

# STM32F4XX Pro

## Board

Name	STM32F4XX Pro
Part	STM32_F4XX_Pro
Brand	Unknown
Origin	China

## Microcontroller

Part	<a href="#">STM32F407ZGT6</a>
Manufacturer	<a href="#">ST-Microelectronics</a>
Core	<a href="#">Arm Cortex-M4</a>
Max. Clock Speed	168MHz
Package	LQFP 144 pins

## Internal memories

FLASH	1024KiB
SRAM	192KiB
Backup SRAM	4KiB

## Oscillators

HSI	16MHz
LSI	32kHz
HSE	8MHz
LSE	32.768kHz

## Power

Sources	Any +3.3V pin (+3.3V) Any +5V pin (+5V) USB connector (+5V)
V <sub>DDA</sub> pin	No
V <sub>SSA</sub> pin	No
V <sub>REF-</sub> pin	No
V <sub>REF+</sub> pin	Yes
Backup battery	Holder (12.5mm / 12)

## Regulator

Manufacturer	<a href="#">Advanced Monolithic Systems Inc.</a>
Part	<a href="#">AMS1117</a> (AMS1117)
Package	SOT223 3 pins
Input	+4.6V to +15V
Output	+3.3V @ 1A
Datasheet	<a href="#">AMS1117.pdf</a>

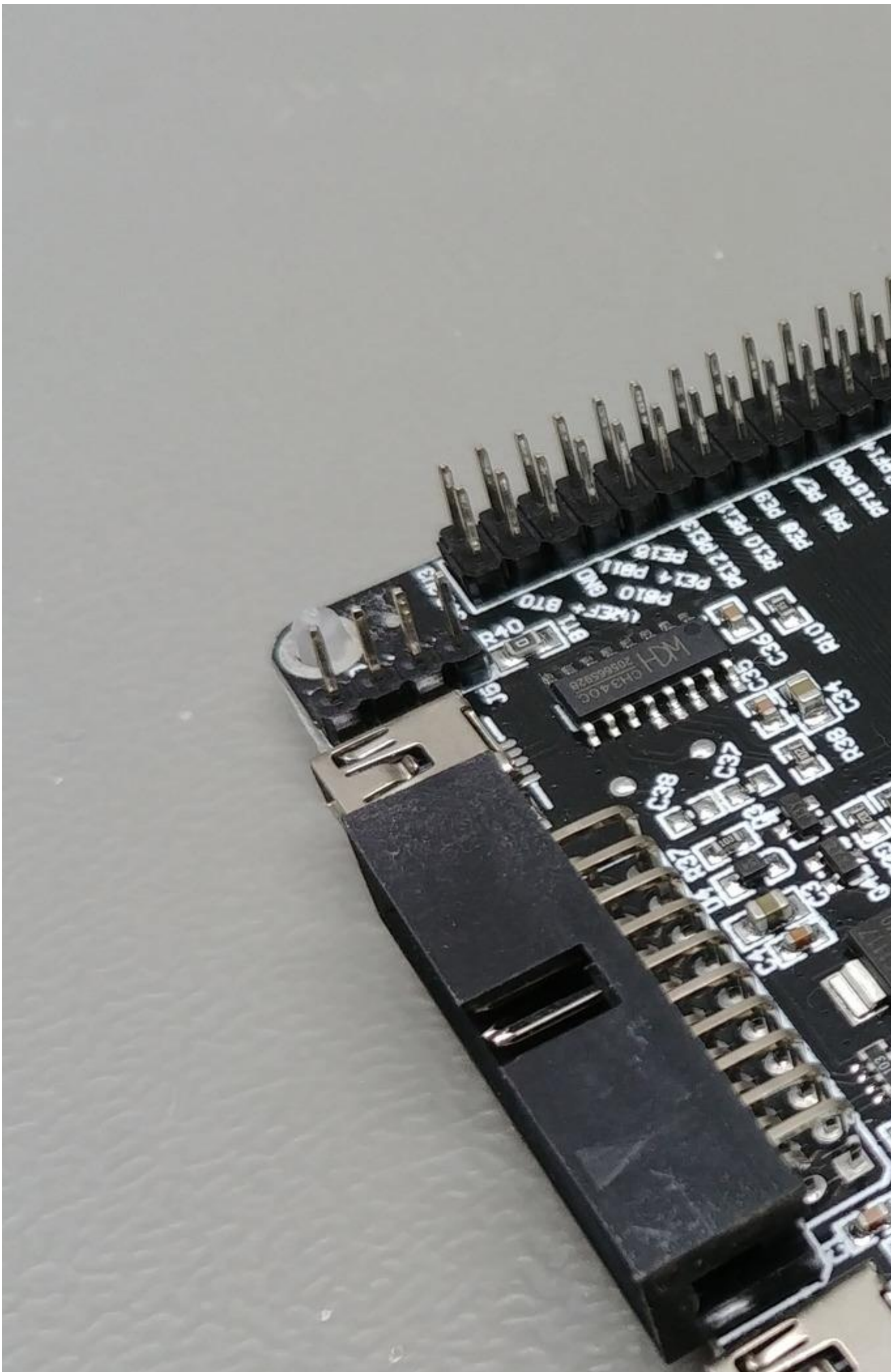
## PCB

Color	Black
Size (w x l)	74mm x 102mm
Mounting	4x mounting hole (M3)

## Remarks

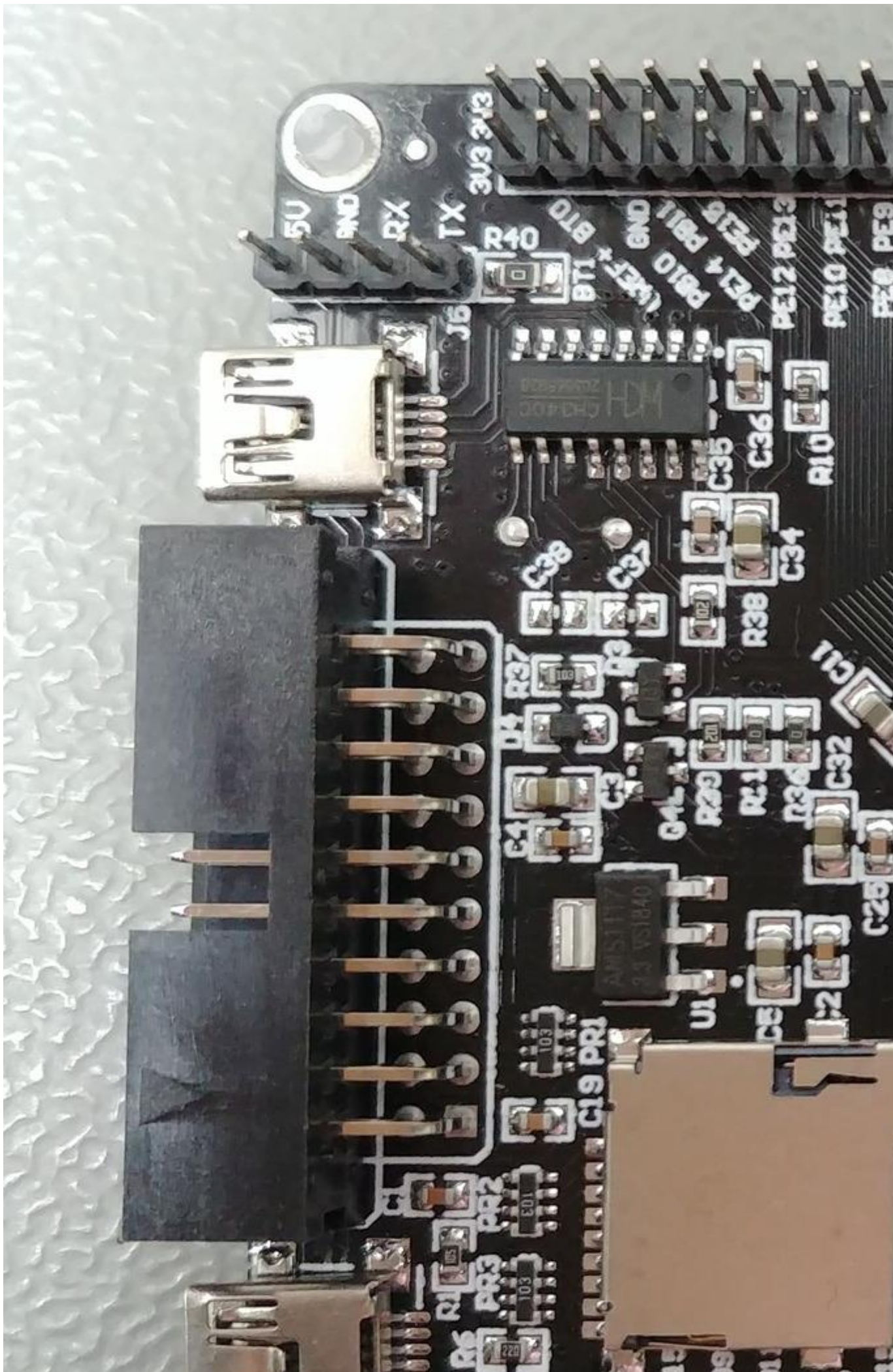
- **Warning:** The +5V pins on this board are directly connected to the +5V pin of the USB connector. There is no protection in place. Do not power this board through USB and an external power supply at the same time.

## Pictures



STM32F4XX Pro: Perspective view





STM32F4XX Pro: Top view



For : [Mcudev.taobao.com](http://Mcudev.taobao.com)

www.taobao.com





## Resources

- [Perspective view](#)
- [Top view](#)
- [Bottom view](#)

## Inputs

- [Reset button](#)
- [BOOT0 jumper](#)
- [BOOT1 jumper](#)
- [User button 1](#)
- [User button 2](#)
- [User button 3](#)

## Outputs

- [Power LED](#)
- [User LED 1](#)
- [User LED 2](#)

## Connectors

- [Header 1](#)
- [Header 2](#)
- [TFT header](#)
- [Camera header](#)
- [nRF24L01 module header](#)
- [USB connector](#)
- [JTAG header](#)
- [SD-card connector](#)
- [Serial header](#)
- [Serial USB connector](#)

## Devices

- [CH340](#)
- [W25Q16JV](#)
- [Generic SRAM](#)

## Inputs & outputs

---

### Reset button

<b>Name</b>	RST
<b>Reference</b>	-
<b>Type</b>	Button
<b>Connected to</b>	NRST



**Mode** Active low

## **BOOT0 jumper**

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

## **BOOT1 jumper**

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

## **User button 1**

**Name** WKUP  
**Reference** -  
**Type** Button  
**Connected to** PA0  
**Mode** Active high

## **User button 2**

**Name** K0  
**Reference** -  
**Type** Button  
**Connected to** PB9  
**Mode** Active low

## **User button 3**

**Name** K1  
**Reference** -  
**Type** Button  
**Connected to** PB8  
**Mode** Active low

## **Power LED**

**Name** -  
**Reference** D3  
**Type** LED  
**Connected to** +3.3V rail  
**Mode** N.A.

## **User LED 1**

**Name** -  
**Reference** D1  
**Type** LED  
**Connected to** PF9  
**Mode** Sink

## **User LED 2**

**Name** -  
**Reference** D2  
**Type** LED  
**Connected to** PF10  
**Mode** Sink

## Connectors & headers

---

### Header 1 properties

**Name** Unknown  
**Reference** None  
**Type** Pin header (2.54mm, 30x2, male)

### Header 1 pins

#	Name	Function	Connected to
1	PE1	-	PE1
2	PE0	-	PE0
3	PE3	-	PE3
4	PE2	-	PE2
5	PE5	-	PE5
6	PE4	-	PE4
7	PC13	-	PC13
8	PE6	-	PE6
9	PF1	-	PF1
10	PF0	-	PF0
11	PF3	-	PF3
12	PF2	-	PF2
13	PF5	-	PF5
14	PF4	-	PF4
15	PF7	-	PF7
16	PF6	-	PF6
17	PF9	-	PF9
18	PF8	-	PF8
19	PC0	-	PC0
20	PF10	-	PF10
21	PC2	-	PC2
22	PC1	-	PC1
23	PA0	-	PA0
24	PC3	-	PC3
25	PA2	-	PA2
26	PA1	-	PA1
27	PA4	-	PA4
28	PA3	-	PA3
29	PA6	-	PA6
30	PA5	-	PA5
31	PC4	-	PC4
32	PA7	-	PA7
33	PB0	-	PB0

34	PC5	-	PC5
35	PB2	-	PB2
36	PB1	-	PB1
37	PF12	-	PF12
38	PF11	-	PF11
39	PF14	-	PF14
40	PF13	-	PF13
41	PG0	-	PG0
42	PF15	-	PF15
43	PE7	-	PE7
44	PG1	-	PG1
45	PE9	-	PE9
46	PE6	-	PE6
47	PE11	-	PE11
48	PE10	-	PE10
49	PE13	-	PE13
50	PE12	-	PE12
51	PE15	-	PE15
52	PE14	-	PE14
53	PB11	-	PB11
54	PB10	-	PB10
55	GND	-	Ground plane
56	VREF+	-	V <sub>REF+</sub>
57	BT0	-	BOOT0
58	BT1	-	PB2
59	3V3	-	+3.3V rail
60	3V3	-	+3.3V rail

## Header 2 properties

<b>Name</b>	Unknown
<b>Reference</b>	None
<b>Type</b>	Pin header (2.54mm, 30x2, male)

## Header 2 pins

#	Name	Function	Connected to
1	PB9	-	PB9
2	PB8	-	PB8
3	PB7	-	PB7
4	PB6	-	PB6
5	PB5	-	PB5
6	PB4	-	PB4
7	PB3	-	PB3
8	PG15	-	PG15
9	PG14	-	PG14
10	PG13	-	PG13
11	PG12	-	PG12
12	PG11	-	PG11
13	PG10	-	PG10

14	PB9	-	PB9
15	PD7	-	PD7
16	PD6	-	PD6
17	PD5	-	PD5
18	PD4	-	PD4
19	PD3	-	PD3
20	PD2	-	PD2
21	PD1	-	PD1
22	PD0	-	PD0
23	PC12	-	PC12
24	PC11	-	PC11
25	PC10	-	PC10
26	PA15	-	PA15
27	PA14	-	PA14
28	PA13	-	PA13
29	PA12	-	PA12
30	PA11	-	PA11
31	PA10	-	PA10
32	PA9	-	PA9
33	PA8	-	PA8
34	PC9	-	PC9
35	PC8	-	PC8
36	PC7	-	PC7
37	PC6	-	PC6
38	PG8	-	PG8
39	PG7	-	PG7
40	PG6	-	PG6
41	PG5	-	PG5
42	PG4	-	PG4
43	PG3	-	PG3
44	PG2	-	PG2
45	PD15	-	PD15
46	PD14	-	PD14
47	PD13	-	PD13
48	PD12	-	PD12
49	PD11	-	PD11
50	PD10	-	PD10
51	PD9	-	PD9
52	PD8	-	PD8
53	PB15	-	PB15
54	PB14	-	PB14
55	PB13	-	PB13
56	PB12	-	PB12
57	3V3	-	+3.3V rail
58	GND	-	Ground plane
59	5V	-	+5V rail
60	GND	-	Ground plane

## TFT header properties

<b>Name</b>	New-TFT
<b>Reference</b>	J6
<b>Type</b>	Pin header (2.54mm, 16x2, male)

## TFT header pins

#	Name	Function	Connected to
1	-	-	NRST
2	-	-	Ground plane
3	-	-	PD10
4	-	-	PD9
5	-	-	PD8
6	-	-	PE15
7	-	-	PE14
8	-	-	PE13
9	-	-	PE12
10	-	-	PE11
11	-	-	PE10
12	-	-	PE9
13	-	-	PE8
14	-	-	PE7
15	-	-	PD1
16	-	-	PD0
17	-	-	PD15
18	-	-	PD14
19	-	-	PD4
20	-	-	PD5
21	-	-	PF12
22	-	-	PG12
23	-	-	PB0
24	-	-	PC13
25	-	-	PF11
26	-	-	PB2
27	-	-	PB1
28	-	-	PB15
29	-	-	N.C.
30	-	-	Ground plane
31	-	-	+3.3V rail
32	-	-	Ground plane

## Camera header properties

<b>Name</b>	Camera
<b>Reference</b>	J7
<b>Type</b>	Pin header (2.54mm, 10x2, female)

## Camera header pins

#	Name	Function	Connected to
1	-	-	+3.3V rail
2	-	-	Ground plane



3	-	-	PD7
4	-	-	PD6
5	-	-	PA4
6	-	-	PB7
7	-	-	PC6
8	-	-	PG15
9	-	-	PC7
10	-	-	PC8
11	-	-	PC9
12	-	-	PC11
13	-	-	PB6
14	-	-	PE3
15	-	-	PA6
16	-	-	PE6
17	-	-	PA8
18	-	-	PG9
19	-	-	Ground plane
20	-	-	PF8

## nRF24L01 module header properties

<b>Name</b>	nRF24L01
<b>Reference</b>	J8
<b>Type</b>	Pin header (2.54mm, 4x2, female)

## nRF24L01 module header pins

#	Name	Function	Connected to
1	-	GND	Ground plane
2	-	VCC	+3.3V rail
3	-	CE	PB6
4	-	CSN	PB7
5	-	SCK	PB3
6	-	MOSI	PG3
7	-	MISO	PG4
8	-	IRQ	PG8

## USB connector properties

<b>Name</b>	Unknown
<b>Reference</b>	None
<b>Type</b>	USB Mini

## USB connector pins

#	Name	Function	Connected to
1	-	VCC	+5V rail
2	-	D-	PA11 via 22Ω resistor (R6)
3	-	D+	PA12 via 22Ω resistor (R7)
4	-	ID	N.C.
5	-	GND	Ground plane

## JTAG header properties

<b>Name</b>	Unknown
-------------	---------

**Reference** None  
**Type** IDC (2.54mm, 10x2, male)

## JTAG header pins

#	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.	N.C.
20	-	GND	Ground plane

## SD-card connector properties

**Name** Unknown  
**Reference** None  
**Type** microSD

## SD-card connector pins

#	Name	Function	Connected to
1	-	DAT2	PC10, pulled up via 10k $\Omega$ (PR2)
2	-	CD/DAT3	PC11, pulled up via 10k $\Omega$ (PR2)
3	-	CMD	PD2, pulled up via 10k $\Omega$ (PR2)
4	-	VDD	+3.3V rail
5	-	CLK	PC12, pulled up via 10k $\Omega$ (PR2)
6	-	VSS	Ground plane
7	-	DAT0	PC8, pulled up via 10k $\Omega$ (PR3)
8	-	DAT1	PC9, pulled up via 10k $\Omega$ (PR3)
9	-	CD	N.C., pulled up via 10k $\Omega$ (PR3)
10	-	Body	Ground plane

## Serial header properties

**Name** Unknown  
**Reference** J5  
**Type** Pin header (2.54mm, 4x1, male)

## Serial header pins

#	Name	Function	Connected to
1	5V	-	+5V rail
2	GND	-	Ground plane
3	RX	-	PA10
4	TX	-	PA9

## Serial USB connector properties

Name	Unknown
Reference	None
Type	USB Mini

## Serial USB connector pins

#	Name	Function	Connected to
1	-	VCC	+5V rail
2	-	D-	CH340 Pin 6
3	-	D+	CH340 Pin 5
4	-	ID	N.C.
5	-	GND	Ground plane

## Devices

---

### CH340 properties

Name	Unknown
Reference	Unknown
Manufacturer	<a href="#">WCH</a>
Part	<a href="#">CH340</a>
Marking	CH340G
Datasheet	<a href="#">CH340.pdf</a>
Package	SSOP 16 pins
Description	USB to Serial converter

### CH340 pins

#	Name	Function	Connected to
1	-	GND	Ground plane
2	-	TXD	PA10
3	-	RXD	PA9
4	-	V3	N.C.
5	-	UD+	D+ pin on CN4
6	-	UD-	D- pin on CN4
7	-	XI	N.C.
8	-	XO	N.C.
9	-	CTS#	N.C.
10	-	DSR#	N.C.
11	-	RI#	N.C.
12	-	DCD#	N.C.
13	-	DTR#	Pull-up R16 to +3.3V rail
14	-	RTS#	N.C.
15	-	R232	N.C.
16	-	VCC	N.C.

## W25Q16JV properties

Name	Unknown
Reference	Unknown
Manufacturer	<a href="#">Winbond Electronics Corporation</a>
Part	<a href="#">W25Q16JV</a>
Marking	W25Q16JVSIQ
Datasheet	<a href="#">W25Q16JV.pdf</a>
Package	SOIC 8 pins
Description	2MiB Dual/Quad SPI FLASH

## W25Q16JV pins

#	Name	Function	Connected to
1	-	/CS	PB1
2	-	DO	PB4
3	-	/WP	+3.3V rail
4	-	GND	Ground plane
5	-	DI	PB5
6	-	CLK	PB3
7	-	/HOLD	+3.3V rail
8	-	VCC	+3.3V rail

## Generic SRAM properties *footprint*

Name	Unknown
Reference	U2
Manufacturer	Unknown
Part	Generic SRAM
Marking	Unknown
Datasheet	Unavailable
Package	TSOP - II 44 pins
Description	Generic SRAM

## Generic SRAM pins *footprint*

#	Name	Function	Connected to
1	-	A4	PF4
2	-	A3	PF3
3	-	A2	PF2
4	-	A1	PF1
5	-	A0	PF0
6	-	CS1	PG10
7	-	I/O0	PD14
8	-	I/O1	PD15
9	-	I/O2	PD0
10	-	I/O3	PD1
11	-	VDD	+3.3V rail
12	-	GND	Ground plane
13	-	I/O4	PE7
14	-	I/O5	PE8
15	-	I/O6	PE9
16	-	I/O7	PE10

17	-	WE	PD5
18	-	A16	PD11
19	-	A15	PG5
20	-	A14	PG4
21	-	A13	PG3
22	-	A12	PG2
23	-	A17	PD12
24	-	A11	PG1
25	-	A10	PG0
26	-	A9	PF15
27	-	A8	PF14
28	-	A18	PF13
29	-	I/O8	PE11
30	-	I/O9	PE12
31	-	I/O10	PE13
32	-	I/O11	PE14
33	-	VDD	+3.3V rail
34	-	GND	Ground plane
35	-	I/O12	PE15
36	-	I/O13	PD8
37	-	I/O14	PD9
38	-	I/O15	PD10
39	-	LB	PE0
40	-	UB	PE1
41	-	OE	PD4
42	-	A7	PF13
43	-	A6	PF12
44	-	A5	PF5