# WeAct Black Pill V2.0

**STM32F411CEU6**

## Board

| | |
|---|---|
| **Name** | WeAct Black Pill V2.0 |
| **Part** | Unknown |
| **Brand** | WeAct Studio |
| **Origin** | China |

## Microcontroller

| | |
|---|---|
| **Part** | STM32F411CEU6 |
| **Manufacturer** | ST-Microelectronics |
| **Core** | Arm Cortex-M4 |
| **Max. Clock Speed** | 100MHz |
| **Package** | UFQFPN 48 pins |

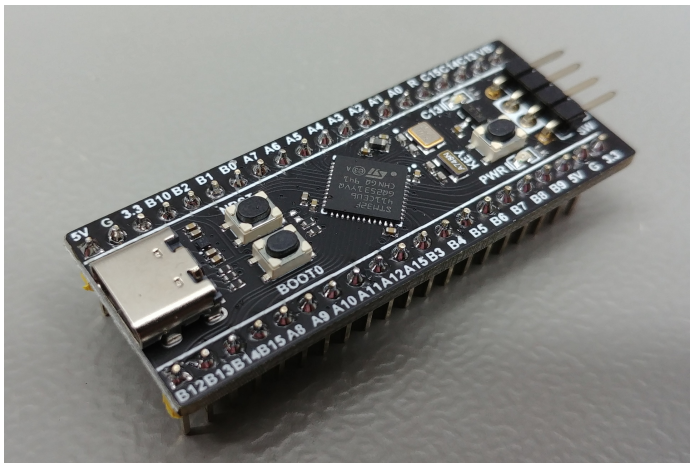
## Internal memories

| | |
|---|---|
| **FLASH** | 512KiB |
| **SRAM** | 128KiB |

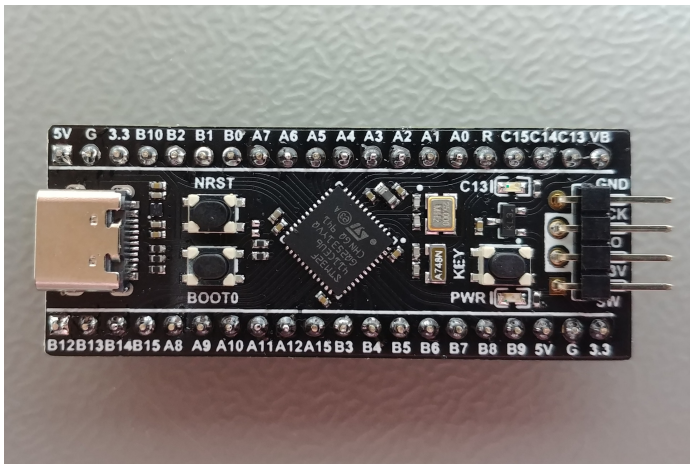
## Oscillators

| | |
|---|---|
| **HSI** | 16MHz |
| **LSI** | 32kHz |
| **HSE** | 25MHz |
| **LSE** | 32.768kHz |

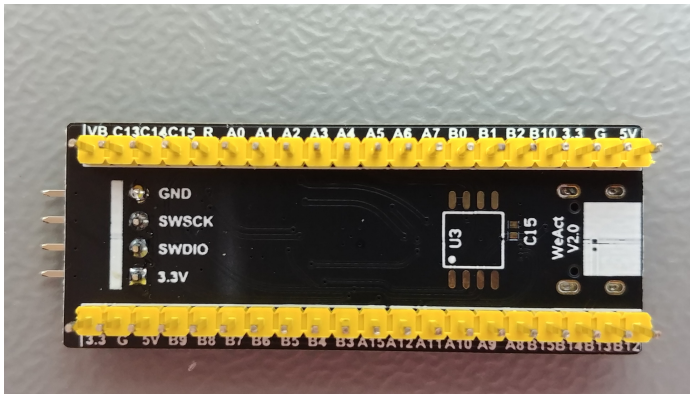
## Pictures




*WeAct Black Pill V2.0: Perspective view*




*WeAct Black Pill V2.0: Top view*



## Power

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

## Regulator

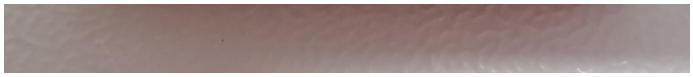
| | |
|---|---|
| **Manufacturer** | Diodes Incorporated |
| **Part** | AP7343 (6T) |
| **Package** | X2-DFN1010-4 4 pins |
| **Input** | +3.52V to +5.25V |
| **Output** | +3.3V @ 300mA |
| **Datasheet** | AP7343.pdf |

## PCB

| | |
|---|---|
| **Color** | Black |
| **Size (w x l)** | 20.78mm x 52.81mm |
| **Mounting** | Breadboard |

## Remarks

- **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.



*WeAct Black Pill V2.0: Bottom view*

## Resources

- Perspective view
- Top view
- Bottom view
- Original schematic
- Original dimensions drawing
- Source files on Github

## Inputs Outputs Connectors Devices

# Inputs & outputs

## Reset button

| | |
|---|---|
| **Name** | NRST |
| **Reference** | - |
| **Type** | Button |
| **Connected to** | $\overline{\text{NRST}}$ |
| **Mode** | Active low |

## Power LED

| | |
|---|---|
| **Name** | PWR |
| **Reference** | - |
| **Type** | LED |
| **Connected to** | +3.3V rail |
| **Mode** | N.A. |

## BOOT0 button

| | |
|---|---|
| **Name** | BOOT0 |
| **Reference** | - |
| **Type** | Button |
| **Connected to** | BOOT0 |
| **Mode** | Active high |

## User LED

| | |
|---|---|
| **Name** | PC13 |
| **Reference** | - |
| **Type** | LED |
| **Connected to** | PC13 |
| **Mode** | Sink |

## User button

| | |
|---|---|
| **Name** | KEY |
| **Reference** | - |
| **Type** | Button |
| **Connected to** | PA0 |
| **Mode** | Active low |

# Connectors & headers

## ⇄ Header 1 properties

| | |
|---|---|
| **Name** | Unknown |
| **Reference** | None |
| **Type** | pin header (2.54mm, 20x1, male) |

## ⇄ Header 1 pins

| # | Name | Function | Connected to |
|---|---|---|---|
| 1 | 5V | - | +5V rail |
| 2 | G | - | Ground plane |
| 3 | 3.3 | - | +3.3V rail |
| 4 | B10 | - | PB10 |
| 5 | B2 | - | PB2 |
| 6 | B1 | - | PB1 |
| 7 | B0 | - | PB0 |
| 8 | A7 | - | PA7 |
| 9 | A6 | - | PA6 |
| 10 | A5 | - | PA5 |
| 11 | A4 | - | PA4 |
| 12 | A3 | - | PA3 |
| 13 | A2 | - | PA2 |
| 14 | A1 | - | PA1 |
| 15 | A0 | - | PA0 |
| 16 | R | - | $\overline{\text{NRST}}$ |
| 17 | C15 | - | PC15 |
| 18 | C14 | - | PC14 |
| 19 | C13 | - | PC13 |
| 20 | VB | - | $V_{BAT}$ |

## ⇄ Header 2 properties

| | |
|---|---|
| **Name** | Unknown |
| **Reference** | None |
| **Type** | pin header (2.54mm, 20x1, male) |

## ⇄ Header 2 pins

| # | Name | Function | Connected to |
|---|---|---|---|
| 1 | B12 | - | PB12 |
| 2 | B13 | - | PB13 |
| 3 | B14 | - | PB14 |
| 4 | B15 | - | PB15 |

| | | | |
|---|---|---|---|
| 5 | A8 | - | PA8 |
| 6 | A9 | - | PA9 |
| 7 | A10 | - | PA10 |
| 8 | A11 | - | PA11 |
| 9 | A12 | - | PA12 |
| 10 | A15 | - | PA15 |
| 11 | B3 | - | PB3 |
| 12 | B4 | - | PB4 |
| 13 | B5 | - | PB5 |
| 14 | B6 | - | PB6 |
| 15 | B7 | - | PB7 |
| 16 | B8 | - | PB8 |
| 17 | B9 | - | PB9 |
| 18 | 5V | - | +5V rail |
| 19 | G | - | Ground plane |
| 20 | 3.3 | - | +3.3V rail |

## USB connector properties

| | |
|---|---|
| **Name** | Unknown |
| **Reference** | None |
| **Type** | USB C |

## USB connector pins

| # | Name | Function | Connected to |
|---|---|---|---|
| A1/B12 | - | GND | Ground plane |
| A4/B9 | - | VBUS | +5V rail |
| B8 | - | SBU2 | Ground plane via 5.1kΩ (R8) |
| A5 | - | CC1 | Ground plane via 5.1kΩ (R8) |
| B7 | - | D- | PA11 via 10Ω (R9) |
| A6 | - | D+ | PA12 via 10Ω (R7) |
| A7 | - | D- | PA11 via 10Ω (R9) |
| B6 | - | D+ | PA12 via 10Ω (R7) |

| | | | |
|---|---|---|---|
| A8 | - | SBU1 | Ground plane via 5.1kΩ (R8) |
| B5 | - | CC2 | Ground plane via 5.1kΩ (R8) |
| B4/A9 | - | VBUS | +5V rail |
| B1/A12 | - | GND | Ground plane |

### SWD header properties

| | |
|---|---|
| **Name** | SW |
| **Reference** | None |
| **Type** | pin header (2.54mm, 4x1, male) |

### SWD header pins

| # | Name | Function | Connected to |
|---|---|---|---|
| 1 | 3.3V | VCC | +3.3V rail |
| 2 | SWDIO | SWDIO | PA13 |
| 3 | SWCLK | SWCLK | PA14 |
| 4 | GND | GND | Ground plane |

# Devices

### Generic EEPROM properties *footprint*

| | |
|---|---|
| **Name** | Unknown |
| **Reference** | U3 |
| **Manufacturer** | Unknown |
| **Part** | Generic EEPROM |
| **Marking** | Unknown |
| **Datasheet** | Unavailable |
| **Package** | SOP 8 pins |
| **Description** | Generic I2C EEPROM |

### Generic EEPROM pins *footprint*

| # | Name | Function | Connected to |
|---|---|---|---|
| 1 | - | /CS | PA4 |
| 2 | - | DO | PB4 |
| 3 | - | /WP | +3.3V rail |
| 4 | - | GND | Ground plane |
| 5 | - | DI | PA7 |
| 6 | - | CLK | PA5 |
| 7 | - | /HOLD | +3.3V rail |
| 8 | - | VCC | +3.3V rail |

on Github. The STM32-base project is *in no way* affiliated with STMicroelectronics.

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