

**STM32746G-Discovery BSP User Manual: STM32746G-Discovery BS**



# Table of Contents

<b>BSP Drivers User Manual.....</b>	<b>1</b>
Document tabsheets description:.....	1
Revision History:.....	1
Data Fields.....	3
Detailed Description.....	4
Field Documentation.....	4
Data Fields.....	8
Detailed Description.....	8
Field Documentation.....	8
Data Fields.....	12
Detailed Description.....	12
Field Documentation.....	12
Data Fields.....	13
Detailed Description.....	13
Field Documentation.....	13
- _ -.....	15
- _ -.....	16
- a -.....	17
- b -.....	19
- c -.....	23
- d -.....	25
- e -.....	27
- f -.....	28
- g -.....	29
- h -.....	30
- i -.....	31
- k -.....	32
- l -.....	33
- m -.....	34
- o -.....	35
- p -.....	36
- q -.....	37
- r -.....	38
- s -.....	39
- t -.....	41
- u -.....	43
- w -.....	43
- a -.....	44
- b -.....	45
- c -.....	49
- d -.....	50
- e -.....	50
- f -.....	51
- g -.....	52
- h -.....	52
- i -.....	53
- l -.....	54
- q -.....	55
- s -.....	56
- t -.....	56
- a -.....	57
- b -.....	57

# Table of Contents

## BSP Drivers User Manual

- c -	57
- d -	58
- e -	58
- g -	58
- h -	58
- i -	58
- q -	58
- s -	58
- t -	58
- u -	58
- b -	60
- c -	60
- g -	60
- l -	61
- r -	61
- t -	61
- _ -	62
- a -	63
- b -	64
- c -	65
- d -	66
- e -	68
- k -	69
- l -	70
- m -	71
- o -	72
- p -	73
- q -	74
- r -	75
- s -	76
- t -	77
- w -	78
Defines	79
Functions	79
Variables	81
Detailed Description	81
© COPYRIGHT(c) 2016 STMicroelectronics	82
Defines	82
Enumerations	85
Functions	85
Detailed Description	85
© COPYRIGHT(c) 2016 STMicroelectronics	85
Functions	86
Variables	88
Detailed Description	89
© COPYRIGHT(c) 2016 STMicroelectronics	90
Defines	91
Functions	92
Variables	94
Detailed Description	94
© COPYRIGHT(c) 2016 STMicroelectronics	94

# Table of Contents

## BSP Drivers User Manual

Defines.....	95
Functions.....	95
Variables.....	96
Detailed Description.....	96
© COPYRIGHT(c) 2016 STMicroelectronics.....	97
Defines.....	98
Enumerations.....	98
Functions.....	98
Detailed Description.....	99
© COPYRIGHT(c) 2016 STMicroelectronics.....	99
Functions.....	100
Variables.....	101
Detailed Description.....	101
© COPYRIGHT(c) 2016 STMicroelectronics.....	102
Defines.....	102
Functions.....	103
Detailed Description.....	103
© COPYRIGHT(c) 2016 STMicroelectronics.....	104
Defines.....	105
Functions.....	105
Variables.....	108
Detailed Description.....	108
© COPYRIGHT(c) 2016 STMicroelectronics.....	109
Data Structures.....	110
Defines.....	110
Typedefs.....	111
Enumerations.....	111
Functions.....	111
Detailed Description.....	113
© COPYRIGHT(c) 2016 STMicroelectronics.....	114
Functions.....	114
Variables.....	115
Detailed Description.....	115
© COPYRIGHT(c) 2016 STMicroelectronics.....	116
Data Structures.....	117
Defines.....	117
Functions.....	118
Detailed Description.....	118
© COPYRIGHT(c) 2016 STMicroelectronics.....	118
Functions.....	119
Variables.....	120
Detailed Description.....	121
© COPYRIGHT(c) 2016 STMicroelectronics.....	121
Defines.....	122
Functions.....	123
Detailed Description.....	124
© COPYRIGHT(c) 2016 STMicroelectronics.....	124
Functions.....	125
Variables.....	126
Detailed Description.....	126
© COPYRIGHT(c) 2016 STMicroelectronics.....	126

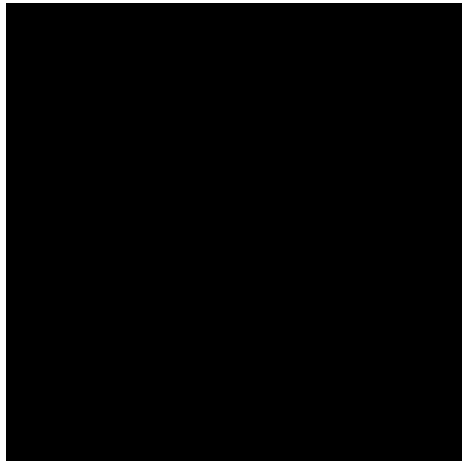
# Table of Contents

## BSP Drivers User Manual

Defines.....	127
Functions.....	128
Detailed Description.....	129
© COPYRIGHT(c) 2016 STMicroelectronics.....	129
Functions.....	130
Variables.....	130
Detailed Description.....	130
© COPYRIGHT(c) 2016 STMicroelectronics.....	131
Data Structures.....	132
Defines.....	132
Enumerations.....	132
Functions.....	133
Variables.....	133
Detailed Description.....	133

# BSP Drivers User Manual

This document contains the User Manual (UM) of the STM32746G-Discovery BSP peripheral Firmware drivers.



## Document tabsheets description:

- "Modules" : List the different modules.
- "Files" : List all the files and globals.
- "Directories" : Firmware Directory hierarchy.

## Revision History:

Date	Revision	Author	Development Platform
05/26/2017	V1.0		STM32746G-Discovery Board

---

Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">

**doxygen** 1.7.6.1

STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

STM32746G\_DISCOVERY\_LOW\_LEVEL Private Types Definitions  
[STM32746G\\_DISCOVERY\\_LOW\\_LEVEL](#)

---

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">

**doxygen** 1.7.6.1

STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

## STM32746G\_DISCOVERY\_LOW\_LEVEL Private Macros

[STM32746G\\_DISCOVERY\\_LOW\\_LEVEL](#)

---

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

## STM32746G\_DISCOVERY\_LOW\_LEVEL Private Function Prototypes

[STM32746G\\_DISCOVERY\\_LOW\\_LEVEL](#)

---

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

## STM32746G\_DISCOVERY\_LOW\_LEVEL Exported Macros

[STM32746G\\_DISCOVERY\\_LOW\\_LEVEL](#)

---

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

## STM32746G\_DISCOVERY AUDIO Private Types

[STM32746G\\_DISCOVERY AUDIO](#)

---

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

## STM32746G\_DISCOVERY AUDIO Private Defines

[STM32746G\\_DISCOVERY AUDIO](#)

---

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)



- [Data&"files.html">Files](#)
- [Directories](#)

## STM32746G\_DISCOVERY AUDIO Private Macros

### STM32746G\_DISCOVERY AUDIO

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

## STM32746G\_DISCOVERY AUDIO Private Function Prototypes

### STM32746G\_DISCOVERY AUDIO

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

## STM32746G\_DISCOVERY\_AUDIO Exported Types

### STM32746G\_DISCOVERY AUDIO

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)
- [Data&"classes.html">Data Structure Index](#)
- [Data&"header">](#)
  - [Data Fields](#)
  - [QSPI\\_Info Struct Reference](#)
  - [STM32746G\\_DISCOVERY\\_QSPI Exported Types](#)

```
#include <stm32746g_discovery_qspi.h>
```

## Data Fields

uint32\_t [FlashSize](#)  
uint32\_t [EraseSectorSize](#)  
uint32\_t [EraseSectorsNumber](#)  
uint32\_t [ProgPageSize](#)  
uint32\_t [ProgPagesNumber](#)

## Detailed Description

Definition at line 117 of file [stm32746g\\_discovery\\_qspi.h](#).

---

## Field Documentation

uint32\_t [QSPI\\_Info::EraseSectorSize](#)

Size of sectors for the erase operation

Definition at line 119 of file [stm32746g\\_discovery\\_qspi.h](#).

Referenced by [BSP\\_QSPI\\_GetInfo\(\)](#).

uint32\_t [QSPI\\_Info::EraseSectorsNumber](#)

Number of sectors for the erase operation

Definition at line 120 of file [stm32746g\\_discovery\\_qspi.h](#).

Referenced by [BSP\\_QSPI\\_GetInfo\(\)](#).

uint32\_t [QSPI\\_Info::FlashSize](#)

Size of the flash

Definition at line 118 of file [stm32746g\\_discovery\\_qspi.h](#).

Referenced by [BSP\\_QSPI\\_GetInfo\(\)](#).

uint32\_t [QSPI\\_Info::ProgPageSize](#)

Size of pages for the program operation

Definition at line 121 of file [stm32746g\\_discovery\\_qspi.h](#).

Referenced by [BSP\\_QSPI\\_GetInfo\(\)](#).

uint32\_t [QSPI\\_Info::ProgPagesNumber](#)

Number of pages for the program operation

Definition at line 122 of file [stm32746g\\_discovery\\_qspi.h](#).

Referenced by [BSP\\_QSPI\\_GetInfo\(\)](#).

---

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

- [stm32746g\\_discovery\\_qspi.h](#)



Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

## STM32746G\_DISCOVERY\_SD Private Types Definitions

### [STM32746G\\_DISCOVERY\\_SD](#)

---

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

## STM32746G\_DISCOVERY\_SD Private Defines

### [STM32746G\\_DISCOVERY\\_SD](#)

---

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

## STM32746G\_DISCOVERY\_SD Private Macros

### [STM32746G\\_DISCOVERY\\_SD](#)

---

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

## STM32746G\_DISCOVERY\_SD Private Function Prototypes

### [STM32746G\\_DISCOVERY\\_SD](#)

---

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

## STM32746G\_DISCOVERY\_SD Exported Macro

### [STM32746G\\_DISCOVERY\\_SD](#)

---

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)

- [Data&"files.html">Files](#)
- [Directories](#)

## STM32746G\_DISCOVERY\_SDRAM Private Types Definitions

### [STM32746G\\_DISCOVERY\\_SDRAM](#)

---

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

## STM32746G\_DISCOVERY\_SDRAM Private Defines

### [STM32746G\\_DISCOVERY\\_SDRAM](#)

---

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

## STM32746G\_DISCOVERY\_SDRAM Private Macros

### [STM32746G\\_DISCOVERY\\_SDRAM](#)

---

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

## STM32746G\_DISCOVERY\_SDRAM Private Function Prototypes

### [STM32746G\\_DISCOVERY\\_SDRAM](#)

---

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

## STM32746G\_DISCOVERY\_SDRAM Exported Macro

### [STM32746G\\_DISCOVERY\\_SDRAM](#)

---

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

## STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

## STM32746G\_DISCOVERY\_TS Types Definitions

[STM32746G\\_DISCOVERY\\_TS](#)

---

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

## STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

## STM32746G\_DISCOVERY\_TS Types Defines

[STM32746G\\_DISCOVERY\\_TS](#)

---

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

## STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

## STM32746G\_DISCOVERY\_TS Private Macros

[STM32746G\\_DISCOVERY\\_TS](#)

---

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

## STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

## STM32746G\_DISCOVERY\_TS Private Function Prototypes

[STM32746G\\_DISCOVERY\\_TS](#)

---

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

## STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)
- [Data&"classes.html">Data Structure Index](#)
- [Data&"header">](#)

[Data Fields](#)  
[TS\\_StateTypeDef Struct Reference](#)  
[STM32746G\\_DISCOVERY\\_TS Exported Types](#)

[TS\\_StateTypeDef](#) Define TS State structure. [More...](#)

```
#include <stm32746g_discovery_ts.h>
```

## Data Fields

```
uint8_t touchDetected
uint16_t touchX [TS_MAX_NB_TOUCH]
uint16_t touchY [TS_MAX_NB_TOUCH]
uint8_t touchWeight [TS_MAX_NB_TOUCH]
uint8_t touchEventId [TS_MAX_NB_TOUCH]
uint8_t touchArea [TS_MAX_NB_TOUCH]
uint32_t gestureId
```

---

## Detailed Description

[TS\\_StateTypeDef](#) Define TS State structure.

Definition at line 89 of file [stm32746g\\_discovery\\_ts.h](#).

---

## Field Documentation

uint32\_t [TS\\_StateTypeDef::gestureId](#)  
 type of gesture detected : take value of type [TS\\_GestureIdTypeDef](#)

Definition at line 99 of file [stm32746g\\_discovery\\_ts.h](#).

Referenced by [BSP\\_TS\\_Get\\_GestureId\(\)](#), and [BSP\\_TS\\_ResetTouchData\(\)](#).

uint8\_t [TS\\_StateTypeDef::touchArea](#)[TS\_MAX\_NB\_TOUCH]  
 Touch\_Area[0], Touch\_Area[1] : touch area of each touch

Definition at line 98 of file [stm32746g\\_discovery\\_ts.h](#).

Referenced by [BSP\\_TS\\_GetState\(\)](#), and [BSP\\_TS\\_ResetTouchData\(\)](#).

uint8\_t [TS\\_StateTypeDef::touchDetected](#)  
 Total number of active touches detected at last scan

Definition at line 91 of file [stm32746g\\_discovery\\_ts.h](#).

Referenced by [BSP\\_TS\\_GetState\(\)](#), and [BSP\\_TS\\_ResetTouchData\(\)](#).

uint8\_t [TS\\_StateTypeDef::touchEventId](#)[TS\_MAX\_NB\_TOUCH]  
 Touch\_EventId[0], Touch\_EventId[1] : take value of type [TS\\_TouchEventTypeDef](#)

Definition at line 97 of file [stm32746g\\_discovery\\_ts.h](#).

Referenced by [BSP\\_TS\\_GetState\(\)](#), and [BSP\\_TS\\_ResetTouchData\(\)](#).

uint8\_t [TS\\_StateTypeDef::touchWeight\[TS\\_MAX\\_NB\\_TOUCH\]](#)  
Touch\_Weight[0], Touch\_Weight[1] : weight property of touches

Definition at line 96 of file [stm32746g\\_discovery\\_ts.h](#).

Referenced by [BSP\\_TS\\_GetState\(\)](#), and [BSP\\_TS\\_ResetTouchData\(\)](#).

uint16\_t [TS\\_StateTypeDef::touchX\[TS\\_MAX\\_NB\\_TOUCH\]](#)  
Touch X[0], X[1] coordinates on 12 bits

Definition at line 92 of file [stm32746g\\_discovery\\_ts.h](#).

Referenced by [BSP\\_TS\\_GetState\(\)](#), and [BSP\\_TS\\_ResetTouchData\(\)](#).

uint16\_t [TS\\_StateTypeDef::touchY\[TS\\_MAX\\_NB\\_TOUCH\]](#)  
Touch Y[0], Y[1] coordinates on 12 bits

Definition at line 93 of file [stm32746g\\_discovery\\_ts.h](#).

Referenced by [BSP\\_TS\\_GetState\(\)](#), and [BSP\\_TS\\_ResetTouchData\(\)](#).

---

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

- [stm32746g\\_discovery\\_ts.h](#)
- 

Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual



1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

STM32746G\_DISCOVERY\_CAMERA Private Types Definitions  
[STM32746G\\_DISCOVERY\\_CAMERA](#)

---

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

STM32746G\_DISCOVERY\_CAMERA Private Macros  
[STM32746G\\_DISCOVERY\\_CAMERA](#)

---

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

## STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

## STM32746G\_DISCOVERY\_CAMERA Private Function Prototypes

### [STM32746G\\_DISCOVERY\\_CAMERA](#)

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

## STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

## STM32746G\_DISCOVERY\_EEPROM Private Types

### [STM32746G\\_DISCOVERY\\_EEPROM](#)

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

## STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

## STM32746G\_DISCOVERY\_EEPROM Private Defines

### [STM32746G\\_DISCOVERY\\_EEPROM](#)

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

## STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

## STM32746G\_DISCOVERY\_EEPROM Private Macros

### [STM32746G\\_DISCOVERY\\_EEPROM](#)

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

## STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

## STM32746G\_DISCOVERY\_EEPROM Private Function Prototypes

### [STM32746G\\_DISCOVERY\\_EEPROM](#)



---

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

STM32746G\_DISCOVERY\_EEPROM Exported Types

[STM32746G\\_DISCOVERY\\_EEPROM](#)

---

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

STM32746G\_DISCOVERY\_EEPROM Exported Macros

[STM32746G\\_DISCOVERY\\_EEPROM](#)

---

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

STM32746G\_DISCOVERY\_LCD Private Types Definitions

[STM32746G\\_DISCOVERY\\_LCD](#)

---

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

STM32746G\_DISCOVERY\_LCD Private Function Prototypes

[STM32746G\\_DISCOVERY\\_LCD](#)

---

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by &"http://www.doxygen.org/temp0001.html">



1.7.6.1

STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)

- [Data&"classes.html">Data Structure Index](#)
- [Data&"header">Data Fields](#)
- [LCD\\_DrawPropTypeDef Struct Reference](#)
- [STM32746G\\_DISCOVERY\\_LCD Exported Types](#)

```
#include <stm32746g_discovery_lcd.h>
```

## Data Fields

```
uint32_t  TextColor
uint32_t  BackColor
sFONT *   pFont
```

---

## Detailed Description

Definition at line 71 of file [stm32746g\\_discovery\\_lcd.h](#).

---

## Field Documentation

uint32\_t [LCD\\_DrawPropTypeDef::BackColor](#)

Definition at line 74 of file [stm32746g\\_discovery\\_lcd.h](#).

Referenced by [BSP\\_LCD\\_ClearStringLine\(\)](#), [BSP\\_LCD\\_GetBackColor\(\)](#), [BSP\\_LCD\\_LayerDefaultInit\(\)](#), [BSP\\_LCD\\_LayerRgb565Init\(\)](#), and [BSP\\_LCD\\_SetBackColor\(\)](#).

sFONT\* [LCD\\_DrawPropTypeDef::pFont](#)

Definition at line 75 of file [stm32746g\\_discovery\\_lcd.h](#).

Referenced by [BSP\\_LCD\\_DisplayChar\(\)](#), [BSP\\_LCD\\_DisplayStringAt\(\)](#), [BSP\\_LCD\\_GetFont\(\)](#), [BSP\\_LCD\\_LayerDefaultInit\(\)](#), [BSP\\_LCD\\_LayerRgb565Init\(\)](#), [BSP\\_LCD\\_SetFont\(\)](#), and [DrawChar\(\)](#).

uint32\_t [LCD\\_DrawPropTypeDef::TextColor](#)

Definition at line 73 of file [stm32746g\\_discovery\\_lcd.h](#).

Referenced by [BSP\\_LCD\\_ClearStringLine\(\)](#), [BSP\\_LCD\\_GetTextColor\(\)](#), [BSP\\_LCD\\_LayerDefaultInit\(\)](#), [BSP\\_LCD\\_LayerRgb565Init\(\)](#), and [BSP\\_LCD\\_SetTextColor\(\)](#).

---

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

- [stm32746g\\_discovery\\_lcd.h](#)
- 



Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual

1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)
- [Data&"classes.html">Data Structure Index](#)

- [Data&"header">Data Fields](#)
- [Point Struct Reference](#)
- [STM32746G\\_DISCOVERY\\_LCD Exported Types](#)

```
#include <stm32746g_discovery_lcd.h>
```

## Data Fields

`int16_t` [X](#)

`int16_t` [Y](#)

## Detailed Description

Definition at line [78](#) of file [stm32746g\\_discovery\\_lcd.h](#).

## Field Documentation

`int16_t` [Point::X](#)

Definition at line [80](#) of file [stm32746g\\_discovery\\_lcd.h](#).

Referenced by [BSP\\_LCD\\_DrawPolygon\(\)](#), and [BSP\\_LCD\\_FillPolygon\(\)](#).

`int16_t` [Point::Y](#)

Definition at line [81](#) of file [stm32746g\\_discovery\\_lcd.h](#).

Referenced by [BSP\\_LCD\\_DrawPolygon\(\)](#), and [BSP\\_LCD\\_FillPolygon\(\)](#).

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

- [stm32746g\\_discovery\\_lcd.h](#)

Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  1.7.6.1  
STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)
- [Data&"classes.html">Data Structure Index](#)
- [Data&"navrow3" class="tabs2">](#)
  - ◆ [All](#)
  - ◆ [Variables](#)

Here is a list of all struct and union fields with links to the structures/unions they belong to:

- BackColor : [LCD\\_DrawPropTypeDef](#)
- EraseSectorSize : [QSPI\\_Info](#)
- EraseSectorsNumber : [QSPI\\_Info](#)

- FlashSize : [QSPI\\_Info](#)
- gestureId : [TS\\_StateTypeDef](#)
- pFont : [LCD\\_DrawPropTypeDef](#)
- ProgPageSize : [QSPI\\_Info](#)
- ProgPagesNumber : [QSPI\\_Info](#)
- TextColor : [LCD\\_DrawPropTypeDef](#)
- touchArea : [TS\\_StateTypeDef](#)
- touchDetected : [TS\\_StateTypeDef](#)
- touchEventId : [TS\\_StateTypeDef](#)
- touchWeight : [TS\\_StateTypeDef](#)
- touchX : [TS\\_StateTypeDef](#)
- touchY : [TS\\_StateTypeDef](#)
- X : [Point](#)
- Y : [Point](#)



Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"files.html">Files](#)
- [Directories](#)
- [Data&"classes.html">Data Structure Index](#)
- [Data&"navrow3" class="tabs2">](#)
  - ◆ [All](#)
  - ◆ [Variables](#)

&"el" href="temp0579.html#a8de9dd9da4dec950161005d49afc523a">LCD\_DrawPropTypeDef

- EraseSectorSize : [QSPI\\_Info](#)
- EraseSectorsNumber : [QSPI\\_Info](#)
- FlashSize : [QSPI\\_Info](#)
- gestureId : [TS\\_StateTypeDef](#)
- pFont : [LCD\\_DrawPropTypeDef](#)
- ProgPageSize : [QSPI\\_Info](#)
- ProgPagesNumber : [QSPI\\_Info](#)
- TextColor : [LCD\\_DrawPropTypeDef](#)
- touchArea : [TS\\_StateTypeDef](#)
- touchDetected : [TS\\_StateTypeDef](#)
- touchEventId : [TS\\_StateTypeDef](#)
- touchWeight : [TS\\_StateTypeDef](#)
- touchX : [TS\\_StateTypeDef](#)
- touchY : [TS\\_StateTypeDef](#)
- X : [Point](#)
- Y : [Point](#)



Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)

- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [u](#)
- [w](#)

Here is a list of all functions, variables, defines, enums, and typedefs with links to the files they belong to:

— —

- `__DMAx_CLK_DISABLE` : [stm32746g\\_discovery\\_sdram.h](#)
- `__DMAx_CLK_ENABLE` : [stm32746g\\_discovery\\_sdram.h](#)
- `__DMAx_TxRx_CLK_ENABLE` : [stm32746g\\_discovery\\_sd.h](#)
- `__STM32746G_DISCO_BSP_VERSION` : [stm32746g\\_discovery.c](#)
- `__STM32746G_DISCO_BSP_VERSION_MAIN` : [stm32746g\\_discovery.c](#)
- `__STM32746G_DISCO_BSP_VERSION_RC` : [stm32746g\\_discovery.c](#)
- `__STM32746G_DISCO_BSP_VERSION_SUB1` : [stm32746g\\_discovery.c](#)
- `__STM32746G_DISCO_BSP_VERSION_SUB2` : [stm32746g\\_discovery.c](#)

Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual



1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)

- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [u](#)
- [w](#)

Here is a list of all functions, variables, defines, enums, and typedefs with links to the files they belong to:

- \_ -

- [\\_\\_DMAx\\_CLK\\_DISABLE](#) : [stm32746g\\_discovery\\_sdram.h](#)
- [\\_\\_DMAx\\_CLK\\_ENABLE](#) : [stm32746g\\_discovery\\_sdram.h](#)
- [\\_\\_DMAx\\_TxRx\\_CLK\\_ENABLE](#) : [stm32746g\\_discovery\\_sd.h](#)
- [\\_\\_STM32746G\\_DISCO\\_BSP\\_VERSION](#) : [stm32746g\\_discovery.c](#)
- [\\_\\_STM32746G\\_DISCO\\_BSP\\_VERSION\\_MAIN](#) : [stm32746g\\_discovery.c](#)
- [\\_\\_STM32746G\\_DISCO\\_BSP\\_VERSION\\_RC](#) : [stm32746g\\_discovery.c](#)
- [\\_\\_STM32746G\\_DISCO\\_BSP\\_VERSION\\_SUB1](#) : [stm32746g\\_discovery.c](#)
- [\\_\\_STM32746G\\_DISCO\\_BSP\\_VERSION\\_SUB2](#) : [stm32746g\\_discovery.c](#)



Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)

- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [u](#)
- [w](#)

Here is a list of all functions, variables, defines, enums, and typedefs with links to the files they belong to:

#### - a -

- [ABS](#) : [stm32746g\\_discovery\\_lcd.c](#)
- [ActiveLayer](#) : [stm32746g\\_discovery\\_lcd.c](#)
- [audio\\_drv](#) : [stm32746g\\_discovery\\_audio.c](#)
- [AUDIO\\_ERROR](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_I2C\\_ADDRESS](#) : [stm32746g\\_discovery.h](#)
- [AUDIO\\_IN\\_INT\\_GPIO\\_ENABLE](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_IN\\_INT\\_GPIO\\_PIN](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_IN\\_INT\\_GPIO\\_PORT](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_IN\\_INT\\_IRQ](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_IN\\_INT\\_IRQHandler](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_IN\\_IRQ\\_PREPRIO](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_IN\\_SAIx](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_IN\\_SAIx\\_CLK\\_DISABLE](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_IN\\_SAIx\\_CLK\\_ENABLE](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_IN\\_SAIx\\_DMAx\\_CHANNEL](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_IN\\_SAIx\\_DMAx\\_CLK\\_ENABLE](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_IN\\_SAIx\\_DMAx\\_IRQ](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_IN\\_SAIx\\_DMAx\\_IRQHandler](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_IN\\_SAIx\\_DMAx\\_MEM\\_DATA\\_SIZE](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_IN\\_SAIx\\_DMAx\\_PERIPH\\_DATA\\_SIZE](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_IN\\_SAIx\\_DMAx\\_STREAM](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_IN\\_SAIx\\_SD\\_AF](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_IN\\_SAIx\\_SD\\_ENABLE](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_IN\\_SAIx\\_SD\\_GPIO\\_PORT](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_IN\\_SAIx\\_SD\\_PIN](#) : [stm32746g\\_discovery\\_audio.h](#)

- [AUDIO\\_IO\\_DeInit\(\)](#) : [stm32746g\\_discovery.c](#)
- [AUDIO\\_IO\\_Delay\(\)](#) : [stm32746g\\_discovery.c](#)
- [AUDIO\\_IO\\_Init\(\)](#) : [stm32746g\\_discovery.c](#)
- [AUDIO\\_IO\\_Read\(\)](#) : [stm32746g\\_discovery.c](#)
- [AUDIO\\_IO\\_Write\(\)](#) : [stm32746g\\_discovery.c](#)
- [AUDIO\\_OK](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_OUT\\_IRQ\\_PREPRIO](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_OUT\\_SAIx](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_OUT\\_SAIx\\_CLK\\_DISABLE](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_OUT\\_SAIx\\_CLK\\_ENABLE](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_OUT\\_SAIx\\_DMAx\\_CHANNEL](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_OUT\\_SAIx\\_DMAx\\_CLK\\_ENABLE](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_OUT\\_SAIx\\_DMAx\\_IRQ](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_OUT\\_SAIx\\_DMAx\\_IRQHandler](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_OUT\\_SAIx\\_DMAx\\_MEM\\_DATA\\_SIZE](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_OUT\\_SAIx\\_DMAx\\_PERIPH\\_DATA\\_SIZE](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_OUT\\_SAIx\\_DMAx\\_STREAM](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_OUT\\_SAIx\\_FS\\_ENABLE](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_OUT\\_SAIx\\_FS\\_GPIO\\_PORT](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_OUT\\_SAIx\\_FS\\_PIN](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_OUT\\_SAIx\\_FS\\_SD\\_MCLK\\_AF](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_OUT\\_SAIx\\_MCLK\\_ENABLE](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_OUT\\_SAIx\\_MCLK\\_GPIO\\_PORT](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_OUT\\_SAIx\\_MCLK\\_PIN](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_OUT\\_SAIx\\_SCK\\_AF](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_OUT\\_SAIx\\_SCK\\_PIN](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_OUT\\_SAIx\\_SCK\\_SD\\_ENABLE](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_OUT\\_SAIx\\_SCK\\_SD\\_GPIO\\_PORT](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_OUT\\_SAIx\\_SD\\_PIN](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIO\\_TIMEOUT](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AUDIODATA\\_SIZE](#) : [stm32746g\\_discovery\\_audio.h](#)
- [AudioInVolume](#) : [stm32746g\\_discovery\\_audio.c](#) , [stm32746g\\_discovery\\_audio.h](#)



Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)
- [\\_](#)
- [a](#)
- [b](#)
- [c](#)



- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [u](#)
- [w](#)

Here is a list of all functions, variables, defines, enums, and typedefs with links to the files they belong to:

## - b -

- [BSP\\_AUDIO\\_IN\\_DeInit\(\)](#) : [stm32746g\\_discovery\\_audio.c](#) , [stm32746g\\_discovery\\_audio.h](#)
- [BSP\\_AUDIO\\_IN\\_Error\\_Callback\(\)](#) : [stm32746g\\_discovery\\_audio.h](#) , [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_IN\\_HalfTransfer\\_Callback\(\)](#) : [stm32746g\\_discovery\\_audio.c](#) , [stm32746g\\_discovery\\_audio.h](#)
- [BSP\\_AUDIO\\_IN\\_Init\(\)](#) : [stm32746g\\_discovery\\_audio.h](#) , [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_IN\\_InitEx\(\)](#) : [stm32746g\\_discovery\\_audio.c](#) , [stm32746g\\_discovery\\_audio.h](#)
- [BSP\\_AUDIO\\_IN\\_MspDeInit\(\)](#) : [stm32746g\\_discovery\\_audio.c](#) , [stm32746g\\_discovery\\_audio.h](#)
- [BSP\\_AUDIO\\_IN\\_MspInit\(\)](#) : [stm32746g\\_discovery\\_audio.c](#) , [stm32746g\\_discovery\\_audio.h](#)
- [BSP\\_AUDIO\\_IN\\_OUT\\_Init\(\)](#) : [stm32746g\\_discovery\\_audio.h](#) , [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_IN\\_Pause\(\)](#) : [stm32746g\\_discovery\\_audio.c](#) , [stm32746g\\_discovery\\_audio.h](#)
- [BSP\\_AUDIO\\_IN\\_Record\(\)](#) : [stm32746g\\_discovery\\_audio.c](#) , [stm32746g\\_discovery\\_audio.h](#)
- [BSP\\_AUDIO\\_IN\\_Resume\(\)](#) : [stm32746g\\_discovery\\_audio.c](#) , [stm32746g\\_discovery\\_audio.h](#)
- [BSP\\_AUDIO\\_IN\\_SetVolume\(\)](#) : [stm32746g\\_discovery\\_audio.c](#) , [stm32746g\\_discovery\\_audio.h](#)
- [BSP\\_AUDIO\\_IN\\_Stop\(\)](#) : [stm32746g\\_discovery\\_audio.c](#) , [stm32746g\\_discovery\\_audio.h](#)
- [BSP\\_AUDIO\\_IN\\_TransferComplete\\_Callback\(\)](#) : [stm32746g\\_discovery\\_audio.c](#) , [stm32746g\\_discovery\\_audio.h](#)
- [BSP\\_AUDIO\\_OUT\\_ChangeBuffer\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_OUT\\_ClockConfig\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_OUT\\_DeInit\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_OUT\\_Error\\_Callback\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_OUT\\_HalfTransfer\\_Callback\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_OUT\\_Init\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_OUT\\_MspDeInit\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_OUT\\_MspInit\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_OUT\\_Pause\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_OUT\\_Play\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_OUT\\_Resume\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_OUT\\_SetAudioFrameSlot\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_OUT\\_SetFrequency\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_OUT\\_SetMute\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_OUT\\_SetOutputMode\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_OUT\\_SetVolume\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_OUT\\_Stop\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)

- BSP\_AUDIO\_OUT\_TransferComplete\_Callback() : [stm32746g\\_discovery\\_audio.c](#)
- BSP\_CAMERA\_BlackWhiteConfig() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_ColorEffectConfig() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_ContinuousStart() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_ContrastBrightnessConfig() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_DeInit() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_DMA\_IRQHandler : [stm32746g\\_discovery\\_camera.h](#)
- BSP\_CAMERA\_ErrorCallback() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_FrameEventCallback() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_Init() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_IRQHandler : [stm32746g\\_discovery\\_camera.h](#)
- BSP\_CAMERA\_LineEventCallback() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_MspDeInit() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_MspInit() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_PwrDown() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_PwrUp() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_Resume() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_SnapshotStart() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_Stop() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_Suspend() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_VsyncEventCallback() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_COM\_DeInit() : [stm32746g\\_discovery.c](#)
- BSP\_COM\_Init() : [stm32746g\\_discovery.c](#)
- BSP\_EEPROM\_DeInit() : [stm32746g\\_discovery\\_eeprom.c](#)
- BSP\_EEPROM\_Init() : [stm32746g\\_discovery\\_eeprom.c](#)
- BSP\_EEPROM\_ReadBuffer() : [stm32746g\\_discovery\\_eeprom.c](#)
- BSP\_EEPROM\_TIMEOUT\_UserCallback() : [stm32746g\\_discovery\\_eeprom.c](#)
- BSP\_EEPROM\_WaitEepromStandbyState() : [stm32746g\\_discovery\\_eeprom.c](#)
- BSP\_EEPROM\_WriteBuffer() : [stm32746g\\_discovery\\_eeprom.c](#)
- BSP\_EEPROM\_WritePage() : [stm32746g\\_discovery\\_eeprom.c](#)
- BSP\_GetVersion() : [stm32746g\\_discovery.c](#)
- BSP\_LCD\_Clear() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_ClearStringLine() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_ClockConfig() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_DeInit() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_DisplayChar() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_DisplayOff() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_DisplayOn() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_DisplayStringAt() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_DisplayStringAtLine() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_DrawBitmap() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_DrawCircle() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_DrawEllipse() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_DrawHLine() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_DrawLine() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_DrawPixel() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_DrawPolygon() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_DrawRect() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_DrawVLine() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_FillCircle() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_FillEllipse() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_FillPolygon() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_FillRect() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_GetBackColor() : [stm32746g\\_discovery\\_lcd.c](#)

- BSP\_LCD\_GetFont() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_GetTextColor() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_GetXSize() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_GetYSize() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_Init() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_LayerDefaultInit() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_LayerRgb565Init() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_MspDeInit() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_MspInit() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_ReadPixel() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_Reload() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_ResetColorKeying() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_ResetColorKeying\_NoReload() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SelectLayer() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SetBackColor() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SetColorKeying() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SetColorKeying\_NoReload() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SetFont() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SetLayerAddress() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SetLayerAddress\_NoReload() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SetLayerVisible() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SetLayerVisible\_NoReload() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SetLayerWindow() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SetLayerWindow\_NoReload() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SetTextColor() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SetTransparency() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SetTransparency\_NoReload() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SetXSize() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SetYSize() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LED\_DeInit() : [stm32746g\\_discovery.c](#)
- BSP\_LED\_Init() : [stm32746g\\_discovery.c](#)
- BSP\_LED\_Off() : [stm32746g\\_discovery.c](#)
- BSP\_LED\_On() : [stm32746g\\_discovery.c](#)
- BSP\_LED\_Toggle() : [stm32746g\\_discovery.c](#)
- BSP\_PB\_DeInit() : [stm32746g\\_discovery.c](#)
- BSP\_PB\_GetState() : [stm32746g\\_discovery.c](#)
- BSP\_PB\_Init() : [stm32746g\\_discovery.c](#)
- BSP\_QSPI\_DeInit() : [stm32746g\\_discovery\\_qspi.c](#)
- BSP\_QSPI\_EnableMemoryMappedMode() : [stm32746g\\_discovery\\_qspi.c](#)
- BSP\_QSPI\_Erase\_Block() : [stm32746g\\_discovery\\_qspi.c](#)
- BSP\_QSPI\_Erase\_Chip() : [stm32746g\\_discovery\\_qspi.c](#)
- BSP\_QSPI\_GetInfo() : [stm32746g\\_discovery\\_qspi.c](#)
- BSP\_QSPI\_GetStatus() : [stm32746g\\_discovery\\_qspi.c](#)
- BSP\_QSPI\_Init() : [stm32746g\\_discovery\\_qspi.c](#)
- BSP\_QSPI\_MemoryMappedMode : [stm32746g\\_discovery\\_qspi.h](#)
- BSP\_QSPI\_MspDeInit() : [stm32746g\\_discovery\\_qspi.h](#) , [stm32746g\\_discovery\\_qspi.c](#)
- BSP\_QSPI\_MspInit() : [stm32746g\\_discovery\\_qspi.h](#) , [stm32746g\\_discovery\\_qspi.c](#)
- BSP\_QSPI\_Read() : [stm32746g\\_discovery\\_qspi.c](#)
- BSP\_QSPI\_Write() : [stm32746g\\_discovery\\_qspi.c](#)
- BSP\_SD\_AbortCallback() : [stm32746g\\_discovery\\_sd.c](#)
- BSP\_SD\_CardInfo : [stm32746g\\_discovery\\_sd.h](#)
- BSP\_SD\_DeInit() : [stm32746g\\_discovery\\_sd.c](#)
- BSP\_SD\_Detect\_MspInit() : [stm32746g\\_discovery\\_sd.c](#)
- BSP\_SD\_Erase() : [stm32746g\\_discovery\\_sd.c](#)

- BSP\_SD\_GetCardInfo() : [stm32746g\\_discovery\\_sd.c](#)
- BSP\_SD\_GetCardState() : [stm32746g\\_discovery\\_sd.c](#)
- BSP\_SD\_Init() : [stm32746g\\_discovery\\_sd.c](#)
- BSP\_SD\_IsDetected() : [stm32746g\\_discovery\\_sd.c](#)
- BSP\_SD\_ITConfig() : [stm32746g\\_discovery\\_sd.c](#)
- BSP\_SD\_MspDeInit() : [stm32746g\\_discovery\\_sd.c](#)
- BSP\_SD\_MspInit() : [stm32746g\\_discovery\\_sd.c](#)
- BSP\_SD\_ReadBlocks() : [stm32746g\\_discovery\\_sd.c](#)
- BSP\_SD\_ReadBlocks\_DMA() : [stm32746g\\_discovery\\_sd.c](#)
- BSP\_SD\_ReadCpltCallback() : [stm32746g\\_discovery\\_sd.c](#)
- BSP\_SD\_WriteBlocks() : [stm32746g\\_discovery\\_sd.c](#)
- BSP\_SD\_WriteBlocks\_DMA() : [stm32746g\\_discovery\\_sd.c](#)
- BSP\_SD\_WriteCpltCallback() : [stm32746g\\_discovery\\_sd.c](#)
- BSP\_SDMMC\_DMA\_Rx\_IRQHandler : [stm32746g\\_discovery\\_sd.h](#)
- BSP\_SDMMC\_DMA\_Tx\_IRQHandler : [stm32746g\\_discovery\\_sd.h](#)
- BSP\_SDMMC\_IRQHandler : [stm32746g\\_discovery\\_sd.h](#)
- BSP\_SDRAM\_DeInit() : [stm32746g\\_discovery\\_sdram.c](#)
- BSP\_SDRAM\_DMA\_IRQHandler : [stm32746g\\_discovery\\_sdram.h](#)
- BSP\_SDRAM\_Init() : [stm32746g\\_discovery\\_sdram.c](#)
- BSP\_SDRAM\_Initialization\_sequence() : [stm32746g\\_discovery\\_sdram.c](#)
- BSP\_SDRAM\_MspDeInit() : [stm32746g\\_discovery\\_sdram.c](#)
- BSP\_SDRAM\_MspInit() : [stm32746g\\_discovery\\_sdram.c](#)
- BSP\_SDRAM\_ReadData() : [stm32746g\\_discovery\\_sdram.c](#)
- BSP\_SDRAM\_ReadData\_DMA() : [stm32746g\\_discovery\\_sdram.c](#)
- BSP\_SDRAM\_Sendcmd() : [stm32746g\\_discovery\\_sdram.c](#)
- BSP\_SDRAM\_WriteData() : [stm32746g\\_discovery\\_sdram.c](#)
- BSP\_SDRAM\_WriteData\_DMA() : [stm32746g\\_discovery\\_sdram.c](#)
- BSP\_TS\_DeInit() : [stm32746g\\_discovery\\_ts.c](#)
- BSP\_TS\_Get\_GestureId() : [stm32746g\\_discovery\\_ts.c](#)
- BSP\_TS\_GetState() : [stm32746g\\_discovery\\_ts.c](#)
- BSP\_TS\_Init() : [stm32746g\\_discovery\\_ts.c](#)
- BSP\_TS\_ITClear() : [stm32746g\\_discovery\\_ts.c](#)
- BSP\_TS\_ITConfig() : [stm32746g\\_discovery\\_ts.c](#)
- BSP\_TS\_ITGetStatus() : [stm32746g\\_discovery\\_ts.c](#)
- BSP\_TS\_ResetTouchData() : [stm32746g\\_discovery\\_ts.c](#) , [stm32746g\\_discovery\\_ts.h](#)
- BUTTON\_IRQn : [stm32746g\\_discovery.c](#)
- BUTTON\_KEY : [stm32746g\\_discovery.h](#)
- BUTTON\_MODE\_EXTI : [stm32746g\\_discovery.h](#)
- BUTTON\_MODE\_GPIO : [stm32746g\\_discovery.h](#)
- BUTTON\_PIN : [stm32746g\\_discovery.c](#)
- BUTTON\_PORT : [stm32746g\\_discovery.c](#)
- BUTTON\_TAMPER : [stm32746g\\_discovery.h](#)
- Button\_TypeDef : [stm32746g\\_discovery.h](#)
- BUTTON\_WAKEUP : [stm32746g\\_discovery.h](#)
- ButtonMode\_TypeDef : [stm32746g\\_discovery.h](#)
- BUTTONn : [stm32746g\\_discovery.h](#)
- BUTTONx\_GPIO\_CLK\_DISABLE : [stm32746g\\_discovery.h](#)
- BUTTONx\_GPIO\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)



- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)

- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)
- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [u](#)
- [w](#)

Here is a list of all functions, variables, defines, enums, and typedefs with links to the files they belong to:

## - C -

- CAMERA\_480x272\_RES\_X : [stm32746g\\_discovery\\_camera.c](#)
- CAMERA\_480x272\_RES\_Y : [stm32746g\\_discovery\\_camera.c](#)
- CAMERA\_Delay() : [stm32746g\\_discovery.c](#)
- camera\_drv : [stm32746g\\_discovery\\_camera.c](#)
- CAMERA\_ERROR : [stm32746g\\_discovery\\_camera.h](#)
- CAMERA\_I2C\_ADDRESS : [stm32746g\\_discovery.h](#)
- CAMERA\_IO\_Init() : [stm32746g\\_discovery.c](#)
- CAMERA\_IO\_Read() : [stm32746g\\_discovery.c](#)
- CAMERA\_IO\_Write() : [stm32746g\\_discovery.c](#)
- CAMERA\_NOT\_DETECTED : [stm32746g\\_discovery\\_camera.h](#)
- CAMERA\_NOT\_SUPPORTED : [stm32746g\\_discovery\\_camera.h](#)
- CAMERA\_OK : [stm32746g\\_discovery\\_camera.h](#)
- CAMERA\_QQVGA\_RES\_X : [stm32746g\\_discovery\\_camera.c](#)
- CAMERA\_QQVGA\_RES\_Y : [stm32746g\\_discovery\\_camera.c](#)
- CAMERA\_QVGA\_RES\_X : [stm32746g\\_discovery\\_camera.c](#)
- CAMERA\_QVGA\_RES\_Y : [stm32746g\\_discovery\\_camera.c](#)
- Camera\_StatusTypeDef : [stm32746g\\_discovery\\_camera.h](#)

- CAMERA\_TIMEOUT : [stm32746g\\_discovery\\_camera.h](#)
- CAMERA\_VGA\_RES\_X : [stm32746g\\_discovery\\_camera.c](#)
- CAMERA\_VGA\_RES\_Y : [stm32746g\\_discovery\\_camera.c](#)
- CameraCurrentResolution : [stm32746g\\_discovery\\_camera.c](#)
- CameraHwAddress : [stm32746g\\_discovery\\_camera.c](#)
- CENTER\_MODE : [stm32746g\\_discovery\\_lcd.h](#)
- CODEC\_AUDIOFRAME\_SLOT\_0123 : [stm32746g\\_discovery\\_audio.h](#)
- CODEC\_AUDIOFRAME\_SLOT\_02 : [stm32746g\\_discovery\\_audio.h](#)
- CODEC\_AUDIOFRAME\_SLOT\_13 : [stm32746g\\_discovery\\_audio.h](#)
- CODEC\_RESET\_DELAY : [stm32746g\\_discovery\\_audio.h](#)
- COM1 : [stm32746g\\_discovery.h](#)
- COM2 : [stm32746g\\_discovery.h](#)
- COM\_RX\_AF : [stm32746g\\_discovery.c](#)
- COM\_RX\_PIN : [stm32746g\\_discovery.c](#)
- COM\_RX\_PORT : [stm32746g\\_discovery.c](#)
- COM\_TX\_AF : [stm32746g\\_discovery.c](#)
- COM\_TX\_PIN : [stm32746g\\_discovery.c](#)
- COM\_TX\_PORT : [stm32746g\\_discovery.c](#)
- COM\_TypeDef : [stm32746g\\_discovery.h](#)
- COM\_USART : [stm32746g\\_discovery.c](#)
- Command : [stm32746g\\_discovery\\_sdram.c](#)
- COMn : [stm32746g\\_discovery.h](#)



Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)

- [File&"current">Globals](#)

- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)



- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [u](#)
- [w](#)

Here is a list of all functions, variables, defines, enums, and typedefs with links to the files they belong to:

## - d -

- DEFAULT\_AUDIO\_IN\_BIT\_RESOLUTION : [stm32746g\\_discovery\\_audio.h](#)
- DEFAULT\_AUDIO\_IN\_CHANNEL\_NBR : [stm32746g\\_discovery\\_audio.h](#)
- DEFAULT\_AUDIO\_IN\_FREQ : [stm32746g\\_discovery\\_audio.h](#)
- DEFAULT\_AUDIO\_IN\_VOLUME : [stm32746g\\_discovery\\_audio.h](#)
- DISCOVERY\_AUDIO\_DMAx\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)
- DISCOVERY\_AUDIO\_I2Cx : [stm32746g\\_discovery.h](#)
- DISCOVERY\_AUDIO\_I2Cx\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)
- DISCOVERY\_AUDIO\_I2Cx\_ER\_IRQn : [stm32746g\\_discovery.h](#)
- DISCOVERY\_AUDIO\_I2Cx\_EV\_IRQn : [stm32746g\\_discovery.h](#)
- DISCOVERY\_AUDIO\_I2Cx\_FORCE\_RESET : [stm32746g\\_discovery.h](#)
- DISCOVERY\_AUDIO\_I2Cx\_RELEASE\_RESET : [stm32746g\\_discovery.h](#)
- DISCOVERY\_AUDIO\_I2Cx\_SCL\_PIN : [stm32746g\\_discovery.h](#)
- DISCOVERY\_AUDIO\_I2Cx\_SCL\_SDA\_AF : [stm32746g\\_discovery.h](#)
- DISCOVERY\_AUDIO\_I2Cx\_SCL\_SDA\_GPIO\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)
- DISCOVERY\_AUDIO\_I2Cx\_SCL\_SDA\_GPIO\_PORT : [stm32746g\\_discovery.h](#)
- DISCOVERY\_AUDIO\_I2Cx\_SDA\_PIN : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COM1 : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COM1\_CLK\_DISABLE : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COM1\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COM1\_IRQn : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COM1\_RX\_AF : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COM1\_RX\_GPIO\_CLK\_DISABLE : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COM1\_RX\_GPIO\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COM1\_RX\_GPIO\_PORT : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COM1\_RX\_PIN : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COM1\_TX\_AF : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COM1\_TX\_GPIO\_CLK\_DISABLE : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COM1\_TX\_GPIO\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COM1\_TX\_GPIO\_PORT : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COM1\_TX\_PIN : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COMx\_CLK\_DISABLE : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COMx\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COMx\_RX\_GPIO\_CLK\_DISABLE : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COMx\_RX\_GPIO\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COMx\_TX\_GPIO\_CLK\_DISABLE : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COMx\_TX\_GPIO\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)
- DISCOVERY\_EXT\_DMAx\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)
- DISCOVERY\_EXT\_I2Cx : [stm32746g\\_discovery.h](#)
- DISCOVERY\_EXT\_I2Cx\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)
- DISCOVERY\_EXT\_I2Cx\_ER\_IRQn : [stm32746g\\_discovery.h](#)
- DISCOVERY\_EXT\_I2Cx\_EV\_IRQn : [stm32746g\\_discovery.h](#)
- DISCOVERY\_EXT\_I2Cx\_FORCE\_RESET : [stm32746g\\_discovery.h](#)
- DISCOVERY\_EXT\_I2Cx\_RELEASE\_RESET : [stm32746g\\_discovery.h](#)

- [DISCOVERY\\_EXT\\_I2Cx\\_SCL\\_PIN : stm32746g\\_discovery.h](#)
- [DISCOVERY\\_EXT\\_I2Cx\\_SCL\\_SDA\\_AF : stm32746g\\_discovery.h](#)
- [DISCOVERY\\_EXT\\_I2Cx\\_SCL\\_SDA\\_GPIO\\_CLK\\_ENABLE : stm32746g\\_discovery.h](#)
- [DISCOVERY\\_EXT\\_I2Cx\\_SCL\\_SDA\\_GPIO\\_PORT : stm32746g\\_discovery.h](#)
- [DISCOVERY\\_EXT\\_I2Cx\\_SDA\\_PIN : stm32746g\\_discovery.h](#)
- [DMA\\_MAX : stm32746g\\_discovery\\_audio.h](#)
- [DMA\\_MAX\\_SIZE : stm32746g\\_discovery\\_audio.h](#)
- [DrawChar\(\) : stm32746g\\_discovery\\_lcd.c](#)
- [DrawProp : stm32746g\\_discovery\\_lcd.c](#)



Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)

- [File&"current">Globals](#)

- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [u](#)
- [w](#)

Here is a list of all functions, variables, defines, enums, and typedefs with links to the files they belong to:



**- e -**

- EEPROM\_FAIL : [stm32746g\\_discovery\\_eeprom.h](#)
- EEPROM\_I2C\_ADDRESS\_A01 : [stm32746g\\_discovery.h](#)
- EEPROM\_I2C\_ADDRESS\_A02 : [stm32746g\\_discovery.h](#)
- EEPROM\_IO\_Init() : [stm32746g\\_discovery.c](#) , [stm32746g\\_discovery\\_eeprom.h](#)
- EEPROM\_IO\_IsDeviceReady() : [stm32746g\\_discovery.c](#) , [stm32746g\\_discovery\\_eeprom.h](#)
- EEPROM\_IO\_ReadData() : [stm32746g\\_discovery.c](#) , [stm32746g\\_discovery\\_eeprom.h](#)
- EEPROM\_IO\_WriteData() : [stm32746g\\_discovery.c](#) , [stm32746g\\_discovery\\_eeprom.h](#)
- EEPROM\_MAX\_SIZE : [stm32746g\\_discovery\\_eeprom.h](#)
- EEPROM\_MAX\_TRIALS : [stm32746g\\_discovery\\_eeprom.h](#)
- EEPROM\_OK : [stm32746g\\_discovery\\_eeprom.h](#)
- EEPROM\_PAGESIZE : [stm32746g\\_discovery\\_eeprom.h](#)
- EEPROM\_TIMEOUT : [stm32746g\\_discovery\\_eeprom.h](#)
- EEPROMAddress : [stm32746g\\_discovery\\_eeprom.c](#)
- EEPROMDataRead : [stm32746g\\_discovery\\_eeprom.c](#)
- EEPROMDataWrite : [stm32746g\\_discovery\\_eeprom.c](#)

Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual



1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)

- [File&"current">Globals](#)

- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)

- [t](#)
- [u](#)
- [w](#)

Here is a list of all functions, variables, defines, enums, and typedefs with links to the files they belong to:

**- f -**

- [FillTriangle\(\)](#) : [stm32746g\\_discovery\\_lcd.c](#)

---

Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual



1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [u](#)
- [w](#)

Here is a list of all functions, variables, defines, enums, and typedefs with links to the files they belong to:

**- g -**

- [GEST\\_ID\\_MOVE\\_DOWN](#) : [stm32746g\\_discovery\\_ts.h](#)
- [GEST\\_ID\\_MOVE\\_LEFT](#) : [stm32746g\\_discovery\\_ts.h](#)
- [GEST\\_ID\\_MOVE\\_RIGHT](#) : [stm32746g\\_discovery\\_ts.h](#)
- [GEST\\_ID\\_MOVE\\_UP](#) : [stm32746g\\_discovery\\_ts.h](#)
- [GEST\\_ID\\_NB\\_MAX](#) : [stm32746g\\_discovery\\_ts.h](#)
- [GEST\\_ID\\_NO\\_GESTURE](#) : [stm32746g\\_discovery\\_ts.h](#)
- [GEST\\_ID\\_ZOOM\\_IN](#) : [stm32746g\\_discovery\\_ts.h](#)
- [GEST\\_ID\\_ZOOM\\_OUT](#) : [stm32746g\\_discovery\\_ts.h](#)
- [GetSize\(\)](#) : [stm32746g\\_discovery\\_camera.c](#)
- [GPIO\\_PIN](#) : [stm32746g\\_discovery.c](#)

Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual



1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)
- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [u](#)
- [w](#)

Here is a list of all functions, variables, defines, enums, and typedefs with links to the files they belong to:

**- h -**

- HAL\_DCMI\_ErrorCallback() : [stm32746g\\_discovery\\_camera.c](#)
- HAL\_DCMI\_FrameEventCallback() : [stm32746g\\_discovery\\_camera.c](#)
- HAL\_DCMI\_LineEventCallback() : [stm32746g\\_discovery\\_camera.c](#)
- HAL\_DCMI\_VsyncEventCallback() : [stm32746g\\_discovery\\_camera.c](#)
- HAL\_SAI\_ErrorCallback() : [stm32746g\\_discovery\\_audio.c](#)
- HAL\_SAI\_RxCpltCallback() : [stm32746g\\_discovery\\_audio.c](#)
- HAL\_SAI\_RxHalfCpltCallback() : [stm32746g\\_discovery\\_audio.c](#)
- HAL\_SAI\_TxCpltCallback() : [stm32746g\\_discovery\\_audio.c](#)
- HAL\_SAI\_TxHalfCpltCallback() : [stm32746g\\_discovery\\_audio.c](#)
- HAL\_SD\_AbortCallback() : [stm32746g\\_discovery\\_sd.c](#)
- HAL\_SD\_RxCpltCallback() : [stm32746g\\_discovery\\_sd.c](#)
- HAL\_SD\_TxCpltCallback() : [stm32746g\\_discovery\\_sd.c](#)
- haudio\_in\_sai : [stm32746g\\_discovery\\_audio.c](#)
- haudio\_out\_sai : [stm32746g\\_discovery\\_audio.c](#)
- haudio\_tim : [stm32746g\\_discovery\\_audio.c](#)
- hDcmiHandler : [stm32746g\\_discovery\\_camera.c](#)
- hDma2dHandler : [stm32746g\\_discovery\\_lcd.c](#)
- hI2cAudioHandler : [stm32746g\\_discovery.c](#)
- hI2cExtHandler : [stm32746g\\_discovery.c](#)
- hLtdcHandler : [stm32746g\\_discovery\\_lcd.c](#)



Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual

1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)
- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [k](#)
- [l](#)
- [m](#)

- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [u](#)
- [w](#)

Here is a list of all functions, variables, defines, enums, and typedefs with links to the files they belong to:

- i -

- I2cAddress : [stm32746g\\_discovery\\_ts.c](#)
- I2Cx\_Error() : [stm32746g\\_discovery.c](#)
- I2Cx\_Init() : [stm32746g\\_discovery.c](#)
- I2Cx\_IsDeviceReady() : [stm32746g\\_discovery.c](#)
- I2Cx\_MspInit() : [stm32746g\\_discovery.c](#)
- I2Cx\_ReadMultiple() : [stm32746g\\_discovery.c](#)
- I2Cx\_WriteMultiple() : [stm32746g\\_discovery.c](#)

Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual



1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)

- [r](#)
- [s](#)
- [t](#)
- [u](#)
- [w](#)

Here is a list of all functions, variables, defines, enums, and typedefs with links to the files they belong to:

## - k -

- KEY\_BUTTON\_EXTI\_IRQn : [stm32746g\\_discovery.h](#)
- KEY\_BUTTON\_GPIO\_CLK\_DISABLE : [stm32746g\\_discovery.h](#)
- KEY\_BUTTON\_GPIO\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)
- KEY\_BUTTON\_GPIO\_PORT : [stm32746g\\_discovery.h](#)
- KEY\_BUTTON\_PIN : [stm32746g\\_discovery.h](#)



Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual

1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)

- [File&"current">Globals](#)

- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [u](#)
- [w](#)

Here is a list of all functions, variables, defines, enums, and typedefs with links to the files they belong to:

- | -

- LCD\_BL\_CTRL\_GPIO\_CLK\_DISABLE : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_BL\_CTRL\_GPIO\_CLK\_ENABLE : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_BL\_CTRL\_GPIO\_PORT : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_BL\_CTRL\_PIN : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_BLACK : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_BLUE : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_BROWN : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_CYAN : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_DARKBLUE : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_DARKCYAN : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_DARKGRAY : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_DARKGREEN : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_DARKMAGENTA : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_DARKRED : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_DARKYELLOW : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_GRAY : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_GREEN : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_LIGHTBLUE : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_LIGHTCYAN : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_LIGHTGRAY : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_LIGHTGREEN : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_LIGHTMAGENTA : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_LIGHTRED : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_LIGHTYELLOW : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_MAGENTA : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_ORANGE : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_RED : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_TRANSPARENT : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_WHITE : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_YELLOW : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_DEFAULT\_FONT : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_DISP\_GPIO\_CLK\_DISABLE : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_DISP\_GPIO\_CLK\_ENABLE : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_DISP\_GPIO\_PORT : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_DISP\_PIN : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_ERROR : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_FB\_START\_ADDRESS : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_I2C\_ADDRESS : [stm32746g\\_discovery.h](#)
- LCD\_LayerCfgTypeDef : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_OK : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_RELOAD\_IMMEDIATE : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_RELOAD\_VERTICAL\_BLANKING : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_TIMEOUT : [stm32746g\\_discovery\\_lcd.h](#)
- LED1 : [stm32746g\\_discovery.h](#)
- LED1\_GPIO\_CLK\_DISABLE : [stm32746g\\_discovery.h](#)
- LED1\_GPIO\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)
- LED1\_GPIO\_PORT : [stm32746g\\_discovery.h](#)
- LED1\_PIN : [stm32746g\\_discovery.h](#)
- LED\_GREEN : [stm32746g\\_discovery.h](#)
- Led\_TypeDef : [stm32746g\\_discovery.h](#)
- LEDn : [stm32746g\\_discovery.h](#)

- LEFT\_MODE : [stm32746g\\_discovery\\_lcd.h](#)
- LL\_ConvertLineToARGB8888() : [stm32746g\\_discovery\\_lcd.c](#)
- LL\_FillBuffer() : [stm32746g\\_discovery\\_lcd.c](#)
- LTDC\_ACTIVE\_LAYER : [stm32746g\\_discovery\\_lcd.h](#)



Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [u](#)
- [w](#)

Here is a list of all functions, variables, defines, enums, and typedefs with links to the files they belong to:

## - m -

- MAX\_LAYER\_NUMBER : [stm32746g\\_discovery\\_lcd.h](#)
- MSD\_ERROR : [stm32746g\\_discovery\\_sd.h](#)
- MSD\_ERROR\_SD\_NOT\_PRESENT : [stm32746g\\_discovery\\_sd.h](#)
- MSD\_OK : [stm32746g\\_discovery\\_sd.h](#)



Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual



1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)
- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [u](#)
- [w](#)

Here is a list of all functions, variables, defines, enums, and typedefs with links to the files they belong to:

- **O** -

- [OUTPUT\\_DEVICE\\_HEADPHONE1](#) : [stm32746g\\_discovery\\_audio.h](#)
- [OUTPUT\\_DEVICE\\_HEADPHONE2](#) : [stm32746g\\_discovery\\_audio.h](#)

Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual



1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)

- [File&"current">Globals](#)

- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [u](#)
- [w](#)

Here is a list of all functions, variables, defines, enums, and typedefs with links to the files they belong to:

**- p -**

- POLY\_X : [stm32746g\\_discovery\\_lcd.c](#)
- POLY\_Y : [stm32746g\\_discovery\\_lcd.c](#)
- pPoint : [stm32746g\\_discovery\\_lcd.h](#)



Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual

1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)

- [File&"current">Globals](#)

- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)

- [Enumerator](#)
- [Defines](#)

- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [u](#)
- [w](#)

Here is a list of all functions, variables, defines, enums, and typedefs with links to the files they belong to:

## - q -

- [QSPI\\_AutoPollingMemReady\(\) : stm32746g\\_discovery\\_qspi.c](#)
- [QSPI\\_BUSY : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_CLK\\_DISABLE : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_CLK\\_ENABLE : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_CLK\\_GPIO\\_CLK\\_ENABLE : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_CLK\\_GPIO\\_PORT : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_CLK\\_PIN : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_CS\\_GPIO\\_CLK\\_ENABLE : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_CS\\_GPIO\\_PORT : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_CS\\_PIN : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_D0\\_GPIO\\_CLK\\_ENABLE : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_D0\\_GPIO\\_PORT : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_D0\\_PIN : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_D1\\_GPIO\\_CLK\\_ENABLE : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_D1\\_GPIO\\_PORT : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_D1\\_PIN : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_D2\\_GPIO\\_CLK\\_ENABLE : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_D2\\_GPIO\\_PORT : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_D2\\_PIN : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_D3\\_GPIO\\_CLK\\_ENABLE : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_D3\\_GPIO\\_PORT : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_D3\\_PIN : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_DummyCyclesCfg\(\) : stm32746g\\_discovery\\_qspi.c](#)
- [QSPI\\_ERROR : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_FLASH\\_SIZE : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_FORCE\\_RESET : stm32746g\\_discovery\\_qspi.h](#)

- [QSPI\\_NOT\\_SUPPORTED](#) : [stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_OK](#) : [stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_PAGE\\_SIZE](#) : [stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_RELEASE\\_RESET](#) : [stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_ResetMemory\(\)](#) : [stm32746g\\_discovery\\_qspi.c](#)
- [QSPI\\_SUSPENDED](#) : [stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_WriteEnable\(\)](#) : [stm32746g\\_discovery\\_qspi.c](#)
- [QSPIHandle](#) : [stm32746g\\_discovery\\_qspi.c](#)



Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual

1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)

- [File&"current">Globals](#)

- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [u](#)
- [w](#)

Here is a list of all functions, variables, defines, enums, and typedefs with links to the files they belong to:

- r -

- [REFRESH\\_COUNT](#) : [stm32746g\\_discovery\\_sdram.h](#)
- [RESOLUTION\\_R160x120](#) : [stm32746g\\_discovery\\_camera.h](#)

- RESOLUTION\_R320x240 : [stm32746g\\_discovery\\_camera.h](#)
- RESOLUTION\_R480x272 : [stm32746g\\_discovery\\_camera.h](#)
- RESOLUTION\_R640x480 : [stm32746g\\_discovery\\_camera.h](#)
- RIGHT\_MODE : [stm32746g\\_discovery\\_lcd.h](#)

Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual



1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [u](#)
- [w](#)

Here is a list of all functions, variables, defines, enums, and typedefs with links to the files they belong to:

**- S -**

- SAIx\_In\_DeInit() : [stm32746g\\_discovery\\_audio.c](#)
- SAIx\_In\_Init() : [stm32746g\\_discovery\\_audio.c](#)
- SAIx\_Out\_DeInit() : [stm32746g\\_discovery\\_audio.c](#)
- SAIx\_Out\_Init() : [stm32746g\\_discovery\\_audio.c](#)
- SD\_DATATIMEOUT : [stm32746g\\_discovery\\_sd.h](#)
- SD\_DETECT\_EXTI\_IRQn : [stm32746g\\_discovery.h](#)

- SD\_DETECT\_GPIO\_CLK\_DISABLE : [stm32746g\\_discovery.h](#)
- SD\_DETECT\_GPIO\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)
- SD\_DETECT\_GPIO\_PORT : [stm32746g\\_discovery.h](#)
- SD\_DETECT\_PIN : [stm32746g\\_discovery.h](#)
- SD\_DetectIRQHandler : [stm32746g\\_discovery\\_sd.h](#)
- SD\_DMAx\_Rx\_CHANNEL : [stm32746g\\_discovery\\_sd.h](#)
- SD\_DMAx\_Rx\_IRQn : [stm32746g\\_discovery\\_sd.h](#)
- SD\_DMAx\_Rx\_STREAM : [stm32746g\\_discovery\\_sd.h](#)
- SD\_DMAx\_Tx\_CHANNEL : [stm32746g\\_discovery\\_sd.h](#)
- SD\_DMAx\_Tx\_IRQn : [stm32746g\\_discovery\\_sd.h](#)
- SD\_DMAx\_Tx\_STREAM : [stm32746g\\_discovery\\_sd.h](#)
- SD\_NOT\_PRESENT : [stm32746g\\_discovery\\_sd.h](#)
- SD\_PRESENT : [stm32746g\\_discovery\\_sd.h](#)
- SD\_TRANSFER\_BUSY : [stm32746g\\_discovery\\_sd.h](#)
- SD\_TRANSFER\_OK : [stm32746g\\_discovery\\_sd.h](#)
- SDCLOCK\_PERIOD : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_DEVICE\_ADDR : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_DEVICE\_SIZE : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_DMAx\_CHANNEL : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_DMAx\_IRQn : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_DMAx\_STREAM : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_ERROR : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_MEMORY\_WIDTH : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_MODEREG\_BURST\_LENGTH\_1 : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_MODEREG\_BURST\_LENGTH\_2 : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_MODEREG\_BURST\_LENGTH\_4 : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_MODEREG\_BURST\_LENGTH\_8 : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_MODEREG\_BURST\_TYPE\_INTERLEAVED : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_MODEREG\_BURST\_TYPE\_SEQUENTIAL : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_MODEREG\_CAS\_LATENCY\_2 : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_MODEREG\_CAS\_LATENCY\_3 : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_MODEREG\_OPERATING\_MODE\_STANDARD : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_MODEREG\_WRITEBURST\_MODE\_PROGRAMMED : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_MODEREG\_WRITEBURST\_MODE\_SINGLE : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_OK : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_TIMEOUT : [stm32746g\\_discovery\\_sdram.h](#)
- sdramHandle : [stm32746g\\_discovery\\_sdram.c](#)
- SIGNALn : [stm32746g\\_discovery.h](#)



Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)

- [Defines](#)

- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [u](#)
- [w](#)

Here is a list of all functions, variables, defines, enums, and typedefs with links to the files they belong to:

**- t -**

- TAMPER\_BUTTON\_EXTI\_IRQn : [stm32746g\\_discovery.h](#)
- TAMPER\_BUTTON\_GPIO\_CLK\_DISABLE : [stm32746g\\_discovery.h](#)
- TAMPER\_BUTTON\_GPIO\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)
- TAMPER\_BUTTON\_GPIO\_PORT : [stm32746g\\_discovery.h](#)
- TAMPER\_BUTTON\_PIN : [stm32746g\\_discovery.h](#)
- Text\_AlignModeTypdef : [stm32746g\\_discovery\\_lcd.h](#)
- Timing : [stm32746g\\_discovery\\_sdram.c](#)
- TOUCH\_EVENT\_CONTACT : [stm32746g\\_discovery\\_ts.h](#)
- TOUCH\_EVENT\_LIFT\_UP : [stm32746g\\_discovery\\_ts.h](#)
- TOUCH\_EVENT\_NB\_MAX : [stm32746g\\_discovery\\_ts.h](#)
- TOUCH\_EVENT\_NO\_EVT : [stm32746g\\_discovery\\_ts.h](#)
- TOUCH\_EVENT\_PRESS\_DOWN : [stm32746g\\_discovery\\_ts.h](#)
- TS\_DEVICE\_NOT\_FOUND : [stm32746g\\_discovery\\_ts.h](#)
- TS\_ERROR : [stm32746g\\_discovery\\_ts.h](#)
- ts\_event\_string\_tab : [stm32746g\\_discovery\\_ts.h](#)
- ts\_gesture\_id\_string\_tab : [stm32746g\\_discovery\\_ts.h](#)
- TS\_GestureIdTypeDef : [stm32746g\\_discovery\\_ts.h](#)
- TS\_I2C\_ADDRESS : [stm32746g\\_discovery.h](#)
- TS\_INT\_EXTI\_IRQn : [stm32746g\\_discovery.h](#)
- TS\_INT\_GPIO\_CLK\_DISABLE : [stm32746g\\_discovery.h](#)
- TS\_INT\_GPIO\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)
- TS\_INT\_GPIO\_PORT : [stm32746g\\_discovery.h](#)
- TS\_INT\_PIN : [stm32746g\\_discovery.h](#)
- TS\_IO\_Delay() : [stm32746g\\_discovery.c](#)
- TS\_IO\_Init() : [stm32746g\\_discovery.c](#)
- TS\_IO\_Read() : [stm32746g\\_discovery.c](#)
- TS\_IO\_Write() : [stm32746g\\_discovery.c](#)

- TS\_IRQ\_PENDING : [stm32746g\\_discovery\\_ts.h](#)
- TS\_MAX\_NB\_TOUCH : [stm32746g\\_discovery\\_ts.h](#)
- TS\_NO\_IRQ\_PENDING : [stm32746g\\_discovery\\_ts.h](#)
- TS\_OK : [stm32746g\\_discovery\\_ts.h](#)
- TS\_StatusTypeDef : [stm32746g\\_discovery\\_ts.h](#)
- TS\_SWAP\_NONE : [stm32746g\\_discovery\\_ts.h](#)
- TS\_SWAP\_X : [stm32746g\\_discovery\\_ts.h](#)
- TS\_SWAP\_XY : [stm32746g\\_discovery\\_ts.h](#)
- TS\_SWAP\_Y : [stm32746g\\_discovery\\_ts.h](#)
- TS\_TIMEOUT : [stm32746g\\_discovery\\_ts.h](#)
- TS\_TouchEventTypeDef : [stm32746g\\_discovery\\_ts.h](#)
- tsDriver : [stm32746g\\_discovery\\_ts.c](#)
- tsOrientation : [stm32746g\\_discovery\\_ts.c](#)
- tsXBoundary : [stm32746g\\_discovery\\_ts.c](#)
- tsYBoundary : [stm32746g\\_discovery\\_ts.c](#)



Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual

1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)
- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [u](#)
- [w](#)



Here is a list of all functions, variables, defines, enums, and typedefs with links to the files they belong to:

**- u -**

- uSdHandle : [stm32746g\\_discovery\\_sd.c](#)

Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual



1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [u](#)
- [w](#)

Here is a list of all functions, variables, defines, enums, and typedefs with links to the files they belong to:

**- w -**

- WAKEUP\_BUTTON\_EXTI\_IRQn : [stm32746g\\_discovery.h](#)
- WAKEUP\_BUTTON\_GPIO\_CLK\_DISABLE : [stm32746g\\_discovery.h](#)
- WAKEUP\_BUTTON\_GPIO\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)
- WAKEUP\_BUTTON\_GPIO\_PORT : [stm32746g\\_discovery.h](#)
- WAKEUP\_BUTTON\_PIN : [stm32746g\\_discovery.h](#)



Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual

1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [l](#)
- [q](#)
- [s](#)
- [t](#)

## - a -

- [AUDIO\\_IO\\_DeInit\(\) : stm32746g\\_discovery.c](#)
- [AUDIO\\_IO\\_Delay\(\) : stm32746g\\_discovery.c](#)
- [AUDIO\\_IO\\_Init\(\) : stm32746g\\_discovery.c](#)
- [AUDIO\\_IO\\_Read\(\) : stm32746g\\_discovery.c](#)
- [AUDIO\\_IO\\_Write\(\) : stm32746g\\_discovery.c](#)



Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual

1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)

- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [l](#)
- [q](#)
- [s](#)
- [t](#)

## - b -

- [BSP\\_AUDIO\\_IN\\_DeInit\(\)](#) : [stm32746g\\_discovery\\_audio.c](#) , [stm32746g\\_discovery\\_audio.h](#)
- [BSP\\_AUDIO\\_IN\\_Error\\_CallBack\(\)](#) : [stm32746g\\_discovery\\_audio.h](#) , [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_IN\\_HalfTransfer\\_CallBack\(\)](#) : [stm32746g\\_discovery\\_audio.c](#) , [stm32746g\\_discovery\\_audio.h](#)
- [BSP\\_AUDIO\\_IN\\_Init\(\)](#) : [stm32746g\\_discovery\\_audio.h](#) , [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_IN\\_InitEx\(\)](#) : [stm32746g\\_discovery\\_audio.c](#) , [stm32746g\\_discovery\\_audio.h](#)
- [BSP\\_AUDIO\\_IN\\_MspDeInit\(\)](#) : [stm32746g\\_discovery\\_audio.c](#) , [stm32746g\\_discovery\\_audio.h](#)
- [BSP\\_AUDIO\\_IN\\_MspInit\(\)](#) : [stm32746g\\_discovery\\_audio.c](#) , [stm32746g\\_discovery\\_audio.h](#)
- [BSP\\_AUDIO\\_IN\\_OUT\\_Init\(\)](#) : [stm32746g\\_discovery\\_audio.h](#) , [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_IN\\_Pause\(\)](#) : [stm32746g\\_discovery\\_audio.c](#) , [stm32746g\\_discovery\\_audio.h](#)
- [BSP\\_AUDIO\\_IN\\_Record\(\)](#) : [stm32746g\\_discovery\\_audio.c](#) , [stm32746g\\_discovery\\_audio.h](#)
- [BSP\\_AUDIO\\_IN\\_Resume\(\)](#) : [stm32746g\\_discovery\\_audio.c](#) , [stm32746g\\_discovery\\_audio.h](#)
- [BSP\\_AUDIO\\_IN\\_SetVolume\(\)](#) : [stm32746g\\_discovery\\_audio.c](#) , [stm32746g\\_discovery\\_audio.h](#)
- [BSP\\_AUDIO\\_IN\\_Stop\(\)](#) : [stm32746g\\_discovery\\_audio.c](#) , [stm32746g\\_discovery\\_audio.h](#)
- [BSP\\_AUDIO\\_IN\\_TransferComplete\\_CallBack\(\)](#) : [stm32746g\\_discovery\\_audio.c](#) , [stm32746g\\_discovery\\_audio.h](#)
- [BSP\\_AUDIO\\_OUT\\_ChangeBuffer\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_OUT\\_ClockConfig\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_OUT\\_DeInit\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_OUT\\_Error\\_CallBack\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_OUT\\_HalfTransfer\\_CallBack\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_OUT\\_Init\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_OUT\\_MspDeInit\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_OUT\\_MspInit\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_OUT\\_Pause\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_OUT\\_Play\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_OUT\\_Resume\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_OUT\\_SetAudioFrameSlot\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_OUT\\_SetFrequency\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)
- [BSP\\_AUDIO\\_OUT\\_SetMute\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)

- BSP\_AUDIO\_OUT\_SetOutputMode() : [stm32746g\\_discovery\\_audio.c](#)
- BSP\_AUDIO\_OUT\_SetVolume() : [stm32746g\\_discovery\\_audio.c](#)
- BSP\_AUDIO\_OUT\_Stop() : [stm32746g\\_discovery\\_audio.c](#)
- BSP\_AUDIO\_OUT\_TransferComplete\_Callback() : [stm32746g\\_discovery\\_audio.c](#)
- BSP\_CAMERA\_BlackWhiteConfig() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_ColorEffectConfig() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_ContinuousStart() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_ContrastBrightnessConfig() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_DeInit() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_ErrorCallback() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_FrameEventCallback() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_Init() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_LineEventCallback() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_MspDeInit() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_MspInit() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_PwrDown() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_PwrUp() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_Resume() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_SnapshotStart() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_Stop() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_Suspend() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_CAMERA\_VsyncEventCallback() : [stm32746g\\_discovery\\_camera.c](#)
- BSP\_COM\_DeInit() : [stm32746g\\_discovery.c](#)
- BSP\_COM\_Init() : [stm32746g\\_discovery.c](#)
- BSP\_EEPROM\_DeInit() : [stm32746g\\_discovery\\_eeprom.c](#)
- BSP\_EEPROM\_Init() : [stm32746g\\_discovery\\_eeprom.c](#)
- BSP\_EEPROM\_ReadBuffer() : [stm32746g\\_discovery\\_eeprom.c](#)
- BSP\_EEPROM\_TIMEOUT\_UserCallback() : [stm32746g\\_discovery\\_eeprom.c](#)
- BSP\_EEPROM\_WaitEepromStandbyState() : [stm32746g\\_discovery\\_eeprom.c](#)
- BSP\_EEPROM\_WriteBuffer() : [stm32746g\\_discovery\\_eeprom.c](#)
- BSP\_EEPROM\_WritePage() : [stm32746g\\_discovery\\_eeprom.c](#)
- BSP\_GetVersion() : [stm32746g\\_discovery.c](#)
- BSP\_LCD\_Clear() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_ClearStringLine() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_ClockConfig() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_DeInit() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_DisplayChar() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_DisplayOff() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_DisplayOn() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_DisplayStringAt() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_DisplayStringAtLine() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_DrawBitmap() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_DrawCircle() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_DrawEllipse() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_DrawHLine() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_DrawLine() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_DrawPixel() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_DrawPolygon() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_DrawRect() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_DrawVLine() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_FillCircle() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_FillEllipse() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_FillPolygon() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_FillRect() : [stm32746g\\_discovery\\_lcd.c](#)

- BSP\_LCD\_GetBackColor() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_GetFont() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_GetTextColor() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_GetXSize() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_GetYSize() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_Init() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_LayerDefaultInit() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_LayerRgb565Init() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_MspDeInit() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_MspInit() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_ReadPixel() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_Reload() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_ResetColorKeying() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_ResetColorKeying\_NoReload() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SelectLayer() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SetBackColor() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SetColorKeying() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SetColorKeying\_NoReload() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SetFont() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SetLayerAddress() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SetLayerAddress\_NoReload() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SetLayerVisible() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SetLayerVisible\_NoReload() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SetLayerWindow() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SetLayerWindow\_NoReload() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SetTextColor() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SetTransparency() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SetTransparency\_NoReload() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SetXSize() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LCD\_SetYSize() : [stm32746g\\_discovery\\_lcd.c](#)
- BSP\_LED\_DeInit() : [stm32746g\\_discovery.c](#)
- BSP\_LED\_Init() : [stm32746g\\_discovery.c](#)
- BSP\_LED\_Off() : [stm32746g\\_discovery.c](#)
- BSP\_LED\_On() : [stm32746g\\_discovery.c](#)
- BSP\_LED\_Toggle() : [stm32746g\\_discovery.c](#)
- BSP\_PB\_DeInit() : [stm32746g\\_discovery.c](#)
- BSP\_PB\_GetState() : [stm32746g\\_discovery.c](#)
- BSP\_PB\_Init() : [stm32746g\\_discovery.c](#)
- BSP\_QSPI\_DeInit() : [stm32746g\\_discovery\\_qspi.c](#)
- BSP\_QSPI\_EnableMemoryMappedMode() : [stm32746g\\_discovery\\_qspi.c](#)
- BSP\_QSPI\_Erase\_Block() : [stm32746g\\_discovery\\_qspi.c](#)
- BSP\_QSPI\_Erase\_Chip() : [stm32746g\\_discovery\\_qspi.c](#)
- BSP\_QSPI\_GetInfo() : [stm32746g\\_discovery\\_qspi.c](#)
- BSP\_QSPI\_GetStatus() : [stm32746g\\_discovery\\_qspi.c](#)
- BSP\_QSPI\_Init() : [stm32746g\\_discovery\\_qspi.c](#)
- BSP\_QSPI\_MspDeInit() : [stm32746g\\_discovery\\_qspi.h](#) , [stm32746g\\_discovery\\_qspi.c](#)
- BSP\_QSPI\_MspInit() : [stm32746g\\_discovery\\_qspi.c](#) , [stm32746g\\_discovery\\_qspi.h](#)
- BSP\_QSPI\_Read() : [stm32746g\\_discovery\\_qspi.c](#)
- BSP\_QSPI\_Write() : [stm32746g\\_discovery\\_qspi.c](#)
- BSP\_SD\_AbortCallback() : [stm32746g\\_discovery\\_sd.c](#)
- BSP\_SD\_DeInit() : [stm32746g\\_discovery\\_sd.c](#)
- BSP\_SD\_Detect\_MspInit() : [stm32746g\\_discovery\\_sd.c](#)
- BSP\_SD\_Erase() : [stm32746g\\_discovery\\_sd.c](#)
- BSP\_SD\_GetCardInfo() : [stm32746g\\_discovery\\_sd.c](#)

- [BSP\\_SD\\_GetCardState\(\)](#) : [stm32746g\\_discovery\\_sd.c](#)
- [BSP\\_SD\\_Init\(\)](#) : [stm32746g\\_discovery\\_sd.c](#)
- [BSP\\_SD\\_IsDetected\(\)](#) : [stm32746g\\_discovery\\_sd.c](#)
- [BSP\\_SD\\_ITConfig\(\)](#) : [stm32746g\\_discovery\\_sd.c](#)
- [BSP\\_SD\\_MspDeInit\(\)](#) : [stm32746g\\_discovery\\_sd.c](#)
- [BSP\\_SD\\_MspInit\(\)](#) : [stm32746g\\_discovery\\_sd.c](#)
- [BSP\\_SD\\_ReadBlocks\(\)](#) : [stm32746g\\_discovery\\_sd.c](#)
- [BSP\\_SD\\_ReadBlocks\\_DMA\(\)](#) : [stm32746g\\_discovery\\_sd.c](#)
- [BSP\\_SD\\_ReadCpltCallback\(\)](#) : [stm32746g\\_discovery\\_sd.c](#)
- [BSP\\_SD\\_WriteBlocks\(\)](#) : [stm32746g\\_discovery\\_sd.c](#)
- [BSP\\_SD\\_WriteBlocks\\_DMA\(\)](#) : [stm32746g\\_discovery\\_sd.c](#)
- [BSP\\_SD\\_WriteCpltCallback\(\)](#) : [stm32746g\\_discovery\\_sd.c](#)
- [BSP\\_SDRAM\\_DeInit\(\)](#) : [stm32746g\\_discovery\\_sdram.c](#)
- [BSP\\_SDRAM\\_Init\(\)](#) : [stm32746g\\_discovery\\_sdram.c](#)
- [BSP\\_SDRAM\\_Initialization\\_sequence\(\)](#) : [stm32746g\\_discovery\\_sdram.c](#)
- [BSP\\_SDRAM\\_MspDeInit\(\)](#) : [stm32746g\\_discovery\\_sdram.c](#)
- [BSP\\_SDRAM\\_MspInit\(\)](#) : [stm32746g\\_discovery\\_sdram.c](#)
- [BSP\\_SDRAM\\_ReadData\(\)](#) : [stm32746g\\_discovery\\_sdram.c](#)
- [BSP\\_SDRAM\\_ReadData\\_DMA\(\)](#) : [stm32746g\\_discovery\\_sdram.c](#)
- [BSP\\_SDRAM\\_Sendcmd\(\)](#) : [stm32746g\\_discovery\\_sdram.c](#)
- [BSP\\_SDRAM\\_WriteData\(\)](#) : [stm32746g\\_discovery\\_sdram.c](#)
- [BSP\\_SDRAM\\_WriteData\\_DMA\(\)](#) : [stm32746g\\_discovery\\_sdram.c](#)
- [BSP\\_TS\\_DeInit\(\)](#) : [stm32746g\\_discovery\\_ts.c](#)
- [BSP\\_TS\\_Get\\_GestureId\(\)](#) : [stm32746g\\_discovery\\_ts.c](#)
- [BSP\\_TS\\_GetState\(\)](#) : [stm32746g\\_discovery\\_ts.c](#)
- [BSP\\_TS\\_Init\(\)](#) : [stm32746g\\_discovery\\_ts.c](#)
- [BSP\\_TS\\_ITClear\(\)](#) : [stm32746g\\_discovery\\_ts.c](#)
- [BSP\\_TS\\_ITConfig\(\)](#) : [stm32746g\\_discovery\\_ts.c](#)
- [BSP\\_TS\\_ITGetStatus\(\)](#) : [stm32746g\\_discovery\\_ts.c](#)
- [BSP\\_TS\\_ResetTouchData\(\)](#) : [stm32746g\\_discovery\\_ts.c](#) , [stm32746g\\_discovery\\_ts.h](#)



Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)

- [g](#)
- [h](#)
- [i](#)
- [l](#)
- [q](#)
- [s](#)
- [t](#)

## - C -

- CAMERA\_Delay() : [stm32746g\\_discovery.c](#)
- CAMERA\_IO\_Init() : [stm32746g\\_discovery.c](#)
- CAMERA\_IO\_Read() : [stm32746g\\_discovery.c](#)
- CAMERA\_IO\_Write() : [stm32746g\\_discovery.c](#)

---

Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual



1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [l](#)
- [q](#)
- [s](#)
- [t](#)

**- d -**

- DrawChar() : [stm32746g\\_discovery\\_lcd.c](#)



Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual 1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [l](#)
- [q](#)
- [s](#)
- [t](#)

**- e -**

- EEPROM\_IO\_Init() : [stm32746g\\_discovery.c](#) , [stm32746g\\_discovery\\_eeprom.h](#)
- EEPROM\_IO\_IsDeviceReady() : [stm32746g\\_discovery\\_eeprom.h](#) , [stm32746g\\_discovery.c](#)
- EEPROM\_IO\_ReadData() : [stm32746g\\_discovery.c](#) , [stm32746g\\_discovery\\_eeprom.h](#)
- EEPROM\_IO\_WriteData() : [stm32746g\\_discovery\\_eeprom.h](#) , [stm32746g\\_discovery.c](#)



Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual 1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)



- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [l](#)
- [q](#)
- [s](#)
- [t](#)

- f -

- [FillTriangle\(\) : stm32746g\\_discovery\\_lcd.c](#)

---

Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual



1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)

- [File&"current">Globals](#)

- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)

- [i](#)
- [l](#)
- [q](#)
- [s](#)
- [t](#)

## - g -

- [GetSize\(\)](#) : [stm32746g\\_discovery\\_camera.c](#)



Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [l](#)
- [q](#)
- [s](#)
- [t](#)

## - h -

- [HAL\\_DCMI\\_ErrorCallback\(\)](#) : [stm32746g\\_discovery\\_camera.c](#)
- [HAL\\_DCMI\\_FrameEventCallback\(\)](#) : [stm32746g\\_discovery\\_camera.c](#)
- [HAL\\_DCMI\\_LineEventCallback\(\)](#) : [stm32746g\\_discovery\\_camera.c](#)
- [HAL\\_DCMI\\_VsyncEventCallback\(\)](#) : [stm32746g\\_discovery\\_camera.c](#)
- [HAL\\_SAI\\_ErrorCallback\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)
- [HAL\\_SAI\\_RxCpltCallback\(\)](#) : [stm32746g\\_discovery\\_audio.c](#)

- HAL\_SAI\_RxCpltCallback() : [stm32746g\\_discovery\\_audio.c](#)
- HAL\_SAI\_TxCpltCallback() : [stm32746g\\_discovery\\_audio.c](#)
- HAL\_SAI\_TxHalfCpltCallback() : [stm32746g\\_discovery\\_audio.c](#)
- HAL\_SD\_AbortCallback() : [stm32746g\\_discovery\\_sd.c](#)
- HAL\_SD\_RxCpltCallback() : [stm32746g\\_discovery\\_sd.c](#)
- HAL\_SD\_TxCpltCallback() : [stm32746g\\_discovery\\_sd.c](#)

Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual



1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [l](#)
- [q](#)
- [s](#)
- [t](#)

- i -

- I2Cx\_Error() : [stm32746g\\_discovery.c](#)
- I2Cx\_Init() : [stm32746g\\_discovery.c](#)
- I2Cx\_IsDeviceReady() : [stm32746g\\_discovery.c](#)
- I2Cx\_MspInit() : [stm32746g\\_discovery.c](#)
- I2Cx\_ReadMultiple() : [stm32746g\\_discovery.c](#)
- I2Cx\_WriteMultiple() : [stm32746g\\_discovery.c](#)

Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual



1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [l](#)
- [q](#)
- [s](#)
- [t](#)

- | -

- [LL\\_ConvertLineToARGB8888\(\)](#) : [stm32746g\\_discovery\\_lcd.c](#)
- [LL\\_FillBuffer\(\)](#) : [stm32746g\\_discovery\\_lcd.c](#)

Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual



1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)
- [a](#)

- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [l](#)
- [q](#)
- [s](#)
- [t](#)

## - q -

- [QSPI\\_AutoPollingMemReady\(\)](#) : [stm32746g\\_discovery\\_qspi.c](#)
- [QSPI\\_DummyCyclesCfg\(\)](#) : [stm32746g\\_discovery\\_qspi.c](#)
- [QSPI\\_ResetMemory\(\)](#) : [stm32746g\\_discovery\\_qspi.c](#)
- [QSPI\\_WriteEnable\(\)](#) : [stm32746g\\_discovery\\_qspi.c](#)

Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual



1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [l](#)
- [q](#)
- [s](#)
- [t](#)

**- s -**

- SAIx\_In\_DeInit() : [stm32746g\\_discovery\\_audio.c](#)
  - SAIx\_In\_Init() : [stm32746g\\_discovery\\_audio.c](#)
  - SAIx\_Out\_DeInit() : [stm32746g\\_discovery\\_audio.c](#)
  - SAIx\_Out\_Init() : [stm32746g\\_discovery\\_audio.c](#)
- 



Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [f](#)
- [g](#)
- [h](#)
- [i](#)
- [l](#)
- [q](#)
- [s](#)
- [t](#)

**- t -**

- TS\_IO\_Delay() : [stm32746g\\_discovery.c](#)
  - TS\_IO\_Init() : [stm32746g\\_discovery.c](#)
  - TS\_IO\_Read() : [stm32746g\\_discovery.c](#)
  - TS\_IO\_Write() : [stm32746g\\_discovery.c](#)
- 



Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)

- [File&"current">Globals](#)

- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [g](#)
- [h](#)
- [i](#)
- [q](#)
- [s](#)
- [t](#)
- [u](#)

## - a -

- [ActiveLayer](#) : [stm32746g\\_discovery\\_lcd.c](#)
- [audio\\_drv](#) : [stm32746g\\_discovery\\_audio.c](#)
- [AudioInVolume](#) : [stm32746g\\_discovery\\_audio.c](#) , [stm32746g\\_discovery\\_audio.h](#)

## - b -

- [BUTTON\\_IRQn](#) : [stm32746g\\_discovery.c](#)
- [BUTTON\\_PIN](#) : [stm32746g\\_discovery.c](#)
- [BUTTON\\_PORT](#) : [stm32746g\\_discovery.c](#)

## - c -

- [camera\\_drv](#) : [stm32746g\\_discovery\\_camera.c](#)
- [CameraCurrentResolution](#) : [stm32746g\\_discovery\\_camera.c](#)
- [CameraHwAddress](#) : [stm32746g\\_discovery\\_camera.c](#)
- [COM\\_RX\\_AF](#) : [stm32746g\\_discovery.c](#)
- [COM\\_RX\\_PIN](#) : [stm32746g\\_discovery.c](#)
- [COM\\_RX\\_PORT](#) : [stm32746g\\_discovery.c](#)
- [COM\\_TX\\_AF](#) : [stm32746g\\_discovery.c](#)
- [COM\\_TX\\_PIN](#) : [stm32746g\\_discovery.c](#)
- [COM\\_TX\\_PORT](#) : [stm32746g\\_discovery.c](#)
- [COM\\_USART](#) : [stm32746g\\_discovery.c](#)
- [Command](#) : [stm32746g\\_discovery\\_sdram.c](#)

**- d -**

- DrawProp : [stm32746g\\_discovery\\_lcd.c](#)

**- e -**

- EEPROMAddress : [stm32746g\\_discovery\\_eeprom.c](#)
- EEPROMDataRead : [stm32746g\\_discovery\\_eeprom.c](#)
- EEPROMDataWrite : [stm32746g\\_discovery\\_eeprom.c](#)

**- g -**

- GPIO\_PIN : [stm32746g\\_discovery.c](#)

**- h -**

- haudio\_in\_sai : [stm32746g\\_discovery\\_audio.c](#)
- haudio\_out\_sai : [stm32746g\\_discovery\\_audio.c](#)
- haudio\_tim : [stm32746g\\_discovery\\_audio.c](#)
- hDcmiHandler : [stm32746g\\_discovery\\_camera.c](#)
- hDma2dHandler : [stm32746g\\_discovery\\_lcd.c](#)
- hI2cAudioHandler : [stm32746g\\_discovery.c](#)
- hI2cExtHandler : [stm32746g\\_discovery.c](#)
- hLtdcHandler : [stm32746g\\_discovery\\_lcd.c](#)

**- i -**

- I2cAddress : [stm32746g\\_discovery\\_ts.c](#)

**- q -**

- QSPIHandle : [stm32746g\\_discovery\\_qspi.c](#)

**- s -**

- sdramHandle : [stm32746g\\_discovery\\_sdram.c](#)

**- t -**

- Timing : [stm32746g\\_discovery\\_sdram.c](#)
- ts\_event\_string\_tab : [stm32746g\\_discovery\\_ts.h](#)
- ts\_gesture\_id\_string\_tab : [stm32746g\\_discovery\\_ts.h](#)
- tsDriver : [stm32746g\\_discovery\\_ts.c](#)
- tsOrientation : [stm32746g\\_discovery\\_ts.c](#)
- tsXBoundary : [stm32746g\\_discovery\\_ts.c](#)
- tsYBoundary : [stm32746g\\_discovery\\_ts.c](#)

**- u -**

- uSdHandle : [stm32746g\\_discovery\\_sd.c](#)
-



Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual



1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

&"el"

href="group\_\_STM32746G\_\_DISCOVERY\_\_LCD\_\_Exported\_\_Types.html#gace93ab3d3cf5a56891a5728ae2695e4"

Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual



1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

&"el"

href="group\_\_STM32746G\_\_DISCOVERY\_\_LOW\_\_LEVEL\_\_Exported\_\_Types.html#ga643816dfbad5c734fc25a2"

- ButtonMode\_TypeDef : [stm32746g\\_discovery.h](#)
- Camera\_StatusTypeDef : [stm32746g\\_discovery\\_camera.h](#)
- COM\_TypeDef : [stm32746g\\_discovery.h](#)
- Led\_TypeDef : [stm32746g\\_discovery.h](#)
- Text\_AlignModeTypdef : [stm32746g\\_discovery\\_lcd.h](#)
- TS\_GestureIdTypeDef : [stm32746g\\_discovery\\_ts.h](#)
- TS\_StatusTypeDef : [stm32746g\\_discovery\\_ts.h](#)
- TS\_TouchEventTypeDef : [stm32746g\\_discovery\\_ts.h](#)

Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual



1.7.6.1

- [Main&"modules.html">Modules](#)

- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)
- [b](#)
- [c](#)
- [g](#)
- [l](#)
- [r](#)
- [t](#)

## - b -

- [BUTTON\\_KEY : stm32746g\\_discovery.h](#)
- [BUTTON\\_MODE\\_EXTI : stm32746g\\_discovery.h](#)
- [BUTTON\\_MODE\\_GPIO : stm32746g\\_discovery.h](#)
- [BUTTON\\_TAMPER : stm32746g\\_discovery.h](#)
- [BUTTON\\_WAKEUP : stm32746g\\_discovery.h](#)

## - c -

- [CAMERA\\_ERROR : stm32746g\\_discovery\\_camera.h](#)
- [CAMERA\\_NOT\\_DETECTED : stm32746g\\_discovery\\_camera.h](#)
- [CAMERA\\_NOT\\_SUPPORTED : stm32746g\\_discovery\\_camera.h](#)
- [CAMERA\\_OK : stm32746g\\_discovery\\_camera.h](#)
- [CAMERA\\_TIMEOUT : stm32746g\\_discovery\\_camera.h](#)
- [CENTER\\_MODE : stm32746g\\_discovery\\_lcd.h](#)
- [COM1 : stm32746g\\_discovery.h](#)
- [COM2 : stm32746g\\_discovery.h](#)

## - g -

- [GEST\\_ID\\_MOVE\\_DOWN : stm32746g\\_discovery\\_ts.h](#)
- [GEST\\_ID\\_MOVE\\_LEFT : stm32746g\\_discovery\\_ts.h](#)
- [GEST\\_ID\\_MOVE\\_RIGHT : stm32746g\\_discovery\\_ts.h](#)
- [GEST\\_ID\\_MOVE\\_UP : stm32746g\\_discovery\\_ts.h](#)
- [GEST\\_ID\\_NB\\_MAX : stm32746g\\_discovery\\_ts.h](#)
- [GEST\\_ID\\_NO\\_GESTURE : stm32746g\\_discovery\\_ts.h](#)
- [GEST\\_ID\\_ZOOM\\_IN : stm32746g\\_discovery\\_ts.h](#)
- [GEST\\_ID\\_ZOOM\\_OUT : stm32746g\\_discovery\\_ts.h](#)

**- l -**

- LED1 : [stm32746g\\_discovery.h](#)
- LED\_GREEN : [stm32746g\\_discovery.h](#)
- LEFT\_MODE : [stm32746g\\_discovery\\_lcd.h](#)

**- r -**

- RIGHT\_MODE : [stm32746g\\_discovery\\_lcd.h](#)

**- t -**

- TOUCH\_EVENT\_CONTACT : [stm32746g\\_discovery\\_ts.h](#)
- TOUCH\_EVENT\_LIFT\_UP : [stm32746g\\_discovery\\_ts.h](#)
- TOUCH\_EVENT\_NB\_MAX : [stm32746g\\_discovery\\_ts.h](#)
- TOUCH\_EVENT\_NO\_EVT : [stm32746g\\_discovery\\_ts.h](#)
- TOUCH\_EVENT\_PRESS\_DOWN : [stm32746g\\_discovery\\_ts.h](#)
- TS\_DEVICE\_NOT\_FOUND : [stm32746g\\_discovery\\_ts.h](#)
- TS\_ERROR : [stm32746g\\_discovery\\_ts.h](#)
- TS\_OK : [stm32746g\\_discovery\\_ts.h](#)
- TS\_TIMEOUT : [stm32746g\\_discovery\\_ts.h](#)

Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual



1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)

- [File&"current">Globals](#)

- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)

- [t](#)
- [w](#)

- \_ -

- `__DMAx_CLK_DISABLE` : [stm32746g\\_discovery\\_sdram.h](#)
- `__DMAx_CLK_ENABLE` : [stm32746g\\_discovery\\_sdram.h](#)
- `__DMAx_TxRx_CLK_ENABLE` : [stm32746g\\_discovery\\_sd.h](#)
- `__STM32746G_DISCO_BSP_VERSION` : [stm32746g\\_discovery.c](#)
- `__STM32746G_DISCO_BSP_VERSION_MAIN` : [stm32746g\\_discovery.c](#)
- `__STM32746G_DISCO_BSP_VERSION_RC` : [stm32746g\\_discovery.c](#)
- `__STM32746G_DISCO_BSP_VERSION_SUB1` : [stm32746g\\_discovery.c](#)
- `__STM32746G_DISCO_BSP_VERSION_SUB2` : [stm32746g\\_discovery.c](#)



Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual

1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)

- [File&"current">Globals](#)

- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [w](#)

**- a -**

- ABS : [stm32746g\\_discovery\\_lcd.c](#)
- AUDIO\_ERROR : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_I2C\_ADDRESS : [stm32746g\\_discovery.h](#)
- AUDIO\_IN\_INT\_GPIO\_ENABLE : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_IN\_INT\_GPIO\_PIN : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_IN\_INT\_GPIO\_PORT : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_IN\_INT\_IRQ : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_IN\_INT\_IRQHandler : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_IN\_IRQ\_PREPRIO : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_IN\_SAIx : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_IN\_SAIx\_CLK\_DISABLE : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_IN\_SAIx\_CLK\_ENABLE : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_IN\_SAIx\_DMAx\_CHANNEL : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_IN\_SAIx\_DMAx\_CLK\_ENABLE : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_IN\_SAIx\_DMAx\_IRQ : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_IN\_SAIx\_DMAx\_IRQHandler : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_IN\_SAIx\_DMAx\_MEM\_DATA\_SIZE : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_IN\_SAIx\_DMAx\_PERIPH\_DATA\_SIZE : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_IN\_SAIx\_DMAx\_STREAM : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_IN\_SAIx\_SD\_AF : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_IN\_SAIx\_SD\_ENABLE : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_IN\_SAIx\_SD\_GPIO\_PORT : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_IN\_SAIx\_SD\_PIN : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_OK : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_OUT\_IRQ\_PREPRIO : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_OUT\_SAIx : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_OUT\_SAIx\_CLK\_DISABLE : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_OUT\_SAIx\_CLK\_ENABLE : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_OUT\_SAIx\_DMAx\_CHANNEL : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_OUT\_SAIx\_DMAx\_CLK\_ENABLE : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_OUT\_SAIx\_DMAx\_IRQ : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_OUT\_SAIx\_DMAx\_IRQHandler : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_OUT\_SAIx\_DMAx\_MEM\_DATA\_SIZE : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_OUT\_SAIx\_DMAx\_PERIPH\_DATA\_SIZE : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_OUT\_SAIx\_DMAx\_STREAM : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_OUT\_SAIx\_FS\_ENABLE : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_OUT\_SAIx\_FS\_GPIO\_PORT : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_OUT\_SAIx\_FS\_PIN : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_OUT\_SAIx\_FS\_SD\_MCLK\_AF : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_OUT\_SAIx\_MCLK\_ENABLE : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_OUT\_SAIx\_MCLK\_GPIO\_PORT : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_OUT\_SAIx\_MCLK\_PIN : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_OUT\_SAIx\_SCK\_AF : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_OUT\_SAIx\_SCK\_PIN : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_OUT\_SAIx\_SCK\_SD\_ENABLE : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_OUT\_SAIx\_SCK\_SD\_GPIO\_PORT : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_OUT\_SAIx\_SD\_PIN : [stm32746g\\_discovery\\_audio.h](#)
- AUDIO\_TIMEOUT : [stm32746g\\_discovery\\_audio.h](#)
- AUDIODATA\_SIZE : [stm32746g\\_discovery\\_audio.h](#)

## STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)
- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [w](#)

**- b -**

- BSP\_CAMERA\_DMA\_IRQHandler : [stm32746g\\_discovery\\_camera.h](#)
- BSP\_CAMERA\_IRQHandler : [stm32746g\\_discovery\\_camera.h](#)
- BSP\_QSPI\_MemoryMappedMode : [stm32746g\\_discovery\\_qspi.h](#)
- BSP\_SD\_CardInfo : [stm32746g\\_discovery\\_sd.h](#)
- BSP\_SDMMC\_DMA\_Rx\_IRQHandler : [stm32746g\\_discovery\\_sd.h](#)
- BSP\_SDMMC\_DMA\_Tx\_IRQHandler : [stm32746g\\_discovery\\_sd.h](#)
- BSP\_SDMMC\_IRQHandler : [stm32746g\\_discovery\\_sd.h](#)
- BSP\_SDRAM\_DMA\_IRQHandler : [stm32746g\\_discovery\\_sdram.h](#)
- BUTTONn : [stm32746g\\_discovery.h](#)
- BUTTONx\_GPIO\_CLK\_DISABLE : [stm32746g\\_discovery.h](#)
- BUTTONx\_GPIO\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)



Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
 STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)

- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)
- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [w](#)

## - C -

- CAMERA\_480x272\_RES\_X : [stm32746g\\_discovery\\_camera.c](#)
- CAMERA\_480x272\_RES\_Y : [stm32746g\\_discovery\\_camera.c](#)
- CAMERA\_I2C\_ADDRESS : [stm32746g\\_discovery.h](#)
- CAMERA\_QQVGA\_RES\_X : [stm32746g\\_discovery\\_camera.c](#)
- CAMERA\_QQVGA\_RES\_Y : [stm32746g\\_discovery\\_camera.c](#)
- CAMERA\_QVGA\_RES\_X : [stm32746g\\_discovery\\_camera.c](#)
- CAMERA\_QVGA\_RES\_Y : [stm32746g\\_discovery\\_camera.c](#)
- CAMERA\_VGA\_RES\_X : [stm32746g\\_discovery\\_camera.c](#)
- CAMERA\_VGA\_RES\_Y : [stm32746g\\_discovery\\_camera.c](#)
- CODEC\_AUDIOFRAME\_SLOT\_0123 : [stm32746g\\_discovery\\_audio.h](#)
- CODEC\_AUDIOFRAME\_SLOT\_02 : [stm32746g\\_discovery\\_audio.h](#)
- CODEC\_AUDIOFRAME\_SLOT\_13 : [stm32746g\\_discovery\\_audio.h](#)
- CODEC\_RESET\_DELAY : [stm32746g\\_discovery\\_audio.h](#)
- COMn : [stm32746g\\_discovery.h](#)

- [Main&"modules.html">Modules](#)

- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)
- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [w](#)

## - d -

- [DEFAULT\\_AUDIO\\_IN\\_BIT\\_RESOLUTION](#) : [stm32746g\\_discovery\\_audio.h](#)
- [DEFAULT\\_AUDIO\\_IN\\_CHANNEL\\_NBR](#) : [stm32746g\\_discovery\\_audio.h](#)
- [DEFAULT\\_AUDIO\\_IN\\_FREQ](#) : [stm32746g\\_discovery\\_audio.h](#)
- [DEFAULT\\_AUDIO\\_IN\\_VOLUME](#) : [stm32746g\\_discovery\\_audio.h](#)
- [DISCOVERY\\_AUDIO\\_DMAx\\_CLK\\_ENABLE](#) : [stm32746g\\_discovery.h](#)
- [DISCOVERY\\_AUDIO\\_I2Cx](#) : [stm32746g\\_discovery.h](#)
- [DISCOVERY\\_AUDIO\\_I2Cx\\_CLK\\_ENABLE](#) : [stm32746g\\_discovery.h](#)
- [DISCOVERY\\_AUDIO\\_I2Cx\\_ER\\_IRQn](#) : [stm32746g\\_discovery.h](#)
- [DISCOVERY\\_AUDIO\\_I2Cx\\_EV\\_IRQn](#) : [stm32746g\\_discovery.h](#)
- [DISCOVERY\\_AUDIO\\_I2Cx\\_FORCE\\_RESET](#) : [stm32746g\\_discovery.h](#)
- [DISCOVERY\\_AUDIO\\_I2Cx\\_RELEASE\\_RESET](#) : [stm32746g\\_discovery.h](#)
- [DISCOVERY\\_AUDIO\\_I2Cx\\_SCL\\_PIN](#) : [stm32746g\\_discovery.h](#)
- [DISCOVERY\\_AUDIO\\_I2Cx\\_SCL\\_SDA\\_AF](#) : [stm32746g\\_discovery.h](#)
- [DISCOVERY\\_AUDIO\\_I2Cx\\_SCL\\_SDA\\_GPIO\\_CLK\\_ENABLE](#) : [stm32746g\\_discovery.h](#)
- [DISCOVERY\\_AUDIO\\_I2Cx\\_SCL\\_SDA\\_GPIO\\_PORT](#) : [stm32746g\\_discovery.h](#)
- [DISCOVERY\\_AUDIO\\_I2Cx\\_SDA\\_PIN](#) : [stm32746g\\_discovery.h](#)
- [DISCOVERY\\_COM1](#) : [stm32746g\\_discovery.h](#)
- [DISCOVERY\\_COM1\\_CLK\\_DISABLE](#) : [stm32746g\\_discovery.h](#)
- [DISCOVERY\\_COM1\\_CLK\\_ENABLE](#) : [stm32746g\\_discovery.h](#)
- [DISCOVERY\\_COM1\\_IRQn](#) : [stm32746g\\_discovery.h](#)



- DISCOVERY\_COM1\_RX\_AF : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COM1\_RX\_GPIO\_CLK\_DISABLE : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COM1\_RX\_GPIO\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COM1\_RX\_GPIO\_PORT : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COM1\_RX\_PIN : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COM1\_TX\_AF : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COM1\_TX\_GPIO\_CLK\_DISABLE : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COM1\_TX\_GPIO\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COM1\_TX\_GPIO\_PORT : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COM1\_TX\_PIN : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COMx\_CLK\_DISABLE : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COMx\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COMx\_RX\_GPIO\_CLK\_DISABLE : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COMx\_RX\_GPIO\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COMx\_TX\_GPIO\_CLK\_DISABLE : [stm32746g\\_discovery.h](#)
- DISCOVERY\_COMx\_TX\_GPIO\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)
- DISCOVERY\_EXT\_DMAx\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)
- DISCOVERY\_EXT\_I2Cx : [stm32746g\\_discovery.h](#)
- DISCOVERY\_EXT\_I2Cx\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)
- DISCOVERY\_EXT\_I2Cx\_ER\_IRQn : [stm32746g\\_discovery.h](#)
- DISCOVERY\_EXT\_I2Cx\_EV\_IRQn : [stm32746g\\_discovery.h](#)
- DISCOVERY\_EXT\_I2Cx\_FORCE\_RESET : [stm32746g\\_discovery.h](#)
- DISCOVERY\_EXT\_I2Cx\_RELEASE\_RESET : [stm32746g\\_discovery.h](#)
- DISCOVERY\_EXT\_I2Cx\_SCL\_PIN : [stm32746g\\_discovery.h](#)
- DISCOVERY\_EXT\_I2Cx\_SCL\_SDA\_AF : [stm32746g\\_discovery.h](#)
- DISCOVERY\_EXT\_I2Cx\_SCL\_SDA\_GPIO\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)
- DISCOVERY\_EXT\_I2Cx\_SCL\_SDA\_GPIO\_PORT : [stm32746g\\_discovery.h](#)
- DISCOVERY\_EXT\_I2Cx\_SDA\_PIN : [stm32746g\\_discovery.h](#)
- DMA\_MAX : [stm32746g\\_discovery\\_audio.h](#)
- DMA\_MAX\_SIZE : [stm32746g\\_discovery\\_audio.h](#)

Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual



1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)

- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [w](#)

## - e -

- EEPROM\_FAIL : [stm32746g\\_discovery\\_eeprom.h](#)
- EEPROM\_I2C\_ADDRESS\_A01 : [stm32746g\\_discovery.h](#)
- EEPROM\_I2C\_ADDRESS\_A02 : [stm32746g\\_discovery.h](#)
- EEPROM\_MAX\_SIZE : [stm32746g\\_discovery\\_eeprom.h](#)
- EEPROM\_MAX\_TRIALS : [stm32746g\\_discovery\\_eeprom.h](#)
- EEPROM\_OK : [stm32746g\\_discovery\\_eeprom.h](#)
- EEPROM\_PAGESIZE : [stm32746g\\_discovery\\_eeprom.h](#)
- EEPROM\_TIMEOUT : [stm32746g\\_discovery\\_eeprom.h](#)

Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by



1.7.6.1

STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)

- [File&"current">Globals](#)

- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)

- [r](#)
- [s](#)
- [t](#)
- [w](#)

## - k -

- KEY\_BUTTON\_EXTI\_IRQn : [stm32746g\\_discovery.h](#)
- KEY\_BUTTON\_GPIO\_CLK\_DISABLE : [stm32746g\\_discovery.h](#)
- KEY\_BUTTON\_GPIO\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)
- KEY\_BUTTON\_GPIO\_PORT : [stm32746g\\_discovery.h](#)
- KEY\_BUTTON\_PIN : [stm32746g\\_discovery.h](#)

---

Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual



1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)

- [File&"current">Globals](#)

- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [w](#)

- | -

- LCD\_BL\_CTRL\_GPIO\_CLK\_DISABLE : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_BL\_CTRL\_GPIO\_CLK\_ENABLE : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_BL\_CTRL\_GPIO\_PORT : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_BL\_CTRL\_PIN : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_BLACK : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_BLUE : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_BROWN : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_CYAN : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_DARKBLUE : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_DARKCYAN : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_DARKGRAY : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_DARKGREEN : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_DARKMAGENTA : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_DARKRED : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_DARKYELLOW : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_GRAY : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_GREEN : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_LIGHTBLUE : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_LIGHTCYAN : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_LIGHTGRAY : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_LIGHTGREEN : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_LIGHTMAGENTA : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_LIGHTRED : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_LIGHTYELLOW : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_MAGENTA : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_ORANGE : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_RED : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_TRANSPARENT : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_WHITE : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_COLOR\_YELLOW : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_DEFAULT\_FONT : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_DISP\_GPIO\_CLK\_DISABLE : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_DISP\_GPIO\_CLK\_ENABLE : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_DISP\_GPIO\_PORT : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_DISP\_PIN : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_ERROR : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_FB\_START\_ADDRESS : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_I2C\_ADDRESS : [stm32746g\\_discovery.h](#)
- LCD\_LayerCfgTypeDef : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_OK : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_RELOAD\_IMMEDIATE : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_RELOAD\_VERTICAL\_BLANKING : [stm32746g\\_discovery\\_lcd.h](#)
- LCD\_TIMEOUT : [stm32746g\\_discovery\\_lcd.h](#)
- LED1\_GPIO\_CLK\_DISABLE : [stm32746g\\_discovery.h](#)
- LED1\_GPIO\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)
- LED1\_GPIO\_PORT : [stm32746g\\_discovery.h](#)
- LED1\_PIN : [stm32746g\\_discovery.h](#)
- LEDn : [stm32746g\\_discovery.h](#)
- LTDC\_ACTIVE\_LAYER : [stm32746g\\_discovery\\_lcd.h](#)

## STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)
- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [w](#)

**- m -**

- MAX\_LAYER\_NUMBER : [stm32746g\\_discovery\\_lcd.h](#)
- MSD\_ERROR : [stm32746g\\_discovery\\_sd.h](#)
- MSD\_ERROR\_SD\_NOT\_PRESENT : [stm32746g\\_discovery\\_sd.h](#)
- MSD\_OK : [stm32746g\\_discovery\\_sd.h](#)

Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual



1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)

- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [w](#)

- O -

- [OUTPUT\\_DEVICE\\_HEADPHONE1](#) : [stm32746g\\_discovery\\_audio.h](#)
- [OUTPUT\\_DEVICE\\_HEADPHONE2](#) : [stm32746g\\_discovery\\_audio.h](#)

Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual



1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)

- [File&"current">Globals](#)

- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)

- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [w](#)

## - p -

- POLY\_X : [stm32746g\\_discovery\\_lcd.c](#)
- POLY\_Y : [stm32746g\\_discovery\\_lcd.c](#)

---

Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual



1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)

- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [w](#)

**- q -**

- [QSPI\\_BUSY : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_CLK\\_DISABLE : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_CLK\\_ENABLE : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_CLK\\_GPIO\\_CLK\\_ENABLE : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_CLK\\_GPIO\\_PORT : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_CLK\\_PIN : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_CS\\_GPIO\\_CLK\\_ENABLE : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_CS\\_GPIO\\_PORT : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_CS\\_PIN : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_D0\\_GPIO\\_CLK\\_ENABLE : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_D0\\_GPIO\\_PORT : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_D0\\_PIN : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_D1\\_GPIO\\_CLK\\_ENABLE : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_D1\\_GPIO\\_PORT : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_D1\\_PIN : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_D2\\_GPIO\\_CLK\\_ENABLE : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_D2\\_GPIO\\_PORT : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_D2\\_PIN : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_D3\\_GPIO\\_CLK\\_ENABLE : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_D3\\_GPIO\\_PORT : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_D3\\_PIN : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_ERROR : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_FLASH\\_SIZE : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_FORCE\\_RESET : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_NOT\\_SUPPORTED : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_OK : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_PAGE\\_SIZE : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_RELEASE\\_RESET : stm32746g\\_discovery\\_qspi.h](#)
- [QSPI\\_SUSPENDED : stm32746g\\_discovery\\_qspi.h](#)

Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual



1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)
- [\\_](#)
- [a](#)
- [b](#)
- [c](#)



- [d](#)
- [e](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [w](#)

## - r -

- REFRESH\_COUNT : [stm32746g\\_discovery\\_sdram.h](#)
- RESOLUTION\_R160x120 : [stm32746g\\_discovery\\_camera.h](#)
- RESOLUTION\_R320x240 : [stm32746g\\_discovery\\_camera.h](#)
- RESOLUTION\_R480x272 : [stm32746g\\_discovery\\_camera.h](#)
- RESOLUTION\_R640x480 : [stm32746g\\_discovery\\_camera.h](#)

Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual



1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)
- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)

- [s](#)
- [t](#)
- [w](#)

## - S -

- SD\_DATATIMEOUT : [stm32746g\\_discovery\\_sd.h](#)
- SD\_DETECT\_EXTI\_IRQn : [stm32746g\\_discovery.h](#)
- SD\_DETECT\_GPIO\_CLK\_DISABLE : [stm32746g\\_discovery.h](#)
- SD\_DETECT\_GPIO\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)
- SD\_DETECT\_GPIO\_PORT : [stm32746g\\_discovery.h](#)
- SD\_DETECT\_PIN : [stm32746g\\_discovery.h](#)
- SD\_DetectIRQHandler : [stm32746g\\_discovery\\_sd.h](#)
- SD\_DMAx\_Rx\_CHANNEL : [stm32746g\\_discovery\\_sd.h](#)
- SD\_DMAx\_Rx\_IRQn : [stm32746g\\_discovery\\_sd.h](#)
- SD\_DMAx\_Rx\_STREAM : [stm32746g\\_discovery\\_sd.h](#)
- SD\_DMAx\_Tx\_CHANNEL : [stm32746g\\_discovery\\_sd.h](#)
- SD\_DMAx\_Tx\_IRQn : [stm32746g\\_discovery\\_sd.h](#)
- SD\_DMAx\_Tx\_STREAM : [stm32746g\\_discovery\\_sd.h](#)
- SD\_NOT\_PRESENT : [stm32746g\\_discovery\\_sd.h](#)
- SD\_PRESENT : [stm32746g\\_discovery\\_sd.h](#)
- SD\_TRANSFER\_BUSY : [stm32746g\\_discovery\\_sd.h](#)
- SD\_TRANSFER\_OK : [stm32746g\\_discovery\\_sd.h](#)
- SDCLOCK\_PERIOD : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_DEVICE\_ADDR : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_DEVICE\_SIZE : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_DMAx\_CHANNEL : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_DMAx\_IRQn : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_DMAx\_STREAM : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_ERROR : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_MEMORY\_WIDTH : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_MODEREG\_BURST\_LENGTH\_1 : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_MODEREG\_BURST\_LENGTH\_2 : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_MODEREG\_BURST\_LENGTH\_4 : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_MODEREG\_BURST\_LENGTH\_8 : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_MODEREG\_BURST\_TYPE\_INTERLEAVED : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_MODEREG\_BURST\_TYPE\_SEQUENTIAL : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_MODEREG\_CAS\_LATENCY\_2 : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_MODEREG\_CAS\_LATENCY\_3 : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_MODEREG\_OPERATING\_MODE\_STANDARD : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_MODEREG\_WRITEBURST\_MODE\_PROGRAMMED : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_MODEREG\_WRITEBURST\_MODE\_SINGLE : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_OK : [stm32746g\\_discovery\\_sdram.h](#)
- SDRAM\_TIMEOUT : [stm32746g\\_discovery\\_sdram.h](#)
- SIGNALn : [stm32746g\\_discovery.h](#)



Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)

- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)
- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [w](#)

- t -

- TAMPER\_BUTTON\_EXTI\_IRQn : [stm32746g\\_discovery.h](#)
- TAMPER\_BUTTON\_GPIO\_CLK\_DISABLE : [stm32746g\\_discovery.h](#)
- TAMPER\_BUTTON\_GPIO\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)
- TAMPER\_BUTTON\_GPIO\_PORT : [stm32746g\\_discovery.h](#)
- TAMPER\_BUTTON\_PIN : [stm32746g\\_discovery.h](#)
- TS\_I2C\_ADDRESS : [stm32746g\\_discovery.h](#)
- TS\_INT\_EXTI\_IRQn : [stm32746g\\_discovery.h](#)
- TS\_INT\_GPIO\_CLK\_DISABLE : [stm32746g\\_discovery.h](#)
- TS\_INT\_GPIO\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)
- TS\_INT\_GPIO\_PORT : [stm32746g\\_discovery.h](#)
- TS\_INT\_PIN : [stm32746g\\_discovery.h](#)
- TS\_IRQ\_PENDING : [stm32746g\\_discovery\\_ts.h](#)
- TS\_MAX\_NB\_TOUCH : [stm32746g\\_discovery\\_ts.h](#)
- TS\_NO\_IRQ\_PENDING : [stm32746g\\_discovery\\_ts.h](#)
- TS\_SWAP\_NONE : [stm32746g\\_discovery\\_ts.h](#)
- TS\_SWAP\_X : [stm32746g\\_discovery\\_ts.h](#)
- TS\_SWAP\_XY : [stm32746g\\_discovery\\_ts.h](#)
- TS\_SWAP\_Y : [stm32746g\\_discovery\\_ts.h](#)

## STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"current">Globals](#)
- [All](#)
- [Functions](#)
- [Variables](#)
- [Typedefs](#)
- [Enumerations](#)
- [Enumerator](#)
- [Defines](#)
- [\\_](#)
- [a](#)
- [b](#)
- [c](#)
- [d](#)
- [e](#)
- [k](#)
- [l](#)
- [m](#)
- [o](#)
- [p](#)
- [q](#)
- [r](#)
- [s](#)
- [t](#)
- [w](#)

**- W -**

- WAKEUP\_BUTTON\_EXTI\_IRQn : [stm32746g\\_discovery.h](#)
- WAKEUP\_BUTTON\_GPIO\_CLK\_DISABLE : [stm32746g\\_discovery.h](#)
- WAKEUP\_BUTTON\_GPIO\_CLK\_ENABLE : [stm32746g\\_discovery.h](#)
- WAKEUP\_BUTTON\_GPIO\_PORT : [stm32746g\\_discovery.h](#)
- WAKEUP\_BUTTON\_PIN : [stm32746g\\_discovery.h](#)

Generated on Fri May 26 2017 15:57:31 for STM32746G-Discovery BSP User Manual by



1.7.6.1

STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"temp1378.html">Globals](#)
- [Drivers](#)

- [BSP](#)
- [STM32746G-Discovery](#)

[Defines](#) | [Functions](#) | [Variables](#)

stm32746g\_discovery.c File Reference

This file provides a set of firmware functions to manage LEDs, push-buttons and COM ports available on STM32746G-Discovery board(MB1191) from STMicroelectronics. [More...](#)

```
#include "stm32746g_discovery.h"
```

[Go to the source code of this file.](#)

## Defines

```

"memItemRight"
valign="bottom">__STM32746G_DISCO_BSP_VERSION_MAIN (0x02)
STM32746G DISCOVERY BSP Driver
V2.0.0.
#define __STM32746G_DISCO_BSP_VERSION
#define __STM32746G_DISCO_BSP_VERSION
#define __STM32746G_DISCO_BSP_VERSION
#define __STM32746G_DISCO_BSP_VERSION

```

## Functions

```

static void I2Cx\_MspInit (I2C_HandleTypeDef *i2c_h)
Initializes I2C MSP.
static void I2Cx\_Init (I2C_HandleTypeDef *i2c_h)
Initializes I2C HAL.
static HAL_StatusTypeDef I2Cx\_ReadMultiple (I2C_HandleTypeDef *i2c_h,
uint8_t Addr, uint16_t Reg, uint16_t MaxDataLength,
uint8_t *Buffer, uint16_t Length)
Reads multiple data.
static HAL_StatusTypeDef I2Cx\_WriteMultiple (I2C_HandleTypeDef *i2c_h,
uint8_t Addr, uint16_t Reg, uint16_t MaxDataLength,
uint8_t *Buffer, uint16_t Length)
Writes a value in a register of the device using DMA mode.
static HAL_StatusTypeDef I2Cx\_IsDeviceReady (I2C_HandleTypeDef *i2c_h,
uint16_t DevAddress, uint32_t Trials)
Checks if target device is ready for communication.
static void I2Cx\_Error (I2C_HandleTypeDef *i2c_h, uint16_t Addr)
Manages error callback by re-initializing the I2C peripheral.
void AUDIO\_IO\_Init (void)
Initializes Audio low level.
void AUDIO\_IO\_DeInit (void)
Deinitializes Audio low level.
void AUDIO\_IO\_Write (uint8_t Addr, uint16_t Value)
Writes a single data.
uint16_t AUDIO\_IO\_Read (uint8_t Addr, uint16_t *pValue)

```

Reads a single data.

void [AUDIO\\_IO\\_Delay](#) (uint32\_t Delay)  
AUDIO Codec delay.

void [TS\\_IO\\_Init](#) (void)  
Initializes Touchscreen low level.

void [TS\\_IO\\_Write](#) (uint8\_t Addr, uint8\_t Reg, uint8\_t Value)  
Writes a single data.

uint8\_t [TS\\_IO\\_Read](#) (uint8\_t Addr, uint8\_t Reg)  
Reads a single data.

void [TS\\_IO\\_Delay](#) (uint32\_t Delay)  
TS delay.

void [CAMERA\\_IO\\_Init](#) (void)  
Initializes Camera low level.

void [CAMERA\\_Delay](#) (uint32\_t Delay)  
Camera delay.

void [CAMERA\\_IO\\_Write](#) (uint8\_t Addr, uint8\_t Reg, uint8\_t Value)  
Camera writes single data.

uint8\_t [CAMERA\\_IO\\_Read](#) (uint8\_t Addr, uint8\_t Reg)  
Camera reads single data.

void [EEPROM\\_IO\\_Init](#) (void)  
Initializes peripherals used by the I2C EEPROM driver.

HAL\_StatusTypeDef [EEPROM\\_IO\\_WriteData](#) (uint16\_t DevAddress, uint8\_t MemAddress, uint8\_t \*pBuffer, uint32\_t BufferSize)  
Write data to I2C EEPROM driver in using DM channel.

HAL\_StatusTypeDef [EEPROM\\_IO\\_ReadData](#) (uint16\_t DevAddress, uint8\_t MemAddress, uint8\_t \*pBuffer, uint32\_t BufferSize)  
Read data from I2C EEPROM driver in using DM channel.

HAL\_StatusTypeDef [EEPROM\\_IO\\_IsDeviceReady](#) (uint16\_t DevAddress, uint32\_t Trials)  
Checks if target device is ready for communication.

uint32\_t [BSP\\_GetVersion](#) (void)  
This method returns the STM32746G DISCOVERY Driver revision.

void [BSP\\_LED\\_Init](#) (Led\_TypeDef Led)  
Configures LED on GPIO.

void [BSP\\_LED\\_DeInit](#) (Led\_TypeDef Led)  
DeInit LEDs.

void [BSP\\_LED\\_On](#) (Led\_TypeDef Led)  
Turns selected LED On.

void [BSP\\_LED\\_Off](#) (Led\_TypeDef Led)  
Turns selected LED Off.

void [BSP\\_LED\\_Toggle](#) (Led\_TypeDef Led)  
Toggles the selected LED.

```

void BSP_PB_Init (Button_TypeDef Button,
                 ButtonMode_TypeDef ButtonMode)
    Configures button GPIO and EXTI Line.
void BSP_PB_DeInit (Button_TypeDef Button)
    Push Button DeInit.
uint32_t BSP_PB_GetState (Button_TypeDef Button)
    Returns the selected button state.
void BSP_COM_Init (COM_TypeDef COM,
                 UART_HandleTypeDef *huart)
    Configures COM port.
void BSP_COM_DeInit (COM_TypeDef COM,
                 UART_HandleTypeDef *huart)
    DeInit COM port.

```

## Variables

```

const uint32_t GPIO_PIN [LEDn] = {LED1_PIN}
GPIO_TypeDef * BUTTON_PORT [BUTTONn]
const uint16_t BUTTON_PIN [BUTTONn]
const uint16_t BUTTON_IRQn [BUTTONn]
USART_TypeDef * COM_USART [COMn] = {DISCOVERY_COM1_USART}
GPIO_TypeDef * COM_TX_PORT [COMn] =
    {DISCOVERY_COM1_TX_GPIO_PORT}
GPIO_TypeDef * COM_RX_PORT [COMn] =
    {DISCOVERY_COM1_RX_GPIO_PORT}
const uint16_t COM_TX_PIN [COMn] =
    {DISCOVERY_COM1_TX_PIN}
const uint16_t COM_RX_PIN [COMn] =
    {DISCOVERY_COM1_RX_PIN}
const uint16_t COM_TX_AF [COMn] =
    {DISCOVERY_COM1_TX_AF}
const uint16_t COM_RX_AF [COMn] =
    {DISCOVERY_COM1_RX_AF}
static I2C_HandleTypeDef hI2cAudioHandler = {0}
static I2C_HandleTypeDef hI2cExtHandler = {0}

```

---

## Detailed Description

This file provides a set of firmware functions to manage LEDs, push-buttons and COM ports available on STM32746G-Discovery board(MB1191) from STMicroelectronics.

### Author:

MCD Application Team

### Attention:

## © COPYRIGHT(c) 2016 STMicroelectronics

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met: 1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer. 2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution. 3. Neither the name of STMicroelectronics nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Definition in file [stm32746g\\_discovery.c](#).



Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"temp1378.html">Globals](#)
- [Drivers](#)
- [BSP](#)
- [STM32746G-Discovery](#)

[Defines](#) | [Enumerations](#) | [Functions](#)

stm32746g\_discovery.h File Reference

This file contains definitions for STM32746G\_DISCOVERY's LEDs, push-buttons and COM ports hardware resources. [More...](#)

```
#include "stm32f7xx_hal.h"
```

[Go to the source code of this file.](#)

## Defines

```
"memItemRight"
valign="bottom">LEDn ((uint8_t)1)
#define LED1\_GPIO\_PORT GPIOI
#define LED1\_GPIO\_CLK\_ENABLE\(\) __HAL_RCC_GPIOI_CLK_ENABLE()
#define LED1\_GPIO\_CLK\_DISABLE\(\) __HAL_RCC_GPIOI_CLK_DISABLE()
```



```

#define LED1_PIN GPIO_PIN_1
#define BUTTONn ((uint8_t)3)
#define WAKEUP_BUTTON_PIN GPIO_PIN_11
    Wakeup push-button.
#define WAKEUP_BUTTON_GPIO_PORT GPIOI
#define WAKEUP_BUTTON_GPIO_CLK_ENABLE() __HAL_RCC_GPIOI_CLK_ENABLE()
#define WAKEUP_BUTTON_GPIO_CLK_DISABLE() __HAL_RCC_GPIOI_CLK_DISABLE()
#define WAKEUP_BUTTON_EXTI_IRQn EXTI15_10_IRQn
#define TAMPER_BUTTON_PIN GPIO_PIN_11
    Tamper push-button.
#define TAMPER_BUTTON_GPIO_PORT GPIOI
#define TAMPER_BUTTON_GPIO_CLK_ENABLE() __HAL_RCC_GPIOI_CLK_ENABLE()
#define TAMPER_BUTTON_GPIO_CLK_DISABLE() __HAL_RCC_GPIOI_CLK_DISABLE()
#define TAMPER_BUTTON_EXTI_IRQn EXTI15_10_IRQn
#define KEY_BUTTON_PIN GPIO_PIN_11
    Key push-button.
#define KEY_BUTTON_GPIO_PORT GPIOI
#define KEY_BUTTON_GPIO_CLK_ENABLE() __HAL_RCC_GPIOI_CLK_ENABLE()
#define KEY_BUTTON_GPIO_CLK_DISABLE() __HAL_RCC_GPIOI_CLK_DISABLE()
#define KEY_BUTTON_EXTI_IRQn EXTI15_10_IRQn
#define BUTTONx_GPIO_CLK_ENABLE(__INDEX__)
#define BUTTONx_GPIO_CLK_DISABLE(__INDEX__)
#define SIGNALn ((uint8_t)1)
#define SD_DETECT_PIN GPIO_PIN_13
    SD-detect signal.
#define SD_DETECT_GPIO_PORT GPIOC
#define SD_DETECT_GPIO_CLK_ENABLE() __HAL_RCC_GPIOC_CLK_ENABLE()
#define SD_DETECT_GPIO_CLK_DISABLE() __HAL_RCC_GPIOC_CLK_DISABLE()
#define SD_DETECT_EXTI_IRQn EXTI15_10_IRQn
#define TS_INT_PIN GPIO_PIN_13
    Touch screen interrupt signal.
#define TS_INT_GPIO_PORT GPIOI
#define TS_INT_GPIO_CLK_ENABLE() __HAL_RCC_GPIOI_CLK_ENABLE()
#define TS_INT_GPIO_CLK_DISABLE() __HAL_RCC_GPIOI_CLK_DISABLE()
#define TS_INT_EXTI_IRQn EXTI15_10_IRQn
#define COMn ((uint8_t)1)
#define DISCOVERY_COM1 USART1
    Definition for COM port1, connected to USART1.
#define DISCOVERY_COM1_CLK_ENABLE() __HAL_RCC_USART1_CLK_ENABLE()
#define DISCOVERY_COM1_CLK_DISABLE() __HAL_RCC_USART1_CLK_DISABLE()
#define DISCOVERY_COM1_TX_PIN GPIO_PIN_9
#define DISCOVERY_COM1_TX_GPIO_PORT GPIOA
#define DISCOVERY_COM1_TX_GPIO_CLK_ENABLE() __HAL_RCC_GPIOA_CLK_ENABLE()
#define DISCOVERY_COM1_TX_GPIO_CLK_DISABLE() __HAL_RCC_GPIOA_CLK_DISABLE()
#define DISCOVERY_COM1_TX_AF GPIO_AF7_USART1

```

```

#define DISCOVERY_COM1_RX_PIN GPIO_PIN_7
#define DISCOVERY_COM1_RX_GPIO_PORT GPIOB
#define DISCOVERY_COM1_RX_GPIO_CLK_ENABLE() __HAL_RCC_GPIOB_CLK_ENABLE()
#define DISCOVERY_COM1_RX_GPIO_CLK_DISABLE() __HAL_RCC_GPIOB_CLK_DISABLE()
#define DISCOVERY_COM1_RX_AF GPIO_AF7_USART1
#define DISCOVERY_COM1_IRQn USART1_IRQn
#define DISCOVERY_COMx_CLK_ENABLE(__INDEX__) do { if((__INDEX__) == COM1) DISCOVERY_COM1_CLK_ENABLE(); } while(0)
#define DISCOVERY_COMx_CLK_DISABLE(__INDEX__) (((__INDEX__) == 0) ? DISCOVERY_COM1_CLK_DISABLE() : 0)
#define DISCOVERY_COMx_TX_GPIO_CLK_ENABLE(__INDEX__) do { if((__INDEX__) == COM1) DISCOVERY_COM1_TX_GPIO_CLK_ENABLE(); } while(0)
#define DISCOVERY_COMx_TX_GPIO_CLK_DISABLE(__INDEX__) (((__INDEX__) == COM1) ? DISCOVERY_COM1_TX_GPIO_CLK_DISABLE() : 0)
#define DISCOVERY_COMx_RX_GPIO_CLK_ENABLE(__INDEX__) do { if((__INDEX__) == COM1) DISCOVERY_COM1_RX_GPIO_CLK_ENABLE(); } while(0)
#define DISCOVERY_COMx_RX_GPIO_CLK_DISABLE(__INDEX__) (((__INDEX__) == COM1) ? DISCOVERY_COM1_RX_GPIO_CLK_DISABLE() : 0)
#define LCD_I2C_ADDRESS ((uint16_t)0x70)
#define CAMERA_I2C_ADDRESS ((uint16_t)0x60)
#define AUDIO_I2C_ADDRESS ((uint16_t)0x34)
#define EEPROM_I2C_ADDRESS_A01 ((uint16_t)0xA0)
#define EEPROM_I2C_ADDRESS_A02 ((uint16_t)0xA6)
#define TS_I2C_ADDRESS ((uint16_t)0x70)
#define DISCOVERY_AUDIO_I2Cx I2C3
#define DISCOVERY_AUDIO_I2Cx_CLK_ENABLE() __HAL_RCC_I2C3_CLK_ENABLE()
#define DISCOVERY_AUDIO_DMAx_CLK_ENABLE() __HAL_RCC_DMA1_CLK_ENABLE()
#define DISCOVERY_AUDIO_I2Cx_SCL_SDA_GPIO_CLK_ENABLE() __HAL_RCC_GPIOC_CLK_ENABLE()
#define DISCOVERY_AUDIO_I2Cx_FORCE_RESET() __HAL_RCC_I2C3_FORCE_RESET()
#define DISCOVERY_AUDIO_I2Cx_RELEASE_RESET() __HAL_RCC_I2C3_RELEASE_RESET()
#define DISCOVERY_AUDIO_I2Cx_SCL_PIN GPIO_PIN_7
#define DISCOVERY_AUDIO_I2Cx_SCL_SDA_GPIO_PORT GPIOC
#define DISCOVERY_AUDIO_I2Cx_SCL_SDA_AF GPIO_AF4_I2C3
#define DISCOVERY_AUDIO_I2Cx_SDA_PIN GPIO_PIN_8
#define DISCOVERY_AUDIO_I2Cx_EV_IRQn I2C3_EV_IRQn
#define DISCOVERY_AUDIO_I2Cx_ER_IRQn I2C3_ER_IRQn
#define DISCOVERY_EXT_I2Cx I2C1
#define DISCOVERY_EXT_I2Cx_CLK_ENABLE() __HAL_RCC_I2C1_CLK_ENABLE()
#define DISCOVERY_EXT_DMAx_CLK_ENABLE() __HAL_RCC_DMA1_CLK_ENABLE()
#define DISCOVERY_EXT_I2Cx_SCL_SDA_GPIO_CLK_ENABLE() __HAL_RCC_GPIOC_CLK_ENABLE()
#define DISCOVERY_EXT_I2Cx_FORCE_RESET() __HAL_RCC_I2C1_FORCE_RESET()
#define DISCOVERY_EXT_I2Cx_RELEASE_RESET() __HAL_RCC_I2C1_RELEASE_RESET()
#define DISCOVERY_EXT_I2Cx_SCL_PIN GPIO_PIN_8
#define DISCOVERY_EXT_I2Cx_SCL_SDA_GPIO_PORT GPIOC
#define DISCOVERY_EXT_I2Cx_SCL_SDA_AF GPIO_AF4_I2C1
#define DISCOVERY_EXT_I2Cx_SDA_PIN GPIO_PIN_9

```

```
#define DISCOVERY_EXT_I2Cx_EV_IRQn I2C1_EV_IRQn
#define DISCOVERY_EXT_I2Cx_ER_IRQn I2C1_ER_IRQn
```

## Enumerations

```
enum Led_TypeDef { LED1 = 0, LED_GREEN = LED1 }
enum Button_TypeDef { BUTTON_WAKEUP = 0, BUTTON_TAMPER = 1, BUTTON_EXTI = 2 }
enum ButtonMode_TypeDef { BUTTON_MODE_GPIO = 0, BUTTON_MODE_EXTI = 1 }
enum COM_TypeDef { COM1 = 0, COM2 = 1 }
```

## Functions

```
uint32_t BSP_GetVersion (void)
    This method returns the STM32746G DISCOVERY BSP Driver revision.

void BSP_LED_Init (Led_TypeDef Led)
    Configures LED on GPIO.

void BSP_LED_DeInit (Led_TypeDef Led)
    DeInit LEDs.

void BSP_LED_On (Led_TypeDef Led)
    Turns selected LED On.

void BSP_LED_Off (Led_TypeDef Led)
    Turns selected LED Off.

void BSP_LED_Toggle (Led_TypeDef Led)
    Toggles the selected LED.

void BSP_PB_Init (Button_TypeDef Button, ButtonMode_TypeDef ButtonMode)
    Configures button GPIO and EXTI Line.

void BSP_PB_DeInit (Button_TypeDef Button)
    Push Button DeInit.

uint32_t BSP_PB_GetState (Button_TypeDef Button)
    Returns the selected button state.

void BSP_COM_Init (COM_TypeDef COM, UART_HandleTypeDef *huart)
    Configures COM port.

void BSP_COM_DeInit (COM_TypeDef COM, UART_HandleTypeDef *huart)
    DeInit COM port.
```

---

## Detailed Description

This file contains definitions for STM32746G\_DISCOVERY's LEDs, push-buttons and COM ports hardware resources.

### Author:

MCD Application Team

### Attention:

## © COPYRIGHT(c) 2016 STMicroelectronics

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met: 1. Redistributions of source code must retain the above copyright notice,

this list of conditions and the following disclaimer. 2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution. 3. Neither the name of STMicroelectronics nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Definition in file [stm32746g\\_discovery.h](#).



Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual 1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"temp1378.html">Globals](#)
- [Drivers](#)
- [BSP](#)
- [STM32746G-Discovery](#)

## Functions | Variables

stm32746g\_discovery\_audio.c File Reference

This file provides the Audio driver for the STM32746G-Discovery board. [More...](#)

```
#include "stm32746g_discovery_audio.h"
```

[Go to the source code of this file.](#)

## Functions

```
static void&"memItemRight"
valign="bottom">SAIx\_Out\_Init
(uint32_t AudioFreq)
```

Initializes the output Audio Codec audio interface (SAI).

```
static void SAIx\_Out\_DeInit (void)
```

Deinitializes the output Audio Codec audio interface (SAI).

```
static void SAIx\_In\_Init (uint32_t SaiOutMode, uint32_t SlotActive, uint32_t
AudioFreq)
```

Initializes the input Audio Codec audio interface (SAI).

```
static void SAIx\_In\_DeInit (void)
```

Deinitializes the output Audio Codec audio interface (SAI).

uint8\_t [BSP\\_AUDIO\\_OUT\\_Init](#) (uint16\_t OutputDevice, uint8\_t Volume, uint32\_t AudioFreq)  
Configures the audio peripherals.

uint8\_t [BSP\\_AUDIO\\_OUT\\_Play](#) (uint16\_t \*pBuffer, uint32\_t Size)  
Starts playing audio stream from a data buffer for a determined size.

void [BSP\\_AUDIO\\_OUT\\_ChangeBuffer](#) (uint16\_t \*pData, uint16\_t Size)  
Sends n-Bytes on the SAI interface.

uint8\_t [BSP\\_AUDIO\\_OUT\\_Pause](#) (void)  
This function Pauses the audio file stream.

uint8\_t [BSP\\_AUDIO\\_OUT\\_Resume](#) (void)  
This function Resumes the audio file stream.

uint8\_t [BSP\\_AUDIO\\_OUT\\_Stop](#) (uint32\_t Option)  
Stops audio playing and Power down the Audio Codec.

uint8\_t [BSP\\_AUDIO\\_OUT\\_SetVolume](#) (uint8\_t Volume)  
Controls the current audio volume level.

uint8\_t [BSP\\_AUDIO\\_OUT\\_SetMute](#) (uint32\_t Cmd)  
Enables or disables the MUTE mode by software.

uint8\_t [BSP\\_AUDIO\\_OUT\\_SetOutputMode](#) (uint8\_t Output)  
Switch dynamically (while audio file is played) the output target (speaker or headphone).

void [BSP\\_AUDIO\\_OUT\\_SetFrequency](#) (uint32\_t AudioFreq)  
Updates the audio frequency.

void [BSP\\_AUDIO\\_OUT\\_SetAudioFrameSlot](#) (uint32\_t AudioFrameSlot)  
Updates the Audio frame slot configuration.

void [BSP\\_AUDIO\\_OUT\\_DeInit](#) (void)  
Deinit the audio peripherals.

void [HAL\\_SAI\\_TxCpltCallback](#) (SAI\_HandleTypeDef \*hsai)  
Tx Transfer completed callbacks.

void [HAL\\_SAI\\_TxHalfCpltCallback](#) (SAI\_HandleTypeDef \*hsai)  
Tx Half Transfer completed callbacks.

void [HAL\\_SAI\\_ErrorCallback](#) (SAI\_HandleTypeDef \*hsai)  
SAI error callbacks.

\_\_weak void [BSP\\_AUDIO\\_OUT\\_TransferComplete\\_CallBack](#) (void)  
Manages the DMA full Transfer complete event.

\_\_weak void [BSP\\_AUDIO\\_OUT\\_HalfTransfer\\_CallBack](#) (void)  
Manages the DMA Half Transfer complete event.

\_\_weak void [BSP\\_AUDIO\\_OUT\\_Error\\_CallBack](#) (void)  
Manages the DMA FIFO error event.

\_\_weak void [BSP\\_AUDIO\\_OUT\\_MspInit](#) (SAI\_HandleTypeDef \*hsai, void \*Params)  
Initializes BSP\_AUDIO\_OUT MSP.

\_\_weak void [BSP\\_AUDIO\\_OUT\\_MspDeInit](#) (SAI\_HandleTypeDef \*hsai, void \*Params)  
Deinitializes SAI MSP.

```

__weak void BSP_AUDIO_OUT_ClockConfig (SAI_HandleTypeDef *hsai,
    uint32_t AudioFreq, void *Params)
    Clock Config.

uint8_t BSP_AUDIO_IN_Init (uint32_t AudioFreq, uint32_t BitRes, uint32_t
    ChnlNbr)
    Initializes wave recording.

uint8_t BSP_AUDIO_IN_InitEx (uint16_t InputDevice, uint32_t AudioFreq,
    uint32_t BitRes, uint32_t ChnlNbr)
    Initializes wave recording.

uint8_t BSP_AUDIO_IN_OUT_Init (uint16_t InputDevice, uint16_t
    OutputDevice, uint32_t AudioFreq, uint32_t BitRes, uint32_t
    ChnlNbr)
    Initializes wave recording and playback in parallel.

uint8_t BSP_AUDIO_IN_Record (uint16_t *pbuf, uint32_t size)
    Starts audio recording.

uint8_t BSP_AUDIO_IN_Stop (uint32_t Option)
    Stops audio recording.

uint8_t BSP_AUDIO_IN_Pause (void)
    Pauses the audio file stream.

uint8_t BSP_AUDIO_IN_Resume (void)
    Resumes the audio file stream.

uint8_t BSP_AUDIO_IN_SetVolume (uint8_t Volume)
    Controls the audio in volume level.

void BSP_AUDIO_IN_DeInit (void)
    Deinit the audio IN peripherals.

void HAL_SAI_RxCpltCallback (SAI_HandleTypeDef *hsai)
    Rx Transfer completed callbacks.

void HAL_SAI_RxHalfCpltCallback (SAI_HandleTypeDef *hsai)
    Rx Half Transfer completed callbacks.

__weak void BSP_AUDIO_IN_TransferComplete_CallBack (void)
    User callback when record buffer is filled.

__weak void BSP_AUDIO_IN_HalfTransfer_CallBack (void)
    Manages the DMA Half Transfer complete event.

__weak void BSP_AUDIO_IN_Error_CallBack (void)
    Audio IN Error callback function.

__weak void BSP_AUDIO_IN_MspInit (SAI_HandleTypeDef *hsai, void
    *Params)
    Initializes BSP_AUDIO_IN MSP.

__weak void BSP_AUDIO_IN_MspDeInit (SAI_HandleTypeDef *hsai, void
    *Params)
    DeInitializes BSP_AUDIO_IN MSP.

```

## Variables

```

AUDIO_DrvTypeDef * audio_drv
SAI_HandleTypeDef haudio_out_sai = {0}
SAI_HandleTypeDef haudio_in_sai = {0}

```

TIM\_HandleTypeDef [haudio\\_tim](#)

uint16\_t \_\_IO [AudioInVolume](#) = [DEFAULT\\_AUDIO\\_IN\\_VOLUME](#)

## Detailed Description

This file provides the Audio driver for the STM32746G-Discovery board.

### Author:

MCD Application Team

How To use this driver:

-----

- + This driver supports STM32F7xx devices on STM32746G-Discovery (MB1191) board.
- + Call the function `BSP_AUDIO_OUT_Init()`

`OutputDevice: physical output mode (OUTPUT_DEVICE_SPEAKER or OUTPUT_DEVICE_HEADPHONE or OUTPUT_DEVICE_BOTH)`  
`Volume : Initial volume to be set (0 is minimum and 100 is maximum)`  
`AudioFreq : Audio frequency in Hz (8000, 12000, 16000, 20000, 24000, 32000, 44100, 48000)`  
`this parameter is relative to the sampling frequency`

`)`  
 This function configures all the hardware required for the audio application (GPIOs, DMA and interrupt if needed). This function returns `AUDIO_OK` if correct. If the returned value is different from `AUDIO_OK` or the function is stuck, the codec or the MFX has failed (try to un-plug the power or reset device).  
 - `OUTPUT_DEVICE_SPEAKER` : only speaker will be set as output for the audio.  
 - `OUTPUT_DEVICE_HEADPHONE`: only headphones will be set as output for the audio.  
 - `OUTPUT_DEVICE_BOTH` : both Speaker and Headphone are used as outputs at the same time.

Note. On STM32746G-Discovery SAI\_DMA is configured in CIRCULAR mode. Due to this, the driver does NOT need to call `BSP_AUDIO_OUT_ChangeBuffer()` to assure streaming.

- + Call the function `BSP_DISCOVERY_AUDIO_OUT_Play()`
  - `pBuffer: pointer to the audio data file address`
  - `Size : size of the buffer to be sent in Bytes`

`)`  
 to start playing (for the first time) from the audio file/stream.

- + Call the function `BSP_AUDIO_OUT_Pause()` to pause playing
- + Call the function `BSP_AUDIO_OUT_Resume()` to resume playing.

Note. After calling `BSP_AUDIO_OUT_Pause()` function for pause, only `BSP_AUDIO_OUT_Resume()` for resume (it is not allowed to call `BSP_AUDIO_OUT_Play()` in this case).

Note. This function should be called only when the audio file is played correctly.

- + For each mode, you may need to implement the relative callback functions in `stm32746g_discovery_audio.c`. The Callback functions are named `AUDIO_OUT_XXX_CallBack()` and only their prototypes are defined in the `stm32746g_discovery_audio.h` file. (refer to the example for more details).
- + To Stop playing, to modify the volume level, the frequency, the audio frame slot, the device output mode the mute or the stop, use the functions: `BSP_AUDIO_OUT_SetVolume()`, `BSP_AUDIO_OUT_SetFrequency()`, `BSP_AUDIO_OUT_SetAudioFrameSlot()`, `BSP_AUDIO_OUT_SetOutputDevice()`, `BSP_AUDIO_OUT_SetMute()` and `BSP_AUDIO_OUT_Stop()`.
- + The driver API and the callback functions are at the end of the `stm32746g_discovery_audio.c` file.

Driver architecture:

-----

- + This driver provides the High Audio Layer: consists of the function API exposed ( `BSP_AUDIO_OUT_Init()`, `BSP_AUDIO_OUT_Play()` ... )
- + This driver provide also the Media Access Layer (MAL): which consists of functions providing the audio file/stream. These functions are also included as local functions in the `stm32746g_discovery_audio_codec.c` file (`SAIx_Out_Init()` and `SAIx_Out_DeInit()`).

Known Limitations:

-----

- 1- If the TDM Format used to play in parallel 2 audio Stream (the first Stream in SLOT1) the Pause/Resume, volume and mute feature will control the first Stream.
- 2- Parsing of audio file is not implemented (in order to determine audio file format, File size, Audio Frequency, Audio Data header size ...). The configuration is done by the user.



- 3- Supports only Stereo audio streaming.
- 4- Supports only 16-bits audio data size.

**Attention:****© COPYRIGHT(c) 2016 STMicroelectronics**

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met: 1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer. 2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution. 3. Neither the name of STMicroelectronics nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Definition in file [stm32746g\\_discovery\\_audio.c](#).



Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"temp1378.html">Globals](#)
- [Drivers](#)
- [BSP](#)
- [STM32746G-Discovery](#)

[Defines](#) | [Functions](#) | [Variables](#)

stm32746g\_discovery\_audio.h File Reference

This file contains the common defines and functions prototypes for the [stm32746g\\_discovery\\_audio.c](#) driver.  
[More...](#)

```
#include "../Components/wm8994/wm8994.h"
#include "stm32746g_discovery.h"
```

[Go to the source code of this file.](#)



## Defines

```

"memItemRight"
_AUDIOFRAME_SLOT_0123 SAI_SLOTACTIVE_0
| SAI_SLOTACTIVE_1 |
SAI_SLOTACTIVE_2 |
SAI_SLOTACTIVE_3

#define CODEC_AUDIOFRAME_SLOT_02 SAI_SLOTACTIVE_0 | SAI_SLOTACTIVE_1
#define CODEC_AUDIOFRAME_SLOT_13 SAI_SLOTACTIVE_1 | SAI_SLOTACTIVE_2
#define AUDIO_OUT_SAIx SAI2_Block_A
#define AUDIO_OUT_SAIx_CLK_ENABLE() __HAL_RCC_SAI2_CLK_ENABLE()
#define AUDIO_OUT_SAIx_CLK_DISABLE() __HAL_RCC_SAI2_CLK_DISABLE()
#define AUDIO_OUT_SAIx_SCK_AF GPIO_AF10_SAI2
#define AUDIO_OUT_SAIx_FS_SD_MCLK_AF GPIO_AF10_SAI2
#define AUDIO_OUT_SAIx_MCLK_ENABLE() __HAL_RCC_GPIOI_CLK_ENABLE()
#define AUDIO_OUT_SAIx_MCLK_GPIO_PORT GPIOI
#define AUDIO_OUT_SAIx_MCLK_PIN GPIO_PIN_4
#define AUDIO_OUT_SAIx_SCK_SD_ENABLE() __HAL_RCC_GPIOI_CLK_ENABLE()
#define AUDIO_OUT_SAIx_SCK_SD_GPIO_PORT GPIOI
#define AUDIO_OUT_SAIx_SCK_PIN GPIO_PIN_5
#define AUDIO_OUT_SAIx_SD_PIN GPIO_PIN_6
#define AUDIO_OUT_SAIx_FS_ENABLE() __HAL_RCC_GPIOI_CLK_ENABLE()
#define AUDIO_OUT_SAIx_FS_GPIO_PORT GPIOI
#define AUDIO_OUT_SAIx_FS_PIN GPIO_PIN_7
#define AUDIO_OUT_SAIx_DMAx_CLK_ENABLE() __HAL_RCC_DMA2_CLK_ENABLE()
#define AUDIO_OUT_SAIx_DMAx_STREAM DMA2_Stream4
#define AUDIO_OUT_SAIx_DMAx_CHANNEL DMA_CHANNEL_3
#define AUDIO_OUT_SAIx_DMAx_IRQ DMA2_Stream4_IRQn
#define AUDIO_OUT_SAIx_DMAx_PERIPH_DATA_SIZE DMA_PDATAALIGN_WORD
#define AUDIO_OUT_SAIx_DMAx_MEM_DATA_SIZE DMA_MDATAALIGN_WORD
#define DMA_MAX_SIZE ((uint16_t)0xFFFF)
#define AUDIO_OUT_SAIx_DMAx_IRQHandler DMA2_Stream4_IRQHandler
#define AUDIO_OUT_IRQ_PREPRIO ((uint32_t)0x0E) /* Select the preemption priority
the highest) */
#define AUDIO_IN_SAIx SAI2_Block_B
#define AUDIO_IN_SAIx_CLK_ENABLE() __HAL_RCC_SAI2_CLK_ENABLE()
#define AUDIO_IN_SAIx_CLK_DISABLE() __HAL_RCC_SAI2_CLK_DISABLE()
#define AUDIO_IN_SAIx_SD_AF GPIO_AF10_SAI2
#define AUDIO_IN_SAIx_SD_ENABLE() __HAL_RCC_GPIOG_CLK_ENABLE()
#define AUDIO_IN_SAIx_SD_GPIO_PORT GPIOG
#define AUDIO_IN_SAIx_SD_PIN GPIO_PIN_10
#define AUDIO_IN_INT_GPIO_ENABLE() __HAL_RCC_GPIOH_CLK_ENABLE()
#define AUDIO_IN_INT_GPIO_PORT GPIOH
#define AUDIO_IN_INT_GPIO_PIN GPIO_PIN_15
#define AUDIO_IN_INT_IRQ EXTI15_10_IRQn
#define AUDIO_IN_SAIx_DMAx_CLK_ENABLE() __HAL_RCC_DMA2_CLK_ENABLE()

```

```

#define AUDIO_IN_SAIx_DMAx_STREAM DMA2_Stream7
#define AUDIO_IN_SAIx_DMAx_CHANNEL DMA_CHANNEL_0
#define AUDIO_IN_SAIx_DMAx_IRQ DMA2_Stream7_IRQn
#define AUDIO_IN_SAIx_DMAx_PERIPH_DATA_SIZE DMA_PDATAALIGN_HALFWORD
#define AUDIO_IN_SAIx_DMAx_MEM_DATA_SIZE DMA_MDATAALIGN_HALFWORD
#define AUDIO_IN_SAIx_DMAx_IRQHandler DMA2_Stream7_IRQHandler
#define AUDIO_IN_INT_IRQHandler EXTI15_10_IRQHandler
#define AUDIO_IN_IRQ_PREPRIO ((uint32_t)0x0F) /* Select the preemption priority level
highest) */
#define AUDIODATA_SIZE ((uint16_t)2) /* 16-bits audio data size */
#define AUDIO_OK ((uint8_t)0)
#define AUDIO_ERROR ((uint8_t)1)
#define AUDIO_TIMEOUT ((uint8_t)2)
#define DEFAULT_AUDIO_IN_FREQ I2S_AUDIOFREQ_16K
#define DEFAULT_AUDIO_IN_BIT_RESOLUTION ((uint8_t)16)
#define DEFAULT_AUDIO_IN_CHANNEL_NBR ((uint8_t)2) /* Mono = 1, Stereo = 2 */
#define DEFAULT_AUDIO_IN_VOLUME ((uint16_t)64)
#define CODEC_RESET_DELAY ((uint8_t)5)
#define OUTPUT_DEVICE_HEADPHONE1 OUTPUT_DEVICE_HEADPHONE
#define OUTPUT_DEVICE_HEADPHONE2 OUTPUT_DEVICE_SPEAKER /* Headphone
connected to Speaker output of the wm8994 */
#define DMA_MAX(x) (((x) <= DMA_MAX_SIZE)? (x):DMA_MAX_SIZE)

```

## Functions

```

uint8_t BSP_AUDIO_OUT_Init (uint16_t OutputDevice, uint8_t Volume, uint32_t AudioFreq)
    Configures the audio peripherals.

uint8_t BSP_AUDIO_OUT_Play (uint16_t *pBuffer, uint32_t Size)
    Starts playing audio stream from a data buffer for a determined size.

void BSP_AUDIO_OUT_ChangeBuffer (uint16_t *pData, uint16_t Size)
    Sends n-Bytes on the SAI interface.

uint8_t BSP_AUDIO_OUT_Pause (void)
    This function Pauses the audio file stream.

uint8_t BSP_AUDIO_OUT_Resume (void)
    This function Resumes the audio file stream.

uint8_t BSP_AUDIO_OUT_Stop (uint32_t Option)
    Stops audio playing and Power down the Audio Codec.

uint8_t BSP_AUDIO_OUT_SetVolume (uint8_t Volume)
    Controls the current audio volume level.

void BSP_AUDIO_OUT_SetFrequency (uint32_t AudioFreq)
    Updates the audio frequency.

void BSP_AUDIO_OUT_SetAudioFrameSlot (uint32_t AudioFrameSlot)
    Updates the Audio frame slot configuration.

uint8_t BSP_AUDIO_OUT_SetMute (uint32_t Cmd)
    Enables or disables the MUTE mode by software.

uint8_t BSP_AUDIO_OUT_SetOutputMode (uint8_t Output)
    Switch dynamically (while audio file is played) the output target (speaker or headphone)

```

void [BSP\\_AUDIO\\_OUT\\_DeInit](#) (void)  
Deinit the audio peripherals.

\_\_weak void [BSP\\_AUDIO\\_OUT\\_TransferComplete\\_CallBack](#) (void)  
Manages the DMA full Transfer complete event.

\_\_weak void [BSP\\_AUDIO\\_OUT\\_HalfTransfer\\_CallBack](#) (void)  
Manages the DMA Half Transfer complete event.

\_\_weak void [BSP\\_AUDIO\\_OUT\\_Error\\_CallBack](#) (void)  
Manages the DMA FIFO error event.

\_\_weak void [BSP\\_AUDIO\\_OUT\\_ClockConfig](#) (SAI\_HandleTypeDef \*hsai, uint32\_t AudioFreq, uint32\_t BitRes, uint32\_t ChnlNbr, void \*Params)  
Clock Config.

\_\_weak void [BSP\\_AUDIO\\_OUT\\_MspInit](#) (SAI\_HandleTypeDef \*hsai, void \*Params)  
Initializes BSP\_AUDIO\_OUT MSP.

\_\_weak void [BSP\\_AUDIO\\_OUT\\_MspDeInit](#) (SAI\_HandleTypeDef \*hsai, void \*Params)  
Deinitializes SAI MSP.

uint8\_t [BSP\\_AUDIO\\_IN\\_Init](#) (uint32\_t AudioFreq, uint32\_t BitRes, uint32\_t ChnlNbr)  
Initializes wave recording.

uint8\_t [BSP\\_AUDIO\\_IN\\_InitEx](#) (uint16\_t InputDevice, uint32\_t AudioFreq, uint32\_t BitRes, uint32\_t ChnlNbr)  
Initializes wave recording.

uint8\_t [BSP\\_AUDIO\\_IN\\_OUT\\_Init](#) (uint16\_t InputDevice, uint16\_t OutputDevice, uint32\_t AudioFreq, uint32\_t BitRes, uint32\_t ChnlNbr)  
Initializes wave recording and playback in parallel.

uint8\_t [BSP\\_AUDIO\\_IN\\_Record](#) (uint16\_t \*pData, uint32\_t Size)  
Starts audio recording.

uint8\_t [BSP\\_AUDIO\\_IN\\_Stop](#) (uint32\_t Option)  
Stops audio recording.

uint8\_t [BSP\\_AUDIO\\_IN\\_Pause](#) (void)  
Pauses the audio file stream.

uint8\_t [BSP\\_AUDIO\\_IN\\_Resume](#) (void)  
Resumes the audio file stream.

uint8\_t [BSP\\_AUDIO\\_IN\\_SetVolume](#) (uint8\_t Volume)  
Controls the audio in volume level.

void [BSP\\_AUDIO\\_IN\\_DeInit](#) (void)  
Deinit the audio IN peripherals.

void [BSP\\_AUDIO\\_IN\\_TransferComplete\\_CallBack](#) (void)  
User callback when record buffer is filled.

void [BSP\\_AUDIO\\_IN\\_HalfTransfer\\_CallBack](#) (void)  
Manages the DMA Half Transfer complete event.

void [BSP\\_AUDIO\\_IN\\_Error\\_CallBack](#) (void)  
Audio IN Error callback function.

void [BSP\\_AUDIO\\_IN\\_MspInit](#) (SAI\_HandleTypeDef \*hsai, void \*Params)  
Initializes BSP\_AUDIO\_IN MSP.

void [BSP\\_AUDIO\\_IN\\_MspDeInit](#) (SAI\_HandleTypeDef \*hsai, void \*Params)  
Deinitializes BSP\_AUDIO\_IN MSP.

# Variables

`__IO uint16_t` [AudioInVolume](#)

---

## Detailed Description

This file contains the common defines and functions prototypes for the [stm32746g\\_discovery\\_audio.c](#) driver.

**Author:**

MCD Application Team

**Attention:**

## © COPYRIGHT(c) 2016 STMicroelectronics

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met: 1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer. 2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution. 3. Neither the name of STMicroelectronics nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Definition in file [stm32746g\\_discovery\\_audio.h](#).

---



Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
  
- [File&"temp1378.html">Globals](#)
  
- [Drivers](#)
- [BSP](#)
- [STM32746G-Discovery](#)

[Defines](#) | [Functions](#) | [Variables](#)

## stm32746g\_discovery\_camera.c File Reference

This file includes the driver for Camera modules mounted on STM32746G-Discovery board. [More...](#)

```
#include "stm32746g_discovery_camera.h"
```

```
#include "stm32746g_discovery.h"
```

[Go to the source code of this file.](#)

## Defines

```
"memItemRight"
valign="bottom">CAMERA\_VGA\_RES\_X 640
#define CAMERA\_VGA\_RES\_Y 480
#define CAMERA\_480x272\_RES\_X 480
#define CAMERA\_480x272\_RES\_Y 272
#define CAMERA\_QVGA\_RES\_X 320
#define CAMERA\_QVGA\_RES\_Y 240
#define CAMERA\_QQVGA\_RES\_X 160
#define CAMERA\_QQVGA\_RES\_Y 120
```

## Functions

```
static uint32_t GetSize (uint32_t resolution)
    Get the capture size in pixels unit.
uint8_t BSP\_CAMERA\_Init (uint32_t Resolution)
    Initializes the camera.
uint8_t BSP\_CAMERA\_DeInit (void)
    DeInitializes the camera.
void BSP\_CAMERA\_ContinuousStart (uint8_t *buff)
    Starts the camera capture in continuous mode.
void BSP\_CAMERA\_SnapshotStart (uint8_t *buff)
    Starts the camera capture in snapshot mode.
void BSP\_CAMERA\_Suspend (void)
    Suspend the CAMERA capture.
void BSP\_CAMERA\_Resume (void)
    Resume the CAMERA capture.
uint8_t BSP\_CAMERA\_Stop (void)
    Stop the CAMERA capture.
void BSP\_CAMERA\_PwrUp (void)
    CAMERA power up.
void BSP\_CAMERA\_PwrDown (void)
    CAMERA power down.
void BSP\_CAMERA\_ContrastBrightnessConfig (uint32_t
    contrast_level, uint32_t brightness_level)
    Configures the camera contrast and brightness.
void BSP\_CAMERA\_BlackWhiteConfig (uint32_t Mode)
    Configures the camera white balance.
void BSP\_CAMERA\_ColorEffectConfig (uint32_t Effect)
    Configures the camera color effect.
```

```

__weak void BSP_CAMERA_MspInit (DCMI_HandleTypeDef
    *hdcmi, void *Params)
    Initializes the DCMI MSP.
__weak void BSP_CAMERA_MspDeInit (DCMI_HandleTypeDef
    *hdcmi, void *Params)
    DeInitializes the DCMI MSP.
void HAL_DCMI_LineEventCallback
    (DCMI_HandleTypeDef *hdcmi)
    Line event callback.
__weak void BSP_CAMERA_LineEventCallback (void)
    Line Event callback.
void HAL_DCMI_VsyncEventCallback
    (DCMI_HandleTypeDef *hdcmi)
    VSYNC event callback.
__weak void BSP_CAMERA_VsyncEventCallback (void)
    VSYNC Event callback.
void HAL_DCMI_FrameEventCallback
    (DCMI_HandleTypeDef *hdcmi)
    Frame event callback.
__weak void BSP_CAMERA_FrameEventCallback (void)
    Frame Event callback.
void HAL_DCMI_ErrorCallback (DCMI_HandleTypeDef
    *hdcmi)
    Error callback.
__weak void BSP_CAMERA_ErrorCallback (void)
    Error callback.

```

## Variables

```

DCMI_HandleTypeDef hDcmiHandler
CAMERA_DrvTypeDef * camera_drv
static uint32_t CameraCurrentResolution
static uint32_t CameraHwAddress

```

---

## Detailed Description

This file includes the driver for Camera modules mounted on STM32746G-Discovery board.

### Author:

MCD Application Team

How to use this driver:

-----

- This driver is used to drive the camera.
- The OV9655 component driver MUST be included with this driver.

Driver description:

-----

+ Initialization steps:

- o Initialize the camera using the BSP\_CAMERA\_Init() function.
- o Start the camera capture/snapshot using the CAMERA\_Start() function.
- o Suspend, resume or stop the camera capture using the following functions:

- BSP\_CAMERA\_Suspend()
  - BSP\_CAMERA\_Resume()
  - BSP\_CAMERA\_Stop()
- + Options
- o Increase or decrease on the fly the brightness and/or contrast using the following function:
    - BSP\_CAMERA\_ContrastBrightnessConfig
  - o Add a special effect on the fly using the following functions:
    - BSP\_CAMERA\_BlackWhiteConfig()
    - BSP\_CAMERA\_ColorEffectConfig()

**Attention:****© COPYRIGHT(c) 2016 STMicroelectronics**

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met: 1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer. 2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution. 3. Neither the name of STMicroelectronics nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Definition in file [stm32746g\\_discovery\\_camera.c](#).



Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by

STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"temp1378.html">Globals](#)
- [Drivers](#)
- [BSP](#)
- [STM32746G-Discovery](#)

[Defines](#) | [Enumerations](#) | [Functions](#)

stm32746g\_discovery\_camera.h File Reference



This file contains the common defines and functions prototypes for the [stm32746g\\_discovery\\_camera.c](#) driver. [More...](#)

```
#include "../Components/ov9655/ov9655.h"
#include "stm32746g_discovery.h"
```

[Go to the source code of this file.](#)

## Defines

```
"memItemRight"
#define RESOLUTION_R160x120 CAMERA_R160x120
/* QQVGA Resolution */

#define RESOLUTION_R320x240 CAMERA_R320x240 /* QVGA Resolution
*/

#define RESOLUTION_R480x272 CAMERA_R480x272 /* 480x272
Resolution */

#define RESOLUTION_R640x480 CAMERA_R640x480 /* VGA Resolution */
#define BSP_CAMERA_IRQHandler DCMI_IRQHandler
#define BSP_CAMERA_DMA_IRQHandler DMA2_Stream1_IRQHandler
```

## Enumerations

```
enum Camera_StatusTypeDef {
    CAMERA_OK = 0x00, CAMERA_ERROR = 0x01,
    CAMERA_TIMEOUT = 0x02, CAMERA_NOT_DETECTED = 0x03,
    CAMERA_NOT_SUPPORTED = 0x04
}

Camera State structures definition. More...
```

## Functions

```
uint8_t BSP_CAMERA_Init (uint32_t Resolution)
    Initializes the camera.

uint8_t BSP_CAMERA_DeInit (void)
    DeInitializes the camera.

void BSP_CAMERA_ContinuousStart (uint8_t *buff)
    Starts the camera capture in continuous mode.

void BSP_CAMERA_SnapshotStart (uint8_t *buff)
    Starts the camera capture in snapshot mode.

void BSP_CAMERA_Suspend (void)
    Suspend the CAMERA capture.

void BSP_CAMERA_Resume (void)
    Resume the CAMERA capture.

uint8_t BSP_CAMERA_Stop (void)
    Stop the CAMERA capture.

void BSP_CAMERA_PwrUp (void)
    CAMERA power up.

void BSP_CAMERA_PwrDown (void)
    CAMERA power down.

__weak void BSP_CAMERA_LineEventCallback (void)
    Line Event callback.
```



```

__weak void BSP\_CAMERA\_VsyncEventCallback (void)
    VSYNC Event callback.

__weak void BSP\_CAMERA\_FrameEventCallback (void)
    Frame Event callback.

__weak void BSP\_CAMERA\_ErrorCallback (void)
    Error callback.

void BSP\_CAMERA\_ContrastBrightnessConfig (uint32_t contrast_level,
    uint32_t brightness_level)
    Configures the camera contrast and brightness.

void BSP\_CAMERA\_BlackWhiteConfig (uint32_t Mode)
    Configures the camera white balance.

void BSP\_CAMERA\_ColorEffectConfig (uint32_t Effect)
    Configures the camera color effect.

__weak void BSP\_CAMERA\_MspInit (DCMI_HandleTypeDef *hdcmi, void
    *Params)
    Initializes the DCMI MSP.

__weak void BSP\_CAMERA\_MspDeInit (DCMI_HandleTypeDef *hdcmi, void
    *Params)
    DeInitializes the DCMI MSP.

```

---

## Detailed Description

This file contains the common defines and functions prototypes for the [stm32746g\\_discovery\\_camera.c](#) driver.

### Author:

MCD Application Team

### Attention:

## © COPYRIGHT(c) 2016 STMicroelectronics

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met: 1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer. 2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution. 3. Neither the name of STMicroelectronics nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)

ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Definition in file [stm32746g\\_discovery\\_camera.h](#).



Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"temp1378.html">Globals](#)
- [Drivers](#)
- [BSP](#)
- [STM32746G-Discovery](#)

## Functions | Variables

stm32746g\_discovery\_eeprom.c File Reference

This file provides a set of functions needed to manage an I2C M24LR64 EEPROM memory. [More...](#)

```
#include "stm32746g_discovery_eeprom.h"
```

[Go to the source code of this file.](#)

## Functions

```
uint32_t&"memItemRight"
valign="bottom">BSP\_EEPROM\_Init
                (void)
                Initializes peripherals used by the I2C EEPROM driver.
uint8_t BSP\_EEPROM\_DeInit (void)
                DeInitializes the EEPROM.
uint32_t BSP\_EEPROM\_ReadBuffer (uint8_t *pBuffer, uint16_t
                ReadAddr, uint16_t *NumByteToRead)
                Reads a block of data from the EEPROM.
uint32_t BSP\_EEPROM\_WritePage (uint8_t *pBuffer, uint16_t
                WriteAddr, uint8_t *NumByteToWrite)
                Writes more than one byte to the EEPROM with a single
                WRITE cycle.
uint32_t BSP\_EEPROM\_WriteBuffer (uint8_t *pBuffer, uint16_t
                WriteAddr, uint16_t NumByteToWrite)
                Writes buffer of data to the I2C EEPROM.
uint32_t BSP\_EEPROM\_WaitEepromStandbyState (void)
                Wait for EEPROM Standby state.
__weak void BSP\_EEPROM\_TIMEOUT\_UserCallback (void)
                Basic management of the timeout situation.
```

## Variables

```
__IO uint16_t EEPROMAddress = 0
__IO uint16_t EEPROMDataRead
__IO uint8_t EEPROMDataWrite
```

---

## Detailed Description

This file provides a set of functions needed to manage an I2C M24LR64 EEPROM memory.

### Author:

MCD Application Team

To be able to use this driver, the switch `EE_M24LR64` must be defined in your toolchain compiler preprocessor

#### Notes:

- The I2C EEPROM memory (M24LR64) is available on separate daughter board ANT7-M24LR-A, which is not provided with the STM32746G\_DISCOVERY board.  
To use this driver you have to connect the ANT7-M24LR-A to CN3 connector of STM32746G\_DISCOVERY board.

It implements a high level communication layer for read and write from/to this memory. The needed STM32F7xx hardware resources (I2C and GPIO) are defined in `stm32746g_discovery.h` file, and the initialization performed in `EEPROM_IO_Init()` function declared in `stm32746g_discovery.h` file.

You can easily tailor this driver to any other development board, by just adapting the defines for hardware resources and `EEPROM_IO_Init()` function.

@note In this driver, basic read and write functions (`BSP_EEPROM_ReadBuffer` and `BSP_EEPROM_WritePage()`) use DMA mode to perform the data transfer to/from EEPROM memory.

@note Regarding `BSP_EEPROM_WritePage()`, it is an optimized function to small write (less than 1 page) BUT the number of bytes (combined) cross the EEPROM page boundary. This function can only writes into the boundaries of an EEPROM page.  
This function doesn't check on boundaries condition (in this driver the function `BSP_EEPROM_WriteBuffer()` which calls `BSP_EEPROM_WritePage()` is responsible of checking on Page boundaries).

Pin assignment for M24LR64 EEPROM			
STM32F7xx I2C Pins	EEPROM	Pin	
.	E0 (GND)	1	(0V)
.	AC0	2	
.	AC1	3	
.	VSS	4	(0V)
SDA	SDA	5	
SCL	SCL	6	
.	E1 (GND)	7	(0V)
.	VDD	8	(3.3V)

**Attention:****© COPYRIGHT(c) 2016 STMicroelectronics**

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met: 1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer. 2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution. 3. Neither the name of STMicroelectronics nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Definition in file [stm32746g\\_discovery\\_eeprom.c](#).



Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"temp1378.html">Globals](#)
- [Drivers](#)
- [BSP](#)
- [STM32746G-Discovery](#)

**Defines | Functions**

stm32746g\_discovery\_eeprom.h File Reference

This file contains all the functions prototypes for the [stm32746g\\_discovery\\_eeprom.c](#) firmware driver. [More...](#)

```
#include "stm32746g_discovery.h"
```

[Go to the source code of this file.](#)

**Defines**

```

                                "memItemRight"
valign="bottom">EEPROM\_PAGESIZE ((uint8_t)4)
                                #define EEPROM\_MAX\_SIZE ((uint16_t)0x2000) /*
                                64Kbit */
                                #define EEPROM\_MAX\_TRIALS ((uint32_t)3000)

```

## Functions

```
#define EEPROM_OK ((uint32_t)0)
#define EEPROM_FAIL ((uint32_t)1)
#define EEPROM_TIMEOUT ((uint32_t)2)
```

uint32\_t [BSP\\_EEPROM\\_Init](#) (void)

Initializes peripherals used by the I2C EEPROM driver.

uint8\_t [BSP\\_EEPROM\\_DeInit](#) (void)

DeInitializes the EEPROM.

uint32\_t [BSP\\_EEPROM\\_ReadBuffer](#) (uint8\_t \*pBuffer, uint16\_t ReadAddr, uint16\_t \*NumByteToRead)

Reads a block of data from the EEPROM.

uint32\_t [BSP\\_EEPROM\\_WritePage](#) (uint8\_t \*pBuffer, uint16\_t WriteAddr, uint8\_t \*NumByteToWrite)

Writes more than one byte to the EEPROM with a single WRITE cycle.

uint32\_t [BSP\\_EEPROM\\_WriteBuffer](#) (uint8\_t \*pBuffer, uint16\_t WriteAddr, uint16\_t NumByteToWrite)

Writes buffer of data to the I2C EEPROM.

uint32\_t [BSP\\_EEPROM\\_WaitEepromStandbyState](#) (void)

Wait for EEPROM Standby state.

\_\_weak void [BSP\\_EEPROM\\_TIMEOUT\\_UserCallback](#) (void)

Basic management of the timeout situation.

void [EEPROM\\_IO\\_Init](#) (void)

Initializes peripherals used by the I2C EEPROM driver.

HAL\_StatusTypeDef [EEPROM\\_IO\\_WriteData](#) (uint16\_t DevAddress, uint16\_t MemAddress, uint8\_t \*pBuffer, uint32\_t BufferSize)

Write data to I2C EEPROM driver in using DMA channel.

HAL\_StatusTypeDef [EEPROM\\_IO\\_ReadData](#) (uint16\_t DevAddress, uint16\_t MemAddress, uint8\_t \*pBuffer, uint32\_t BufferSize)

Read data from I2C EEPROM driver in using DMA channel.

HAL\_StatusTypeDef [EEPROM\\_IO\\_IsDeviceReady](#) (uint16\_t DevAddress, uint32\_t Trials)

Checks if target device is ready for communication.

---

## Detailed Description

This file contains all the functions prototypes for the [stm32746g\\_discovery\\_eeprom.c](#) firmware driver.

### Author:

MCD Application Team

**Attention:****© COPYRIGHT(c) 2016 STMicroelectronics**

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met: 1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer. 2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution. 3. Neither the name of STMicroelectronics nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Definition in file [stm32746g\\_discovery\\_eeprom.h](#).



Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"temp1378.html">Globals](#)
- [Drivers](#)
- [BSP](#)
- [STM32746G-Discovery](#)

[Defines](#) | [Functions](#) | [Variables](#)

stm32746g\_discovery\_lcd.c File Reference

This file includes the driver for Liquid Crystal Display (LCD) module mounted on STM32746G-Discovery board. [More...](#)

```
#include "stm32746g_discovery_lcd.h"
#include "../../Utilities/Fonts/fonts.h"
#include "../../Utilities/Fonts/font24.c"
#include "../../Utilities/Fonts/font20.c"
#include "../../Utilities/Fonts/font16.c"
#include "../../Utilities/Fonts/font12.c"
#include "../../Utilities/Fonts/font8.c"
```

[Go to the source code of this file.](#)

## Defines

```

"memItemRight"
valign="bottom">POLY_X(Z) ((int32_t)((Points
+ Z)->X))
#define POLY_Y(Z) ((int32_t)((Points + Z)->Y))
#define ABS(X) ((X) > 0 ? (X) : -(X))

```

## Functions

```

static void DrawChar (uint16_t Xpos, uint16_t Ypos, const uint8_t *c)
    Draws a character on LCD.

static void FillTriangle (uint16_t x1, uint16_t x2, uint16_t x3, uint16_t y1,
    uint16_t y2, uint16_t y3)
    Fills a triangle (between 3 points).

static void LL_FillBuffer (uint32_t LayerIndex, void *pDst, uint32_t xSize,
    uint32_t ySize, uint32_t OffLine, uint32_t ColorIndex)
    Fills a buffer.

static void LL_ConvertLineToARGB8888 (void *pSrc, void *pDst, uint32_t
    xSize, uint32_t ColorMode)
    Converts a line to an ARGB8888 pixel format.

uint8_t BSP_LCD_Init (void)
    Initializes the LCD.

uint8_t BSP_LCD_DeInit (void)
    DeInitializes the LCD.

uint32_t BSP_LCD_GetXSize (void)
    Gets the LCD X size.

uint32_t BSP_LCD_GetYSize (void)
    Gets the LCD Y size.

void BSP_LCD_SetXSize (uint32_t imageWidthPixels)
    Set the LCD X size.

void BSP_LCD_SetYSize (uint32_t imageHeightPixels)
    Set the LCD Y size.

void BSP_LCD_LayerDefaultInit (uint16_t LayerIndex, uint32_t
    FB_Address)
    Initializes the LCD layer in ARGB8888 format (32 bits per pixel).

void BSP_LCD_LayerRgb565Init (uint16_t LayerIndex, uint32_t
    FB_Address)
    Initializes the LCD layer in RGB565 format (16 bits per pixel).

void BSP_LCD_SelectLayer (uint32_t LayerIndex)
    Selects the LCD Layer.

void BSP_LCD_SetLayerVisible (uint32_t LayerIndex,
    FunctionalState State)
    Sets an LCD Layer visible.

void BSP_LCD_SetLayerVisible_NoReload (uint32_t LayerIndex,
    FunctionalState State)
    Sets an LCD Layer visible without reloading.

void

```

`BSP_LCD_SetTransparency` (uint32\_t LayerIndex, uint8\_t Transparency)  
Configures the transparency.

void `BSP_LCD_SetTransparency_NoReload` (uint32\_t LayerIndex, uint8\_t Transparency)  
Configures the transparency without reloading.

void `BSP_LCD_SetLayerAddress` (uint32\_t LayerIndex, uint32\_t Address)  
Sets an LCD layer frame buffer address.

void `BSP_LCD_SetLayerAddress_NoReload` (uint32\_t LayerIndex, uint32\_t Address)  
Sets an LCD layer frame buffer address without reloading.

void `BSP_LCD_SetLayerWindow` (uint16\_t LayerIndex, uint16\_t Xpos, uint16\_t Ypos, uint16\_t Width, uint16\_t Height)  
Sets display window.

void `BSP_LCD_SetLayerWindow_NoReload` (uint16\_t LayerIndex, uint16\_t Xpos, uint16\_t Ypos, uint16\_t Width, uint16\_t Height)  
Sets display window without reloading.

void `BSP_LCD_SetColorKeying` (uint32\_t LayerIndex, uint32\_t RGBValue)  
Configures and sets the color keying.

void `BSP_LCD_SetColorKeying_NoReload` (uint32\_t LayerIndex, uint32\_t RGBValue)  
Configures and sets the color keying without reloading.

void `BSP_LCD_ResetColorKeying` (uint32\_t LayerIndex)  
Disables the color keying.

void `BSP_LCD_ResetColorKeying_NoReload` (uint32\_t LayerIndex)  
Disables the color keying without reloading.

void `BSP_LCD_Reload` (uint32\_t ReloadType)  
Disables the color keying without reloading.

void `BSP_LCD_SetTextColor` (uint32\_t Color)  
Sets the LCD text color.

uint32\_t `BSP_LCD_GetTextColor` (void)  
Gets the LCD text color.

void `BSP_LCD_SetBackColor` (uint32\_t Color)  
Sets the LCD background color.

uint32\_t `BSP_LCD_GetBackColor` (void)  
Gets the LCD background color.

void `BSP_LCD_SetFont` (sFONT \*fonts)  
Sets the LCD text font.

sFONT \* `BSP_LCD_GetFont` (void)  
Gets the LCD text font.

uint32\_t `BSP_LCD_ReadPixel` (uint16\_t Xpos, uint16\_t Ypos)  
Reads an LCD pixel.

void `BSP_LCD_Clear` (uint32\_t Color)  
Clears the hole LCD.



void [BSP\\_LCD\\_ClearStringLine](#) (uint32\_t Line)  
Clears the selected line.

void [BSP\\_LCD\\_DisplayChar](#) (uint16\_t Xpos, uint16\_t Ypos, uint8\_t Ascii)  
Displays one character.

void [BSP\\_LCD\\_DisplayStringAt](#) (uint16\_t Xpos, uint16\_t Ypos, uint8\_t \*Text, [Text\\_AlignModeTypdef](#) Mode)  
Displays characters on the LCD.

void [BSP\\_LCD\\_DisplayStringAtLine](#) (uint16\_t Line, uint8\_t \*ptr)  
Displays a maximum of 60 characters on the LCD.

void [BSP\\_LCD\\_DrawHLine](#) (uint16\_t Xpos, uint16\_t Ypos, uint16\_t Length)  
Draws an horizontal line.

void [BSP\\_LCD\\_DrawVLine](#) (uint16\_t Xpos, uint16\_t Ypos, uint16\_t Length)  
Draws a vertical line.

void [BSP\\_LCD\\_DrawLine](#) (uint16\_t x1, uint16\_t y1, uint16\_t x2, uint16\_t y2)  
Draws an uni-line (between two points).

void [BSP\\_LCD\\_DrawRect](#) (uint16\_t Xpos, uint16\_t Ypos, uint16\_t Width, uint16\_t Height)  
Draws a rectangle.

void [BSP\\_LCD\\_DrawCircle](#) (uint16\_t Xpos, uint16\_t Ypos, uint16\_t Radius)  
Draws a circle.

void [BSP\\_LCD\\_DrawPolygon](#) ([pPoint](#) Points, uint16\_t PointCount)  
Draws an poly-line (between many points).

void [BSP\\_LCD\\_DrawEllipse](#) (int Xpos, int Ypos, int XRadius, int YRadius)  
Draws an ellipse on LCD.

void [BSP\\_LCD\\_DrawPixel](#) (uint16\_t Xpos, uint16\_t Ypos, uint32\_t RGB\_Code)  
Draws a pixel on LCD.

void [BSP\\_LCD\\_DrawBitmap](#) (uint32\_t Xpos, uint32\_t Ypos, uint8\_t \*pbmp)  
Draws a bitmap picture loaded in the internal Flash in ARGB888 format (32 bits per pixel).

void [BSP\\_LCD\\_FillRect](#) (uint16\_t Xpos, uint16\_t Ypos, uint16\_t Width, uint16\_t Height)  
Draws a full rectangle.

void [BSP\\_LCD\\_FillCircle](#) (uint16\_t Xpos, uint16\_t Ypos, uint16\_t Radius)  
Draws a full circle.

void [BSP\\_LCD\\_FillPolygon](#) ([pPoint](#) Points, uint16\_t PointCount)  
Draws a full poly-line (between many points).

void [BSP\\_LCD\\_FillEllipse](#) (int Xpos, int Ypos, int XRadius, int YRadius)

Draws a full ellipse.

void [BSP\\_LCD\\_DisplayOn](#) (void)  
Enables the display.

void [BSP\\_LCD\\_DisplayOff](#) (void)  
Disables the display.

\_\_weak void [BSP\\_LCD\\_MspInit](#) (LTDC\_HandleTypeDef \*hltdc, void \*Params)  
Initializes the LTDC MSP.

\_\_weak void [BSP\\_LCD\\_MspDeInit](#) (LTDC\_HandleTypeDef \*hltdc, void \*Params)  
DeInitializes BSP\_LCD MSP.

\_\_weak void [BSP\\_LCD\\_ClockConfig](#) (LTDC\_HandleTypeDef \*hltdc, void \*Params)  
Clock Config.

## Variables

LTDC\_HandleTypeDef [hLtdcHandler](#)  
static DMA2D\_HandleTypeDef [hDma2dHandler](#)  
static uint32\_t [ActiveLayer](#) = 0  
static [LCD\\_DrawPropTypeDef](#) [DrawProp](#) [[MAX\\_LAYER\\_NUMBER](#)]

---

## Detailed Description

This file includes the driver for Liquid Crystal Display (LCD) module mounted on STM32746G-Discovery board.

### Author:

MCD Application Team

#### 1. How To use this driver:

-----

- This driver is used to drive directly an LCD TFT using the LTDC controller.
- This driver uses timing and setting for RK043FN48H LCD.

#### 2. Driver description:

-----

##### + Initialization steps:

- o Initialize the LCD using the [BSP\\_LCD\\_Init\(\)](#) function.
- o Apply the Layer configuration using the [BSP\\_LCD\\_LayerDefaultInit\(\)](#) function.
- o Select the LCD layer to be used using the [BSP\\_LCD\\_SelectLayer\(\)](#) function.
- o Enable the LCD display using the [BSP\\_LCD\\_DisplayOn\(\)](#) function.

##### + Options

- o Configure and enable the color keying functionality using the [BSP\\_LCD\\_SetColorKeying\(\)](#) function.
- o Modify in the fly the transparency and/or the frame buffer address using the following functions:
  - [BSP\\_LCD\\_SetTransparency\(\)](#)
  - [BSP\\_LCD\\_SetLayerAddress\(\)](#)

##### + Display on LCD

- o Clear the hole LCD using [BSP\\_LCD\\_Clear\(\)](#) function or only one specified string line using the [BSP\\_LCD\\_ClearStringLine\(\)](#) function.
- o Display a character on the specified line and column using the [BSP\\_LCD\\_DisplayChar\(\)](#) function or a complete string line using the [BSP\\_LCD\\_DisplayStringAtLine\(\)](#) function.
- o Display a string line on the specified position (x,y in pixel) and align mode

```
using the BSP_LCD_DisplayStringAtLine() function.
o Draw and fill a basic shapes (dot, line, rectangle, circle, ellipse, .. bit
on LCD using the available set of functions.
```

**Attention:****© COPYRIGHT(c) 2016 STMicroelectronics**

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met: 1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer. 2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution. 3. Neither the name of STMicroelectronics nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Definition in file [stm32746g\\_discovery\\_lcd.c](#).

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual



1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"temp1378.html">Globals](#)
- [Drivers](#)
- [BSP](#)
- [STM32746G-Discovery](#)

[Data Structures](#) | [Defines](#) | [Typedefs](#) | [Enumerations](#) | [Functions](#)

stm32746g\_discovery\_lcd.h File Reference

This file contains the common defines and functions prototypes for the [stm32746g\\_discovery\\_lcd.c](#) driver.

[More...](#)

```
#include "../Components/rk043fn48h/rk043fn48h.h"
#include "stm32746g_discovery_sdram.h"
#include "stm32746g_discovery.h"
#include "../../Utilities/Fonts/fonts.h"
```

[Go to the source code of this file.](#)

## Data Structures

```

        struct &"memItemRight"
        valign="bottom">LCD_DrawPropTypeDef
        struct Point

```

## Defines

```

#define MAX_LAYER_NUMBER ((uint32_t)2)
#define LCD_LayerCfgTypeDef LTDC_LayerCfgTypeDef
#define LTDC_ACTIVE_LAYER ((uint32_t)1) /* Layer 1 */
#define LCD_OK ((uint8_t)0x00)
        LCD status structure definition.
#define LCD_ERROR ((uint8_t)0x01)
#define LCD_TIMEOUT ((uint8_t)0x02)
#define LCD_FB_START_ADDRESS ((uint32_t)0xC0000000)
        LCD FB_StartAddress.
#define LCD_COLOR_BLUE ((uint32_t)0xFF0000FF)
        LCD color.
#define LCD_COLOR_GREEN ((uint32_t)0xFF00FF00)
#define LCD_COLOR_RED ((uint32_t)0xFFFF0000)
#define LCD_COLOR_CYAN ((uint32_t)0xFF00FFFF)
#define LCD_COLOR_MAGENTA ((uint32_t)0xFFFF00FF)
#define LCD_COLOR_YELLOW ((uint32_t)0xFFFFFF00)
#define LCD_COLOR_LIGHTBLUE ((uint32_t)0xFF8080FF)
#define LCD_COLOR_LIGHTGREEN ((uint32_t)0xFF80FF80)
#define LCD_COLOR_LIGHTRED ((uint32_t)0xFFFF8080)
#define LCD_COLOR_LIGHTCYAN ((uint32_t)0xFF80FFFF)
#define LCD_COLOR_LIGHTMAGENTA ((uint32_t)0xFFFF80FF)
#define LCD_COLOR_LIGHTYELLOW ((uint32_t)0xFFFFFF80)
#define LCD_COLOR_DARKBLUE ((uint32_t)0xFF000080)
#define LCD_COLOR_DARKGREEN ((uint32_t)0xFF008000)
#define LCD_COLOR_DARKRED ((uint32_t)0xFF800000)
#define LCD_COLOR_DARKCYAN ((uint32_t)0xFF008080)
#define LCD_COLOR_DARKMAGENTA ((uint32_t)0xFF800080)
#define LCD_COLOR_DARKYELLOW ((uint32_t)0xFF808000)
#define LCD_COLOR_WHITE ((uint32_t)0xFFFFFFFF)
#define LCD_COLOR_LIGHTGRAY ((uint32_t)0xFFD3D3D3)
#define LCD_COLOR_GRAY ((uint32_t)0xFF808080)
#define LCD_COLOR_DARKGRAY ((uint32_t)0xFF404040)
#define LCD_COLOR_BLACK ((uint32_t)0xFF000000)
#define LCD_COLOR_BROWN ((uint32_t)0xFFA52A2A)
#define LCD_COLOR_ORANGE ((uint32_t)0xFFFFA500)
#define LCD_COLOR_TRANSPARENT ((uint32_t)0xFF000000)
#define LCD_DEFAULT_FONT Font24
        LCD default font.
#define LCD_RELOAD_IMMEDIATE ((uint32_t)LTDC_SRCR_IMR)

```

LCD Reload Types.

```
#define LCD_RELOAD_VERTICAL_BLANKING ((uint32_t)LTDC_SRCR_V
#define LCD_DISP_PIN GPIO_PIN_12
LCD special pins.
#define LCD_DISP_GPIO_PORT GPIOI
#define LCD_DISP_GPIO_CLK_ENABLE() __HAL_RCC_GPIOI_CLK_ENA
#define LCD_DISP_GPIO_CLK_DISABLE() __HAL_RCC_GPIOI_CLK_DIS
#define LCD_BL_CTRL_PIN GPIO_PIN_3
#define LCD_BL_CTRL_GPIO_PORT GPIOK
#define LCD_BL_CTRL_GPIO_CLK_ENABLE() __HAL_RCC_GPIOK_CLK
#define LCD_BL_CTRL_GPIO_CLK_DISABLE() __HAL_RCC_GPIOK_CLK
```

## Typedefs

typedef struct [Point](#) \* [pPoint](#)

## Enumerations

```
enum Text_AlignModeTypdef { CENTER_MODE = 0x01, RIGHT_MODE =
LEFT_MODE = 0x03 }
```

Line mode structures definition. [More...](#)

## Functions

```
uint8_t BSP_LCD_Init (void)
Initializes the LCD.
uint8_t BSP_LCD_DeInit (void)
DeInitializes the LCD.
uint32_t BSP_LCD_GetXSize (void)
Gets the LCD X size.
uint32_t BSP_LCD_GetYSize (void)
Gets the LCD Y size.
void BSP_LCD_SetXSize (uint32_t imageWidthPixels)
Set the LCD X size.
void BSP_LCD_SetYSize (uint32_t imageHeightPixels)
Set the LCD Y size.
void BSP_LCD_LayerDefaultInit (uint16_t LayerIndex, uint32_t FB_Address)
Initializes the LCD layer in ARGB8888 format (32 bits per pixel).
void BSP_LCD_LayerRgb565Init (uint16_t LayerIndex, uint32_t FB_Address)
Initializes the LCD layer in RGB565 format (16 bits per pixel).
void BSP_LCD_SetTransparency (uint32_t LayerIndex, uint8_t Transparency)
Configures the transparency.
void BSP_LCD_SetTransparency_NoReload (uint32_t LayerIndex, uint8_t Transparency)
Configures the transparency without reloading.
void BSP_LCD_SetLayerAddress (uint32_t LayerIndex, uint32_t Address)
Sets an LCD layer frame buffer address.
void BSP_LCD_SetLayerAddress_NoReload (uint32_t LayerIndex, uint32_t Address)
Sets an LCD layer frame buffer address without reloading.
void BSP_LCD_SetColorKeying (uint32_t LayerIndex, uint32_t RGBValue)
Configures and sets the color keying.
```

void [BSP\\_LCD\\_SetColorKeying\\_NoReload](#) (uint32\_t LayerIndex, uint32\_t RGBValue)  
Configures and sets the color keying without reloading.

void [BSP\\_LCD\\_ResetColorKeying](#) (uint32\_t LayerIndex)  
Disables the color keying.

void [BSP\\_LCD\\_ResetColorKeying\\_NoReload](#) (uint32\_t LayerIndex)  
Disables the color keying without reloading.

void [BSP\\_LCD\\_SetLayerWindow](#) (uint16\_t LayerIndex, uint16\_t Xpos, uint16\_t Ypos, uint16\_t Width, uint16\_t Height)  
Sets display window.

void [BSP\\_LCD\\_SetLayerWindow\\_NoReload](#) (uint16\_t LayerIndex, uint16\_t Xpos, uint16\_t Ypos, uint16\_t Width, uint16\_t Height)  
Sets display window without reloading.

void [BSP\\_LCD\\_SelectLayer](#) (uint32\_t LayerIndex)  
Selects the LCD Layer.

void [BSP\\_LCD\\_SetLayerVisible](#) (uint32\_t LayerIndex, FunctionalState State)  
Sets an LCD Layer visible.

void [BSP\\_LCD\\_SetLayerVisible\\_NoReload](#) (uint32\_t LayerIndex, FunctionalState State)  
Sets an LCD Layer visible without reloading.

void [BSP\\_LCD\\_Reload](#) (uint32\_t ReloadType)  
Disables the color keying without reloading.

void [BSP\\_LCD\\_SetTextColor](#) (uint32\_t Color)  
Sets the LCD text color.

uint32\_t [BSP\\_LCD\\_GetTextColor](#) (void)  
Gets the LCD text color.

void [BSP\\_LCD\\_SetBackColor](#) (uint32\_t Color)  
Sets the LCD background color.

uint32\_t [BSP\\_LCD\\_GetBackColor](#) (void)  
Gets the LCD background color.

void [BSP\\_LCD\\_SetFont](#) (sFONT \*fonts)  
Sets the LCD text font.

sFONT \* [BSP\\_LCD\\_GetFont](#) (void)  
Gets the LCD text font.

uint32\_t [BSP\\_LCD\\_ReadPixel](#) (uint16\_t Xpos, uint16\_t Ypos)  
Reads an LCD pixel.

void [BSP\\_LCD\\_DrawPixel](#) (uint16\_t Xpos, uint16\_t Ypos, uint32\_t RGB\_Code)  
Draws a pixel on LCD.

void [BSP\\_LCD\\_Clear](#) (uint32\_t Color)  
Clears the hole LCD.

void [BSP\\_LCD\\_ClearStringLine](#) (uint32\_t Line)  
Clears the selected line.

void [BSP\\_LCD\\_DisplayStringAtLine](#) (uint16\_t Line, uint8\_t \*ptr)  
Displays a maximum of 60 characters on the LCD.

void [BSP\\_LCD\\_DisplayStringAt](#) (uint16\_t Xpos, uint16\_t Ypos, uint8\_t \*Text, Text\_AlignModeTypdef Mode)  
Displays characters on the LCD.

```

void BSP\_LCD\_DisplayChar (uint16_t Xpos, uint16_t Ypos, uint8_t Ascii)
    Displays one character.
void BSP\_LCD\_DrawHLine (uint16_t Xpos, uint16_t Ypos, uint16_t Length)
    Draws an horizontal line.
void BSP\_LCD\_DrawVLine (uint16_t Xpos, uint16_t Ypos, uint16_t Length)
    Draws a vertical line.
void BSP\_LCD\_DrawLine (uint16_t x1, uint16_t y1, uint16_t x2, uint16_t y2)
    Draws an uni-line (between two points).
void BSP\_LCD\_DrawRect (uint16_t Xpos, uint16_t Ypos, uint16_t Width, uint16_t Height)
    Draws a rectangle.
void BSP\_LCD\_DrawCircle (uint16_t Xpos, uint16_t Ypos, uint16_t Radius)
    Draws a circle.
void BSP\_LCD\_DrawPolygon (pPoint Points, uint16_t PointCount)
    Draws an poly-line (between many points).
void BSP\_LCD\_DrawEllipse (int Xpos, int Ypos, int XRadius, int YRadius)
    Draws an ellipse on LCD.
void BSP\_LCD\_DrawBitmap (uint32_t Xpos, uint32_t Ypos, uint8_t *pbmp)
    Draws a bitmap picture loaded in the internal Flash in ARGB8888 format (1 pixel).
void BSP\_LCD\_FillRect (uint16_t Xpos, uint16_t Ypos, uint16_t Width, uint16_t Height)
    Draws a full rectangle.
void BSP\_LCD\_FillCircle (uint16_t Xpos, uint16_t Ypos, uint16_t Radius)
    Draws a full circle.
void BSP\_LCD\_FillPolygon (pPoint Points, uint16_t PointCount)
    Draws a full poly-line (between many points).
void BSP\_LCD\_FillEllipse (int Xpos, int Ypos, int XRadius, int YRadius)
    Draws a full ellipse.
void BSP\_LCD\_DisplayOff (void)
    Disables the display.
void BSP\_LCD\_DisplayOn (void)
    Enables the display.
__weak void BSP\_LCD\_MspInit (LTDC_HandleTypeDef *hltdc, void *Params)
    Initializes the LTDC MSP.
__weak void BSP\_LCD\_MspDeInit (LTDC_HandleTypeDef *hltdc, void *Params)
    DeInitializes BSP_LCD MSP.
__weak void BSP\_LCD\_ClockConfig (LTDC_HandleTypeDef *hltdc, void *Params)
    Clock Config.

```

---

## Detailed Description

This file contains the common defines and functions prototypes for the [stm32746g\\_discovery\\_lcd.c](#) driver.

### Author:

MCD Application Team

**Attention:****© COPYRIGHT(c) 2016 STMicroelectronics**

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met: 1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer. 2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution. 3. Neither the name of STMicroelectronics nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Definition in file [stm32746g\\_discovery\\_lcd.h](#).



Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by 1.7.6.1

STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"temp1378.html">Globals](#)
- [Drivers](#)
- [BSP](#)
- [STM32746G-Discovery](#)

## [Functions | Variables](#)

[stm32746g\\_discovery\\_qspi.c](#) File Reference

This file includes a standard driver for the N25Q128A QSPI memory mounted on STM32746G-Discovery board. [More...](#)

```
#include "stm32746g_discovery_qspi.h"
```

[Go to the source code of this file.](#)

## Functions

```
static uint8_t&"memItemRight"
valign="bottom">QSPI\_ResetMemory
(QSPI_HandleTypeDef *hqspi)
```

This function reset the QSPI memory.



static uint8\_t [QSPI\\_DummyCyclesCfg](#) (QSPI\_HandleTypeDef \*hqspi)  
This function configure the dummy cycles on memory side.

static uint8\_t [QSPI\\_WriteEnable](#) (QSPI\_HandleTypeDef \*hqspi)  
This function send a Write Enable and wait it is effective.

static uint8\_t [QSPI\\_AutoPollingMemReady](#) (QSPI\_HandleTypeDef \*hqspi, uint32\_t Timeout)  
This function read the SR of the memory and wait the EOP.

uint8\_t [BSP\\_QSPI\\_Init](#) (void)  
Initializes the QSPI interface.

uint8\_t [BSP\\_QSPI\\_DeInit](#) (void)  
De-Initializes the QSPI interface.

uint8\_t [BSP\\_QSPI\\_Read](#) (uint8\_t \*pData, uint32\_t ReadAddr, uint32\_t Size)  
Reads an amount of data from the QSPI memory.

uint8\_t [BSP\\_QSPI\\_Write](#) (uint8\_t \*pData, uint32\_t WriteAddr, uint32\_t Size)  
Writes an amount of data to the QSPI memory.

uint8\_t [BSP\\_QSPI\\_Erase\\_Block](#) (uint32\_t BlockAddress)  
Erases the specified block of the QSPI memory.

uint8\_t [BSP\\_QSPI\\_Erase\\_Chip](#) (void)  
Erases the entire QSPI memory.

uint8\_t [BSP\\_QSPI\\_GetStatus](#) (void)  
Reads current status of the QSPI memory.

uint8\_t [BSP\\_QSPI\\_GetInfo](#) (QSPI\_Info \*pInfo)  
Return the configuration of the QSPI memory.

uint8\_t [BSP\\_QSPI\\_EnableMemoryMappedMode](#) (void)  
Configure the QSPI in memory-mapped mode.

\_\_weak void [BSP\\_QSPI\\_MspInit](#) (QSPI\_HandleTypeDef \*hqspi, void \*Params)  
QSPI MSP Initialization This function configures the hardware resources used in this example:

\_\_weak void [BSP\\_QSPI\\_MspDeInit](#) (QSPI\_HandleTypeDef \*hqspi, void \*Params)  
QSPI MSP De-Initialization This function frees the hardware resources used in this example:

## Variables

QSPI\_HandleTypeDef [QSPIHandle](#)

---

## Detailed Description

This file includes a standard driver for the N25Q128A QSPI memory mounted on STM32746G-Discovery board.

**Author:**

## MCD Application Team

```

=====
##### How to use this driver #####
=====
[..]
(#) This driver is used to drive the N25Q128A QSPI external
    memory mounted on STM32746G-Discovery board.

(#) This driver need a specific component driver (N25Q128A) to be included with.

(#) Initialization steps:
    (++) Initialize the QPSI external memory using the BSP_QSPI_Init() function. This
        function includes the MSP layer hardware resources initialization and the
        QSPI interface with the external memory.

(#) QSPI memory operations
    (++) QSPI memory can be accessed with read/write operations once it is
        initialized.
        Read/write operation can be performed with AHB access using the functions
        BSP_QSPI_Read()/BSP_QSPI_Write().
    (++) The function BSP_QSPI_GetInfo() returns the configuration of the QSPI memory.
        (see the QSPI memory data sheet)
    (++) Perform erase block operation using the function BSP_QSPI_Erase_Block() and by
        specifying the block address. You can perform an erase operation of the whole
        chip by calling the function BSP_QSPI_Erase_Chip().
    (++) The function BSP_QSPI_GetStatus() returns the current status of the QSPI memory.
        (see the QSPI memory data sheet)

```

**Attention:****© COPYRIGHT(c) 2016 STMicroelectronics**

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met: 1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer. 2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution. 3. Neither the name of STMicroelectronics nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Definition in file [stm32746g\\_discovery\\_qspi.c](#).



- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"temp1378.html">Globals](#)
- [Drivers](#)
- [BSP](#)
- [STM32746G-Discovery](#)

[Data Structures](#) | [Defines](#) | [Functions](#)

stm32746g\_discovery\_qspi.h File Reference

This file contains the common defines and functions prototypes for the [stm32746g\\_discovery\\_qspi.c](#) driver.  
[More...](#)

```
#include "stm32f7xx_hal.h"
#include "../Components/n25q128a/n25q128a.h"
```

[Go to the source code of this file.](#)

## Data Structures

struct &"memItemRight"  
 valign="bottom">[QSPI\\_Info](#)

## Defines

```
#define QSPI_OK ((uint8_t)0x00)
#define QSPI_ERROR ((uint8_t)0x01)
#define QSPI_BUSY ((uint8_t)0x02)
#define QSPI_NOT_SUPPORTED ((uint8_t)0x04)
#define QSPI_SUSPENDED ((uint8_t)0x08)
#define QSPI_CLK_ENABLE() __HAL_RCC_QSPI_CLK_ENABLE()
#define QSPI_CLK_DISABLE() __HAL_RCC_QSPI_CLK_DISABLE()
#define QSPI_CS_GPIO_CLK_ENABLE() __HAL_RCC_GPIOB_CLK_ENABLE()
#define QSPI_CLK_GPIO_CLK_ENABLE() __HAL_RCC_GPIOB_CLK_ENABLE()
#define QSPI_D0_GPIO_CLK_ENABLE() __HAL_RCC_GPIOD_CLK_ENABLE()
#define QSPI_D1_GPIO_CLK_ENABLE() __HAL_RCC_GPIOD_CLK_ENABLE()
#define QSPI_D2_GPIO_CLK_ENABLE() __HAL_RCC_GPIOE_CLK_ENABLE()
#define QSPI_D3_GPIO_CLK_ENABLE() __HAL_RCC_GPIOD_CLK_ENABLE()
#define QSPI_FORCE_RESET() __HAL_RCC_QSPI_FORCE_RESET()
#define QSPI_RELEASE_RESET() __HAL_RCC_QSPI_RELEASE_RESET()
#define QSPI_CS_PIN GPIO_PIN_6
#define QSPI_CS_GPIO_PORT GPIOB
#define QSPI_CLK_PIN GPIO_PIN_2
#define QSPI_CLK_GPIO_PORT GPIOB
#define QSPI_D0_PIN GPIO_PIN_11
#define QSPI_D0_GPIO_PORT GPIOD
#define QSPI_D1_PIN GPIO_PIN_12
#define QSPI_D1_GPIO_PORT GPIOD
#define QSPI_D2_PIN GPIO_PIN_2
```

```
#define QSPI_D2_GPIO_PORT GPIOE
#define QSPI_D3_PIN GPIO_PIN_13
#define QSPI_D3_GPIO_PORT GPIOD
#define QSPI_FLASH_SIZE 23 /* Address bus width to access whole memory space */
#define QSPI_PAGE_SIZE 256
#define BSP_QSPI_MemoryMappedMode BSP_QSPI_EnableMemoryMappedMode
```

## Functions

```
uint8_t BSP_QSPI_Init (void)
    Initializes the QSPI interface.

uint8_t BSP_QSPI_DeInit (void)
    De-Initializes the QSPI interface.

uint8_t BSP_QSPI_Read (uint8_t *pData, uint32_t ReadAddr, uint32_t Size)
    Reads an amount of data from the QSPI memory.

uint8_t BSP_QSPI_Write (uint8_t *pData, uint32_t WriteAddr, uint32_t Size)
    Writes an amount of data to the QSPI memory.

uint8_t BSP_QSPI_Erase_Block (uint32_t BlockAddress)
    Erases the specified block of the QSPI memory.

uint8_t BSP_QSPI_Erase_Chip (void)
    Erases the entire QSPI memory.

uint8_t BSP_QSPI_GetStatus (void)
    Reads current status of the QSPI memory.

uint8_t BSP_QSPI_GetInfo (QSPI_Info *pInfo)
    Return the configuration of the QSPI memory.

uint8_t BSP_QSPI_EnableMemoryMappedMode (void)
    Configure the QSPI in memory-mapped mode.

void BSP_QSPI_MspInit (QSPI_HandleTypeDef *hqspi, void *Params)
    QSPI MSP Initialization This function configures the hardware resources used in
    this example:

void BSP_QSPI_MspDeInit (QSPI_HandleTypeDef *hqspi, void *Params)
    QSPI MSP De-Initialization This function frees the hardware resources used in
    this example:
```

---

## Detailed Description

This file contains the common defines and functions prototypes for the [stm32746g\\_discovery\\_qspi.c](#) driver.

### Author:

MCD Application Team

### Attention:

## © COPYRIGHT(c) 2016 STMicroelectronics

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met: 1. Redistributions of source code must retain the above copyright notice,

this list of conditions and the following disclaimer. 2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution. 3. Neither the name of STMicroelectronics nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Definition in file [stm32746g\\_discovery\\_qspi.h](#).



Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual 1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"temp1378.html">Globals](#)
- [Drivers](#)
- [BSP](#)
- [STM32746G-Discovery](#)

## Functions | Variables

stm32746g\_discovery\_sd.c File Reference

This file includes the uSD card driver mounted on STM32746G-Discovery board. [More...](#)

```
#include "stm32746g_discovery_sd.h"
```

[Go to the source code of this file.](#)

## Functions

```
uint8_t&"memItemRight"  
valign="bottom">BSP\_SD\_Init (void)
```

Initializes the SD card device.

```
uint8_t BSP\_SD\_DeInit (void)
```

DeInitializes the SD card device.

```
uint8_t BSP\_SD\_ITConfig (void)
```

Configures Interrupt mode for SD detection pin.

```
uint8_t BSP\_SD\_IsDetected (void)
```

Detects if SD card is correctly plugged in the memory slot or not.

uint8\_t **BSP\_SD\_ReadBlocks** (uint32\_t \*pData, uint32\_t ReadAddr, uint32\_t NumOfBlocks, uint32\_t Timeout)  
Reads block(s) from a specified address in an SD card, in polling mode.

uint8\_t **BSP\_SD\_WriteBlocks** (uint32\_t \*pData, uint32\_t WriteAddr, uint32\_t NumOfBlocks, uint32\_t Timeout)  
Writes block(s) to a specified address in an SD card, in polling mode.

uint8\_t **BSP\_SD\_ReadBlocks\_DMA** (uint32\_t \*pData, uint32\_t ReadAddr, uint32\_t NumOfBlocks)  
Reads block(s) from a specified address in an SD card, in DMA mode.

uint8\_t **BSP\_SD\_WriteBlocks\_DMA** (uint32\_t \*pData, uint32\_t WriteAddr, uint32\_t NumOfBlocks)  
Writes block(s) to a specified address in an SD card, in DMA mode.

uint8\_t **BSP\_SD\_Erase** (uint32\_t StartAddr, uint32\_t EndAddr)  
Erases the specified memory area of the given SD card.

\_\_weak void **BSP\_SD\_MspInit** (SD\_HandleTypeDef \*hsd, void \*Params)  
Initializes the SD MSP.

\_\_weak void **BSP\_SD\_Detect\_MspInit** (SD\_HandleTypeDef \*hsd, void \*Params)  
Initializes the SD Detect pin MSP.

\_\_weak void **BSP\_SD\_MspDeInit** (SD\_HandleTypeDef \*hsd, void \*Params)  
DeInitializes the SD MSP.

uint8\_t **BSP\_SD\_GetCardState** (void)  
Gets the current SD card data status.

void **BSP\_SD\_GetCardInfo** (HAL\_SD\_CardInfoTypeDef \*CardInfo)  
Get SD information about specific SD card.

void **HAL\_SD\_AbortCallback** (SD\_HandleTypeDef \*hsd)  
SD Abort callbacks.

void **HAL\_SD\_TxCpltCallback** (SD\_HandleTypeDef \*hsd)  
Tx Transfer completed callbacks.

void **HAL\_SD\_RxCpltCallback** (SD\_HandleTypeDef \*hsd)  
Rx Transfer completed callbacks.

\_\_weak void **BSP\_SD\_AbortCallback** (void)  
BSP SD Abort callbacks.

\_\_weak void **BSP\_SD\_WriteCpltCallback** (void)  
BSP Tx Transfer completed callbacks.

\_\_weak void **BSP\_SD\_ReadCpltCallback** (void)  
BSP Rx Transfer completed callbacks.

## Variables

SD\_HandleTypeDef **uSdHandle**

---

## Detailed Description

This file includes the uSD card driver mounted on STM32746G-Discovery board.

### Author:

MCD Application Team

#### 1. How To use this driver:

-----

- This driver is used to drive the micro SD external card mounted on STM32746G board.
- This driver does not need a specific component driver for the micro SD device to be included with.

#### 2. Driver description:

-----

##### + Initialization steps:

- o Initialize the micro SD card using the BSP\_SD\_Init() function. This function includes the MSP layer hardware resources initialization and the SDIO interface configuration to interface with the external micro SD. It also includes the micro SD initialization sequence.
- o To check the SD card presence you can use the function BSP\_SD\_IsDetected() returns the detection status
- o If SD presence detection interrupt mode is desired, you must configure the SD detection interrupt mode by calling the function BSP\_SD\_ITConfig(). The is generated as an external interrupt whenever the micro SD card is plugged/unplugged in/from the board.
- o The function BSP\_SD\_GetCardInfo() is used to get the micro SD card information which is stored in the structure "HAL\_SD\_CardInfoTypeDef".

##### + Micro SD card operations

- o The micro SD card can be accessed with read/write block(s) operations once it is ready for access. The access can be performed whether using the polling mode by calling the functions BSP\_SD\_ReadBlocks()/BSP\_SD\_WriteBlocks(), or transfer using the functions BSP\_SD\_ReadBlocks\_DMA()/BSP\_SD\_WriteBlocks\_DMA()
- o The DMA transfer complete is used with interrupt mode. Once the SD transfer is complete, the SD interrupt is handled using the function BSP\_SD\_IRQHandler. The DMA Tx/Rx transfer complete are handled using the functions BSP\_SD\_DMA\_Tx\_IRQHandler()/BSP\_SD\_DMA\_Rx\_IRQHandler(). The corresponding user callbacks are implemented by the user at application level.
- o The SD erase block(s) is performed using the function BSP\_SD\_Erase() with the number of blocks to erase.
- o The SD runtime status is returned when calling the function BSP\_SD\_GetCardStatus()

### Attention:

## © COPYRIGHT(c) 2016 STMicroelectronics

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met: 1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer. 2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution. 3. Neither the name of STMicroelectronics nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE

ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Definition in file [stm32746g\\_discovery\\_sd.c](#).



Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"temp1378.html">Globals](#)
- [Drivers](#)
- [BSP](#)
- [STM32746G-Discovery](#)

## [Defines](#) | [Functions](#)

stm32746g\_discovery\_sd.h File Reference

This file contains the common defines and functions prototypes for the [stm32746g\\_discovery\\_sd.c](#) driver.

[More...](#)

```
#include "stm32746g_discovery.h"
```

[Go to the source code of this file.](#)

## Defines

<div>"memItemRight"</div> <div>valign="bottom"&gt;<a href="#">BSP_SD_CardInfo</a></div>	<div>HAL_SD_CardInfoTypeDef</div> <div>SD Card information structure.</div> <div><a href="#">#define MSD_OK</a> ((uint8_t)0x00)</div> <div>SD status structure definition.</div> <div><a href="#">#define MSD_ERROR</a> ((uint8_t)0x01)</div> <div><a href="#">#define MSD_ERROR_SD_NOT_PRESENT</a> ((uint8_t)0x02)</div> <div><a href="#">#define SD_TRANSFER_OK</a> ((uint8_t)0x00)</div> <div>SD transfer state definition.</div> <div><a href="#">#define SD_TRANSFER_BUSY</a> ((uint8_t)0x01)</div> <div><a href="#">#define SD_PRESENT</a> ((uint8_t)0x01)</div> <div><a href="#">#define SD_NOT_PRESENT</a> ((uint8_t)0x00)</div> <div><a href="#">#define SD_DATATIMEOUT</a> ((uint32_t)1000000000)</div> <div><a href="#">#define __DMAx_TxRx_CLK_ENABLE</a> __HAL_RCC_DMA</div> <div><a href="#">#define SD_DMAx_Tx_CHANNEL</a> DMA_CHANNEL_4</div> <div><a href="#">#define SD_DMAx_Rx_CHANNEL</a> DMA_CHANNEL_4</div>
---	---



## Functions

```
#define SD_DMAx_Tx_STREAM DMA2_Stream6
#define SD_DMAx_Rx_STREAM DMA2_Stream3
#define SD_DMAx_Tx_IRQn DMA2_Stream6_IRQn
#define SD_DMAx_Rx_IRQn DMA2_Stream3_IRQn
#define BSP_SDMMC_IRQHandler SDMMC1_IRQHandler
#define BSP_SDMMC_DMA_Tx_IRQHandler DMA2_Stream6_IRQHandler
#define BSP_SDMMC_DMA_Rx_IRQHandler DMA2_Stream3_IRQHandler
#define SD_DetectIRQHandler() HAL_GPIO_EXTI_IRQHandler(GPIO_PIN_1)
```

```
uint8_t BSP_SD_Init (void)
    Initializes the SD card device.

uint8_t BSP_SD_DeInit (void)
    DeInitializes the SD card device.

uint8_t BSP_SD_ITConfig (void)
    Configures Interrupt mode for SD detection pin.

uint8_t BSP_SD_ReadBlocks (uint32_t *pData, uint32_t NumOfBlocks, uint32_t Timeout)
    Reads block(s) from a specified address in an SD card.

uint8_t BSP_SD_WriteBlocks (uint32_t *pData, uint32_t NumOfBlocks, uint32_t Timeout)
    Writes block(s) to a specified address in an SD card.

uint8_t BSP_SD_ReadBlocks_DMA (uint32_t *pData, uint32_t NumOfBlocks)
    Reads block(s) from a specified address in an SD card.

uint8_t BSP_SD_WriteBlocks_DMA (uint32_t *pData, uint32_t NumOfBlocks)
    Writes block(s) to a specified address in an SD card.

uint8_t BSP_SD_Erase (uint32_t StartAddr, uint32_t EndAddr)
    Erases the specified memory area of the given SD card.

uint8_t BSP_SD_GetCardState (void)
    Gets the current SD card data status.

void BSP_SD_GetCardInfo (HAL_SD_CardInfoTypeDef *pCardInfo)
    Get SD information about specific SD card.

uint8_t BSP_SD_IsDetected (void)
    Detects if SD card is correctly plugged in the memory slot.

__weak void BSP_SD_MspInit (SD_HandleTypeDef *hsd, void *Instance)
    Initializes the SD MSP.

__weak void BSP_SD_Detect_MspInit (SD_HandleTypeDef *hsd, void *Instance)
    Initializes the SD Detect pin MSP.

__weak void BSP_SD_MspDeInit (SD_HandleTypeDef *hsd, void *Instance)
    DeInitializes the SD MSP.

__weak void BSP_SD_AbortCallback (void)
    BSP SD Abort callbacks.

__weak void BSP_SD_WriteCpltCallback (void)
    BSP Tx Transfer completed callbacks.
```

\_\_weak void [BSP\\_SD\\_ReadCpltCallback](#) (void)  
BSP Rx Transfer completed callbacks.

---

## Detailed Description

This file contains the common defines and functions prototypes for the [stm32746g\\_discovery\\_sd.c](#) driver.

### Author:

MCD Application Team

### Attention:

## © COPYRIGHT(c) 2016 STMicroelectronics

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met: 1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer. 2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution. 3. Neither the name of STMicroelectronics nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Definition in file [stm32746g\\_discovery\\_sd.h](#).

---



Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"temp1378.html">Globals](#)
- [Drivers](#)
- [BSP](#)
- [STM32746G-Discovery](#)

[Functions](#) | [Variables](#)

[stm32746g\\_discovery\\_sdram.c](#) File Reference

This file includes the SDRAM driver for the MT48LC4M32B2B5-7 memory device mounted on STM32746G-Discovery board. [More...](#)

```
#include "stm32746g_discovery_sdram.h"
```

[Go to the source code of this file.](#)

## Functions

```
uint8_t&"memItemRight"
valign="bottom">BSP\_SDRAM\_Init (void)
```

Initializes the SDRAM device.

```
uint8_t BSP\_SDRAM\_DeInit (void)
```

DeInitializes the SDRAM device.

```
void BSP\_SDRAM\_Initialization\_sequence (uint32_t
RefreshCount)
```

Programs the SDRAM device.

```
uint8_t BSP\_SDRAM\_ReadData (uint32_t
uwStartAddress, uint32_t *pData, uint32_t
uwDataSize)
```

Reads an amount of data from the SDRAM memory in polling mode.

```
uint8_t BSP\_SDRAM\_ReadData\_DMA (uint32_t
uwStartAddress, uint32_t *pData, uint32_t
uwDataSize)
```

Reads an amount of data from the SDRAM memory in DMA mode.

```
uint8_t BSP\_SDRAM\_WriteData (uint32_t
uwStartAddress, uint32_t *pData, uint32_t
uwDataSize)
```

Writes an amount of data to the SDRAM memory in polling mode.

```
uint8_t BSP\_SDRAM\_WriteData\_DMA (uint32_t
uwStartAddress, uint32_t *pData, uint32_t
uwDataSize)
```

Writes an amount of data to the SDRAM memory in DMA mode.

```
uint8_t BSP\_SDRAM\_Sendcmd
(FMC_SDRAM_CommandTypeDef
*SdramCmd)
```

Sends command to the SDRAM bank.

```
__weak void BSP\_SDRAM\_MspInit
(SDRAM_HandleTypeDef *hsdram, void
*Params)
```

Initializes SDRAM MSP.

```
__weak void BSP\_SDRAM\_MspDeInit
(SDRAM_HandleTypeDef *hsdram, void
*Params)
```

DeInitializes SDRAM MSP.

## Variables

SDRAM\_HandleTypeDef [sdramHandle](#)  
 static FMC\_SDRAM\_TimingTypeDef [Timing](#)  
 static FMC\_SDRAM\_CommandTypeDef [Command](#)

---

## Detailed Description

This file includes the SDRAM driver for the MT48LC4M32B2B5-7 memory device mounted on STM32746G-Discovery board.

### Author:

MCD Application Team

#### 1. How To use this driver:

- This driver is used to drive the MT48LC4M32B2B5-7 SDRAM external memory mounted on STM32746G-Discovery board.
- This driver does not need a specific component driver for the SDRAM device to be included with.

#### 2. Driver description:

##### + Initialization steps:

- o Initialize the SDRAM external memory using the BSP\_SDRAM\_Init() function. This function includes the MSP layer hardware resources initialization and the FMC controller configuration to interface with the external SDRAM memory.
- o It contains the SDRAM initialization sequence to program the SDRAM external device using the function BSP\_SDRAM\_Initialization\_sequence(). Note that this sequence is standard for all SDRAM devices, but can include some differences from a device to another. If it is the case, the right sequence should be implemented separately.

##### + SDRAM read/write operations

- o SDRAM external memory can be accessed with read/write operations once it is initialized.  
Read/write operation can be performed with AHB access using the functions BSP\_SDRAM\_ReadData()/BSP\_SDRAM\_WriteData(), or by DMA transfer using the functions BSP\_SDRAM\_ReadData\_DMA()/BSP\_SDRAM\_WriteData\_DMA().
- o The AHB access is performed with 32-bit width transaction, the DMA transfer configuration is fixed at single (no burst) word transfer (see the SDRAM\_MspInit() static function).
- o User can implement his own functions for read/write access with his desired configurations.
- o If interrupt mode is used for DMA transfer, the function BSP\_SDRAM\_DMA\_IRQHandle is called in IRQ handler file, to serve the generated interrupt once the DMA transfer is complete.
- o You can send a command to the SDRAM device in runtime using the function BSP\_SDRAM\_Sendcmd(), and giving the desired command as parameter chosen between the predefined commands of the "FMC\_SDRAM\_CommandTypeDef" structure.

### Attention:

## © COPYRIGHT(c) 2016 STMicroelectronics

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met: 1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer. 2. Redistributions in binary form must reproduce the

above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution. 3. Neither the name of STMicroelectronics nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Definition in file [stm32746g\\_discovery\\_sdram.c](#).



Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual 1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"temp1378.html">Globals](#)
- [Drivers](#)
- [BSP](#)
- [STM32746G-Discovery](#)

## Defines | Functions

stm32746g\_discovery\_sdram.h File Reference

This file contains the common defines and functions prototypes for the [stm32746g\\_discovery\\_sdram.c](#) driver.  
[More...](#)

```
#include "stm32f7xx_hal.h"
```

[Go to the source code of this file.](#)

## Defines

```

"memItemRight"
valign="bottom">SDRAM\_OK ((uint8_t)0x00)
SDRAM status structure definition.
#define SDRAM\_ERROR ((uint8_t)0x01)
#define SDRAM\_DEVICE\_ADDR ((uint32_t)0xC0000000)
#define SDRAM\_DEVICE\_SIZE ((uint32_t)0x800000) /* SDRAM device size
#define SDRAM\_MEMORY\_WIDTH FMC_SDRAM_MEM_BUS_WIDTH_16
#define SDCLOCK\_PERIOD FMC_SDRAM_CLOCK_PERIOD_2
#define REFRESH\_COUNT ((uint32_t)0x0603) /* SDRAM refresh count
clock) */

```

```

#define SDRAM_TIMEOUT ((uint32_t)0xFFFF)
#define __DMAx_CLK_ENABLE __HAL_RCC_DMA2_CLK_ENABLE
#define __DMAx_CLK_DISABLE __HAL_RCC_DMA2_CLK_DISABLE
#define SDRAM_DMAx_CHANNEL DMA_CHANNEL_0
#define SDRAM_DMAx_STREAM DMA2_Stream0
#define SDRAM_DMAx_IRQn DMA2_Stream0_IRQn
#define BSP_SDRAM_DMA_IRQHandler DMA2_Stream0_IRQHandler
#define SDRAM_MODEREG_BURST_LENGTH_1 ((uint16_t)0x0000)
    FMC SDRAM Mode definition register defines.
#define SDRAM_MODEREG_BURST_LENGTH_2 ((uint16_t)0x0001)
#define SDRAM_MODEREG_BURST_LENGTH_4 ((uint16_t)0x0002)
#define SDRAM_MODEREG_BURST_LENGTH_8 ((uint16_t)0x0004)
#define SDRAM_MODEREG_BURST_TYPE_SEQUENTIAL ((uint16_t)0x0000)
#define SDRAM_MODEREG_BURST_TYPE_INTERLEAVED ((uint16_t)0x0001)
#define SDRAM_MODEREG_CAS_LATENCY_2 ((uint16_t)0x0020)
#define SDRAM_MODEREG_CAS_LATENCY_3 ((uint16_t)0x0030)
#define SDRAM_MODEREG_OPERATING_MODE_STANDARD ((uint16_t)0x0000)
#define SDRAM_MODEREG_WRITEBURST_MODE_PROGRAMMED ((uint16_t)0x0001)
#define SDRAM_MODEREG_WRITEBURST_MODE_SINGLE ((uint16_t)0x0002)

```

## Functions

```

uint8_t BSP_SDRAM_Init (void)
    Initializes the SDRAM device.
uint8_t BSP_SDRAM_DeInit (void)
    DeInitializes the SDRAM device.
void BSP_SDRAM_Initialization_sequence (uint32_t RefreshCount)
    Programs the SDRAM device.
uint8_t BSP_SDRAM_ReadData (uint32_t uwStartAddress, uint32_t *pData, uint32_t uwDataSize)
    Reads an amount of data from the SDRAM memory in polling mode.
uint8_t BSP_SDRAM_ReadData_DMA (uint32_t uwStartAddress, uint32_t *pData, uint32_t uwDataSize)
    Reads an amount of data from the SDRAM memory in DMA mode.
uint8_t BSP_SDRAM_WriteData (uint32_t uwStartAddress, uint32_t *pData, uint32_t uwDataSize)
    Writes an amount of data to the SDRAM memory in polling mode.
uint8_t BSP_SDRAM_WriteData_DMA (uint32_t uwStartAddress, uint32_t *pData, uint32_t uwDataSize)
    Writes an amount of data to the SDRAM memory in DMA mode.
uint8_t BSP_SDRAM_Sendcmd (FMC_SDRAM_CommandTypeDef *SdramCmd)
    Sends command to the SDRAM bank.
__weak void BSP_SDRAM_MspInit (SDRAM_HandleTypeDef *hsdram, void *Params)
    Initializes SDRAM MSP.
__weak void BSP_SDRAM_MspDeInit (SDRAM_HandleTypeDef *hsdram, void *Params)
    DeInitializes SDRAM MSP.

```

---

## Detailed Description

This file contains the common defines and functions prototypes for the [stm32746g\\_discovery\\_sdram.c](#) driver.

**Author:**

MCD Application Team

**Attention:**

## © COPYRIGHT(c) 2016 STMicroelectronics

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met: 1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer. 2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution. 3. Neither the name of STMicroelectronics nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Definition in file [stm32746g\\_discovery\\_sdram.h](#).

---

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual



1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
  
- [File&"temp1378.html">Globals](#)
  
- [Drivers](#)
- [BSP](#)
- [STM32746G-Discovery](#)

### [Functions](#) | [Variables](#)

[stm32746g\\_discovery\\_ts.c](#) File Reference

This file provides a set of functions needed to manage the Touch Screen on STM32746G-Discovery board.  
[More...](#)

```
#include "stm32746g_discovery_ts.h"
```

[Go to the source code of this file.](#)

## Functions

```
uint8_t&"memItemRight"
valign="bottom">BSP_TS_Init (uint16_t
ts_SizeX, uint16_t ts_SizeY)
```

Initializes and configures the touch screen functionalities and configures all necessary hardware resources (GPIOs, I2C, clocks..).

```
uint8_t BSP_TS_DeInit (void)
```

DeInitializes the TouchScreen.

```
uint8_t BSP_TS_ITConfig (void)
```

Configures and enables the touch screen interrupts.

```
uint8_t BSP_TS_ITGetStatus (void)
```

Gets the touch screen interrupt status.

```
uint8_t BSP_TS_GetState (TS_StateTypeDef *TS_State)
```

Returns status and positions of the touch screen.

```
uint8_t BSP_TS_Get_GestureId (TS_StateTypeDef *TS_State)
```

Update gesture Id following a touch detected.

```
void BSP_TS_ITClear (void)
```

Clears all touch screen interrupts.

```
uint8_t BSP_TS_ResetTouchData (TS_StateTypeDef *TS_State)
```

Function used to reset all touch data before a new acquisition of touch information.

## Variables

```
static TS_DrvTypeDef * tsDriver
static uint16_t tsXBoundary
static uint16_t tsYBoundary
static uint8_t tsOrientation
static uint8_t I2cAddress
```

## Detailed Description

This file provides a set of functions needed to manage the Touch Screen on STM32746G-Discovery board.

### Author:

MCD Application Team

1. How To use this driver:

-----

- This driver is used to drive the touch screen module of the STM32746G-Discovery board on the RK043FN48H-CT672B 480x272 LCD screen with capacitive touch screen.
- The FT5336 component driver must be included in project files according to the touch screen driver present on this board.

2. Driver description:

-----

+ Initialization steps:

- o Initialize the TS module using the BSP\_TS\_Init() function. This function includes the MSP layer hardware resources initialization and the



- communication layer configuration to start the TS use. The LCD size proper (x and y) are passed as parameters.
- o If TS interrupt mode is desired, you must configure the TS interrupt mode by calling the function `BSP_TS_ITConfig()`. The TS interrupt mode is generated as an external interrupt whenever a touch is detected. The interrupt mode internally uses the IO functionalities driver driven by the IO expander, to configure the IT line.
- + Touch screen use
  - o The touch screen state is captured whenever the function `BSP_TS_GetState()` is used. This function returns information about the last LCD touch occurred in the `TS_StateTypeDef` structure.
  - o If TS interrupt mode is used, the function `BSP_TS_ITGetStatus()` is needed to get the interrupt status. To clear the IT pending bits, you should call the function `BSP_TS_ITClear()`.
  - o The IT is handled using the corresponding external interrupt IRQ handler, the user IT callback treatment is implemented on the same external interrupt callback.

**Attention:****© COPYRIGHT(c) 2016 STMicroelectronics**

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met: 1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer. 2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution. 3. Neither the name of STMicroelectronics nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Definition in file [stm32746g\\_discovery\\_ts.c](#).

Generated on Fri May 26 2017 15:57:30 for STM32746G-Discovery BSP User Manual by  
STM32746G-Discovery BSP User Manual



1.7.6.1

- [Main&"modules.html">Modules](#)
- [Data&"current">Files](#)
- [Directories](#)
- [File&"temp1378.html">Globals](#)
- [Drivers](#)

- [BSP](#)
- [STM32746G-Discovery](#)

[Data Structures](#) | [Defines](#) | [Enumerations](#) | [Functions](#) | [Variables](#)

stm32746g\_discovery\_ts.h File Reference

This file contains the common defines and functions prototypes for the [stm32746g\\_discovery\\_ts.c](#) driver.

[More...](#)

```
#include "stm32746g_discovery.h"
#include "../Components/ft5336/ft5336.h"
```

[Go to the source code of this file.](#)

## Data Structures

```
struct &"memItemRight"
valign="bottom">TS\_StateTypeDef
```

[TS\\_StateTypeDef](#) Define TS State structure. [More...](#)

## Defines

```
#define TS\_MAX\_NB\_TOUCH ((uint32_t)
FT5336_MAX_DETECTABLE_TOUCH)
With FT5336 : maximum 5 touches detected simultaneously.
#define TS\_NO\_IRQ\_PENDING ((uint8_t) 0)
#define TS\_IRQ\_PENDING ((uint8_t) 1)
#define TS\_SWAP\_NONE ((uint8_t) 0x01)
#define TS\_SWAP\_X ((uint8_t) 0x02)
#define TS\_SWAP\_Y ((uint8_t) 0x04)
#define TS\_SWAP\_XY ((uint8_t) 0x08)
```

## Enumerations

```
enum TS\_StatusTypeDef { TS\_OK = 0x00, TS\_ERROR = 0x01,
TS\_TIMEOUT = 0x02, TS\_DEVICE\_NOT\_FOUND = 0x03 }
enum TS\_GestureIdTypeDef {
GEST\_ID\_NO\_GESTURE = 0x00, GEST\_ID\_MOVE\_UP =
0x01, GEST\_ID\_MOVE\_RIGHT = 0x02,
GEST\_ID\_MOVE\_DOWN = 0x03,
GEST\_ID\_MOVE\_LEFT = 0x04, GEST\_ID\_ZOOM\_IN = 0x05,
GEST\_ID\_ZOOM\_OUT = 0x06, GEST\_ID\_NB\_MAX = 0x07
}
TS\_GestureIdTypeDef Define Possible managed gesture
identification values returned by touch screen driver. More...
enum TS\_TouchEventTypeDef {
TOUCH\_EVENT\_NO\_EVT = 0x00,
TOUCH\_EVENT\_PRESS\_DOWN = 0x01,
TOUCH\_EVENT\_LIFT\_UP = 0x02,
TOUCH\_EVENT\_CONTACT = 0x03,
TOUCH\_EVENT\_NB\_MAX = 0x04
}
```

[TS\\_TouchEventTypeDef](#) Define Possible touch events kind as returned values by touch screen IC Driver. [More...](#)

## Functions

- uint8\_t [BSP\\_TS\\_Init](#) (uint16\_t ts\_SizeX, uint16\_t ts\_SizeY)  
Initializes and configures the touch screen functionalities and configures all necessary hardware resources (GPIOs, I2C, clocks..).
- uint8\_t [BSP\\_TS\\_DeInit](#) (void)  
DeInitializes the TouchScreen.
- uint8\_t [BSP\\_TS\\_GetState](#) (TS\_StateTypeDef \*TS\_State)  
Returns status and positions of the touch screen.
- uint8\_t [BSP\\_TS\\_Get\\_GestureId](#) (TS\_StateTypeDef \*TS\_State)  
Update gesture Id following a touch detected.
- uint8\_t [BSP\\_TS\\_ITConfig](#) (void)  
Configures and enables the touch screen interrupts.
- uint8\_t [BSP\\_TS\\_ITGetStatus](#) (void)  
Gets the touch screen interrupt status.
- void [BSP\\_TS\\_ITClear](#) (void)  
Clears all touch screen interrupts.
- uint8\_t [BSP\\_TS\\_ResetTouchData](#) (TS\_StateTypeDef \*TS\_State)  
Function used to reset all touch data before a new acquisition of touch information.

## Variables

- char \* [ts\\_event\\_string\\_tab](#) [TOUCH\_EVENT\_NB\_MAX]  
Table for touchscreen event information display on LCD : table indexed on enum [TS\\_TouchEventTypeDef](#) information.
- char \* [ts\\_gesture\\_id\\_string\\_tab](#) [GEST\_ID\_NB\_MAX]  
Table for touchscreen gesture Id information display on LCD : table indexed on enum [TS\\_GestureIdTypeDef](#) information.
- 

## Detailed Description

This file contains the common defines and functions prototypes for the [stm32746g\\_discovery\\_ts.c](#) driver.