  |  |
| --- | --- |
| Name | Value |
| U32\_GET\_LOW\_MIDDLE\_BYTE(\_long) | (\_long) ((uint8)(( (\_long) & KU32\_MASK\_BYTE\_LOW\_MIDDLE) >> KU8\_POS\_L\_LOW\_MIDDLE\_BYTE)) |
| **Definition** | |
| #define U32\_GET\_LOW\_MIDDLE\_BYTE(\_long) ((uint8)(( (\_long) & KU32\_MASK\_BYTE\_LOW\_MIDDLE) >> KU8\_POS\_L\_LOW\_MIDDLE\_BYTE)) | |
| **Description** | |
| NA | |

### U32\_SWAP\_BYTE\_ORDER(u32ToSwap)

|  |  |
| --- | --- |
| Name | Value |
| U32\_SWAP\_BYTE\_ORDER(u32ToSwap) | (u32ToSwap) |
| **Definition** | |
| #define U32\_SWAP\_BYTE\_ORDER(u32ToSwap) | |
| **Description** | |
| NA | |

### U8\_BIT\_CLEAR(reg,

|  |  |
| --- | --- |
| Name | Value |
| U8\_BIT\_CLEAR(reg, | (reg, mask) ((reg) &= ((mask)^((uint8)0xFF))) |
| **Definition** | |
| #define U8\_BIT\_CLEAR(reg, mask) ((reg) &= ((mask)^((uint8)0xFF))) | |
| **Description** | |
| NA | |

### U8\_BIT\_SET(reg,

|  |  |
| --- | --- |
| Name | Value |
| U8\_BIT\_SET(reg, | (reg, mask) ((reg) |= (mask)) |
| **Definition** | |
| #define U8\_BIT\_SET(reg, mask) ((reg) |= (mask)) | |
| **Description** | |
| NA | |

### U8\_GET\_ABSOLUTE\_VALUE\_FROM\_S8(value)

|  |  |
| --- | --- |
| Name | Value |
| U8\_GET\_ABSOLUTE\_VALUE\_FROM\_S8(value) | (value) (((value)<((sint8)(0)))?((uint8)-(value)):((uint8)(value)) |
| **Definition** | |
| #define U8\_GET\_ABSOLUTE\_VALUE\_FROM\_S8(value) (((value)<((sint8)(0)))?((uint8)-(value)):((uint8)(value)) | |
| **Description** | |
| NA | |

### V\_MEMROM0

|  |  |
| --- | --- |
| Name | Value |
| V\_MEMROM0 | NA |
| **Definition** | |
| #define V\_MEMROM0 | |
| **Description** | |
| NA | |

### V\_MEMROM1

|  |  |
| --- | --- |
| Name | Value |
| V\_MEMROM1 | const |
| **Definition** | |
| #define V\_MEMROM1 const | |
| **Description** | |
| NA | |

### V\_MEMROM2

|  |  |
| --- | --- |
| Name | Value |
| V\_MEMROM2 | NA |
| **Definition** | |
| #define V\_MEMROM2 | |
| **Description** | |
| NA | |

### FBLUSR\_BTLD\_UPDT\_ADDR

|  |  |
| --- | --- |
| Name | Value |
| FBLUSR\_BTLD\_UPDT\_ADDR | ((uint32) 0x7CFF0) |
| **Definition** | |
| #define FBLUSR\_BTLD\_UPDT\_ADDR ((uint32) 0x7CFF0) | |
| **Description** | |
| NA | |

### FBLUSR\_KU16\_EIGHT

|  |  |
| --- | --- |
| Name | Value |
| FBLUSR\_KU16\_EIGHT | ((uint16) 0x8) |
| **Definition** | |
| #define FBLUSR\_KU16\_EIGHT ((uint16) 0x8) | |
| **Description** | |
| This file contains the implementation of main function. | |

### FBLUSR\_KU8\_255\_VAL

|  |  |
| --- | --- |
| Name | Value |
| FBLUSR\_KU8\_255\_VAL | ((uint8) 255) |
| **Definition** | |
| #define FBLUSR\_KU8\_255\_VAL ((uint8) 255) | |
| **Description** | |
| NA | |

### FBLUSR\_NO\_INIT\_START\_ADDR

|  |  |
| --- | --- |
| Name | Value |
| FBLUSR\_NO\_INIT\_START\_ADDR | ((uint32)0x20003F00) |
| **Definition** | |
| #define FBLUSR\_NO\_INIT\_START\_ADDR ((uint32)0x20003F00) | |
| **Description** | |
| NA | |

# EEPROM

# Configuration

# Compilation Options