

ST50H SDK Guide

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Document History

Date	Revised Contents	Revised By	Version
2020/12/16	Initial Version	Ken	A

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1 Block Diagram

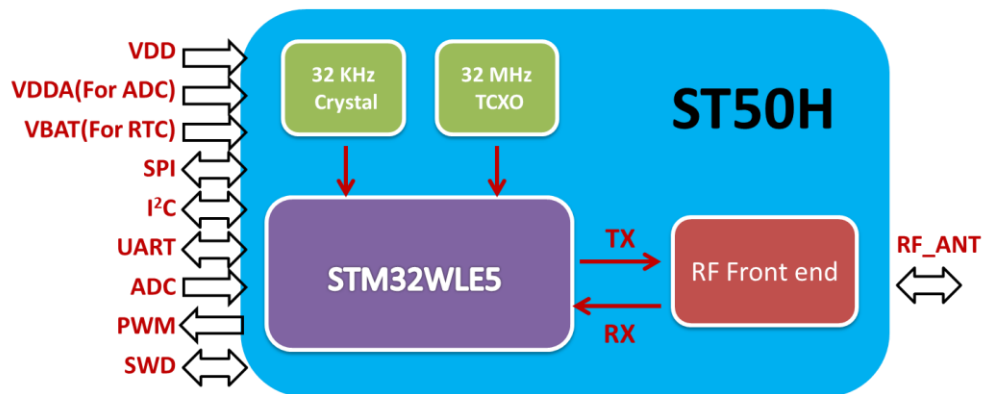


Figure 1 ST50H Block Diagram

High performance ARM[®]-Cortex[®] M4 32bit RISC operating up to 48 MHz Frequency
ST50H is based on STM32WLE5 single core Embedded 64 KB SRAM, 256 KB Flash

1.1 Power

User can refer to SPEC and Application Note for detail usage and design schemes.

For common using, this module requires a VDD operation voltage supply from **1.8V** to **3.6V**.

1.2 Frequency Range

This module supports frequency range from **863 MHz** to **930 MHz** and it has included most high band LPWAN application.

1.3 Specification

Please check “ST50H_SPEC” for detail and make sure antenna is suitable for frequency range.

2 SDK Information

2.1 Version

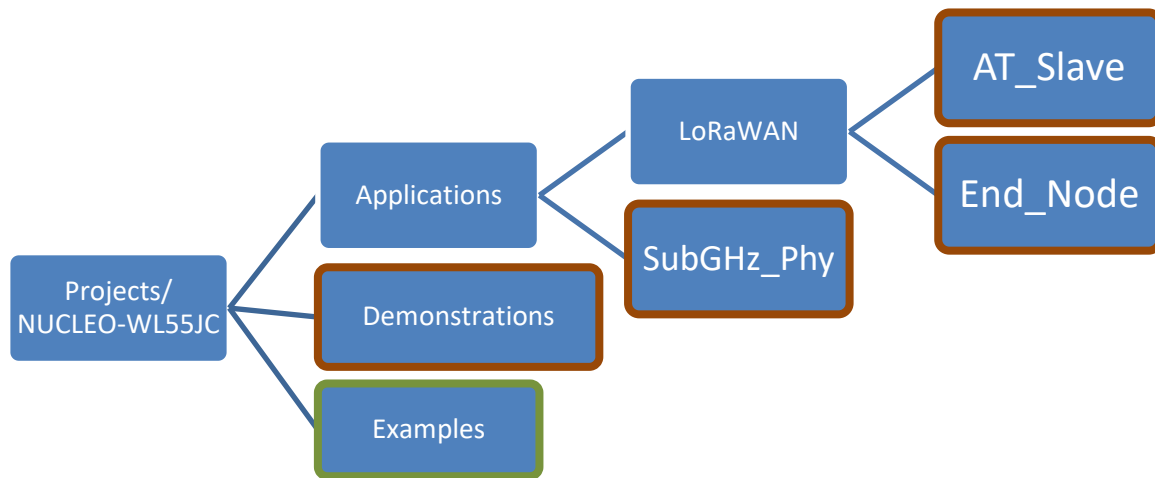
SDK named as “AcSiP_ST50H_STM32Cube_FW_WL_V0.7.2.7z”.

Please check AcSiP sales for latest release.

2.2 SDK Layout

Developer can find part folder structure link below.

There are LoRa/LoRaWAN and peripherals relevant examples.



➤ LoRa(SnbGHz_Phy)/LoRaWAN

	Protocol	
AT_Slave	LoRaWAN	LoRaWAN Application With AT Command Sets
End_Node	LoRaWAN	LoRaWAN Application
SubGHz_Phy	None(LoRa)	LoRa Ping pong application (1 on 1)
Demonstration	LoRa Proprietary	LoRa Proprietary application

➤ MCU peripherals

Under “SDK\Projects\NUCLEO-WL55JC\Example” folder path.

2.3 Project & IDE

Selecting your project then you can find three kinds of IDE for this project developing and managing.

- **EWARM**
- **MDK-ARM** (default in support event)
- **STM32CubeIDE**

3 SDK Guide

3.1 Developing Environment Setup

Install BSP package under folder path “SDK/Utilities/PC_Software” to deploy platform related driver for your Keil/IAR IDE.

3.2 Applications Development

Open the first example with your IDE.

There are LoRa related applications as development templates.

- 1). LoRaWAN/AT_Slave
- 2). LoRaWAN/End_Node
- 3). LoRaWAN/PingPong

Developers can choose one of them to develop their own application and controlled through those peripheral interfaces (ADC/FLASH/GPIO/I2C/SPI/TIM/UART...)

3.3 Platform (STM32WLE5 series)

Open and run those peripheral examples of STM32WLE5 platform.

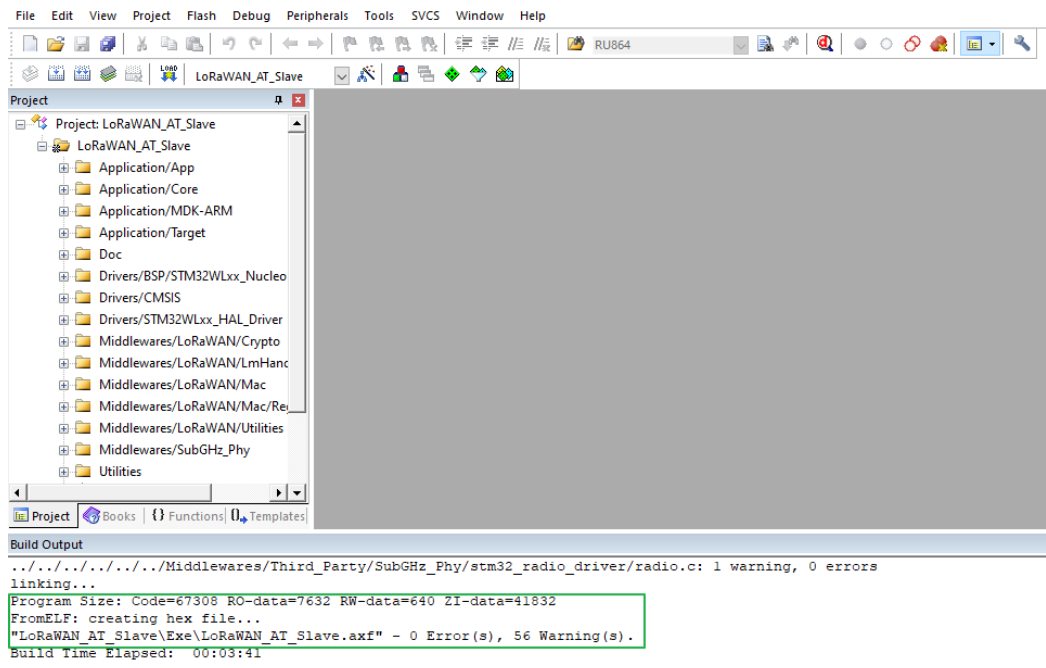
If there any trouble about this domain, user can capture error log for issue clarify.

3.4 Build and Program ST50H

- Open Project

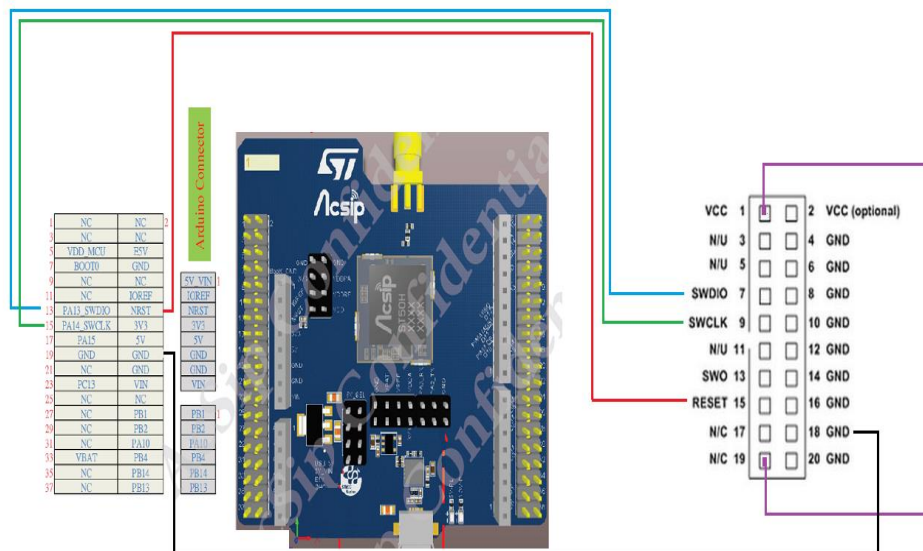
For example (under Keil IDE) double click “SDK\Projects\NUCLEO-WL55JC\Applications\LoRaWAN\LoRaWAN_AT_Slave\MDK-ARM\LoRaWAN_AT_Slave.uvprojx”

Use “Project / Build” to compile application.



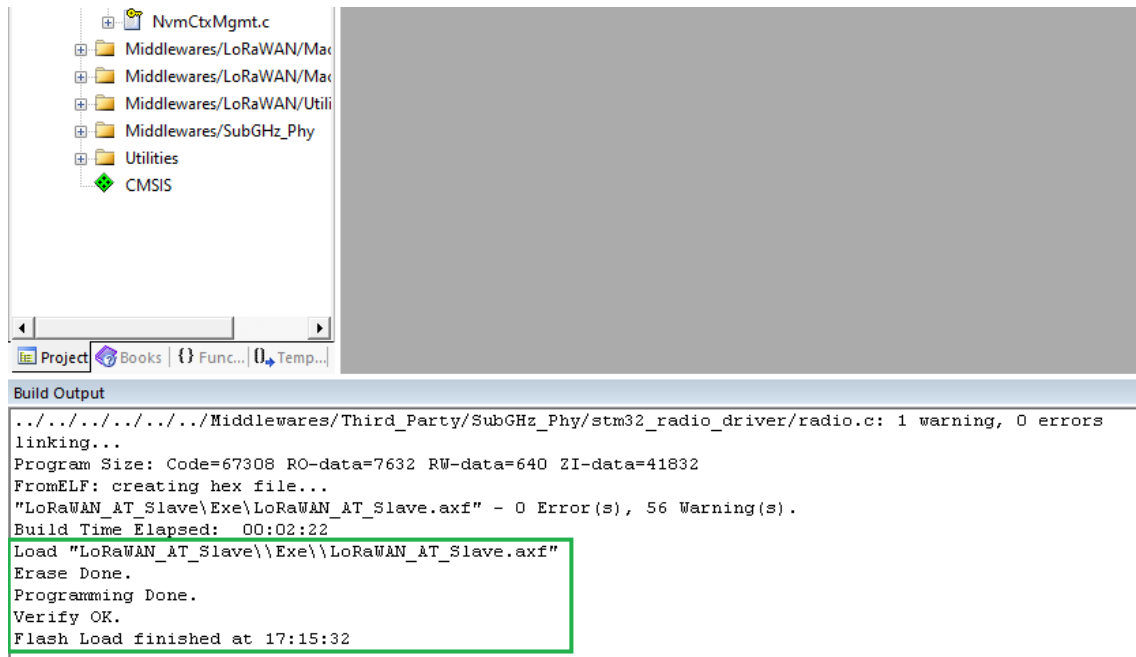
- Connect ST50H with STLink/V2

Connect STLink/V2 with SWDIO, SWCLK, NRST and GND, and Connect USB cable to PC.



- Download firmware

Use "Flash / Download" to transfer firmware to ST50H.



4 Verify & Test

Developer can use ST-Link to download firmware built from SDK or released from AcSiP to check boot successfully according to message shown from COM port. For more detail about AcSiP firmware, please reference “ST50H Commands Set Reference_v0.7.2”.

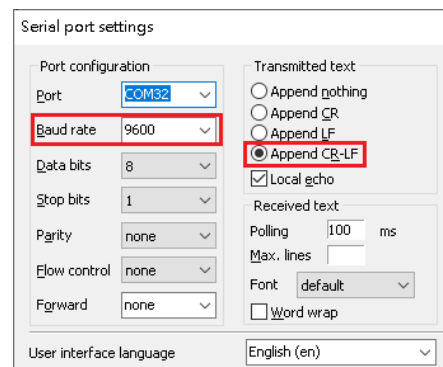
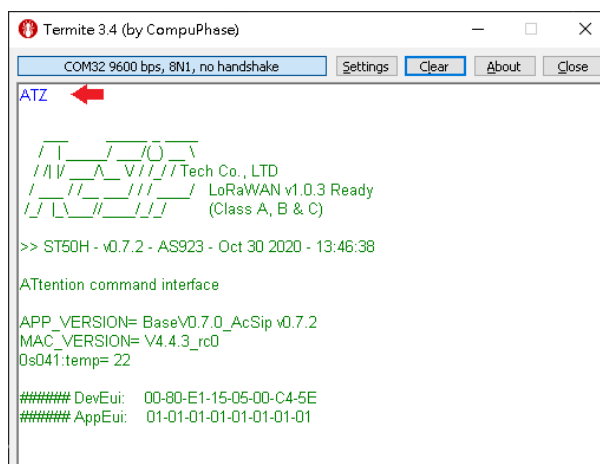


Users can use their own product or AcSiP evaluation board (see below) to test what SDK built while developing ST50H platform use case application.



EK-ST50H evaluation board

Using console tool (e.g. TeraTerm) to monitor message from COM port, please check your terminal setting and issue “ATZ” for software reset and shows Boot message.



5 Resource

User can check those items listed on below table for their development reference

Item	Category or file name	Purpose
1	ST50H_SPEC	Specification
2	ST50H_ApplicationNote	Reference design
3	EK-ST50H_UserGuide	EVK schematic
4	ST50H Commands Set Reference	AT Command Sets
5	ST50H_SDK_Readme_vX.X.X	SDK Readme (important !)
6	UM2643 STM32Cube MCU Package	SDK Package Example
7	UM2642 STM32WL HAL and LL drivers	HAL and LL description
8	RM0461 STM32WLE5 reference manual	Chipset reference manual
9	DS13105 STM32WLE5 Datasheet	Chipset datasheet
10	PM0214 STM32 Cortex M4 MCU Programming manual	Programming manual