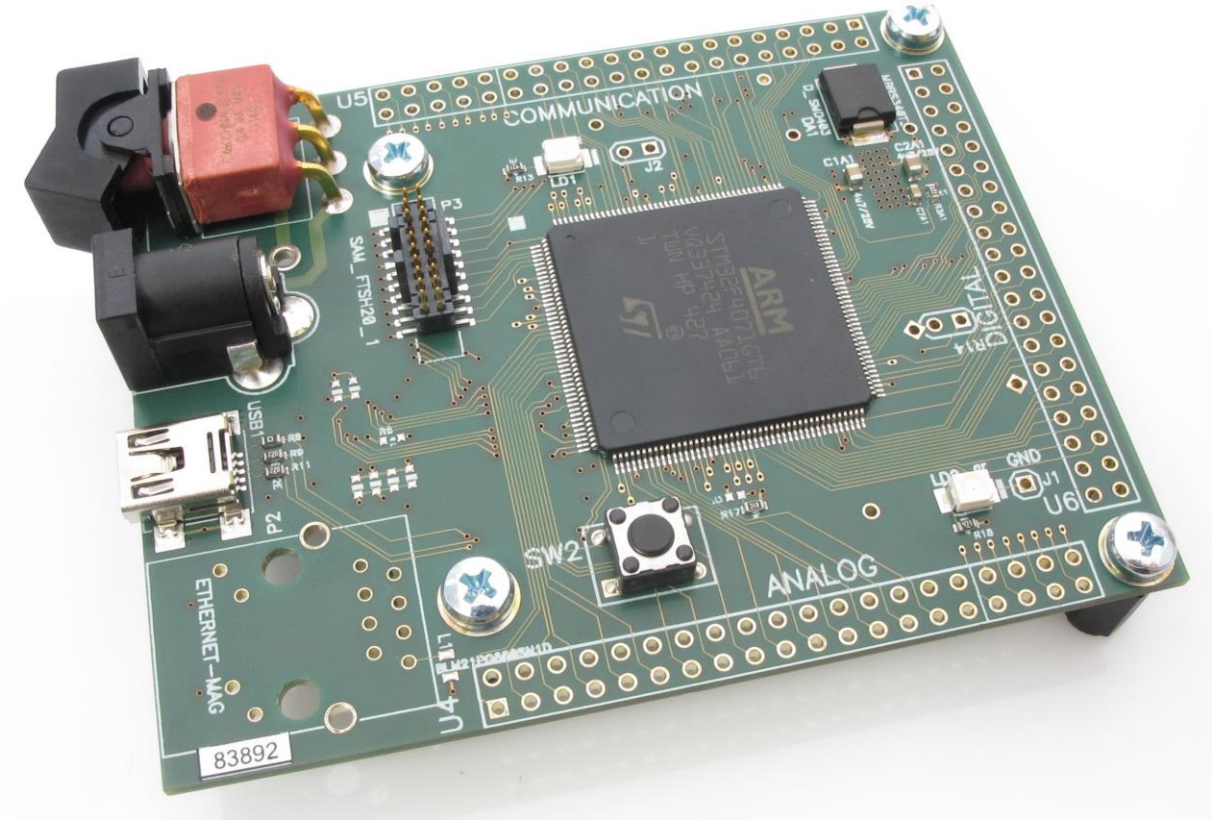
User's Manual

ST STM32F407 Target Board

	Ordering code
STM32F4 Target Board	ITSTM32F407



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This target board is an evaluation and a development system for STM32F407 microcontroller. The IT STM32F407 package features a target board populated with STM32F407 CPU in the QFP144 package, 20-pin Cortex Debug+ETM Connector. A power supply also comes along with the board. The application under the development or test can run from the internal CPU flash or from the internal SRAM.

Specifications

Clock Speed – up to 168 MHz
Power requirement: 6 - 12V DC, + in the center @ 500 mA
Board Size: 106 mm x 86 mm

ITSTM32F407Features

- STM32F407, QFP144
- 25MHz clock (ext. crystal)
- Power Indicator – Supply voltage indication for 3V3
- User Indicators – LEDs connecting to the microcontroller
- Debug connections: 20-pin Cortex Debug+ETM Connector

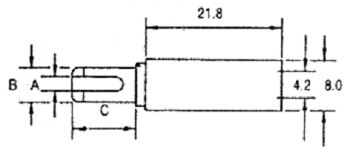
Software Development

The board has been tested with the microcontroller running at maximum frequency (168MHz). Software development can be performed by connecting the development tool to the 20-pin Cortex Debug+ETM Connector (P3). Contact iSYSTEM sales representative for more details on available tool options.

Power Supply

Permissible input voltage: 6-12 V DC, **+ in the center.** The required current load capacity of the power supply depends on the specific configuration of the target board. A power supply with a minimum of 500mA is recommended and delivered in the package. Low voltage DC plug must conform to the DIN 45323 standards:

- The hole diameter is 1.95 – 2.5 mm (standard: 2.1 mm)
- The external diameter is 6.2 - 5.5 mm (standard: 5.5 mm)



Dimensions

A	B	C
2.1	5.5	9.5

Switch-on the target board after the AC power supply is plugged into the wall and connected to the target board. Check that power indicator (LD2) lit, indicating that 3.3V voltage is present.

Note: When connecting an external debugger, make sure that the debugger is powered on first, then the target board and vice versa when switching off the system. First, switch off the target and then the emulator.

Settings and Options

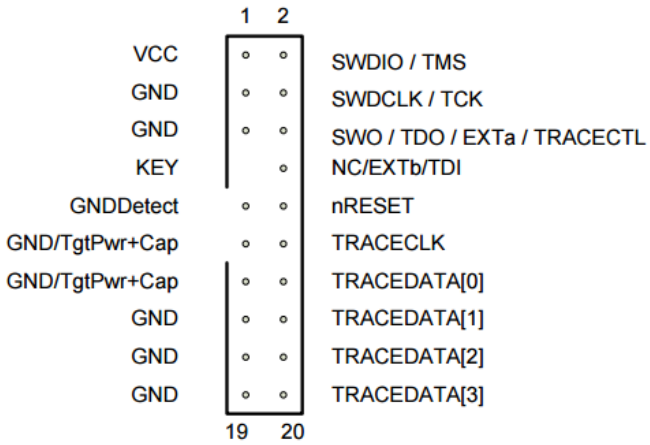
Status Indicators

LD2 LED indicates a presence of the 3V3 supply voltage. It lit when the power is applied to the evaluation board and the power switch is switched on.

LD1 LED is available for the user.

Connectors

20-pin Cortex Debug+ETM Connector



USB

Is used to perform communication with CPU, but it cannot be used to power EVB.

CPU expansion connection

The target board exposes most of STM32F407 pins/signals, which allow easy expansion of the development system.

	ANALOG		
1	PF3	GND	**2**
3	PF4	GND	**4**
5	PF5	GND	**6**
7	PF6	GND	**8**
9	PF7	GND	**10**
11	PF8	GND	**12**
13	PF9	GND	**14**
15	PF10	GND	**16**
17	PC0	GND	**18**
19	PA3	GND	**20**
21	PA4/DAC	GND	**22**
23	PA5/DAC	GND	**24**
25	PA6	GND	**26**
27	PB0	GND	**28**
29	PB1	GND	**30**
31	GND	GND	**32**
33	FREE	FREE	**34**
35	FREE	FREE	**36**
37	FREE	FREE	**38**
39	FREE	FREE	**40**

	DIGITAL		
1	5V	5V	**2**
3	19V	GND	**4**
5	PG8	PG7	**6**
7	PG6	PG5	**8**
9	PG4	PG3	**10**
11	PG2	PD15	**12**
13	PD14	PD13	**14**
15	PD12	PD11	**16**
17	PD10	PD9	**18**
19	PD8	PB13	**20**
21	PB12	PH12	**22**
23	PH11	PH10	**24**
25	PH9	PH8	**26**
27	PB11	PB10	**28**
29	PE15	PE14	**30**
31	PE13	PE12	**32**
33	PE11	PE10	**34**
35	PE9	PE8	**36**
37	FREE	3V3	**38**
39	GND	GND	**40**

	COMMUNICATION		
1	3V3	3V3	**2**
3	GND	GND	**4**
5	PC7/PWM	PC6/PWM	**6**
7	PC9/PWM	PC8/PWM	**8**
9	GND	PI1/SPI/CS	**10**
11	PI3/SPI/CS	PI2/SPI/CS	**12**
13	GND	PC10/SPI/CS	**14**
15	PC11/SPI/CS	PC12/SPI/CS	**16**
17	GND	PD0/CAN	**18**
19	PD1/CAN	PD3/UART	**20**
21	PD4/UART	GND	**22**
23	PD5/UART	PD6/UART	**24**
25	PD7/UART	PB5/I2C	**26**
27	PB6/I2C	PB7/I2C	**28**
29	GND	GND	**30**
31	FREE	FREE	**32**
33	FREE	FREE	**34**
35	FREE	FREE	**36**
37	FREE	FREE	**38**
39	FREE	FREE	**40**

Other Signals

USB	
USB_DM	PA11
USB_DP	PA12
USBPWR	PA9

LED	PB9

Schematic