

STM_System_Time_1 for KIT_AURIX_TC297_TFT

System time via STM

AURIX™ TC2xx Microcontroller Training
V1.0.2



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Scope of work

The STM module is used to get the current system time (days:hours:minutes:seconds). The time is stored in a structure.

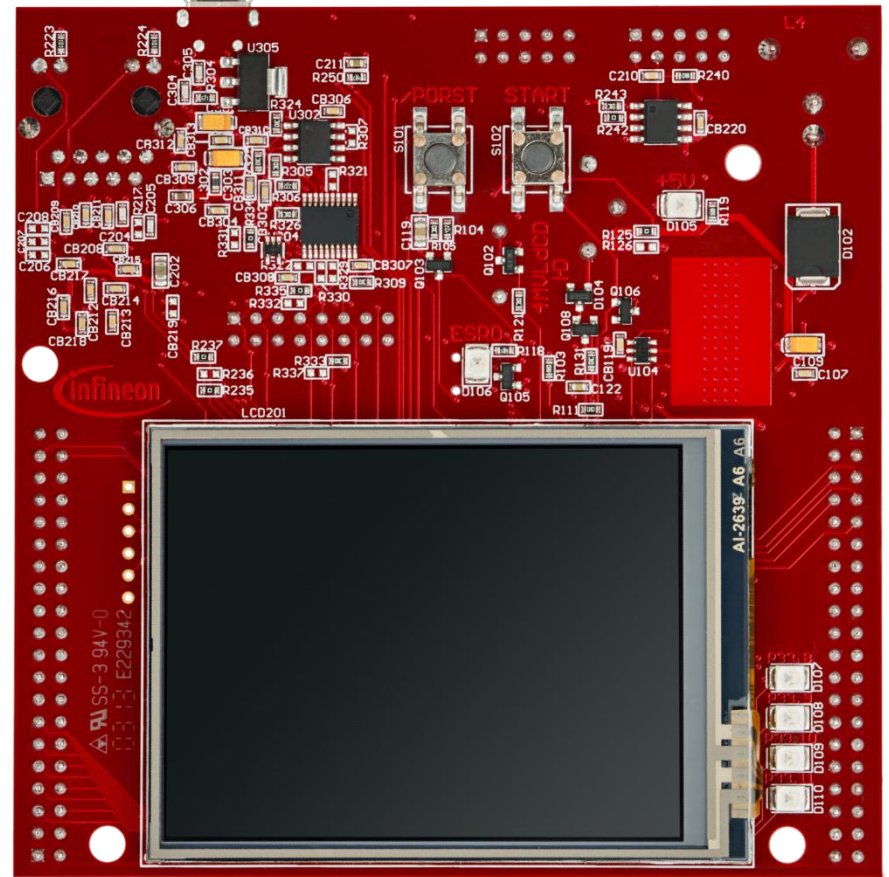
The System Timer (STM) module counts the number of ticks since the last Application Reset. This number is used to calculate the current system time in day, hours, minutes and seconds.

Introduction

- › The System Timer (STM) is a free running 64-bit counter that can be used for timing applications requiring both high precision and long period.
- › Among other features, the STM starts a counter automatically after any Application Reset (Application Reset is encapsulated in the System Reset and Power-On Reset)
- › This counter is used in this example to get the time since the application is running.

Hardware setup

This code example has been developed for the board
KIT_AURIX_TC297_TFT_BC-Step.



Implementation

Get the system time

Getting the system time is done inside the function ***getTime()*** by the following steps:

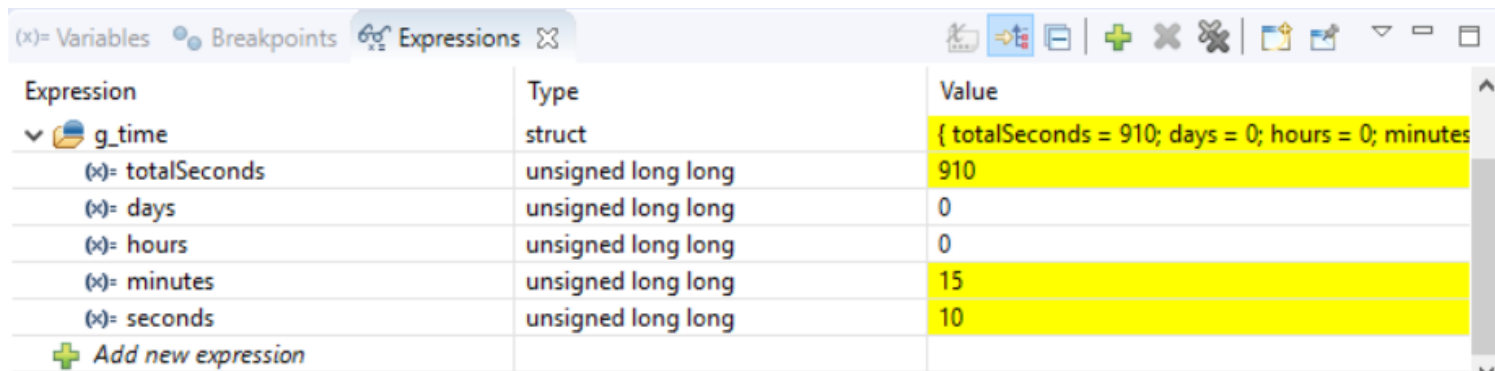
- › Get the system time in ticks by calling the iLLD function ***lfxStm_get()*** and divide it by the STM frequency (use the iLLD function ***lfxStm_getFrequency()*** to get the frequency) to convert it to seconds
- › Calculate the numbers of days, hours, minutes and seconds and store them in an instance of the ***systemTime*** structure

The functions ***lfxStm_getFrequency()*** and ***lfxStm_get()*** can be found in the iLLD header ***lfxStm.h***.

Run and Test

After code compilation and flashing the device, perform the following steps:

- › Add the system time (***g_time***) to the Watch View of the debugger
- › Check the time since the last reset by pausing the debugger and checking the values stored in the instance ***g_time*** displayed in the Watch View:
 - total
 - days
 - hours
 - minutes
 - seconds



Expression	Type	Value
g_time	struct	{ totalSeconds = 910; days = 0; hours = 0; minutes
(x)= totalSeconds	unsigned long long	910
(x)= days	unsigned long long	0
(x)= hours	unsigned long long	0
(x)= minutes	unsigned long long	15
(x)= seconds	unsigned long long	10
+ Add new expression		

References



- › AURIX™ Development Studio is available online:
- › <https://www.infineon.com/aurixdevelopmentstudio>
- › Use the „*Import...*“ function to get access to more code examples.



- › More code examples can be found on the GIT repository:
- › https://github.com/Infineon/AURIX_code_examples



- › For additional trainings, visit our webpage:
- › <https://www.infineon.com/aurix-expert-training>



- › For questions and support, use the AURIX™ Forum:
- › <https://www.infineonforums.com/forums/13-Aurix-Forum>

Revision history

Revision	Description of change
V1.0.2	Improved introduction and run and test slides
V1.0.1	Update of version to be in line with the code example's version
V1.0.0	Initial version

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