

SDcard.h

Driver Description

A bare minimum driver library for interfacing with the SDcard on the STM32F407ZGT6 development board. FATFS and SDIO interfaces are required for this to work.

FATFS & SDIO Setup

SDIO Mode and Configuration

Mode

Mode

Configuration

Reset Configuration

☒ Parameter Settings ☒ User Constants ☒ NVIC Settings ☒ DMA Settings ☒ GPIO Settings

| DMA Request | Stream | Direction | Priority |
|-------------|---------------|----------------------|----------|
| SDIO_RX | DMA2 Stream 3 | Peripheral To Memory | Low |
| SDIO_TX | DMA2 Stream 6 | Memory To Peripheral | Low |

AddDelete

DMA Request Settings

| | | Peripheral | Memory |
|----------|--|---|--|
| Mode | <input type="text" value="Peripheral Flow ..."/> | Increment Address <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Use Fifo | <input checked="" type="checkbox"/> | Threshold <input type="text" value="Full"/> | Data Width <input type="text" value="Word"/> |
| | | Burst Size <input type="text" value="4 Increment"/> | <input type="text" value="4 Increment"/> |

SDIO Mode and Configuration

Mode

Mode SD 1 bit

Configuration

Reset Configuration

Parameter Settings

User Constants

NVIC Settings

DMA Settings

GPIO Settings

Configure the below parameters :

Search (Ctrl+F)

SDIO parameters

Clock transition on which the bit capture is made

SDIO Clock divider bypass

SDIO Clock output enable when the bus is idle

SDIO hardware flow control

SDIOCLK clock divide factor

Rising transition

Disable

Disable the power save for the clock

The hardware control flow is disabled

12

The SDIOCLK needs to be adjusted based on the APB2 clock frequency. At 168MHz, divide by 12 is working

FATFS Mode and Configuration

Mode

☐ External SRAM

☒ SD Card

☐ USB Disk

☐ User-defined

Configuration

Reset Configuration

✔ Set Defines

✔ Advanced Settings

✔ User Constants

✔ Platform Settings

Platform proposal

BSP

| Name | IPs or Components | | Found Solutions | BSP API |
|-------------|-------------------|--------------------------|-----------------|---------|
| Detect_SDIO | GPIO:Input | <input type="checkbox"/> | PB12 | Unknown |

FATFS requires SD card detection. Here we use PB12 permanently pulled down to simulate a permanently inserted SD card.


```
SDcard_WRITE_STATUS SD_WriteFile(char* FILENAME, char* DATA, uint32_t  
DATA_LEN)
```

Description: Write to a file given the filename, where DATA is the data to be written. If this file does not exist, the file will be created.

Specify DATA_LEN, which is the length of data in bytes expected to be written. If the write function writes the same number of bytes as DATA_LEN, it returns SDcard_WRITE_OK. Otherwise, it returns SDcard_WRITE_COUNT_ERROR. This error can be ignored if the DATA_LEN is not known or specified.