GPIO_driver

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Chapter 1

Data Structure Index

1.1 Data Structures

Here are the data structures with brief descriptions:

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Chapter 2

File Index

2.1 File List

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

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Chapter 3

Data Structure Documentation

3.1 GPIO_t Struct Reference

Data Fields

- u32 **pin**
- u32 **mode**
- u32 **configuration**
- void $*$ **port**

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

- D:/Technical/ITI/Embedded Computer Architecture/Tasks/CodeDocs/GPIO.h

Chapter 4

File Documentation

4.1 D:/Technical/ITI/Embedded Computer Architecture/Tasks/CodeDocs/GPIO.h File Reference

This file is the GPIO driver.

```
#include "STD_TYPES.h"
```

Data Structures

- struct GPIO_t

Macros

- #define **PIN_SET** 1
- #define **PIN_RESET** 0
- #define **CONFIG_INPUT_ANALOG** 0x00000000
- #define **CONFIG_INPUT_FLOATING** 0x00000004
- #define **CONFIG_INPUT_PULL_UP_DOWN** 0x00000008
- #define **CONFIG_OUTPUT_GENERAL_PUSH_PULL** 0x00000000
- #define **CONFIG_OUTPUT_GENERAL_OPEN_DRAIN** 0x00000004
- #define **CONFIG_OUTPUT_ALTERNATE_FUNCTION_OPEN_DRAIN** 0x0000000C
- #define **CONFIG_OUTPUT_ALTERNATE_FUNCTION_PUSH_PULL** 0x00000008
- #define **MODE_INPUT** 0x00000000
- #define **MODE_OUTPUT_SPEED_10** 0x00000001
- #define **MODE_OUTPUT_SPEED_2** 0x00000002
- #define **MODE_OUTPUT_SPEED_50** 0x00000003
- #define **PIN0** 0x00000001
- #define **PIN1** 0x00000002
- #define **PIN2** 0x00000004
- #define **PIN3** 0x00000008
- #define **PIN4** 0x00000010
- #define **PIN5** 0x00000020
- #define **PIN6** 0x00000040
- #define **PIN7** 0x00000080

- #define **PIN8** 0x00000100
- #define **PIN9** 0x00000200
- #define **PIN10** 0x00000400
- #define **PIN11** 0x00000800
- #define **PIN12** 0x00001000
- #define **PIN13** 0x00002000
- #define **PIN14** 0x00004000
- #define **PIN15** 0x00008000
- #define **PIN_All** 0x0000FFFF
- #define **PORTA** (void ∗) 0x40010800
- #define **PORTB** (void ∗) 0x40010C00
- #define **PORTC** (void ∗) 0x40011000
- #define **PORTD** (void ∗) 0x40011400
- #define **PORTE** (void ∗) 0x40011800
- #define **PORTF** (void ∗) 0x40011C00
- #define **PORTG** (void ∗) 0x40012000

Functions

- ERROR_STATUS GPIO_initPin (GPIO_t ∗peri)

  This function shall initialize GPIO object, initialization is done by setting pin number, port, mode and configuration.
- ERROR_STATUS GPIO_writePin (GPIO_t ∗peri, u8 value)

  This function shall write value on GPIO object.
- ERROR_STATUS GPIO_directWritePin (void ∗port, u32 pin, u8 value)

  This function shall write value on pin.
- ERROR_STATUS GPIO_readPin (GPIO_t ∗peri, u8 ∗value)

  This function shall read value of GPIO object.
- ERROR_STATUS GPIO_directReadPin (void ∗port, u32 pin, u8 ∗value)

  This function shall read value of pin.

4.1.1 Detailed Description

This file is the GPIO driver.

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Version

1.0

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Copyright

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4.1.2 Function Documentation

4.1.2.1 GPIO_directReadPin()

```
ERROR_STATUS GPIO_directReadPin (
             void * port,
             u32 pin,
             u8 * value )
```

This function shall read value of pin.

Parameters

port	The address of GPIO port
pin	The pin number
value	pointer to hold value of a pin PIN_SET: setting pin value to high PIN_RESET: setting pin value to low

Returns

ERROR_STATUS
status_Ok : If the write operation is done successfully
status_Nok : If any error occured during writing

4.1.2.2 GPIO_directWritePin()

```
ERROR_STATUS GPIO_directWritePin (
             void * port,
             u32 pin,
             u8 value )
```

This function shall write value on pin.

Parameters

port	The address of GPIO port
pin	The pin number
value	The value to be written on pin PIN_SET: setting pin value to high PIN_RESET: setting pin value to low

Returns

ERROR_STATUS
status_Ok : If the write operation is done successfully
status_Nok : If any error occured during writing

4.1.2.3 GPIO_initPin()

```
ERROR_STATUS GPIO_initPin (
            GPIO_t * peri )
```

This function shall initialize GPIO object, initialization is done by setting pin number, port, mode and configuration.

Parameters

peri	The address of GPIO object to be initialized

Returns

ERROR_STATUS
status_Ok : If the initialization is done successfully
status_Nok : If any error occured during initialization

4.1.2.4 GPIO_readPin()

```
ERROR_STATUS GPIO_readPin (
            GPIO_t * peri,
            u8 * value )
```

This function shall read value of GPIO object.

Parameters

peri	The address of GPIO object
value	pointer to hold value of a pin PIN_SET: setting pin value to high PIN_RESET: setting pin value to low

Returns

ERROR_STATUS
status_Ok : If the write operation is done successfully
status_Nok : If any error occured during writing

4.1.2.5 GPIO_writePin()

```
ERROR_STATUS GPIO_writePin (
            GPIO_t * peri,
            u8 value )
```

This function shall write value on GPIO object.

Parameters

peri	The address of GPIO object
value	The value to be written on pin PIN_SET: setting pin value to high PIN_RESET: setting pin value to low

Returns

ERROR_STATUS
status_Ok : If the write operation is done successfully
status_Nok : If any error occured during writing

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