Media PC

[Email address]

Abstract

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# Hardware

## STM32 Pin Mappings

|  |  |  |  |
| --- | --- | --- | --- |
| **Pin** | **Firmware Label** | **Mode** | **Function** |
| PA0 | GPIO\_UNKNOWN\_U7\_1 | Output Open Drain | Connected to U7, Function unknown |
| PA1 | GPIO\_BUTTON\_M2 | Input Pull Up | M2 Button, Active low |
| PA2 | GPIO\_BUTTON\_SEL | Input Pull Up | SEL Button, Active low |
| PA3 | GPIO\_BUTTON\_M1 | Input Pull Up | M1 Button, Active low |
| PA4 | DAC\_OUT\_V\_SET | DAC output | Output voltage control |
| PA5 | DAC\_OUT\_I\_SET | DAC output | Output current control |
| PA6 | - | - | - |
| PA7 | ADC\_I\_OUT |  |  |
| PA8 |  |  |  |
| PA9 | USART1\_TX\_PC |  |  |
| PA10 | USART1\_RX\_PC |  |  |
| PA11 |  |  |  |
| PA12 |  |  |  |
| PA13 |  |  |  |
| PA14 |  |  |  |
| PA15 | GPIO\_TL594\_2IN\_P |  |  |
| PB0 | ADC\_V\_IN |  |  |
| PB1 | ADC\_V\_OUT |  |  |
| PB2 |  |  |  |
| PB3 | GPIO\_SGM8582\_P |  |  |
| PB4 | GPIO\_BUTTON\_POWER |  |  |
| PB5 | GPIO\_BUTTON\_ROT\_PRESS |  |  |
| PB6 | GPIO\_UNKNOWN |  |  |
| PB7 | TIM4\_TFT\_BACKLIGHT |  |  |
| PB8 | GPIO\_BUTTON\_ROT\_A |  |  |
| PB9 | GPIO\_BUTTON\_ROT\_B |  |  |
| PB10 |  |  |  |
| PB11 | GPIO\_POWER\_OUTPUT\_ENABLE |  |  |
| PB12 |  |  |  |
| PB13 | SPI2\_SCK\_TFT |  |  |
| PB14 | SPI2\_MISO\_TFT |  |  |
| PB15 | SPI2\_MOSI\_TFT |  |  |
| PC13 |  |  |  |
| PC14 |  |  |  |
| PC15 |  |  |  |
| PD0 |  |  |  |
| PD1 | GPIO\_UNKNOWN\_U7\_2 |  |  |

## ADC Calculations

### Voltage In

### Voltage Out

### Current Out

## DAC Calculations

### Voltage Out

### Current Out

# Serial Interface

## Commands

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Python Command** | | **Packet** | | **Description** |
| **Shorthand** | **Fullhand** | **CMD ID** | **Payload (bytes)** |
| -s | --status | 0x00 | 12 | Unique Device ID + firmware version |
| -p | --power | 0x01 | 1 | Enable or disable the PSU output |
| -v | --voltage | 0x02 |  | Set the output voltage in millivolts |
| -i | --current | 0x03 |  | Set the output current in milliamps |
| -r | --reading | 0x04 |  | Get the output voltage and current |
| -L | --lock | 0x05 | 0 | Locks the PSU buttons |
| -l | --unlock | 0x06 | 0 | Unlocks the PSU buttons |

## Packet Structure

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Byte number** | 0 | 1 | 2 -> N | N+1 | N+2 |
| **Contents** | SYNC | CMD ID | PAYLOAD | CRC16 | |

Syncword SYNC = 0x7E