Blue Pill

STM32F103C8T6

Board

Name	Blue Pill
Part	Unknown
Brand	Unknown
Origin	China

Microcontroller

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

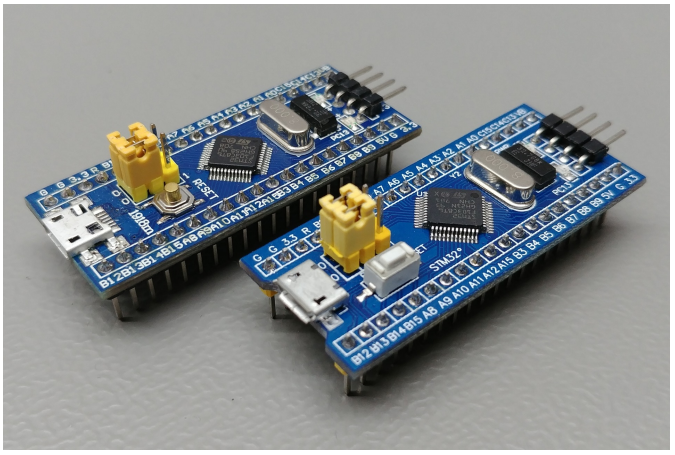
Internal memories

FLASH	64KiB
SRAM	20KiB

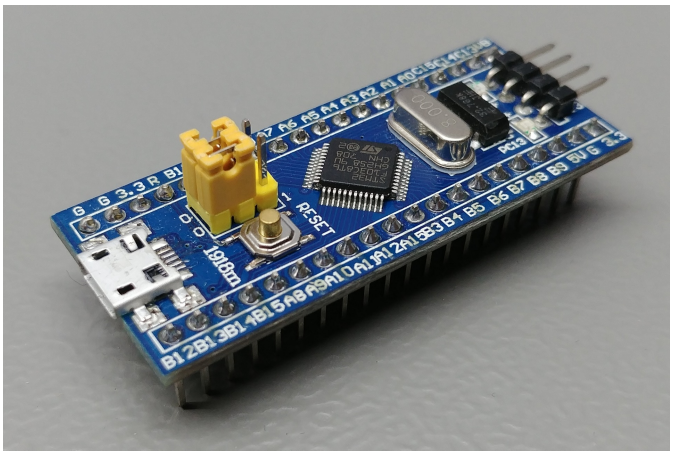
Oscillators

HSI	8MHz
LSI	40kHz
HSE	8MHz
LSE	32.768kHz

Pictures



Blue Pill: Variants



Blue Pill: Perspective view

Power

Sources	Any +3.3V pin (+3.3V) Any +5V pin (+5V) USB connector (+5V)
V_{DDA} pin	No
V_{SSA} pin	No
V_{REF-} pin	No
V_{REF+} pin	No
Backup battery	None

Regulator

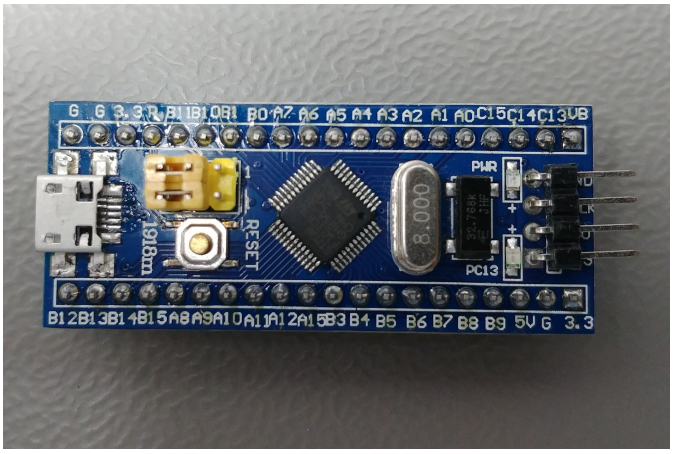
Manufacturer	Shanghai TX Electronics Sci-Tech Co., Ltd
Part	TX6211B (`DE=A1D`)
Package	SOT23-5 5 pins
Input	+3.6V to +5.5V
Output	+3.3V @ 300mA
Datasheet	TX6211B.pdf

PCB

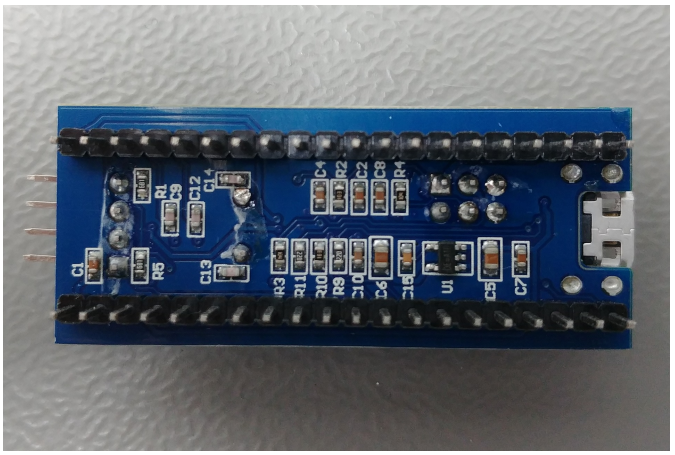
Color	Blue
Size (w x l)	23mm x 53mm
Mounting	Breadboard

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.



Blue Pill: Top view



Blue Pill: Bottom view

Resources

- Variants
- Perspective view
- Top view
- Bottom view
- Schematic
- 3D printable mount

- **Warning:** This board may have a wrong value of resistor on the USB D+ pin. Instead of a 1.5kΩ it has either a 10kΩ or 4.7kΩ resistor. This can be solved by replacing the resistor with the right value.
- **Trivia:** This board got its name from a forum post at the STM32duino forums and is a reference to the movie The Matrix.

Inputs

- Reset button
- BOOT0 jumper
- BOOT1 jumper

Outputs

- Power LED
- User LED

Connectors

- Header 1
- Header 2
- SWD header
- USB connector

Devices

None

Inputs & outputs

Reset button

Name	RESET
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 jumper

Name	-
Reference	-
Type	2-way jumper
Connected to	BOOT0
Mode	N.A.

User LED

Name	PC13
Reference	-
Type	LED
Connected to	PC13
Mode	Sink

✱ BOOT1 jumper

Name	-
Reference	-
Type	2-way jumper
Connected to	PB2
Mode	N.A.

Connectors & headers

⇄ Header 1 properties

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

⇄ Header 1 pins

#	Name	Function	Connected to
1	VB	-	V_{BAT}
2	C13	-	PC13
3	C14	-	PC14
4	C15	-	PC15
5	A0	-	PA0
6	A1	-	PA1
7	A2	-	PA2
8	A3	-	PA3
9	A4	-	PA4
10	A5	-	PA5
11	A6	-	PA6
12	A7	-	PA7
13	B0	-	PB0
14	B1	-	PB1
15	B10	-	PB10
16	B11	-	PB11
17	R	-	$\overline{\text{NRST}}$
18	3.3	-	+3.3V rail

19	G	-	Ground plane
20	G	-	Ground plane

⇄ Header 2 properties

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

⇄ Header 2 pins

#	Name	Function	Connected to
1	3.3	-	+3.3V rail
2	G	-	Ground plane
3	5V	-	+5V rail
4	B9	-	PB9
5	B8	-	PB8
6	B7	-	PB7
7	B6	-	PB6
8	B5	-	PB5
9	B4	-	PB4
10	B3	-	PB3
11	A15	-	PA15
12	A12	-	PA12
13	A11	-	PA11
14	A10	-	PA10
15	A9	-	PA9
16	A8	-	PA8
17	B15	-	PB15
18	B14	-	PB14
19	B13	-	PB13
20	B12	-	PB12

SWD header properties

Name	SWD
Reference	None

SWD header pins

#	Name	Function	Connected to
1	3V3	VCC	+3.3V rail
2	DIO	SWDIO	PA13

Type	pin header (2.54mm, 4x1, male)

3	CLK	SWCLK	PA14
4	GND	GND	Ground plane

USB connector properties

Name	USB
Reference	None
Type	USB Micro

USB connector pins

#	Name	Function	Connected to
1	-	VCC	+5V rail
2	-	D-	PA11
3	-	D+	PA12
4	-	ID	N.C.
5	-	GND	Ground plane