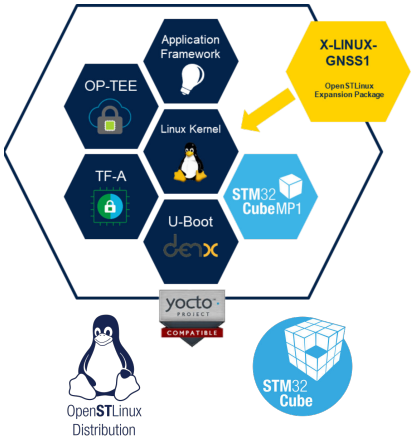
X-LINUX-GNSS1

Data brief

STM32 MPU OpenSTLinux software expansion package for GNSS-based applications



Features

- Standalone applications to read the NMEA data over UART and I²C
- Complete software to build GNSS applications on OpenSTLinux for X-STM32MP-GNSS1 and X-STM32MP-GNSS2 boards.
- Yocto recipe for enabling GNSS, IMU and enviromental sensors support
- Support for real time kinematics (RTK) library application and its corresponding QT based application
- Support for extended kalman filter (EKF) application to fuse IMU and GNSS Data
- Easy portability across different Linux platforms
- Application example to retrieve and parse GNSS data and send them to DSH-ASSETRACKING for live tracking
- Python example to read the NMEA data over UART

Product summary	
STM32 MPU OpenSTLinux software expansion package for GNSS-based applications	X-LINUX-GNSS1
Tiny GNSS low power module	Teseo-LIV3FL
Tiny GNSS dual-bands low power module	Teseo-LIV4F
Discovery kit with STM32MP157F MPU	STM32MP157F-DK2
Evaluation board with STM32MP257F MPU	STM32MP257F-EV1
Cloud Amazon-based web application for asset tracking	DSH-ASSETRACKING
GNSS and inertial sensors expansion board for STM32 MPU	X-STM32MP-GNSS1/X-STM32MP-GNSS2
Applications	Asset Tracking Smart City/Smart Farming

Description

X-LINUX-GNSS1 is an STM32 MPU OpenSTLinux software expansion package that runs on the Arm Cortex®-A-based core of the STM32MP Series microprocessor to demonstrate GNSS-based applications.

X-LINUX-GNSS1 includes OpenSTLinux software package, which contains user space application, Yocto recipe and device tree for developing GNSS application for X-STM32MP-GNSS1 board based on Teseo-LIV3FL Tiny GNSS low power module and X-STM32MP-GNSS2 board based on Teseo-LIV4F Tiny GNSS low power module.

It contains example application for the NMEA protocol support and POSIX thread for task scheduling to ensure better asynchronous message parsing.

The software package also contains the Yocto recipes for the GNSS, GNSS, and RTCM3 based real time kinematics library application.

The software package also contains the Yocto recipes for the EKF Application which fuses and records GNSS NMEA and IMU Sensors data. This recorded data can be visualized using Python scripts provided in the package.

The source code can be ported to any Linux platform.

1 License information

X-LINUX-GNSS1 is delivered under the Mix ODE+OSS+3rd-party software license agreement (SLA0095).

1.1 Software component license agreements

The software components provided in this package come with different license schemes. Refer to wiki.st.com/stm32mpu/wiki/OpenSTLinux_licenses for details.

Revision history

Table 1. **Document revision history**

Date	Revision	Changes
23-Jul-2021	1	Initial release.
24-Nov-2022	2	Added references to Teseo-VIC3DA and X-NUCLEO-GNSS2A1.
21-Nov-2023	3	Updated features, description and product summary in cover page.
18-Dec-2023	4	Added references to Teseo-LIV4FL and X-STM32MP-GNSS2. Updated Features, Description and Product summary.
18-Apr-2024	5	Updated Section Features and Section Description.
23-Oct-2024	6	Updated Section Description and product summary table in cover page.

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