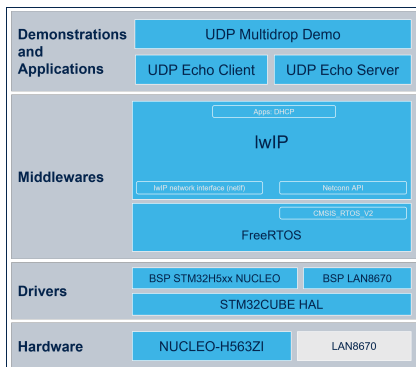




10BASE-T1S software expansion for STM32Cube



Features

- 10BASE-T1S single-pair-Ethernet technology enabler
- Compatible with 10BASE-T1S Ethernet PHY transceivers via standard reduced media-independent interface (RMII)
- Supported MCU: STM32H563ZI
- Point-to-point and common mixing segment with PLCA activation
- IP-based examples bringing the Ethernet up to the field with support for UDP client-server echo messaging and data exchange applications
- FreeRTOS, lwIP TCP/IP network stack

Description

X-CUBE-T1S is a software expansion package enabling 10BASE-T1S single-pair Ethernet technology on STM32 microcontrollers. This connectivity allows standard Ethernet communication to be deployed into the sensors and actuators using a single unshielded twisted pair. This setup reduces application costs by cutting down on cables and eliminating gateways.

X-CUBE-T1S provides a comprehensive set of TCP/IP-based examples, with a focus on UDP client-server echo messaging and data exchange, supporting both point-to-point and multidrop topologies with PLCA enabled.

X-CUBE-T1S fully complies with the 10BASE-T1S technology that IEEE defines in 802.3-2022 with a data rate of 10 Mbps in half-duplex mode. This technology works on a multidrop bus.

X-CUBE-T1S manages the optional physical layer collision avoidance (PLCA) which supports cyclic transmissions without collisions and provides deterministic transmission delays.

Ethernet 10BASE-T1S is suitable for both industrial and automotive scenarios.

Product summary	
10BASE-T1S software expansion for STM32Cube	X-CUBE-T1S
STM32 Nucleo-144 development board with STM32H563ZI MCU, supports Arduino, ST Zio and morpho connectivity	NUCLEO-H563ZI
Applications	Factory automation Home, building, and city automation Automotive

Revision history

Table 1. Document revision history

Date	Revision	Changes
14-Jul-2026	1	Initial release.

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