Core407Z, STM32F4 Core Board

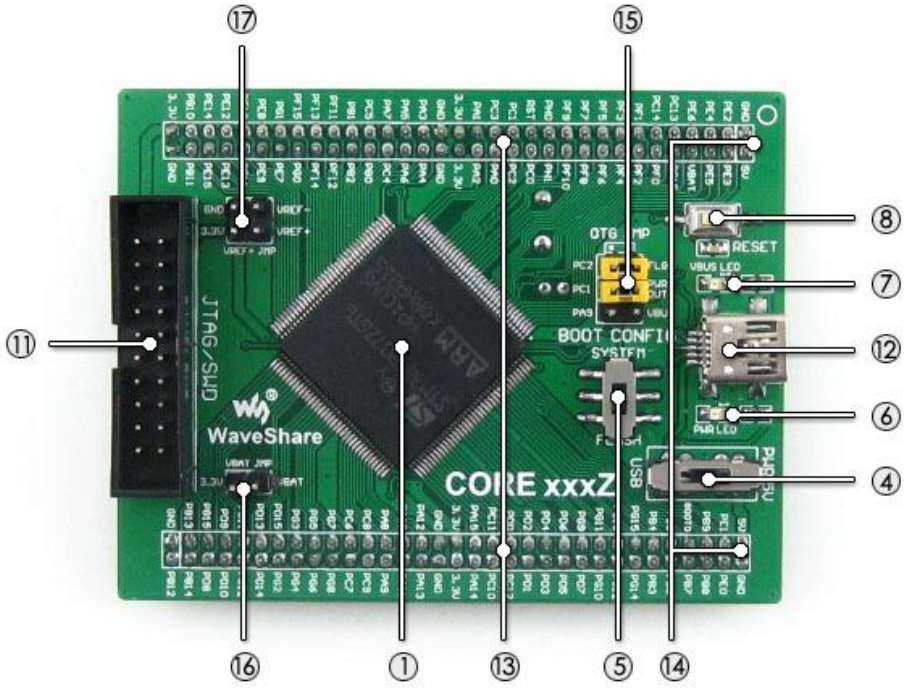
Overview

Core407Z is a small STM32 development board that features an **STM32F407ZxT6** device as the microcontroller, supports further expansion. It is ideal for starting application development with STM32F family.

As a minimal ready-to-run system, the Core407Z integrates USB communication interface, JTAG/SWD programming/debugging interface, clock circuit, USB power management, boot mode selection, and so on.

Furthermore, pin headers on the backside allow the Core407Z to be plugged-in your application board and act as the MCU core circuit in your system. All the **I/O ports** are accessible on the pin headers, and the header pitch is designed as **2.00mm**.

What's On Board



1. STM32F407ZxT6 (STM32F407ZET6 by default):the high performance STM32 MCU which features:
    - **Core:** Cortex-M4 32-bit RISC
    - **Feature:** a full set of single-cycle DSP instructions
    - **Operating Frequency:** 168MHz, 210 DMIPS/1.25 DMIPS/MHz
    - **Operating Voltage:** 1.8V-3.6V
    - **Package:** LQFP144
    - **Memories:** 512kB/1024kB Flash, 192+4kB SRAM
    - **MCU communication Interfaces:**
        - 3 x SPI, 4 x USART, 2 x UART, 2 x I2S, 3 x I2C
        - 1 x FSMC, 1 x SDIO, 2 x CAN
        - 1 x USB 2.0 high-speed/full-speed device/host/OTG controller with dedicated DMA, ULPI and on-chip full-speed PHY
        - 1 x 10/100 Ethernet MAC
        - 1 x 8 to 14-bit parallel camera interface
    - **AD & DA converters:** 3 x AD (12-bit, 1μs, shares 24 channels); 2 x DA (12-bit)
    - **Debugging/Programming:** supports JTAG/SWD (serial wire debug) interfaces, supports IAP
2. AMS1117-3.3 (on bottom side): 3.3V voltage regulator
3. MIC2075 (on bottom side): onboard USB power management device
4. Power supply switch, powered from 5Vin or USB connection
5. Boot mode switch, for configuring BOOT0 pin
6. Power indicator
7. VBUS LED
8. Reset button

9. 8M crystal oscillator (on bottom side)
10. 32.768K crystal (on bottom side), for internal RTC with calibration
11. JTAG/SWD interface: for debugging/programming
12. USB interface
    - as DEVICE, used for establishing USB communication between PC and the STM32 development board
    - as HOST, connecting to USB devices such as USB flash drive through a USB OTG cable
13. MCU pins expander, VCC, GND and all the I/O ports are accessible on expansion connectors for further expansion
14. 5Vin pinheader, 5V power supply is required when using USB HOST/OTG
15. USB HOST/OTG jumper
    - short the jumper when using USB HOST/OTG
    - open the jumper to disconnect from I/O port
16. VBAT selection jumper
    - short the jumper to use system power supply
    - open the jumper to connect the VBAT to external power, such as battery
17. VREF selection jumper
    - short the jumper to connect VREF+ to VCC
    - open the jumper to connect VREF+ to other custom pin via jumper wire

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Photos

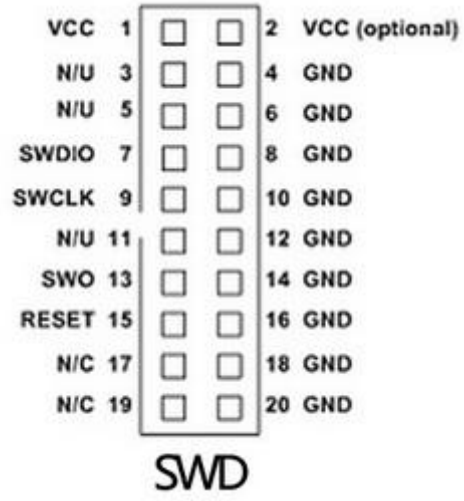
Note:
Core407Z provides JTAG/SWD debugging interface, yet does NOT integrate any debugging function, a debugger is required.
Mother board and programmer/debugger in the photos are NOT included in the price.

JTAG/SWD Interfaces

The figure 1, figure 2 shows the header pinout of JTAG, SWD interface respectively

Figure 1. JTAG Header Pinout

Figure 2. SWD Header Pinout

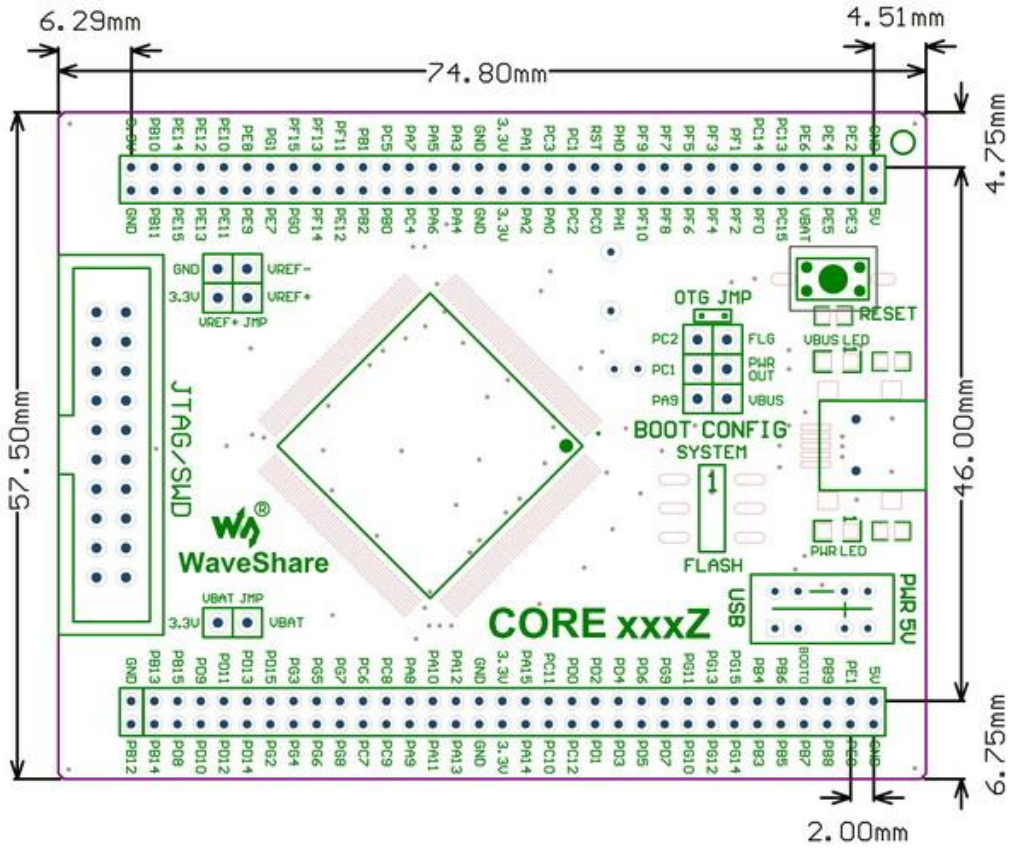


Development Resources

- Related software (KEIL etc.)
- Examples in C
- Schematic (PDF)
- Development documentations

Wiki: www.waveshare.com/wiki/Core407Z

Dimensions


6.29mm
74.80mm
4.51mm
4.75mm
57.50mm
46.00mm
6.75mm
2.00mm
JTAG/SWD
WaveShare
CORE xxxZ
OTG JMP
RESET
VBUS LED
BOOT CONFIG
SYSTEM
FLASH
PWR LED
USB
PWR 5V
VREF+ JMP
VBAT JMP