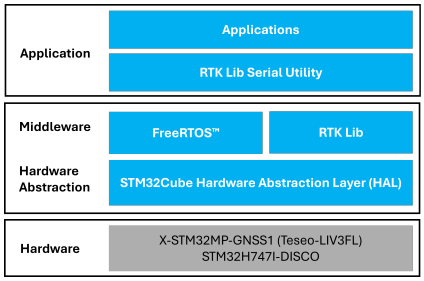
STSW-GNSS-RTKLIB

Data brief

Implementing and porting RTK Lib on STM32 microcontroller



Features

- RTK Lib on STM32 platform
- Based on high-performance STM32H7 MCU STM32H747I-DISCO
- X-STM32MP-GNSS1 expansion board with Teseo-LIV3FL GNSS module
- Multi-band GNSS antenna for improved reception
- On board SDRAM for memory management during processing
- User application to control and configure the RTK Lib settings and data acquisition
- Configured in rover mode configuration for testing
- Potential for applications that require accurate GNSS/GPS information

Product summary	
Implementing and porting RTK Lib on STM32 microcontroller	STSW-GNSS-RTKLIB
Discovery kit with STM32H747XI MCU	STM32H747I-DISCO
GNSS and inertial sensors expansion board for STM32 MPU	X-STM32MP-GNSS1
Tiny GNSS low power module	Teseo-LIV3FL
Applications	GNSS/GPS RTK Lib on STM32 platform Positioning data from RTK Library in Rover mode

Description

The STSW-GNSS-RTKLIB software platform facilitates the implementation and porting of the real-time kinematics (RTK) library on the STM32 platform, enhancing positioning accuracy and error correction in GNSS/GPS systems.

The current implementation employs the RTK library in rover mode configuration, capturing GNSS data in standalone mode.

The hardware platform is built around the STM32H747I-DISCO board, which features 2 MB of flash memory, 1 MB of RAM, and 256 Mbit of SDRAM.

The availability of external RAM is crucial in this implementation to store the RTK library messages radio technical commission for maritime services (RTCM) received from satellites.

Positioning data is gathered using the X-STM32MP-GNSS1 expansion board, which incorporates the Teseo-LIV3FL module for low-power, multiconstellation GNSS positioning.

A user application accessible via a serial interface allows various configuration and display options for the RTK library.

This application operates under a default RTOS using FreeRTOS™. The rtkserver can be managed with commands such as "start" and "stop," and it provides detailed information on: the current status, the number of available satellites, positioning data, RTCM messages, SNR ratio, and more.

Revision history

Table 1. **Document revision history**

Date	Revision	Changes
03-Jun-2025	1	Initial release.