



Linux® RT Expansion Package for STM32 MPU OpenSTLinux



DT72020v1

Product status link

[X-LINUX-RT](#)



Features

- OpenSTLinux real-time extension for the [STM32MP1 series](#) and [STM32MP2 series](#) microprocessors
- Compatible with the Yocto Project® build system
- Dynamic voltage and frequency scaling feature (DVFS) deactivated
- Delivered in industrial operating performance point (OPP) configuration:
 - 900 MHz for the STM32MP13xx microprocessors
 - 650 MHz for the STM32MP15xx microprocessors
 - 1.2 GHz for the STM32MP25xx microprocessors

Description

X-LINUX-RT is an STM32 MPU OpenSTLinux Expansion Package that targets the activation of Linux® Real Time for the STM32MP1 series and STM32MP2 series microprocessors. It enables the PREEMPT-RT patch set aiming at making preemptible all the code running in the kernel mode. This allows reaching the determinism level needed for factory automation in key components such as programmable logic controllers (PLCs).

This is achieved through a specific configuration:

- In-kernel locking-primitives (using spinlocks) are made preemptible.
- The critical sections, protected for instance by `spinlock_t` and `rwlock_t`, are made preemptible.
- Priority inheritance for in-kernel spinlocks and semaphores is implemented.
- Interrupt handlers are converted into preemptible kernel threads.

1 General information

The X-LINUX-RT Expansion Package runs on STM32 microprocessors based on Arm® Cortex® processors.

Note: Arm is a registered trademark of Arm Limited (or its subsidiaries) in the US and/or elsewhere.



1.1 Ordering information

X-LINUX-RT is available for free download from the www.st.com website.

1.2 License

X-LINUX-RT is delivered under the *Mix Ultimate Liberty+OSS+3rd-party V1* software license agreement (SLA0048).

Software component license agreements

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

Revision history

Table 1. Document revision history

Date	Revision	Changes
07-Mar-2023	1	Initial release.
02-Dec-2024	2	Extended to STM32MP2 series microprocessors: updated Features and Description .

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