



STM internal peripheral



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# STM internal peripheral

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## 1 Article purpose

The purpose of this article is to:

- briefly introduce the STM peripheral and its main features
- indicate the level of security supported by this hardware block
- explain how each instance can be allocated to the three runtime contexts and linked to the corresponding software components
- explain, when necessary, how to configure the STM peripheral.

## 2 Peripheral overview

The **STM** peripheral is used to log STM trace into the embedded trace FIFO (ETF). This trace can include hardware events (the list is given in the *STM32MP15 reference manuals*) or direct 'printf like' log from the Cortex<sup>®</sup>-A7. Once in the ETF buffer, the trace can directly be dumped from the Cortex<sup>®</sup>-A7 or to the trace port interface unit (TPIU), connected to an external probe able to decode it.

### 2.1 Features

Refer to the *STM32MP15 reference manuals* for the complete list of features, and to the software components, introduced below, to see which features are really implemented.



## 2.2 Security support

The STM is a **non secure** peripheral.

## 3 Peripheral usage and associated software

### 3.1 Boot time

The STM is not used at boot time.

### 3.2 Runtime

#### 3.2.1 Overview

The STM can be assigned to the Cortex<sup>®</sup>-A7 non-secure for using in Linux with **coresight** framework. This driver allows to select the hardware events (listed in the *STM32MP15 reference manuals*) to log via the STM peripheral into the ETF and dump it in the Linux console for analysis.

#### 3.2.2 Software frameworks

Do	Peri	Software frameworks			Comment
mai Cor tex -A7 sec ure (O P- TE E)	Cor tex -A7 no n- sec ure (Li nux )	Cortex-M4  (STM32Cube)			
Tr ac e & De bu g	ST M		Linux Coresight framework		

### 3.2.3 Peripheral configuration

The configuration is applied by the firmware running in the context to which the peripheral is assigned. The configuration can be done alone via the [STM32CubeMX](#) tool for all internal peripherals, and then manually completed (particularly for external peripherals), according to the information given in the corresponding software framework article.

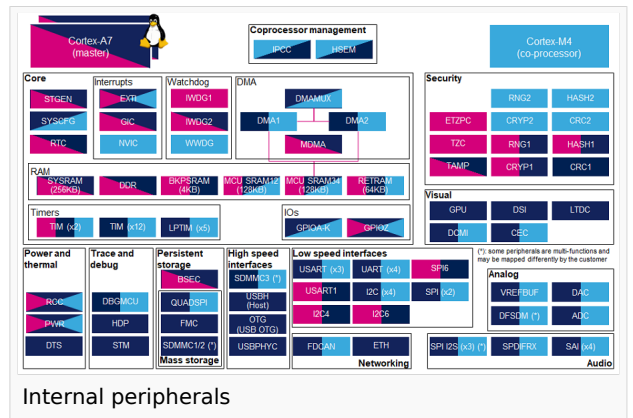
### 3.2.4 Peripheral assignment

**Check boxes** illustrate the possible peripheral allocations supported by [STM32 MPU Embedded Software](#):

- means that the peripheral can be assigned ( ) to the given runtime context.
- is used for system peripherals that cannot be unchecked because they are statically connected in the device.

Refer to [How to assign an internal peripheral to a runtime context](#) for more information on how to assign peripherals manually or via [STM32CubeMX](#).

The present chapter describes STMicroelectronics recommendations or choice of implementation. Additional possibilities might be described in [STM32MP15 reference manuals](#).



Do	Per	Runtime allocation			Comme
ma	in	Cortex-A7 non-secure (Linux)	Cortex-M4 (STM32Cube)		nt
In	sta				
ra	nce				
ce					
	S				



Do ma in e b u g	Per iph era l	Runtime allocation				Comme nt
		STM				

## 4 References

System Trace Module

Open Portable Trusted Execution Environment

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