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# STM32 Smart V2.0

STM32F103C8T6

#### Board

| Name   | STM32 Smart V2.0 |
|--------|------------------|
| Part   | STM32_Smart      |
| Brand  | Unknown          |
| Origin | China            |

#### Microcontroller

| Part                | STM32F103C8T6       |
|---------------------|---------------------|
| Manufacturer        | ST-Microelectronics |
| Core                | Arm Cortex-M3       |
| Max. Clock<br>Speed | 72MHz               |
| Package             | LQFP 48 pins        |

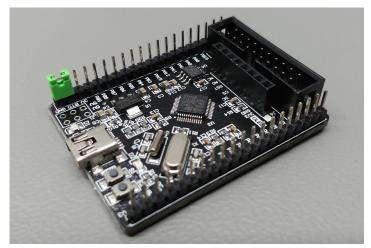
#### **Internal memories**

| FLASH | 64KiB |
|-------|-------|
| SRAM  | 20KiB |

#### **小 Oscillators**

| HSI | 8MHz  |
|-----|-------|
| LSI | 40kHz |

### Pictures



STM32 Smart V2.0: Perspective view



STM32 Smart V2.0: Top view

| HSE | 8MHz      |
|-----|-----------|
| LSE | 32.768kHz |

### Power

| Sources                | Any +3.3V pin (+3.3V)<br>Any +5V pin (+5V)<br>USB connector (+5V) |
|------------------------|---|
| $V_{\mathrm{DDA}}$ pin | Yes   |
| V <sub>SSA</sub> pin   | No  |
| V <sub>REF-</sub> pin  | No  |
| V <sub>REF+</sub> pin  | No  |
| Backup<br>battery      | Pin   |
|                        |   |

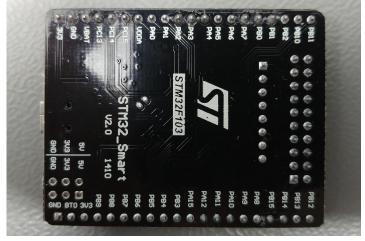


| Manufacturer | Advanced Monolithic Systems Inc. |
|--------------|----------------------------------|
| Part         | AMS1117 (AMS1117)                |
| Package      | SOT223 3 pins                    |
| Input        | +4.6V to +15V                    |
| Output       | +3.3V @ 1A                       |
| Datasheet    | AMS1117.pdf                      |

# PCB

| Color        | Black       |
|--------------|-------------|
| Size (w x I) | 42mm x 54mm |
| Mounting     | None        |

### Remarks



STM32 Smart V2.0: Bottom view

# Resources

- Perspective view
- Top view
- Bottom view
- Original schematic

 Warning: The +5V pins on this board are directly connected to the +5V pin of the USB connector. There is no protection in place. Do not power this board through USB and an external power supply at the same time.

| <b>↓</b> | ln | рı | uts |
|----------|----|----|-----|
|----------|----|----|-----|

### **↑** Outputs

# Connectors



**AT24C04** 

**C** Reset button

User button

**★** BOOT0 jumper

**O** Power LED

User LED

→ Header 1

**⇄** Header 2

**◆** USB connector

# JTAG header

**Շ** OLED header

→ Power header

# Inputs & outputs

#### C Reset button

#### **り** Power LED

| Name         | RST        | Name         | -        |
|--------------|------------|--------------|----------|
| Reference    | S1         | Reference    | D1       |
| Туре         | Button     | Туре         | LED      |
| Connected to | NRST       | Connected to | +5V rail |
| Mode         | Active low | Mode         | N.A.     |

#### User button

#### User LED

| Name         | -          | Name         | -    |
|--------------|------------|--------------|------|
| Reference    | \$2        | Reference    | D2   |
| Туре         | Button     | Туре         | LED  |
| Connected to | PAO        | Connected to | PC13 |
| Mode         | Active low | Mode         | Sink |

# \* BOOT0 jumper

| Name         | -            |
|--------------|--------------|
| Reference    | -            |
| Туре         | 2-way jumper |
| Connected to | воото        |
| Mode         | N.A.         |

# **Connectors & headers**

# **≠** Header 1 properties

| Name      | Unknown                         |
|-----------|---------------------------------|
| Reference | None                            |
| Туре      | Pin header (2.54mm, 20x1, male) |

# **≠** Header 1 pins

| #  | Name | Function | Connected to |
|----|------|----------|--------------|
| 1  | GND  | -        | Ground plane |
| 2  | ВТО  | -        | воото        |
| 3  | 3V3  | -        | +3.3V rail   |
| 4  | PB9  | -        | PB9          |
| 5  | PB8  | -        | PB8          |
| 6  | PB7  | -        | PB7          |
| 7  | PB6  | -        | PB6          |
| 8  | PB5  | -        | PB5          |
| 9  | PB4  | -        | PB4          |
| 10 | PB3  | -        | PB3          |
| 11 | PA15 | -        | PA15         |
| 12 | PA12 | -        | PA12         |
| 13 | PA11 | -        | PA11         |
| 14 | PA10 | -        | PA10         |
| 15 | PA9  | -        | PA9          |
| 16 | PA8  | -        | PA8          |
| 17 | PB15 | -        | PB15         |
| 18 | PB14 | -        | PB14         |
| 19 | PB13 | -        | PB13         |

| 20 PB12 - | PB12 |
|-----------|------|
|-----------|------|

# **≠** Header 2 properties

| Name      | Unknown                         |
|-----------|---------------------------------|
| Reference | None                            |
| Туре      | Pin header (2.54mm, 20x1, male) |

# **≠** Header 2 pins

| #  | Name | Function | Connected to |
|----|------|----------|--------------|
| 1  | 3V3  | -        | +3.3V rail   |
| 2  | GND  | -        | Ground plane |
| 3  | VBAT | -        | VBAT         |
| 4  | PC13 | -        | PC13         |
| 5  | PC14 | -        | PC14         |
| 6  | PC15 | -        | PC15         |
| 7  | VDDA | -        | VDDA         |
| 8  | PA0  | -        | PA0          |
| 9  | PA1  | -        | PA1          |
| 10 | PA2  | -        | PA2          |
| 11 | PA3  | -        | PA3          |
| 12 | PA4  | -        | PA4          |
| 13 | PA5  | -        | PA5          |
| 14 | PA6  | -        | PA6          |
| 15 | PA7  | -        | PA7          |
| 16 | PB0  | -        | PB0          |
| 17 | PB1  | -        | PB1          |
| 18 | PB2  | -        | PB2          |
| 19 | PB10 | -        | PB10         |
| 20 | PB11 | -        | PB11         |
|    |      |          |              |

# ◆ USB connector properties◆ USB connector pins

| Name      | Unknown |
|-----------|---------|
| Reference | None    |

| # | Name | Function | Connected to |
|---|------|----------|--------------|
| 1 | -    | VCC      | +5V rail     |

| Type | USB Mini | 2 | - | D-  | PA11         |
|------|----------|---|---|-----|--------------|
|      |          | 3 | - | D+  | PA12         |
|      |          | 4 | - | ID  | N.C.         |
|      |          | 5 | - | GND | Ground plane |

# ★ JTAG header properties ★ JTAG header pins

| Name      | Unknown                  |  |
|-----------|--------------------------|--|
| Reference | None                     |  |
| Туре      | IDC (2.54mm, 10x2, male) |  |

| #  | Name | Function   | Connected to |
|----|------|------------|--------------|
| 1  | -    | VCC        | +3.3V rail   |
| 2  | -    | VCC        | +3.3V rail   |
| 3  | -    | TRST       | PB4          |
| 4  | -    | GND        | Ground plane |
| 5  | -    | TDI        | PA15         |
| 6  | -    | GND        | Ground plane |
| 7  | -    | TMS/SWDIO  | PA13         |
| 8  | -    | GND        | Ground plane |
| 9  | -    | TCLK/SWCLK | PA14         |
| 10 | -    | GND        | Ground plane |
| 11 | -    | RTCK       | N.C.         |
| 12 | -    | GND        | Ground plane |
| 13 | -    | TDO/SWO    | PB3          |
| 14 | -    | GND        | Ground plane |
| 15 | -    | RESET      | NRST         |
| 16 | -    | GND        | Ground plane |
| 17 | -    | N.C.       | N.C.         |
| 18 | -    | GND        | Ground plane |
| 19 | -    | N.C.       | +5V rail     |
| 20 | -    | GND        | Ground plane |
|    |      |            |              |



# OLED header properties OLED header pins

| Name      | OLED                             |
|-----------|----------------------------------|
| Reference | None                             |
| Туре      | Pin header (2.54mm, 8x1, female) |

| # | Name | Function | Connected to |
|---|------|----------|--------------|
| 1 | -    | -        | +3.3V rail   |
| 2 | -    | -        | Ground plane |
| 3 | -    | -        | PB15         |
| 4 | -    | -        | PB13         |
| 5 | -    | -        | PB12         |
| 6 | -    | -        | NRST         |
| 7 | -    | -        | PB1          |
| 8 | -    | -        | N.C.         |

# **⇄** Power header properties **⇄** Power header pins footprint

# footprint

| Name      | Unknown                        |
|-----------|--------------------------------|
| Reference | None                           |
| Туре      | Pin header (2.54mm, 3x2, male) |

| # | Name | Function | Connected to |
|---|------|----------|--------------|
| 1 | 5V   | -        | +5V rail     |
| 2 | 5V   | -        | +5V rail     |
| 3 | 3V3  | -        | +3.3V rail   |
| 4 | 3V3  | -        | +3.3V rail   |
| 5 | GND  | -        | Ground plane |
| 6 | GND  | -        | Ground plane |

# **Devices**

# **AT24C04** properties

# **AT24C04** pins

| Name         | Unknown                   | # | Name | Function | Connected to |
|--------------|---------------------------|---|------|----------|--------------|
| Reference    | U4                        | 1 | -    | A0       | Ground plane |
| Manufacturer | Microchip Technology Inc. | 2 | -    | A1       | Ground plane |
| Part         | AT24C04                   | 3 | -    | A2       | Ground plane |

| Marking     | AT24C04N                | 4 - | GND | Ground plane |
|-------------|-------------------------|-----|-----|--------------|
| Datasheet   | AT24C01-02-04-08-16.pdf | 5 - | SDA | PB7          |
| Package     | SOIC 8 pins             | 6 - | SCL | PB6          |
| Description | 512B I2C EEPROM         | 7 - | WP  | Ground plane |
|             |                         | 8 - | VCC | +3.3V rail   |
|             |                         |     |     |              |

This is the STM32-base project website. Learn more about the STM32-base project or check out this project on Github. The STM32-base project is *in no way* affiliated with STMicroelectronics.

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