

STM_System_Time_1 for KIT_AURIX_TC375_LK

System time via STM

AURIX™ TC3xx Microcontroller Training
V1.0.0



[Please read the Important Notice and Warnings at the end of this document](#)

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.

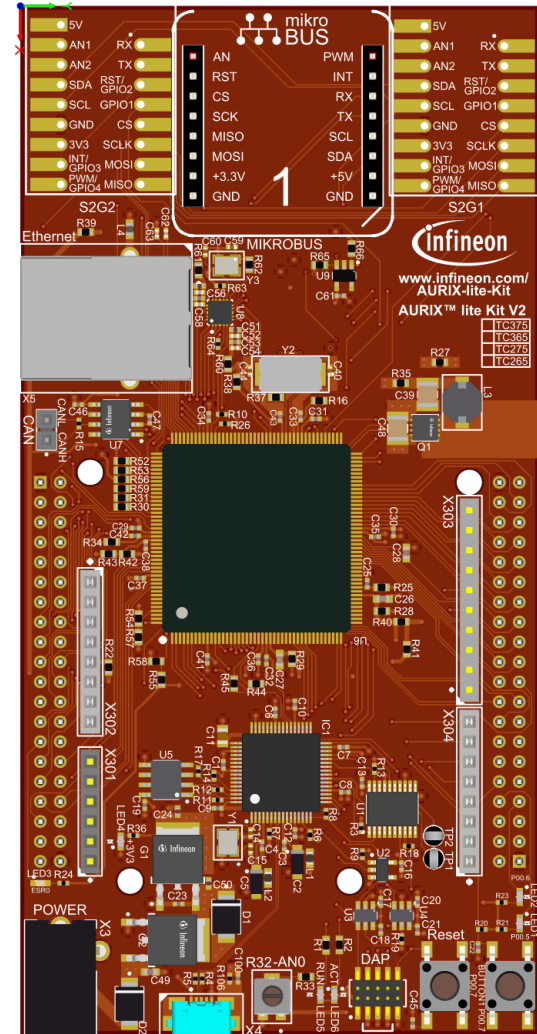
The System Timer (STM) module counts the number of ticks since the last Application Reset. This number is used to calculate the current system time in days, hours, minutes and seconds.

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_A2G_TC375_LITE.



Implementation

Get the system time

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

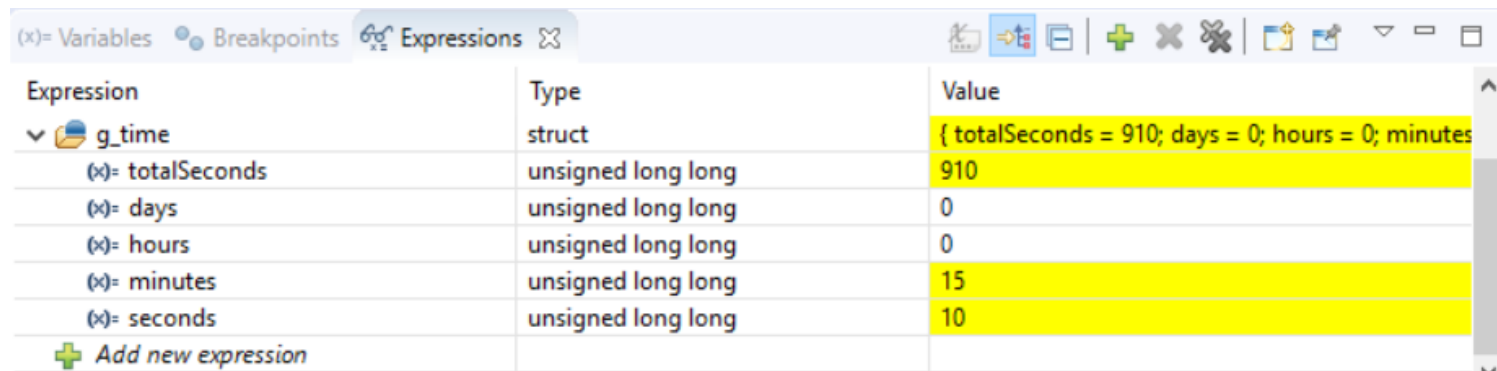
- › Get the system time in ticks by calling the iLLD function ***lfxStm_get()*** and divide it by the STM frequency (use the iLLD function ***lfxStm_getFrequency()*** to get the frequency) to convert it to seconds
- › Calculate the numbers of days, hours, minutes and seconds and store them in an instance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

Trademarks

All referenced product or service names and trademarks are the property of their respective owners.

Edition 2021-03

Published by

Infineon Technologies AG

81726 Munich, Germany

© 2021 Infineon Technologies AG.

All Rights Reserved.

Do you have a question about this document?

Email: erratum@infineon.com

Document reference

STM_System_Time_1_KIT_TC375_LK

IMPORTANT NOTICE

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics (“Beschaffenheitsgarantie”).

With respect to any examples, hints or any typical values stated herein and/or any information regarding the application of the product, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party.

In addition, any information given in this document is subject to customer’s compliance with its obligations stated in this document and any applicable legal requirements, norms and standards concerning customer’s products and any use of the product of Infineon Technologies in customer’s applications.

The data contained in this document is exclusively intended for technically trained staff. It is the responsibility of customer’s technical departments to evaluate the suitability of the product for the intended application and the completeness of the product information given in this document with respect to such application.

For further information on the product, technology, delivery terms and conditions and prices please contact your nearest Infineon Technologies office (www.infineon.com).

WARNINGS

Due to technical requirements products may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies office.

Except as otherwise explicitly approved by Infineon Technologies in a written document signed by authorized representatives of Infineon Technologies, Infineon Technologies’ products may not be used in any applications where a failure of the product or any consequences of the use thereof can reasonably be expected to result in personal injury.