

systick\_CDD

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# Chapter 1

## Data Structure Index

### 1.1 Data Structures

Here are the data structures with brief descriptions:

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## Chapter 2

# File Index

### 2.1 File List

Here is a list of all documented files with brief descriptions:

|  |    |
|--|----|
| C:/Users/houras/Desktop/systick/ <a href="#">SYSTICK_config.h</a>    |    |
| This file include the configurations of the SYSTICK . . . . .        | 7  |
| C:/Users/houras/Desktop/systick/ <a href="#">SYSTICK_interface.h</a> |    |
| This file include the interface of the SYSTICK . . . . .             | 8  |
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| This file include the implementation of the SYSTICK . . . . .        | 11 |





## Chapter 3

# Data Structure Documentation

### 3.1 SYSTICK\_Reg Struct Reference

#### Data Fields

- u32 **CTRL**
- u32 **LOAD**
- u32 **VAL**
- u32 **CALIB**

The documentation for this struct was generated from the following file:

- C:/Users/houras/Desktop/systick/[SYSTICK\\_program.c](#)



## Chapter 4

# File Documentation

### 4.1 C:/Users/houras/Desktop/systick/SYSTICK\_config.h File Reference

This file include the configurations of the SYSTICK.

#### Macros

- #define [CLK\\_PRESCALER](#) CLK\_PRESCALER\_AHB\_DIV\_8  
*CLK\_PRESCALER configuration Options:*
- #define [CLK\\_FREQUENCY\\_HZ](#) 72000000UL  
*system clock configuration*

#### 4.1.1 Detailed Description

This file include the configurations of the SYSTICK.

#### Author

kariman mohamed

#### Version

1.0

#### Date

20 March 2020

#### 4.1.2 Macro Definition Documentation

#### 4.1.2.1 CLK\_FREQUENCY\_HZ

```
#define CLK_FREQUENCY_HZ 72000000UL
```

system clock configuration

#### 4.1.2.2 CLK\_PRESCALER

```
#define CLK_PRESCALER CLK_PRESCALER_AHB_DIV_8
```

CLK\_PRESCALER configuration Options:

```
CLK_PRESCALER_AHB_DIV_8  
CLK_PRESCALER_AHB_DIV_1
```

## 4.2 C:/Users/houras/Desktop/systick/SYSTICK\_interface.h File Reference

This file include the interface of the SYSTICK.

### Macros

- `#define CLK_PRESCALER_AHB_DIV_8 0x00000000`
- `#define CLK_PRESCALER_AHB_DIV_1 0x00000004`

### Functions

- void [SYSTICK\\_Init](#) (void)  
*Function to initialize Systick.*
- void [SYSTICK\\_Start](#) (void)  
*Function to start Systick.*
- void [SYSTICK\\_Stop](#) (void)  
*Function to stop Systick.*
- void [SYSTICK\\_SetTimerMS](#) (u32 TimeMS)  
*Function to set timer value.*
- u8 [SYSTICK\\_SetCallBack](#) (void(\*Cbf)(void))  
*Function to set the callback function.*

### 4.2.1 Detailed Description

This file include the interface of the SYSTICK.

#### Author

kariman mohamed

#### Version

1.0

#### Date

20 March 2020

### 4.2.2 Function Documentation

#### 4.2.2.1 SYSTICK\_Init()

```
void SYSTICK_Init (
    void )
```

Function to initialize Systick.

#### Returns

void

#### Parameters

|             |                                 |
|-------------|---------------------------------|
| <i>void</i> | Function to initialize Systick. |
|-------------|---------------------------------|

Function to initialize Systick

#### Returns

void

#### Parameters

|             |  |
|-------------|--|
| <i>void</i> |  |
|-------------|--|

#### 4.2.2.2 SYSTICK\_SetCallBack()

```
u8 SYSTICK_SetCallBack (
    void(*) (void) Cbf )
```

Function to set the callback function.

##### Returns

u8

##### Parameters

|                |             |
|----------------|-------------|
| <i>pointer</i> | to function |
|----------------|-------------|

#### 4.2.2.3 SYSTICK\_SetTimerMS()

```
void SYSTICK_SetTimerMS (
    u32 TimeMS )
```

Function to set timer value.

##### Returns

void

##### Parameters

|            |              |
|------------|--------------|
| <i>u32</i> | Time in msec |
|------------|--------------|

#### 4.2.2.4 SYSTICK\_Start()

```
void SYSTICK_Start (
    void )
```

Function to start Systick.

##### Returns

void

##### Parameters

|             |  |
|-------------|--|
| <i>void</i> |  |
|-------------|--|

#### 4.2.2.5 SYSTICK\_Stop()

```
void SYSTICK_Stop (
    void )
```

Function to stop Systick.

##### Returns

void

##### Parameters

|      |  |
|------|--|
| void |  |
|------|--|

## 4.3 C:/Users/houras/Desktop/systick/SYSTICK\_program.c File Reference

This file include the implementation of the SYSTICK.

```
#include "STD_TYPES.h"
#include "SYSTICK_interface.h"
#include "SYSTICK_config.h"
```

### Data Structures

- struct [SYSTICK\\_Reg](#)

### Macros

- #define [SYSTICK\\_DISABLE\\_MASK](#) (u32)0xFFFFFFFF
- *macros*
- #define **SYSTICK\_ENABLE\_MASK** (u32)0x00000001
- #define **SYSTICK\_INTERRUPT\_ENABLE** (u32)0x00000002
- #define [SYSTICK\\_BASE\\_ADDRESS](#) (u32)0xE000E010
- *REGISTERS.*

## Functions

- void `SYSTICK_Init` (void)  
*FUNCTIONS DEFINITION.*
- void `SYSTICK_Start` (void)  
*Function to start SysTick.*
- void `SYSTICK_Stop` (void)  
*Function to stop SysTick.*
- void `SYSTICK_SetTimerMS` (u32 TimeMS)  
*Function to set timer value.*
- u8 `SYSTICK_SetCallBack` (void(\*Cbf)(void))  
*Function to set the callback function.*
- void `SysTick_Handler` (void)  
*Systick handler to call the notification function.*

## Variables

- volatile `SYSTICK_Reg` \*const `SYSTICK` = (`SYSTICK_Reg`\*) `SYSTICK_BASE_ADDRESS`

### 4.3.1 Detailed Description

This file include the implementation of the SYSTICK.

#### Author

kariman mohamed

#### Version

1.0

#### Date

20 March 2020

### 4.3.2 Macro Definition Documentation

#### 4.3.2.1 SYSTICK\_BASE\_ADDRESS

```
#define SYSTICK_BASE_ADDRESS (u32) 0xE000E010
```

REGISTERS.



#### 4.3.2.2 SYSTICK\_DISABLE\_MASK

```
#define SYSTICK_DISABLE_MASK (u32)0xFFFFFFFF
```

macros

### 4.3.3 Function Documentation

#### 4.3.3.1 SysTick\_Handler()

```
void SysTick_Handler (  
    void )
```

Systick handler to call the notification function.

##### Returns

void

##### Parameters

|      |  |
|------|--|
| void |  |
|------|--|

#### 4.3.3.2 SYSTICK\_Init()

```
void SYSTICK_Init (  
    void )
```

FUNCTIONS DEFINITION.

Function to initialize Systick.

Function to initialize Systick

##### Returns

void

##### Parameters

|      |  |
|------|--|
| void |  |
|------|--|

#### 4.3.3.3 SYSTICK\_SetCallBack()

```
u8 SYSTICK_SetCallBack (
    void(*) (void) Cbf )
```

Function to set the callback function.

##### Returns

u8

##### Parameters

|                |             |
|----------------|-------------|
| <i>pointer</i> | to function |
|----------------|-------------|

#### 4.3.3.4 SYSTICK\_SetTimerMS()

```
void SYSTICK_SetTimerMS (
    u32 TimeMS )
```

Function to set timer value.

##### Returns

void

##### Parameters

|            |              |
|------------|--------------|
| <i>u32</i> | Time in msec |
|------------|--------------|

#### 4.3.3.5 SYSTICK\_Start()

```
void SYSTICK_Start (
    void )
```

Function to start SysTick.

##### Returns

void

##### Parameters

|             |  |
|-------------|--|
| <i>void</i> |  |
|-------------|--|

#### 4.3.3.6 SYSTICK\_Stop()

```
void SYSTICK_Stop (  
    void )
```

Function to stop Systick.

##### Returns

void

##### Parameters

|             |  |
|-------------|--|
| <i>void</i> |  |
|-------------|--|



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