User Manual

for S32K3 GPT Driver

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Chapter 1

Revision History

Revision	Date	Author	Description
1.0	31.03.2023	NXP RTD Team	S32K3 Real-Time Drivers AUTOSAR 4.4 & R21-11 Version 3.0.0

Chapter 2

Introduction

This User Manual describes NXP Semiconductor AUTOSAR GPT for S32K3. AUTOSAR GPT driver configuration parameters and deviations from the specification are described in GPT Driver chapter of this document. AUTOSAR GPT driver requirements and APIs are described in the AUTOSAR GPT driver software specification document.

2.1 Supported Derivatives

The software described in this document is intended to be used with the following microcontroller devices of NXP Semiconductors:

- s32k310_mqfp100
- s32k310_lqfp48
- s32k311_mqfp100 / MWCT2015S_mqfp100
- s32k311_lqfp48
- s32k312_mqfp100 / MWCT2016S_mqfp100
- s32k312_mqfp172 / MWCT2016S_mqfp172
- s32k314_mqfp172
- s32k314_mapbga257
- s32k322_mqfp100 / MWCT2D16S_mqfp100
- s32k322_mqfp172 / MWCT2D16S_mqfp172

- s32k324_mqfp172 / MWCT2D17S_mqfp172
- s32k324_mapbga257
- s32k341_mqfp100
- s32k341_mqfp172
- s32k342_mqfp100
- s32k342_mqfp172
- s32k344_mqfp172
- s32k344_mapbga257
- s32k394_mapbga289
- s32k396_mapbga289
- s32k358_mqfp172
- s32k358_mapbga289
- s32k328_mqfp172
- s32k328_mapbga289
- s32k338_mqfp172
- s32k338_mapbga289
- s32k348_mqfp172
- s32k348_mapbga289
- s32m274_lqfp64
- s32m276_lqfp64

All of the above microcontroller devices are collectively named as S32K3.

Note: MWCT part numbers contain NXP confidential IP for Qi Wireless Power.

2.2 Overview

AUTOSAR (AUTomotive Open System ARchitecture) is an industry partnership working to establish standards for software interfaces and software modules for automobile electronic control systems.

AUTOSAR:

- paves the way for innovative electronic systems that further improve performance, safety and environmental friendliness.
- is a strong global partnership that creates one common standard: "Cooperate on standards, compete on implementation".
- is a key enabling technology to manage the growing electrics/electronics complexity. It aims to be prepared for the upcoming technologies and to improve cost-efficiency without making any compromise with respect to quality.
- facilitates the exchange and update of software and hardware over the service life of the vehicle.

2.3 About This Manual

This Technical Reference employs the following typographical conventions:

- **Boldface** style: Used for important terms, notes and warnings.
- *Italic* style: Used for code snippets in the text. Note that C language modifiers such "const" or "volatile" are sometimes omitted to improve readability of the presented code.

Notes and warnings are shown as below:

Note

This is a note.

Warning

This is a warning

2.4 Acronyms and Definitions

Term	Definition
API	Application Programming Interface
ASM	Assembler
BSMI	Basic Software Make file Interface
GPT	General Purpose Timer
C/CPP	C and C++ Source Code
CS	Chip Select
CTU	Cross Trigger Unit
DEM	Diagnostic Event Manager
DET	Development Error Tracer
DMA	Direct Memory Access
ECU	Electronic Control Unit
FIFO	First In First Out
LSB	Least Significant Bit
MCU	Micro Controller Unit
MIDE	Multi Integrated Development Environment
MSB	Most Significant Bit
N/A	Not Applicable
RAM	Random Access Memory
SIU	Systems Integration Unit
SWS	Software Specification
VLE	Variable Length Encoding
XML	Extensible Markup Language

2.5 Reference List

#	Title	Version
1	Specification of GPT Driver	AUTOSAR Release R21-11
2	Specification of Communication Stack Types	AUTOSAR Release R21-11
3	Specification of Compiler Abstraction	AUTOSAR Release R21-11
4	Specification of Platform Types	AUTOSAR Release R21-11
5	Specification of Standard Types	AUTOSAR Release R21-11
6	S32K3xx Reference Manual	Rev.6, Draft B, 01/2023
7	S32K39 and S32K37 Reference Manual	Rev. 2 Draft A, 11/2022
8	S32M27x Reference Manual	Rev.2, Draft A, 02/2023
9	S32K3xx Datasheet	Rev. 6, 11/2022
10	S32K396 Datasheet	Rev. 1.1 — 08/2022
11	S32M2xx Datasheet	Rev. 2 RC — 12/2022
11	S32K311 Errata	S32K311_0P98C Mask Set Errata, Rev. 6/March/2023, 3/2023
12	S32K312 Errata	Mask Set Errata for Mask 0P09C, Rev. 25/April/2022

#	Title	Version
13	S32K342 Errata	Mask Set Errata for Mask 0P97C, Rev. 10, 11/2022
14	S32K3x4 Errata	Mask Set Errata for Mask 0P55A/1P55A, Rev. 14/↩ Oct/2022
15	S32K358 Errata	S32K358_0P14E Mask Set Errata – Rev. 28, 9/2022
16	S32K396 Errata	S32K396_0P40E Mask Set Errata, Rev. DEC2022, 12/2022

Chapter 3

Driver

3.1 Requirements

- Requirements for this driver are detailed in the RTD GPT AUTOSAR Release R21-11.
- Driver Software Specification document (See S32K3XX Reference Manual, Rev.6, Draft B, 01/2023 ; S32K396 Reference Manual, Rev. 2 Draft A , 11/2022 and S32M27x Reference Manual, Rev.2, Draft A, 02/2023).

3.2 Driver Design Summary

The RTD driver assures reentrancy (single core execution) for the APIs based on the following assumptions:

- The "called-again" API is for a different resource (hardware/logic channel);
- Common variables/registers accessed with "rmw" are guarded by Exclusive Areas which need to be correctly implemented in RTE on user side;

The GPT Driver implements the following channels on S32K3 peripherals.

The table provides information regarding the Timer channels available for the various derivatives across different packages in S32K3XX family. This table lists only the supported packages by GPT driver.

RTC module features :

- 32-bit counter
- RTC interrupt with interrupt enable.
- Selectable counter clock sources
- Counter runs in all modes of operation.

PIT timer module features :

- Four 32-bit counters per module
- Independent timeout periods for each timer
- Independent interrupt source.

STM timer module features :

- One 32-bit up counter with 8-bit prescaler (1 to 256) per module.
- Four 32-bit compare channels
- Independent interrupt source for each channel.

eMios timer module features :

- Up to 24 channels chosen among Unified or Dedicated Channels, not necessarily numbered in a continuous sequence.

- Data registers of either 8-, 16-, 24-, or 32-bit width. (See Configuration information)
- Counter buses B, C, D, and E can be driven by Unified Channels 0, 8, 16, and 24, respectively. (See Configuration information)
- Counter bus A can be driven by Unified Channel 23.
- Counter bus F can be driven by a specified Unified Channel, defined by the system configuration.
- Two global prescalers
- One prescaler per channel (CP)
- Timebases shared through the counter buses
- State of the Unified Channels can be frozen for debug purposes

3.3 Hardware Resources

#	Hardware IP	Description
1	STM	System Timer Module
2	PIT	Periodic Interrupt Timer
3	RTC	Real Time Clock
4	eMios	Enhanced Modular IO Subsystem

3.4 Deviations from Requirements

The driver deviates from the AUTOSAR GPT Driver software specification in some places.

There are also some additional requirements (on top of requirements detailed in AUTOSAR GPT Driver software specification) which need to be satisfied for correct operation.

Deviations Status Column Description

Term	Definition
N/S	Out of scope
N/I	Not implemented
N/F	Not fully implemented

Below table identifies the AUTOSAR requirements that are not fully implemented, implemented differently, or out of scope for the driver.

Requirement	Status	Description	Notes
SWS_Gpt_00261	N/S	Gpt_Irq.c shall include Gpt.h for the prototype declaration of the notification functions.	Rejection reason: Gpt_Irq.c is not needed. Autosar specific interrupt behaviour is implemented using a normal function placed in the Gpt.c file.
SWS_Gpt_00278	N/S	Module - Header File - Imported Type - EcuM_flex - EcuM.h - EcuM_WakeupSourceType - Std_Types - StandardTypes.h - Std_ReturnType - StandardTypes.h - Std_VersionInfoType -	Rejection reason: No production errors needed for current development.
SWS_Gpt_00381	N/S	These requirements are not applicable to this specification.	Not a requirement
ECUC_Gpt_00235	N/S	Container Name - GptWakeupConfiguration - Description - Function pointer to callback function (for wakeup notification). - Configuration Parameters -	Rejection reason: Wrong Description: Function pointer to callback function (for non-wakeup notification).It shall relate to wakeup configuration.
SWS_Gpt_CONSTR_00001	N/S	DRAFT: The ECUC partitions referenced by GptKernelEcucPartitionRef shall be a subset of the ECUC partitions referenced by GptEcucPartitionRef.()	Type IV Autosar multicore not implemented for current module. AAI-445; Agree that each module can reject the Autosar Standard requirement

Requirement	Status	Description	Notes
ECUC_Gpt_00338	N/S	Name - GptKernelEcuc↩ PartitionRef - Parent Container - GptDriverConfiguration - Description - Maps the GPT kernel to zero or one ECUC partitions to assign the driver kernel to a certain core. The ECUC partition referenced is a subset of the ECUC partitions where the GPT driver is mapped to. Note: The kernel reference shall not be set in case the GPT driver is implemented without a kernel (refer to definition of GptEcucPartitionRef).Tags: atp.Status=draft - Multiplicity - 0..1 - Type - Reference to [EcucPartition] - Post-Build Variant Multiplicity - true - Post-Build Variant Value - true - Multiplicity Configuration Class - Pre-compile time - X - All Variants - Link time - – - - Post-build time - – - - Value Configuration Class - Pre-compile time - X - All Variants - Link time - – - - Post-build time - – - - Scope / Dependency - scope: ECU -	Type IV Autosar multicore not implemented for current module. AAI-445; Agree that each module can reject the Autosar Standard requirement.

3.5 Driver Limitations

The GPT driver software have some following limitations for RTD S32K3

- Does not support PredefTimerFunctionality for eMios

3.6 Driver usage and configuration tips

In this chapter, the extra features from our drivers that are not described in the AutoSAR standard are detailed.

- On function: Emios_Gpt_Ip_StartTimer(instance, channel, compareValue), compareValue parameter value must be less than the maximum value of counter register, With S32K396 (S32K3XX family) counter regiter is on 24bits and that for the rest the counter register is on 16bits.
- Rtc clock source configuration: To select a Rtc clock source, the user needs to use clock tool component. Rtc clock source parameter from RTC LLD driver (or GPT HLD Driver) will be automatically configured with the value from clock tool component. Please refer to the picture:

Figure 3.1 Config inside clock tool component

3.7 Runtime errors

The driver generates the following DEM errors at runtime.

Function	Error Code	Condition triggering the error
Gpt_ValidateChannelStatus()	GPT_E_BUSY	API service called when timer channel is still busy (running)
Gpt_ValidateMode()	GPT_E_MODE	API service called when driver is in wrong mode

3.8 Symbolic Names Disclaimer

All containers having symbolicNameValue set to TRUE in the AUTOSAR schema will generate defines like:

#define <Mip>Conf_<Container_ShortName>_<Container_ID>

For this reason it is forbidden to duplicate the names of such containers across the RTD configurations or to use names that may trigger other compile issues (e.g. match existing `#ifdefs` arguments).

Chapter 4

Tresos Configuration Plug-in

This chapter describes the Tresos configuration plug-in for the driver. All the parameters are described below.

- Module Gpt
  - Container GptChannelConfigSet
    - Container GptChannelConfiguration
      - Parameter GptChannelId
      - Parameter GptHwIp
      - Parameter GptChannelMode
      - Parameter GptChannelTickFrequency
      - Parameter GptChannelTickValueMax
      - Parameter GptEnableWakeup
      - Parameter GptNotification
      - Reference GptChannelEcucPartitionRef
      - Reference GptModuleRef
      - Reference GptChannelClkSrcRef
      - Container GptWakeupConfiguration
      - Reference GptWakeupSourceRef
    - Container GptPit
      - Parameter GptPitModule
      - Parameter PitFreezeEnable
      - Container GptPitChannels
      - Parameter GptPitChannel
      - Parameter ChainMode
    - Container GptStm
      - Parameter GptStmModule
      - Parameter GptStmPrescaler
      - Parameter GptStmAlternatePrescaler
      - Parameter StmFreezeEnable
      - Container GptStmChannels
      - Parameter GptStmChannel
      - Parameter StmAbsoluteCounting

    - Container GptRtc
        - Parameter GptRtcModule
        - Parameter RtcFreezeEnable
        - Parameter DivBy512
        - Parameter DivBy32
        - Parameter GptRtcChannelClkSrc
    - Container GptEmios
        - Parameter GptEmiosModule
        - Container GptEmiosChannels
        - Parameter GptEmiosChannel
        - Parameter EmiosFreezeEnable
        - Parameter GptEmiosPrescaler
        - Parameter GptEmiosAlternatePrescaler
- Container GptHwConfiguration
    - Parameter GptIsrHwId
    - Parameter GptIsrEnable
    - Parameter GptChannelIsUsed
- Container GptConfigurationOfOptApiServices
    - Parameter GptDeinitApi
    - Parameter GptEnableDisableNotificationApi
    - Parameter GptTimeElapsedApi
    - Parameter GptTimeRemainingApi
    - Parameter GptVersionInfoApi
    - Parameter GptWakeupFunctionalityApi
    - Parameter GptPredefTimerFunctionalityApi
- Container GptAutosarExt
    - Parameter GptEnableDualClockMode
    - Parameter GptChangeNextTimeoutValueApi
    - Parameter GptEnableUserModeSupport
    - Parameter ChainModeApi
    - Parameter GptStandbyWakeupSupport
- Container GptDriverConfiguration
    - Parameter GptDevErrorDetect
    - Parameter GptPredefTimer100us32bitEnable
    - Parameter GptMulticoreSupport
    - Parameter GptPredefTimer1usEnablingGrade
    - Parameter GptTimeoutMethod

    - Parameter GptTimeoutDuration
    - Parameter GptReportWakeupSource
    - Reference GptEcucPartitionRef
    - Reference GptKernelEcucPartitionRef
    - Container GptClockReferencePoint
        - Reference GptClockReference
- Container GptPredefTimerConfiguration
    - Container GptPredefTimer_1us_16Bit
        - Parameter GptHwChannel
        - Parameter GptChannelPrescaler
        - Parameter GptFreezeEnable
        - Reference GptChannelClkSrcRef
    - Container GptPredefTimer_1us_24Bit
        - Parameter GptHwChannel
        - Parameter GptChannelPrescaler
        - Parameter GptFreezeEnable
        - Reference GptChannelClkSrcRef
    - Container GptPredefTimer_1us_32Bit
        - Parameter GptHwChannel
        - Parameter GptChannelPrescaler
        - Parameter GptFreezeEnable
        - Reference GptChannelClkSrcRef
    - Container GptPredefTimer_100us_32Bit
        - Parameter GptHwChannel
        - Parameter GptChannelPrescaler
        - Parameter GptFreezeEnable
        - Reference GptChannelClkSrcRef
- Container CommonPublishedInformation
    - Parameter ArReleaseMajorVersion
    - Parameter ArReleaseMinorVersion
    - Parameter ArReleaseRevisionVersion
    - Parameter ModuleId
    - Parameter SwMajorVersion
    - Parameter SwMinorVersion
    - Parameter SwPatchVersion
    - Parameter VendorApiInfix
    - Parameter VendorId

4.1 Module Gpt

Configuration of the Gpt (General Purpose Timer) module.

Included containers:

- GptChannelConfigSet
- GptHwConfiguration
- GptConfigurationOfOptApiServices
- GptAutosarExt
- GptDriverConfiguration
- GptPredefTimerConfiguration
- CommonPublishedInformation

Property	Value
type	ECUC-MODULE-DEF
lowerMultiplicity	0
upperMultiplicity	1
postBuildVariantSupport	true
supportedConfigVariants	VARIANT-POST-BUILD, VARIANT-PRE-COMPILE

4.2 Container GptChannelConfigSet

This container is the base of an Configuration Set which contains the configured GPT channels.

This way, different configuration sets can be defined for post-build process.

Included subcontainers:

- GptChannelConfiguration
- GptPit
- GptStm
- GptRtc
- GptEmios

Property	Value
type	ECUC-PARAM-CONF-CONTAINER-DEF
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A

4.3 Container GptChannelConfiguration

This container contains the channel-wide configuration (parameters) of the GPT Driver

Included subcontainers:

- GptWakeupConfiguration

Property	Value
type	ECUC-PARAM-CONF-CONTAINER-DEF
lowerMultiplicity	1
upperMultiplicity	Infinite
postBuildVariantMultiplicity	false
multiplicityConfigClasses	VARIANT-POST-BUILD: PRE-COMPILE
	VARIANT-PRE-COMPILE: PRE-COMPILE

4.4 Parameter GptChannelId

Channel Id of the GPT channel. This value will be assigned to the symbolic name derived of the GptChannelConfiguration container short name.

Property	Value
type	ECUC-INTEGER-PARAM-DEF
origin	AUTOSAR_ECUC
symbolicNameValue	true
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE
defaultValue	0
max	4294967295
min	0

4.5 Parameter GptHwIp

Vendor specific: Selects the physical GPT Channel.

Property	Value
type	ECUC-ENUMERATION-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	STM
literals	['STM', 'PIT', 'EMIOS', 'RTC']

4.6 Parameter GptChannelMode

Specifies the behaviour of the timerchannel after the timeout has expired

Property	Value
type	ECUC-ENUMERATION-PARAM-DEF
origin	AUTOSAR_ECUC
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	GPT_CH_MODE_ONESHOT
literals	['GPT_CH_MODE_CONTINUOUS', 'GPT_CH_MODE_ONESHOT']

4.7 Parameter GptChannelTickFrequency

EN: Specifies the tick frequency of the timer channel in Hz.

Property	Value
type	ECUC-FLOAT-PARAM-DEF
origin	AUTOSAR_ECUC
symbolicNameValue	false

Property	Value
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	1.9996338561054494
max	9.223372036854776E18
min	0.0

4.8 Parameter GptChannelTickValueMax

Maximum value in ticks, the timer channel is able to count.

With the next tick, the timer rolls over to zero.

It is mandatory to set 4294967295 for the RTC and STM channels

(coresponding to the 32 bits counter resolution), 16777215 for EMIOS

(corresponding to the 24 bits counter resolution)

and 65535 for the EMIOS channels (corresponding to the

16 bits counter resolution)!

Property	Value
type	ECUC-INTEGER-PARAM-DEF
origin	AUTOSAR_ECUC
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	65535
max	4294967295
min	65535

4.9 Parameter GptEnableWakeup

Enables wakeup capability of CPU for a channel.

Property	Value
type	ECUC-BOOLEAN-PARAM-DEF
origin	AUTOSAR_ECUC
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	false

4.10 Parameter GptNotification

Function pointer to callback function(for non-wakeup notification).

The field is editable only if the switch GptEnableDisableNotificationApi is true.

Property	Value
type	ECUC-FUNCTION-NAME-DEF
origin	AUTOSAR_ECUC
symbolicNameValue	false
lowerMultiplicity	0
upperMultiplicity	1
postBuildVariantMultiplicity	true
multiplicityConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	NULL_PTR

4.11 Reference GptChannelEcucPartitionRef

Maps a GPT channel to zero or one ECUC partition to limit the access to this channel group. The ECUC partitions referenced are a subset of the ECUC partitions where the GPT driver is mapped to.

Property	Value
type	ECUC-REFERENCE-DEF
origin	AUTOSAR_ECUC
lowerMultiplicity	0
upperMultiplicity	Infinite
postBuildVariantMultiplicity	true
multiplicityConfigClasses	VARIANT-POST-BUILD: PRE-COMPILE
	VARIANT-PRE-COMPILE: PRE-COMPILE
postBuildVariantValue	true
valueConfigClasses	VARIANT-POST-BUILD: PRE-COMPILE
	VARIANT-PRE-COMPILE: PRE-COMPILE
requiresSymbolicNameValue	False
destination	/AUTOSAR/EcucDefs/EcuC/EcucPartitionCollection/EcucPartition

4.12 Reference GptModuleRef

Maps a GPT channel to zero or one ECUC partition to limit the access to this channel group. The ECUC partitions referenced are a subset of the ECUC partitions where the GPT driver is mapped to.

Property	Value
type	ECUC-CHOICE-REFERENCE-DEF
origin	NXP
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
requiresSymbolicNameValue	False
destinations	['/TS_T40D34M30I0R0/Gpt/GptChannelConfigSet/GptPit/GptPitChannels', '/TS_T40D34M30I0R0/Gpt/GptChannelConfigSet/GptStm/GptStmChannels', '/TS_T40D34M30I0R0/Gpt/GptChannelConfigSet/GptEmios/GptEmios↩ Channels', '/TS_T40D34M30I0R0/Gpt/GptChannelConfigSet/GptRtc']

4.13 Reference GptChannelClkSrcRef

Reference to the GptClockReferencePoint from which the channel clock is derived.

Property	Value
type	ECUC-REFERENCE-DEF

Property	Value
origin	AUTOSAR_ECUC
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
requiresSymbolicNameValue	False
destination	/AUTOSAR/EcucDefs/Gpt/GptDriverConfiguration/GptClockReferencePoint

4.14 Container GptWakeupConfiguration

This container defines the wakeup source codes reported to Ecu State Manager.

Included subcontainers:

- None

Property	Value
type	ECUC-PARAM-CONF-CONTAINER-DEF
lowerMultiplicity	0
upperMultiplicity	1
postBuildVariantMultiplicity	false
multiplicityConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE

4.15 Reference GptWakeupSourceRef

In case the wakeup-capability is true this value is transmitted to the Ecu State Manager.

Implementation Type: reference to EcuM_WakeupSourceType

Property	Value
type	ECUC-REFERENCE-DEF
origin	AUTOSAR_ECUC
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A

Property	Value
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
requiresSymbolicNameValue	true
destination	/AUTOSAR/EcucDefs/EcuM/EcuMConfiguration/EcuMCommon↩ Configuration/EcuMWakeupSource

4.16 Container GptPit

Configuration of a Pit module available on the platfom.

Included subcontainers:

- GptPitChannels

Property	Value
type	ECUC-PARAM-CONF-CONTAINER-DEF
lowerMultiplicity	0
upperMultiplicity	Infinite
postBuildVariantMultiplicity	false
multiplicityConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE

4.17 Parameter GptPitModule

Select the physical Pit Module.

Property	Value
type	ECUC-ENUMERATION-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD

Property	Value
defaultValue	PIT_0
literals	['PIT_0', 'PIT_1', 'PIT_2']

4.18 Parameter PitFreezeEnable

Enables/Disables freeze bit.

Property	Value
type	ECUC-BOOLEAN-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	false

4.19 Container GptPitChannels

Pit hw channels.

Included subcontainers:

- None

Property	Value
type	ECUC-PARAM-CONF-CONTAINER-DEF
lowerMultiplicity	1
upperMultiplicity	Infinite
postBuildVariantMultiplicity	false
multiplicityConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE

4.20 Parameter GptPitChannel

Selects one of the Pit channels available on the platform.

Property	Value
type	ECUC-ENUMERATION-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	CH_RTI
literals	['CH_RTI', 'CH_0', 'CH_1', 'CH_2', 'CH_3']

4.21 Parameter ChainMode

Enables/Disables chain mode

Property	Value
type	ECUC-BOOLEAN-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	false

4.22 Container GptStm

Configuration of a Stm module available on the platfom.

Included subcontainers:

- GptStmChannels

Property	Value
type	ECUC-PARAM-CONF-CONTAINER-DEF
lowerMultiplicity	0
upperMultiplicity	Infinite
postBuildVariantMultiplicity	false
multiplicityConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE

4.23 Parameter GptStmModule

Select the physical Stm Module.

Property	Value
type	ECUC-ENUMERATION-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	STM_0
literals	['STM_0', 'STM_1', 'STM_2']

4.24 Parameter GptStmPrescaler

Vendor specific: The GPT module specific clock prescaler value.

Note with STM:

- STM prescaler should be between 1-256.

Property	Value
type	ECUC-INTEGER-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A

Property	Value
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	1
max	256
min	1

4.25 Parameter GptStmAlternatePrescaler

Vendor specific: The GPT module specific clock prescaler value.

Note with STM:

- STM prescaler should be between 1-256.

Property	Value
type	ECUC-INTEGER-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	1
max	256
min	1

4.26 Parameter StmFreezeEnable

Enables/Disables freeze bit.

Property	Value
type	ECUC-BOOLEAN-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1

Property	Value
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	false

4.27 Container GptStmChannels

STM hw channels

Included subcontainers:

- None

Property	Value
type	ECUC-PARAM-CONF-CONTAINER-DEF
lowerMultiplicity	1
upperMultiplicity	Infinite
postBuildVariantMultiplicity	false
multiplicityConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE

4.28 Parameter GptStmChannel

Selects one of the Stm channels available on the platform.

Property	Value
type	ECUC-ENUMERATION-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD

Property	Value
defaultValue	CH_0
literals	['CH_0', 'CH_1', 'CH_2', 'CH_3']

4.29 Parameter StmAbsoluteCounting

Enables/Disables absolute compare value.

Property	Value
type	ECUC-BOOLEAN-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE
defaultValue	false

4.30 Container GptRtc

Configuration of a Pit module available on the platfom.

Included subcontainers:

- None

Property	Value
type	ECUC-PARAM-CONF-CONTAINER-DEF
lowerMultiplicity	0
upperMultiplicity	Infinite
postBuildVariantMultiplicity	false
multiplicityConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE

4.31 Parameter GptRtcModule

Select the physical Pit Module.

Property	Value
type	ECUC-ENUMERATION-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	RTC_0_CH_0
literals	['RTC_0_CH_0']

4.32 Parameter RtcFreezeEnable

Enables/Disables freeze bit

Property	Value
type	ECUC-BOOLEAN-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	false

4.33 Parameter DivBy512

Optional 512 prescaler

Property	Value
type	ECUC-BOOLEAN-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	false

4.34 Parameter DivBy32

Optional 32 prescaler

Property	Value
type	ECUC-BOOLEAN-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	false

4.35 Parameter GptRtcChannelClkSrc

Selectable counter clock sources (IRCs and OSCs)

? Clock source 0

? Clock source 1

? Clock source 2

? Clock source 3

Property	Value
type	ECUC-ENUMERATION-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	RTC_IP_CLOCK_SOURCE_0
literals	['RTC_IP_CLOCK_SOURCE_0', 'RTC_IP_CLOCK_SOURCE_1', 'RTC↩ _IP_CLOCK_SOURCE_2', 'RTC_IP_CLOCK_SOURCE_3']

4.36 Container GptEmios

Configuration of an EMIOS module available on the platfom.

Included subcontainers:

- GptEmiosChannels

Property	Value
type	ECUC-PARAM-CONF-CONTAINER-DEF
lowerMultiplicity	0
upperMultiplicity	Infinite
postBuildVariantMultiplicity	false
multiplicityConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE

4.37 Parameter GptEmiosModule

Select the physical Emios Module.

Property	Value
type	ECUC-ENUMERATION-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1

Property	Value
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	EMIOS_0
literals	['EMIOS_0', 'EMIOS_1', 'EMIOS_2']

4.38 Container GptEmiosChannels

Vendor specific: The GPT module specific clock prescaler value.

Note with EMIOS:

- EMIOS prescaler should be between 1-4.

Included subcontainers:

- None

Property	Value
type	ECUC-PARAM-CONF-CONTAINER-DEF
lowerMultiplicity	1
upperMultiplicity	Infinite
postBuildVariantMultiplicity	false
multiplicityConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE

4.39 Parameter GptEmiosChannel

Selects one of the EMIOS channels available on the platform.

Property	Value
type	ECUC-ENUMERATION-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1

Property	Value
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	CH_0
literals	['CH_0', 'CH_1', 'CH_2', 'CH_3', 'CH_4', 'CH_5', 'CH_6', 'CH_7', 'CH_8', 'CH_16', 'CH_22', 'CH_23']

4.40 Parameter EmiosFreezeEnable

This container enable/disable freeze for eMios

Property	Value
type	ECUC-BOOLEAN-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	false

4.41 Parameter GptEmiosPrescaler

Vendor specific: The GPT module specific clock prescaler value.

If an eMIOS channel is being used,

this parameter configures the clock divider value

for the internal prescaler of specific Unified Channel.

Note with EMIOS:

- EMIOS prescaler should be between 1-16.

Property	Value
type	ECUC-INTEGER-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	1
max	16
min	1

4.42 Parameter GptEmiosAlternatePrescaler

Vendor specific: The GPT module specific clock prescaler value.

Note with EMIOS:

- EMIOS prescaler should be between 1-16.

Property	Value
type	ECUC-INTEGER-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	1
max	16
min	1

4.43 Container GptHwConfiguration

List of all HW channel resources for GPT module.

Included subcontainers:

- None

Property	Value
type	ECUC-PARAM-CONF-CONTAINER-DEF
lowerMultiplicity	51
upperMultiplicity	51
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A

4.44 Parameter GptIsrHwId

ID of HW interrupt resources.

Property	Value
type	ECUC-ENUMERATION-PARAM-DEF
origin	NXP
symbolicNameValue	true
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE
defaultValue	STM_0_CH_1
literals	['STM_0_CH_0', 'STM_0_CH_1', 'STM_0_CH_2', 'STM_0_CH_3', 'STM_1_CH_0', 'STM_1_CH_1', 'STM_1_CH_2', 'STM_1_CH_3', 'STM_2_CH_0', 'STM_2_CH_1', 'STM_2_CH_2', 'STM_2_CH_3', 'PIT_0_CH_RTI', 'PIT_0_CH_0', 'PIT_0_CH_1', 'PIT_0_CH_2', 'PIT_0_CH_3', 'PIT_1_CH_0', 'PIT_1_CH_1', 'PIT_1_CH_2', 'PIT_1_CH_3', 'PIT_2_CH_0', 'PIT_2_CH_1', 'PIT_2_CH_2', 'PIT_2_CH_3', 'EMIOS_0_CH_0', 'EMIOS_0_CH_1', 'EMIOS_0_CH_2', 'EMIOS_0_CH_3', 'EMIOS_0_CH_4', 'EMIOS_0_CH_5', 'EMIOS_0_CH_6', 'EMIOS_0_CH_7', 'EMIOS_0_CH_8', 'EMIOS_0_CH_16', 'EMIOS_0_CH_22', 'EMIOS_0_CH_23', 'EMIOS_1_CH_0', 'EMIOS_1_CH_8', 'EMIOS_1_CH_16', 'EMIOS_1_CH_22', 'EMIOS_1_CH_23', 'EMIOS_2_CH_0', 'EMIOS_2_CH_8', 'EMIOS_2_CH_16', 'EMIOS_2_CH_22', 'EMIOS_2_CH_23', 'RTC_0_CH_0', 'STM_0_PREDEF', 'STM_1_PREDEF', 'STM_2_PREDEF']

4.45 Parameter GptIsrEnable

Enable/Disable HW channels' Interrupt Sources.

Property	Value
type	ECUC-BOOLEAN-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-POST-BUILD: PRE-COMPILE
	VARIANT-PRE-COMPILE: PRE-COMPILE
defaultValue	false

4.46 Parameter GptChannelIsUsed

This column configures HW channels which are going to be used.

Property	Value
type	ECUC-BOOLEAN-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-POST-BUILD: PRE-COMPILE
	VARIANT-PRE-COMPILE: PRE-COMPILE
defaultValue	false

4.47 Container GptConfigurationOfOptApiServices

This container contains all configuration switches for configuring optional API services of the GPT driver.

Included subcontainers:

- None

Property	Value
type	ECUC-PARAM-CONF-CONTAINER-DEF

Property	Value
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A

4.48 Parameter GptDeinitApi

Adds / removes the service Gpt_DeInit() from the code.

Property	Value
type	ECUC-BOOLEAN-PARAM-DEF
origin	AUTOSAR_ECUC
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE
defaultValue	true

4.49 Parameter GptEnableDisableNotificationApi

Adds / removes the services Gpt_EnableNotification() and Gpt_DisableNotification from the code.

Property	Value
type	ECUC-BOOLEAN-PARAM-DEF
origin	AUTOSAR_ECUC
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE
defaultValue	true

4.50 Parameter GptTimeElapsedApi

Adds / removes the service Gpt_GetTimeElapsed() from the code.

Property	Value
type	ECUC-BOOLEAN-PARAM-DEF
origin	AUTOSAR_ECUC
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE
defaultValue	true

4.51 Parameter GptTimeRemainingApi

Adds / removes the service Gpt_GetTimeRemaining() from the code.

Property	Value
type	ECUC-BOOLEAN-PARAM-DEF
origin	AUTOSAR_ECUC
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE
defaultValue	true

4.52 Parameter GptVersionInfoApi

Adds / removes the service Gpt_GetVersionInfo() from the code.

Property	Value
type	ECUC-BOOLEAN-PARAM-DEF

Property	Value
origin	AUTOSAR_ECUC
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE
defaultValue	false

4.53 Parameter GptWakeupFunctionalityApi

Adds / removes the services Gpt_SetMode(), Gpt_EnableWakeup() Gpt_DisableWakeup() and Gpt_Cbk_CheckWakeup() from the code.

Property	Value
type	ECUC-BOOLEAN-PARAM-DEF
origin	AUTOSAR_ECUC
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE
defaultValue	true

4.54 Parameter GptPredefTimerFunctionalityApi

Adds / removes the services Gpt_SetMode(), Gpt_EnableWakeup() Gpt_DisableWakeup() and Gpt_Cbk_CheckWakeup() from the code.

Property	Value
type	ECUC-BOOLEAN-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1

Property	Value
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE
defaultValue	true

4.55 Container GptAutosarExt

Enabling the settings of this section will configure the driver in a mode not compliant with AUTOSAR requirements.

Included subcontainers:

- None

Property	Value
type	ECUC-PARAM-CONF-CONTAINER-DEF
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A

4.56 Parameter GptEnableDualClockMode

Enables prescaler settings at mode transition.true: Enabled.false: Disabled.

Note This feature is not required by Autosar.

Property	Value
type	ECUC-BOOLEAN-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE
defaultValue	false

4.57 Parameter GptChangeNextTimeoutValueApi

Vendor specific: Enables settings for changing the channel counter compare value of a running counter.

Property	Value
type	ECUC-BOOLEAN-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE
defaultValue	false

4.58 Parameter GptEnableUserModeSupport

When this parameter is enabled, the GPT module will adapt to run from User Mode. There is no difference between User mode and Privileged mode in GPT module.

Note: Implementation Specific Parameter.

Property	Value
type	ECUC-BOOLEAN-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE
defaultValue	false

4.59 Parameter ChainModeApi

Vendor specific: Enable/disable API for Chain Mode support.

Property	Value
type	ECUC-BOOLEAN-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE
defaultValue	false

4.60 Parameter GptStandbyWakeupSupport

The driver shall NOT CLEAR the interrupt flag, the interrupt enable bit and also should not disable the counter, during init (Gpt_SRtc_Init()) the flag is already set.

Property	Value
type	ECUC-BOOLEAN-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE
defaultValue	false

4.61 Container GptDriverConfiguration

This container contains the module-wide configuration (parameters) of the GPT Driver.

Included subcontainers:

- GptClockReferencePoint

Property	Value
type	ECUC-PARAM-CONF-CONTAINER-DEF
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A

4.62 Parameter GptDevErrorDetect

Enables/Disables development error detection.

Property	Value
type	ECUC-BOOLEAN-PARAM-DEF
origin	AUTOSAR_ECUC
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE
defaultValue	false

4.63 Parameter GptPredefTimer100us32bitEnable

Enables/Disables the feature 100us/ tick

Property	Value
type	ECUC-BOOLEAN-PARAM-DEF
origin	AUTOSAR_ECUC
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-POST-BUILD: PRE-COMPILE
	VARIANT-PRE-COMPILE: PRE-COMPILE
defaultValue	false

4.64 Parameter GptMulticoreSupport

Enables/Disables Multicore Support.

Property	Value
type	ECUC-BOOLEAN-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE
defaultValue	false

4.65 Parameter GptPredefTimer1usEnablingGrade

Specifies the grade of enabling the GPT Predef Timers with 1us tick duration.

Property	Value
type	ECUC-ENUMERATION-PARAM-DEF
origin	AUTOSAR_ECUC
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-POST-BUILD: PRE-COMPILE
	VARIANT-PRE-COMPILE: PRE-COMPILE
defaultValue	GPT_PREDEF_TIMER_1US_DISABLED
literals	['GPT_PREDEF_TIMER_1US_16BIT_ENABLED', 'GPT_PREDEF_TI↩ MER_1US_16_24BIT_ENABLED', 'GPT_PREDEF_TIMER_1US_16_24↩ _32BIT_ENABLED', 'GPT_PREDEF_TIMER_1US_DISABLED']

4.66 Parameter GptTimeoutMethod

GptTimeoutMethod: Configures the timeout method.

Based on this selection a certain timeout method from OsIf will be used in the driver.

Note: If SystemTimer or CustomTimer are selected make sure the corresponding timer is enabled in OsIf General configuration.

Note: Implementation Specific Parameter.

Property	Value
type	ECUC-ENUMERATION-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE
defaultValue	OSIF_COUNTER_DUMMY
literals	['OSIF_COUNTER_SYSTEM', 'OSIF_COUNTER_CUSTOM', 'OSIF_CO↩ UNTER_DUMMY']

4.67 Parameter GptTimeoutDuration

The unit of measurement is given in number of microseconds. This is a timeout value which is used to wait till
- PIT_RTI_LDVAL is synchronized into the RTI clock domain
If the Status is not updated then after this timeout a runtime error will be reported.
This parameter is used for PitRti only

Property	Value
type	ECUC-INTEGER-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-POST-BUILD: PRE-COMPILE
	VARIANT-PRE-COMPILE: PRE-COMPILE
defaultValue	800
max	65535
min	1

4.68 Parameter GptReportWakeupSource

Enables/Disables wakeup source reporting.

Property	Value
type	ECUC-BOOLEAN-PARAM-DEF
origin	AUTOSAR_ECUC
symbolicNameValue	False
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE
defaultValue	true

4.69 Reference GptEcucPartitionRef

Maps the GPT driver to zero or multiple ECUC partitions to make the driver API available in the according partition. Depending on the addressed timer resource the interfaces operate as follows:

In case of partition local timer resources (n:1 mapping) the API operates as an independent instance in the according ECUC partition.

In case of global timer resources (1:m mapping) the API operates on the global timer resource either by protected access to the resource or by implementing an according kernel.

Property	Value
type	ECUC-REFERENCE-DEF
origin	AUTOSAR_ECUC
lowerMultiplicity	0
upperMultiplicity	Infinite
postBuildVariantMultiplicity	true
multiplicityConfigClasses	VARIANT-POST-BUILD: PRE-COMPILE
	VARIANT-PRE-COMPILE: PRE-COMPILE
postBuildVariantValue	true
valueConfigClasses	VARIANT-POST-BUILD: PRE-COMPILE
	VARIANT-PRE-COMPILE: PRE-COMPILE
requiresSymbolicNameValue	False
destination	/AUTOSAR/EcucDefs/EcuC/EcucPartitionCollection/EcucPartition

4.70 Reference GptKernelEcucPartitionRef

Maps the GPT kernel to zero or one ECUC partitions to assign the driver kernel to a certain core. The ECUC partition referenced is a subset of the ECUC partitions where the GPT driver is mapped to.

Property	Value
type	ECUC-REFERENCE-DEF
origin	AUTOSAR_ECUC
lowerMultiplicity	0
upperMultiplicity	1
postBuildVariantMultiplicity	true
multiplicityConfigClasses	VARIANT-POST-BUILD: PRE-COMPILE
	VARIANT-PRE-COMPILE: PRE-COMPILE
postBuildVariantValue	true
valueConfigClasses	VARIANT-POST-BUILD: PRE-COMPILE
	VARIANT-PRE-COMPILE: PRE-COMPILE
requiresSymbolicNameValue	False
destination	/AUTOSAR/EcucDefs/EcuC/EcucPartitionCollection/EcucPartition

4.71 Container GptClockReferencePoint

This container contains a parameter, which represents a reference to a container of the type McuClockReferencePoint (defined in module MCU).

Included subcontainers:

- None

Property	Value
type	ECUC-PARAM-CONF-CONTAINER-DEF
lowerMultiplicity	1
upperMultiplicity	Infinite
postBuildVariantMultiplicity	false
multiplicityConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE

4.72 Reference GptClockReference

Reference to a container of the type McuClockReferencePoint, to select an input clock.

Property	Value
type	ECUC-REFERENCE-DEF
origin	AUTOSAR_ECUC
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-POST-BUILD: PRE-COMPILE
	VARIANT-PRE-COMPILE: PRE-COMPILE
requiresSymbolicNameValue	False
destination	/AUTOSAR/EcucDefs/Mcu/McuModuleConfiguration/McuClockSetting↩ Config/McuClockReferencePoint

4.73 Container GptPredefTimerConfiguration

Container for configuring the Predefined Timer functionality.

Included subcontainers:

- GptPredefTimer_1us_16Bit
- GptPredefTimer_1us_24Bit
- GptPredefTimer_1us_32Bit
- GptPredefTimer_100us_32Bit

Property	Value
type	ECUC-PARAM-CONF-CONTAINER-DEF
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A

4.74 Container GptPredefTimer_1us_16Bit

This container contains the 1U_16BIT predef timer configuration (parameters) of the GPT Driver

Included subcontainers:

- None

Property	Value
type	ECUC-PARAM-CONF-CONTAINER-DEF
lowerMultiplicity	0
upperMultiplicity	1
postBuildVariantMultiplicity	false
multiplicityConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE

4.75 Parameter GptHwChannel

Vendor specific: Selects the physical GPT Channel. PIT not use for this feature

Property	Value
type	ECUC-ENUMERATION-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	STM_0_PREDEF
literals	['STM_0_PREDEF', 'STM_1_PREDEF', 'STM_2_PREDEF']

4.76 Parameter GptChannelPrescaler

Vendor specific: The GPT module specific clock prescaler value.

Note with STM:

- STM prescaler should be between 1-256.

Note with EMIOS:

- EMIOS prescaler should be between 1-4

Property	Value
type	ECUC-INTEGER-PARAM-DEF
origin	NXP

Property	Value
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	1
max	256
min	1

4.77 Parameter GptFreezeEnable

Vendor specific: Select to set Freeze enable for the hw resources.

Property	Value
type	ECUC-BOOLEAN-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	true

4.78 Reference GptChannelClkSrcRef

Reference to the GptClockReferencePoint from which the channel clock is derived.

Property	Value
type	ECUC-REFERENCE-DEF
origin	NXP
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A

Property	Value
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
requiresSymbolicNameValue	False
destination	/AUTOSAR/EcucDefs/Gpt/GptDriverConfiguration/GptClockReferencePoint

4.79 Container GptPredefTimer_1us_24Bit

This container contains the 1U_24BIT predef timer configuration (parameters) of the GPT Driver

Included subcontainers:

- None

Property	Value
type	ECUC-PARAM-CONF-CONTAINER-DEF
lowerMultiplicity	0
upperMultiplicity	1
postBuildVariantMultiplicity	false
multiplicityConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE

4.80 Parameter GptHwChannel

Vendor specific: Selects the physical GPT Channel.

Property	Value
type	ECUC-ENUMERATION-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	STM_0_PREDEF
literals	['STM_0_PREDEF', 'STM_1_PREDEF', 'STM_2_PREDEF']

4.81 Parameter GptChannelPrescaler

Vendor specific: The GPT module specific clock prescaler value.

Note with STM:

- STM prescaler should be between 1-256.

Property	Value
type	ECUC-INTEGER-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	1
max	256
min	1

4.82 Parameter GptFreezeEnable

Vendor specific: Select to set Freeze enable for the hw resources.

Property	Value
type	ECUC-BOOLEAN-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	true

4.83 Reference GptChannelClkSrcRef

Reference to the GptClockReferencePoint from which the channel clock is derived.

Property	Value
type	ECUC-REFERENCE-DEF
origin	NXP
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
requiresSymbolicNameValue	False
destination	/AUTOSAR/EcucDefs/Gpt/GptDriverConfiguration/GptClockReferencePoint

4.84 Container GptPredefTimer_1us_32Bit

This container contains the predef timer configuration (parameters) of the GPT Driver

Included subcontainers:

- None

Property	Value
type	ECUC-PARAM-CONF-CONTAINER-DEF
lowerMultiplicity	0
upperMultiplicity	1
postBuildVariantMultiplicity	false
multiplicityConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE

4.85 Parameter GptHwChannel

Vendor specific: Selects the physical GPT Channel.

Property	Value
type	ECUC-ENUMERATION-PARAM-DEF

Property	Value
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	STM_0_PREDEF
literals	['STM_0_PREDEF', 'STM_1_PREDEF', 'STM_2_PREDEF']

4.86 Parameter GptChannelPrescaler

Vendor specific: The GPT module specific clock prescaler value.

Note with STM:

- STM prescaler should be between 1-256.

Property	Value
type	ECUC-INTEGER-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	1
max	256
min	1

4.87 Parameter GptFreezeEnable

Vendor specific: Select to set Freeze enable for the hw resources.

Property	Value
type	ECUC-BOOLEAN-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	true

4.88 Reference GptChannelClkSrcRef

Reference to the GptClockReferencePoint from which the channel clock is derived.

Property	Value
type	ECUC-REFERENCE-DEF
origin	NXP
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
requiresSymbolicNameValue	False
destination	/AUTOSAR/EcucDefs/Gpt/GptDriverConfiguration/GptClockReferencePoint

4.89 Container GptPredefTimer_100us_32Bit

This container contains the channel-wide configuration (parameters) of the GPT Driver

Included subcontainers:

- None

Property	Value
type	ECUC-PARAM-CONF-CONTAINER-DEF

Property	Value
lowerMultiplicity	0
upperMultiplicity	1
postBuildVariantMultiplicity	false
multiplicityConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: PRE-COMPILE

4.90 Parameter GptHwChannel

Vendor specific: Selects the physical GPT Channel. PIT not use for this feature

Property	Value
type	ECUC-ENUMERATION-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	STM_0_PREDEF
literals	['STM_0_PREDEF', 'STM_1_PREDEF', 'STM_2_PREDEF']

4.91 Parameter GptChannelPrescaler

Vendor specific: The GPT module specific clock prescaler value.

Note with STM:

- STM prescaler should be between 1-256.

Property	Value
type	ECUC-INTEGER-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A

Property	Value
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	1
max	256
min	1

4.92 Parameter GptFreezeEnable

Vendor specific: Select to set Freeze enable for the hw resources.

Property	Value
type	ECUC-BOOLEAN-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
defaultValue	true

4.93 Reference GptChannelClkSrcRef

Reference to the GptClockReferencePoint from which the channel clock is derived.

Property	Value
type	ECUC-REFERENCE-DEF
origin	NXP
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	true
valueConfigClasses	VARIANT-PRE-COMPILE: PRE-COMPILE
	VARIANT-POST-BUILD: POST-BUILD
requiresSymbolicNameValue	False
destination	/AUTOSAR/EcucDefs/Gpt/GptDriverConfiguration/GptClockReferencePoint

4.94 Container CommonPublishedInformation

Common container, aggregated by all modules. It contains published information about vendor and versions.

Included subcontainers:

- None

Property	Value
type	ECUC-PARAM-CONF-CONTAINER-DEF
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A

4.95 Parameter ArReleaseMajorVersion

Major version number of AUTOSAR specification on which the appropriate implementation is based on.

Property	Value
type	ECUC-INTEGER-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-POST-BUILD: PUBLISHED-INFORMATION
	VARIANT-PRE-COMPILE: PUBLISHED-INFORMATION
defaultValue	4
max	4
min	4

4.96 Parameter ArReleaseMinorVersion

Minor version number of AUTOSAR specification on which the appropriate implementation is based on.

Property	Value
type	ECUC-INTEGER-PARAM-DEF

Property	Value
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-POST-BUILD: PUBLISHED-INFORMATION
	VARIANT-PRE-COMPILE: PUBLISHED-INFORMATION
defaultValue	7
max	7
min	7

4.97 Parameter ArReleaseRevisionVersion

Revision version number of AUTOSAR specification on which the appropriate implementation is based on.

Property	Value
type	ECUC-INTEGER-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-POST-BUILD: PUBLISHED-INFORMATION
	VARIANT-PRE-COMPILE: PUBLISHED-INFORMATION
defaultValue	0
max	0
min	0

4.98 Parameter ModuleId

Module ID of this module from Module List.

Property	Value
type	ECUC-INTEGER-PARAM-DEF
origin	NXP
symbolicNameValue	false

Property	Value
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-POST-BUILD: PUBLISHED-INFORMATION
	VARIANT-PRE-COMPILE: PUBLISHED-INFORMATION
defaultValue	100
max	100
min	100

4.99 Parameter SwMajorVersion

Major version number of the vendor specific implementation of the module. The numbering is vendor specific.

Property	Value
type	ECUC-INTEGER-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-POST-BUILD: PUBLISHED-INFORMATION
	VARIANT-PRE-COMPILE: PUBLISHED-INFORMATION
defaultValue	3
max	3
min	3

4.100 Parameter SwMinorVersion

Minor version number of the vendor specific implementation of the module. The numbering is vendor specific.

Property	Value
type	ECUC-INTEGER-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1

Property	Value
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-POST-BUILD: PUBLISHED-INFORMATION
	VARIANT-PRE-COMPILE: PUBLISHED-INFORMATION
defaultValue	0
max	0
min	0

4.101 Parameter SwPatchVersion

Patch level version number of the vendor specific implementation of the module. The numbering is vendor specific.

Property	Value
type	ECUC-INTEGER-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-POST-BUILD: PUBLISHED-INFORMATION
	VARIANT-PRE-COMPILE: PUBLISHED-INFORMATION
defaultValue	0
max	0
min	0

4.102 Parameter VendorApiInfix

In driver modules which can be instantiated several times on a single ECU, BSW00347 requires that the name of APIs is extended by the VendorId and a vendor specific name.

This parameter is used to specify the vendor specific name. In total, the implementation specific name is generated as follows:

<ModuleName>_>VendorId>_<VendorApiInfix>.

E.g. assuming that the VendorId of the implementor is 123 and the implementer chose a VendorApiInfix of "v11r456" a api name Can_Write defined in the SWS will translate to Can_123_v11r456Write.

This parameter is mandatory for all modules with upper multiplicity > 1. It shall not be used for modules with upper multiplicity =1.

Property	Value
type	ECUC-STRING-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	0
upperMultiplicity	1
postBuildVariantMultiplicity	false
multiplicityConfigClasses	VARIANT-POST-BUILD: PUBLISHED-INFORMATION
	VARIANT-PRE-COMPILE: PUBLISHED-INFORMATION
postBuildVariantValue	false
valueConfigClasses	VARIANT-POST-BUILD: PUBLISHED-INFORMATION
	VARIANT-PRE-COMPILE: PUBLISHED-INFORMATION
defaultValue	

4.103 Parameter VendorId

Vendor ID of the dedicated implementation of this module according to the AUTOSAR vendor list.

Property	Value
type	ECUC-INTEGER-PARAM-DEF
origin	NXP
symbolicNameValue	false
lowerMultiplicity	1
upperMultiplicity	1
postBuildVariantMultiplicity	N/A
multiplicityConfigClasses	N/A
postBuildVariantValue	false
valueConfigClasses	VARIANT-POST-BUILD: PUBLISHED-INFORMATION
	VARIANT-PRE-COMPILE: PUBLISHED-INFORMATION
defaultValue	43
max	43
min	43

Chapter 5

Module Index

5.1 Software Specification

Here is a list of all modules:

Chapter 6

Module Documentation

6.1 Emios IPL

6.1.1 Detailed Description

Data Structures

- struct Emios_Gpt_Ip_ChannelConfigType
  Structure to configure the EMIOS. More...
- struct Emios_Gpt_Ip_State
  internal context structure More...

Types Reference

- typedef void(* Emios_Gpt_Ip_CallbackType) (uint8 callbackParam)
  Callback type for each channel.

Enum Reference

- enum Emios_Gpt_Ip_ChannelModeType
  Prescaler type. Indicates of whether the clock channel mode is "NORMAL" or "ALTERNATE".

6.1.2 Data Structure Documentation

6.1.2.1 struct Emios_Gpt_Ip_ChannelConfigType

Structure to configure the EMIOS.

This structure holds the configuration settings for the ChannelConfigType

Definition at line 128 of file Emios_Gpt_Ip_Types.h.

Data Fields

Type	Name	Description
boolean	stopInDebugMode	Allows the timer counter to be stopped in debug mode.
uint8	clockPrescaler	Clock divide value for the clockPrescaler
uint8	hwChannel	Timer channel number
Emios_Gpt_Ip_CallbackType	callback	callback
uint8	callbackParam	callbackParam
Emios_Gpt_Ip_ChannelModeType	channelMode	channelMode

6.1.2.2 struct Emios_Gpt_Ip_State

internal context structure

This structure is used by the IPL driver for internal logic. The content is populated on InitChannel

Definition at line 147 of file Emios_Gpt_Ip_Types.h.

Data Fields

Type	Name	Description
boolean	chInit	chInit
Emios_Gpt_Ip_CallbackType	callback	callback
uint8	callbackParam	callbackParam
uint8	clockPrescaler	Clock divide value for the NormalPrescaler
uint8	clockAlternatePrescaler	Clock divide value for the AlternatePrescaler.
Emios_Gpt_Ip_ChannelModeType	channelMode	channelMode

6.1.3 Types Reference

6.1.3.1 Emios_Gpt_Ip_CallbackType

```
typedef void(* Emios_Gpt_Ip_CallbackType) (uint8 callbackParam)
```

Callback type for each channel.

Emios_Gpt_Ip_CallbackType

Definition at line 120 of file Emios_Gpt_Ip_Types.h.

6.1.4 Enum Reference

6.1.4.1 Emios_Gpt_Ip_ChannelModeType

```
enum Emios_Gpt_Ip_ChannelModeType
```

Prescaler type. Indicates of whether the clock channel mode is "NORMAL" or "ALTERNATE".

This enumeration specifies the possible types of prescalers used to configure base-clock timers

Channel mode type. Indicates of whether the channel mode is "CONTINUOUS" or "ONE SHOT".

ChannelModeType of channel.

Enumerator

EMIOS_GPT_IP_CH_MODE_CONTINUOUS	channel mode - continuous mode
EMIOS_GPT_IP_CH_MODE_ONESHOT	channel mode - one-shot mode.

Definition at line 107 of file Emios_Gpt_Ip_Types.h.

6.2 Gpt Driver

6.2.1 Detailed Description

Macros

- #define GPT_E_PARAM_CHANNEL

  Function Gpt_StartTimer is called when the driver is in sleep mode for a channel which is not wakeup enabled.
- #define GPT_E_BUSY

  Function called with parameter value out of range.
- #define GPT_E_TIMEOUT

  Function called when a timeout is occurred.
- #define GPT_E_PARAM_CONFIG

  Function called with invalid the parameter in function Gpt_Init.
- #define GPT_STARTTIMER_ID

  API service ID for Gpt_GetVersionInfo function.
- #define GPT_PROCESSCOMMONINTERRUPT_ID

  API service ID for Gpt_StopTimer function.
- #define GPT_INSTANCE_ID

  API service ID for Gpt_ChangeNextTimeoutValue function.
- #define GPT_VALIDATE_GLOBAL_CALL

  GPT_VALIDATE_GLOBAL_CALL.
- #define GPT_VALIDATE_CHANNEL_CALL

  GPT_VALIDATE_CHANNEL_CALL.
- #define GPT_VALIDATE_STATE

  GPT_VALIDATE_STATE.
- #define GPT_VALIDATE_PARAM

  GPT_VALIDATE_PARAM.

Types Reference

- typedef uint8 Gpt_ChannelType

  Prescaler type. Indicates of whether the clock channel mode is "GPT_NORMAL" or "GPT_ALTERNATE".

Enum Reference

- enum Gpt_ModeType

  This enumerated type allows the selection of different power modes.
- enum Gpt_ChannelModeType

  Gpt channel mode type. Indicates of whether the channel mode is "CONTINUOUS" or "ONE SHOT".

Function Reference

- void Gpt_Init (const Gpt_ConfigType *configPtr)
  GPT driver initialization function.
- void Gpt_StartTimer (Gpt_ChannelType channel, Gpt_ValueType value)
  GPT driver function for starting a timer channel.
- void Gpt_StopTimer (Gpt_ChannelType channel)
  GPT driver function for stopping a timer channel.
- void Gpt_ProcessCommonInterrupt (uint8 channel)
  Gpt common handler to implements generic part of the ISR.

6.2.2 Macro Definition Documentation

6.2.2.1 GPT_E_PARAM_CHANNEL

```
#define GPT_E_PARAM_CHANNEL
```

Function Gpt_StartTimer is called when the driver is in sleep mode for a channel which is not wakeup enabled.

Errors and exceptions that will be detected by the GPT driver.

Function called without module initialization.

Errors and exceptions that will be detected by the GPT driver.

Initialization called when already initialized.

Errors and exceptions that will be detected by the GPT driver.

Function called for invalid channel.

Errors and exceptions that will be detected by the GPT driver.

Definition at line 172 of file Gpt.h.

6.2.2.2 GPT_E_BUSY

```
#define GPT_E_BUSY
```

Function called with parameter value out of range.

Errors and exceptions that will be detected by the GPT driver

Function called when timer channel is still running.

Errors and exceptions that will be detected by the GPT driver.

Definition at line 211 of file Gpt.h.

6.2.2.3 GPT_E_TIMEOUT

```
#define GPT_E_TIMEOUT
```

Function called when a timeout is occurred.

Errors and exceptions that will be detected by the GPT driver.

Definition at line 228 of file Gpt.h.

6.2.2.4 GPT_E_PARAM_CONFIG

```
#define GPT_E_PARAM_CONFIG
```

Function called with invalid the parameter in function Gpt_Init.

Errors and exceptions that will be detected by the GPT driver

API Gpt_SetClockMode service called with wrong parameter.

Parameters used when raising an error/exception

Function called with invalid mode param.

Errors and exceptions that will be detected by the GPT driver

function called for invalid channel on the current core

Errors and exceptions that will be detected by the GPT driver

Definition at line 264 of file Gpt.h.

6.2.2.5 GPT_STARTTIMER_ID

```
#define GPT_STARTTIMER_ID
```

API service ID for Gpt_GetVersionInfo function.

API SERVICE IDs

Parameters used when raising an error/exception

API service ID for Gpt_Init function

Parameters used when raising an error/exception

API service ID for Gpt_DeInit function

Parameters used when raising an error/exception

API service ID for Gpt_GetTimeElapsed function

Parameters used when raising an error/exception

API service ID for Gpt_GetTimeRemaining function

Parameters used when raising an error/exception

API service ID for Gpt_StartTimer function

Parameters used when raising an error/exception

Definition at line 311 of file Gpt.h.

6.2.2.6 GPT_PROCESSCOMMONINTERRUPT_ID

```
#define GPT_PROCESSCOMMONINTERRUPT_ID
```

API service ID for Gpt_StopTimer function.

Parameters used when raising an error/exception

API service ID for Gpt_SetMode function

Parameters used when raising an error/exception

API service ID for Gpt_ProcessCommonInterrupt generic ISR handler

Parameters used when raising an error/exception

Definition at line 372 of file Gpt.h.

6.2.2.7 GPT_INSTANCE_ID

```
#define GPT_INSTANCE_ID
```

API service ID for Gpt_ChangeNextTimeoutValue function.

Parameters used when raising an error/exception

API service ID for Gpt_SetClockMode function

Parameters used when raising an error/exception

API service ID for Gpt_GetPredefTimerValue function

Parameters used when raising an error/exception

API service ID for Gpt_Channel_EnableChainMode function

Parameters used when raising an error/exception

Instance ID of this GPT driver.

Definition at line 411 of file Gpt.h.

6.2.2.8 GPT_VALIDATE_GLOBAL_CALL

```
#define GPT_VALIDATE_GLOBAL_CALL
```

GPT_VALIDATE_GLOBAL_CALL.

Validates the global call uses all the channels - Gpt_Init, Gpt_DeInit, Gpt_SetMode.

Definition at line 72 of file Gpt_EnvCfg.h.

6.2.2.9 GPT_VALIDATE_CHANNEL_CALL

```
#define GPT_VALIDATE_CHANNEL_CALL
```

GPT_VALIDATE_CHANNEL_CALL.

Validates the call for a specific channel.

Definition at line 78 of file Gpt_EnvCfg.h.

6.2.2.10 GPT_VALIDATE_STATE

```
#define GPT_VALIDATE_STATE
```

GPT_VALIDATE_STATE.

Validates the channel status.

Definition at line 84 of file Gpt_EnvCfg.h.

6.2.2.11 GPT_VALIDATE_PARAM

```
#define GPT_VALIDATE_PARAM
```

GPT_VALIDATE_PARAM.

Validates the time value parameter.

Definition at line 90 of file Gpt_EnvCfg.h.

6.2.3 Types Reference

6.2.3.1 Gpt_ChannelType

```
typedef uint8 Gpt_ChannelType
```

Prescaler type. Indicates of whether the clock channel mode is "GPT_NORMAL" or "GPT_ALTERNATE".

This enumeration specifies the possible types of prescalers used to configure base-clock timers

Definition at line 459 of file Gpt.h.

6.2.4 Enum Reference

6.2.4.1 Gpt_ModeType

```
enum Gpt_ModeType
```

This enumerated type allows the selection of different power modes.

Modes of the GPT driver.

Enumerator

GPT_MODE_NORMAL	GPT Normal operation mode of the GPT.
GPT_MODE_SLEEP	GPT Sleep mode.

Definition at line 422 of file Gpt.h.

6.2.4.2 Gpt_ChannelModeType

```
enum Gpt_ChannelModeType
```

Gpt channel mode type. Indicates of whether the channel mode is "CONTINUOUS" or "ONE SHOT".

ChannelModeType of channel.

Enumerator

GPT_CH_MODE_CONTINUOUS	GPT channel mode - continuous mode.
GPT_CH_MODE_ONESHOT	GPT channel mode - one-shot mode.

Definition at line 432 of file Gpt.h.

6.2.5 Function Reference

6.2.5.1 Gpt_Init()

```
void Gpt_Init (
            const Gpt_ConfigType * configPtr )
```

GPT driver initialization function.

This service is a non reentrant function used for driver initialization. The Initialization function shall initialize all relevant registers of the configured hardware with the values of the structure referenced by the parameter ConfigPtr. All time units used within the API services of the GPT driver shall be of the unit ticks. This function shall only initialize the configured resources. Resources that are not configured in the configuration file shall not be touched. The following rules regarding initialization of controller registers shall apply to the GPT Driver implementation: [1] If the hardware allows for only one usage of the register, the driver module implementing that functionality is responsible for initializing the register [2] If the register can affect several hardware modules and if it is an IO register it shall be initialized by the PORT driver [3] If the register can affect several hardware modules and if it is not an IO register it shall be initialized by the MCU driver [4] One-time writable registers that require initialization directly after reset shall be initialized by the startup code [5] All other registers shall be initialized by the startup code

Parameters

in	*configPtr*	Pointer to a selected configuration structure

Returns

void

Precondition

The data structure including the configuration set required for initializing the GPT driver..

6.2.5.2 Gpt_StartTimer()

```
void Gpt_StartTimer (
            Gpt_ChannelType channel,
            Gpt_ValueType value )
```

GPT driver function for starting a timer channel.

The function Gpt_StartTimer shall start the selected timer channel with a defined time-out period. The function Gpt_StartTimer shall invoke the configured notification for that channel (see also GPT292) after the time-out period referenced via the parameter value (if enabled). All time units used within the API services of the GPT driver shall be of the unit ticks. In production mode no error is generated. The rational is that it adds no additional functionality to the driver. In this case the timer will be restarted with the time-out value, given as a parameter to the service. Usage of re-entrant capability is only allowed if the callers take care that there is no simultaneous usage of the same channel. To get times out of register values it is necessary to know the oscillator frequency, pre-scalers and so on. Since these settings are made in MCU and(or) in other modules it is not possible to calculate such times. Hence the conversions between time and ticks shall be part of an upper layer. The driver needs to be initialized before calling Gpt_StartTimer(). Otherwise, the function Gpt_StartTimer shall raise the development error GPT_E_UNINIT.

Parameters

in	*channel*	channel id
in	*value*	time-out period (in number of ticks) after a notification or a wakeup event shall occur.

Returns

void

Precondition

The driver needs to be initialized.

6.2.5.3 Gpt_StopTimer()

```
void Gpt_StopTimer (
            Gpt_ChannelType channel )
```

GPT driver function for stopping a timer channel.

Service for stopping the selected timer channel Stopping a timer channel, not been started before will not return a development error Timer channels configured in one shot mode are stopped automatically, when the time-out period has expired. Usage of re-entrant capability is only allowed if the callers take care that there is no simultaneous usage of the same channel. The driver needs to be initialized before calling Gpt_StopTimer(). Otherwise, the function shall raise the development error GPT_E_UNINIT.

Parameters

in	*channel*	channel id

Returns

void

Precondition

The driver needs to be initialized. Gpt_StartTimer must be called before.

6.2.5.4 Gpt_ProcessCommonInterrupt()

```
void Gpt_ProcessCommonInterrupt (
             uint8 channel )
```

Gpt common handler to implements generic part of the ISR.

Generic function used by all interrupt service routines to call notification functions and wakeup the EcuM

Parameters

in	*channel*	logic channel number

Returns

void

Precondition

The driver needs to be initialized.

6.3 Pit IPL

6.3.1 Detailed Description

Enum Reference

- enum Pit_Ip_StatusType
  Pit Status error.
- enum Pit_Ip_ChannelModeType
  Channel mode type. Indicates of whether the channel mode is "CONTINUOUS" or "ONE SHOT".

6.3.2 Enum Reference

6.3.2.1 Pit_Ip_StatusType

`enum Pit_Ip_StatusType`

Pit Status error.

Status error

Enumerator

PIT_IP_SUCCESS	Status value is SUCCESS.
PIT_IP_ERROR	Status value is ERROR

Definition at line 107 of file Pit_Ip_Types.h.

6.3.2.2 Pit_Ip_ChannelModeType

`enum Pit_Ip_ChannelModeType`

Channel mode type. Indicates of whether the channel mode is "CONTINUOUS" or "ONE SHOT".

ChannelModeType of channel.

Enumerator

PIT_IP_CH_MODE_CONTINUOUS	hannel mode - continuous mode
PIT_IP_CH_MODE_ONESHOT	hannel mode - one-shot mode.

Definition at line 117 of file Pit_Ip_Types.h.

6.4 Rtc IPL

6.4.1 Detailed Description

Enum Reference

- enum Rtc_Ip_ClockSelectType
  Enum containing the RTC module clock sources.
- enum Rtc_Ip_InterruptType
  Enum containing RTC interrupt type.
- enum Rtc_Ip_ModeType
  Enum containing RTC interrupt mode.
- enum Rtc_Ip_StatusType
  Rtc Status error.
- enum Rtc_Ip_ChannelModeType
  Channel mode type. Indicates of whether the channel mode is "CONTINUOUS" or "ONE SHOT".

6.4.2 Enum Reference

6.4.2.1 Rtc_Ip_ClockSelectType

enum Rtc_Ip_ClockSelectType

Enum containing the RTC module clock sources.

Rtc_Ip_ClockSelectType

Enumerator

RTC_IP_CLOCK_SOURCE↩_0	RTC clock source 0.
RTC_IP_CLOCK_SOURCE↩_1	RTC clock source 1.
RTC_IP_CLOCK_SOURCE↩_2	RTC clock source 2.
RTC_IP_CLOCK_SOURCE↩_3	RTC clock source 3.

Definition at line 121 of file Rtc_Ip_Types.h.

6.4.2.2 Rtc_Ip_InterruptType

enum Rtc_Ip_InterruptType

Enum containing RTC interrupt type.

Rtc_Ip_InterruptType

Enumerator

RTC_IP_COUNTER_INTERRUPT	RTC_COUNTER_INTERRUPT
RTC_IP_API_INTERRUPT	RTC_API_INTERRUPT
RTC_IP_ROLLOVER_INTERRUPT	RTC_ROLLOVER_INTERRUPT.

Definition at line 134 of file Rtc_Ip_Types.h.

6.4.2.3 Rtc_Ip_ModeType

enum Rtc_Ip_ModeType

Enum containing RTC interrupt mode.

Rtc_Ip_ModeType

Enumerator

RTC_IP_API_MODE	API(Autonomous periodic interrupt) Mode
RTC_IP_RTC_MODE	RTC Mode

Definition at line 146 of file Rtc_Ip_Types.h.

6.4.2.4 Rtc_Ip_StatusType

enum Rtc_Ip_StatusType

Rtc Status error.

Status error

Enumerator

RTC_IP_SUCCESS	Status value is SUCCESS.
RTC_IP_ERROR	Status value is ERROR

Definition at line 157 of file Rtc_Ip_Types.h.

6.4.2.5 Rtc_Ip_ChannelModeType

enum Rtc_Ip_ChannelModeType

Channel mode type. Indicates of whether the channel mode is "CONTINUOUS" or "ONE SHOT".

ChannelModeType of channel.

Enumerator

RTC_IP_CH_MODE_CONTINUOUS	channel mode - continuous mode
RTC_IP_CH_MODE_ONESHOT	channel mode - one-shot mode.

Definition at line 168 of file Rtc_Ip_Types.h.

6.5 Stm IPL

6.5.1 Detailed Description

Macros

- #define GPT_STOP_SEC_CODE
  Stm_Ip_SetUserAccessAllowed.

Enum Reference

- enum Stm_Ip_ChannelModeType
  Channel mode type. Indicates of whether the channel mode is "CONTINUOUS" or "ONE SHOT".

6.5.2 Macro Definition Documentation

6.5.2.1 GPT_STOP_SEC_CODE

```
#define GPT_STOP_SEC_CODE
```

Stm_Ip_SetUserAccessAllowed.

This function is called externally by OS Application

Parameters

in	*StmBaseAddr*	- The base address of Stm.

Definition at line 117 of file Stm_Ip_TrustedFunctions.h.

6.5.3 Enum Reference

6.5.3.1 Stm_Ip_ChannelModeType

```
enum Stm_Ip_ChannelModeType
```

Channel mode type. Indicates of whether the channel mode is "CONTINUOUS" or "ONE SHOT".

ChannelModeType of channel.

Enumerator

STM_IP_CH_MODE_CONTINUOUS	channel mode - continuous mode
STM_IP_CH_MODE_ONESHOT	channel mode - one-shot mode.

Definition at line 119 of file Stm_Ip_Types.h.

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