
User Manual

for S32K14X EEP Driver

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Chapter 1

Revision History

Table 1-1. Revision History

Revision	Date	Author	Description
1.0	26/04/2019	NXP MCAL Team	Updated version for ASR 4.2.2S32K14XR1.0.2



Chapter 2

Introduction

This User Manual describes NXP Semiconductors AUTOSAR Eeprom (EEP) for S32K14X .

AUTOSAR EEP driver configuration parameters and deviations from the specification are described in EEP Driver chapter of this document. AUTOSAR EEP driver requirements and APIs are described in the AUTOSAR EEP 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 .

Table 2-1. S32K14X Derivatives

NXP Semiconductors	s32k148_lqfp144, s32k148_lqfp176, s32k148_mapbga100, s32k146_lqfp144, s32k146_lqfp100, s32k146_lqfp64, s32k146_mapbga100, s32k144_lqfp100, s32k144_lqfp64, s32k144_mapbga100, s32k142_lqfp100, s32k142_lqfp64, s32k118_lqfp48, s32k118_lqfp64, s32k142_lqfp48, s32k144_lqfp48, s32k148_lqfp100
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All of the above microcontroller devices are collectively named as S32K14X .

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 type: Bold is used for important terms, notes and warnings.

Italic font: Italic typeface is 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.

2.4 Acronyms and Definitions

Table 2-2. Acronyms and Definitions

Term	Definition
API	Application Programming Interface
AUTOSAR	Automotive Open System Architecture
CSEC	Cryptographic Services Engine driver
DEM	Diagnostic Event Manager
DET	Default Error Tracer
EA	EEPROM Abstraction
ECC	Error Correcting Code
ECU	Electronic Control Unit
EEP	Autosar EEPROM driver

Table continues on the next page...

Table 2-2. Acronyms and Definitions (continued)

Term	Definition
EEPROM	Electrically Erasable Programmable Read-Only Memory
FLS	Autosar Flash driver
MCU	Micro Controller Unit
N/A	Not Applicable
VLE	Variable Length Encoding
XML	Extensible Markup Language

2.5 Reference List

Table 2-3. Reference List

#	Title	Version
1	Specification of EEP Driver	AUTOSAR Release 4.2.2
2	S32K14X Reference Manual	Reference Manual, Rev. 9, 9/2018
3	S32K142 Mask Set Errata for Mask 0N33V (0N33V)	30/11/2017
4	S32K144 Mask Set Errata for Mask 0N57U (0N57U)	30/11/2017
5	S32K146 Mask Set Errata for Mask 0N73V (0N73V)	30/11/2017
6	S32K148 Mask Set Errata for Mask 0N20V (0N20V)	25/10/2018
7	S32K118 Mask Set Errata for Mask 0N97V (0N97V)	07/01/2019

Chapter 3

Driver

3.1 Requirements

Requirements for this driver are detailed in the AUTOSAR 4.2 Rev0002EEP Driver Software Specification document (See Table [Reference List](#)).

3.2 Driver Design Summary

The EEP driver provides services for reading, writing and erasing eeprom memory.

3.3 Hardware Resources

The EEP driver uses the FTFC hardware resources.

3.4 Deviation from Requirements

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

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

Table 3-1. Deviations Status Column Description

Term	Definition
N/A	Not Available

Table continues on the next page...

Table 3-1. Deviations Status Column Description (continued)

Term	Definition
N/T	Not Testable
N/S	Out of Scope
N/I	Not Implemented
N/F	Not Fully Implemented
I/D	Implemented with Deviation

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

Table 3-2. Driver Deviations Table

SW Requirement ID	Status	Description	Notes
SWS_Eep_00107	N/F	The Eep module shall comply with the following file structure: Figure1 File include structure (see Figure image2.emf)	Not fully compliant
SWS_Eep_00004	N/F	(see Table Table_d2e28879.html)	EEP_E_TIMEOUT not implemented; EEPROM_E_UNEXPECTED_FLASH_ID is applicable only for external Eep driver
SWS_Eep_00015	I/D	If development error detection for the module Eep is enabled: the function Eep_Init shall check the (hardware specific) contents of the given configuration set <continue>	The check of the CRC computed over selected parameters of the configuration set is done independently of the development error detection setting. The setting itself just controls the DET reporting (EEP_E_PARAM_CONFIG).
SWS_Eep_00319	N/A	The production error code EEPROM_E_UNEXPECTED_FLASH_ID shall be reported when the expected eeprom ID is not matched (see EEPROM144).	Applicable only for external Eep driver
SWS_Eep_00144	N/A	During the initialization of the external eeprom driver, the EEPROM module shall check the hardware ID of the external eeprom device against the corresponding published parameter. <continue>	Applicable only for external Eep driver
SWS_Eep_00272	I/D	If development error detection for the module Eep is enabled: the function Eep_MainFunction shall provide a timeout monitoring for the currently running job, that is it shall supervise the deadline of the read / compare / erase or write job.	The timeout monitoring is provided independently of development error detection setting. Instead its own pre-compile switch is provided. Additionally, when properly enabled, the DEM event respective to the failed operation (EEP_E_ERASE_FAILED or EEPROM_E_WRITE_FAILED) is reported.
SWS_Eep_00359	I/D	If development error detection for the module Eep is enabled: the function Eep_MainFunction shall check, whether the configured maximum erase time <continue>	The same as for SWS_Eep_00272.
SWS_Eep_00360	I/D	If development error detection for the module Eep is enabled: the function	The same as for SWS_Eep_00272.

Table continues on the next page...

Table 3-2. Driver Deviations Table (continued)

SW Requirement ID	Status	Description	Notes
		Eep_MainFunction shall check, whether the expected maximum write time <continue>	
SWS_Eep_00361	I/D	The development error code EEP_E_TIMEOUT shall be reported when the timeout supervision of a read, write, erase or compare job failed.	The same as for SWS_Eep_00272. See also SWS_Eep_00362's Note.
SWS_Eep_00362	I/D	If development error detection for the module Eep is enabled: the function Eep_MainFunction shall check, whether the expected maximum read / compare <continue>	Timeout check was implemented only for the operations whose termination is HW-dependent (erase/write).
SWS_Eep_00215	N/F	The EEP module's eeprom access routines shall only disable interrupts and wait for the completion of the erase / write command if necessary (that is if it has to be ensured that no other code is executed in the meantime).	Only RTE plug-in has the ability to enable/disable interrupts. Additionally there is possibility to alter default behaviour and have Erase/Write jobs asynchronous, i.e. Eep_MainFunction function doesn't wait (block) for completion of the erase sector/page write operation(s).
SWS_Eep_00217	N/A	The EEP module shall add a device specific base address to the address type Eep_AddressType if necessary.	Unclear concept: device specific base address Not used
SWS_Eep_00208	N/F	The EEP module shall combine all available eeprom memory areas into one linear address space (denoted by the parameters EepBaseAddress and EepTotalSize).	Unclear Purpose. EepBaseAddress and EepTotalSize not used. Impacted requirements are: SWS_Eep_00221, SWS_Eep_00020, SWS_Eep_00226, SWS_Eep_00026, SWS_Eep_00239, SWS_Eep_00097, SWS_Eep_00244, SWS_Eep_00150,
ECUC_Eep_00169	N/I	EepBaseAddress	EepBaseAddress not used. Unclear purpose
ECUC_Eep_00170	N/I	EepTotalSize	EepTotalSize not used. Unclear purpose
SWS_Eep_00247	N/F	If source code for caller and callee of the function Eep_GetVersionInfo is available, the EEP module should realize this function as a macro. The EEP module should define this macro in the module's header file.	The function will be implemented as function, not as a macro.
SWS_Eep_00040	N/F	The function Eep_MainFunction shall only process as much data in one call cycle as statically configured for the current job type (read, write, erase or compare) and the current EEP module's operating mode (normal, fast).	For Erase job not applicable as whole sector(s) is(are) erased.
SWS_Eep_00022	I/D	If development error detection for the module Eep is enabled: After a eeprom block has been erased, the function Eep_MainFunction shall compare <continue>	Functionality available if both EepDevErrorDetect and EepEraseBlankCheck configured to true. If only EepEraseBlankCheck configured to true the DET error is not reported but Eep job ends with MEMIF_JOB_FAILED.
SWS_Eep_00055	I/D	If development error detection for the module Eep is enabled: Before writing a eeprom block, the function	Functionality available if both EepDevErrorDetect and EepWriteBlankCheck configured to true. If only EepWriteBlankCheck configured to true

Table continues on the next page...

Table 3-2. Driver Deviations Table (continued)

SW Requirement ID	Status	Description	Notes
		Eep_MainFunction shall compare <continue>	the DET error is not reported but Eep job ends with MEMIF_JOB_FAILED.
SWS_Eep_00056	I/D	If development error detection for the module Eep is enabled:: After writing a eeprom block, the function Eep_MainFunction shall compare <continue>	Functionality available if both EepDevErrorDetect and EepWriteVerifyCheck configured to true. If only EepWriteVerifyCheck configured to true the DET error is not reported but Eep job ends with MEMIF_JOB_FAILED.
SWS_Eep_00196	N/I	The function Eep_MainFunction shall at the most issue one sector erase command (to the hardware) in each cycle.	Implementation now erases only one sector per cycle but the HW allows erasing of more physical sectors in parallel (but the final erase time is not reduced).
ECUC_Eep_00306	N/I	EepCallCycle	EepCallCycle not used, unclear purpose.
ECUC_Eep_00280	N/I	EepNumberOfSectors	EepNumberOfSectors not used, unclear purpose.
ECUC_Eep_00279	N/I	EepProtection {EEP_PROTECTION} Erase/write protection settings. Only relevant if supported by hardware. (see Table TableConf_d2e40923.html)	EepProtection: not used. Replaced by Vendor specific parameter (see PR-MCAL-3158)
SWS_Eep_00302	N/I	The module's status, mode and the job result shall be made available for debugging (reading)	Support for Debugging shall not be implemented according to PR-MCAL-3330.eep.

As a deviation from standard:

Eep_PBcfg_[VariantName].c files will contain the definition for all parameters that are variant aware, independent of the configuration class that will be selected (PC, LT, PB)
 Eep_Cfg.c, Eep_Cfg.h file will contain the definition for all parameters that are not variant aware

3.5 Driver limitations

None

3.6 Driver usage and configuration tips

3.6.1 Avoiding RWW problem

To avoid RWW (Read While Write) problems the eeprom driver provide the `EepAcLoadOnJobStart` configuration parameter. If it is set to true the Eep driver will load the eeprom access code routine to RAM whenever an erase or write job is started and unload (overwrite) it after that job has been finished or cancelled.

`EepAcLoadOnJobStart` functionality can be used only in case of Synchronuous Mode, in which case the eeprom access code is loaded to RAM and therefore the eeprom driver shouldn't have RWW problems; if `EepAcLoadOnJobStart` is set to false then the EEP code must not be placed in the same RWW partition as the EFLASH(data flash used as eeprom emulation).

In case of Async operations it is only possible to load EEP code to a different RWW partition that the one containing the EFLASH(data flash used for eeprom emulation)

3.7 Runtime Errors

The driver supports runtime generation of the DEM errors listed in the Table [Runtime Errors](#). The DEM reporting can be disabled either globally (see [Form NonAutosar](#)) or individually for each DEM event type listed within [Form EepDemEventParameterRefs](#).

Table 3-3. Runtime Errors

Function	Error Code	Condition triggering the error
<code>Eep_MainFunction()</code>	<code>EEP_E_ERASE_FAILED</code>	Erase operation failed.
<code>Eep_MainFunction()</code>	<code>EEP_E_ERASE_FAILED</code>	Erase operation failed (in case of detected timeout event).
<code>Eep_MainFunction()</code>	<code>EEP_E_WRITE_FAILED</code>	Write operation failed.
<code>Eep_MainFunction()</code>	<code>EEP_E_WRITE_FAILED</code>	Write operation failed (in case of detected timeout event).
<code>Eep_MainFunction()</code>	<code>EEP_E_READ_FAILED</code>	Read operation failed
<code>Eep_MainFunction()</code>	<code>EEP_E_COMPARE_FAILED</code>	compare ead operation failed.
<code>Eep_Init()</code>	<code>EEP_E_BO_MAINTENANCE</code>	BO detected before completing EEPROM quick write maintenance.
<code>Eep_Init()</code>	<code>EEP_E_BO_QUICK_WRITES</code>	BO detected before completing EEPROM quick writes.
<code>Eep_Init()</code>	<code>EEP_E_BO_NORMAL_WRITES</code>	BO detected during normal EEPROM write activity.

3.8 Det Error Description

Table 3-4. Det Error Description

Error Code	Value	Condition triggering the error
EEP_E_INIT_FAILED(For asr422)	0x10	API service called with init failed
EEP_E_PARAM_CONFIG(For asr403)	0x10	API service called with wrong parameter
EEP_E_BUSY	0x21	API service called while driver still busy
EEP_E_UNINIT	0x20	API service called without module initialization
EEP_E_PARAM_ADDRESS	0x11	TargetAddress is not in range and aligned to first byte of eeprom sector
EEP_E_PARAM_LENGTH	0x13	TargetAddress is not in range and aligned to last byte of eeprom sector
EEP_E_PARAM_DATA	0x12	NULL_PTR == SourceAddressPtr
EEP_E_TIMEOUT	0x22	The hardware operation did not finish before timeout expired.
EEP_E_PARAM_POINTER	0x23	NULL_PTR passed
EEP_E_CANCEL_REJECTED	0x24	Eep_Cancel was called during processing of a write job requested by Eep_QuickWrite, which is not allowed.

3.9 Software specification

The following sections contains driver software specifications.

3.9.1 Define Reference

Constants supported by the driver are as per AUTOSAR EEP Driver software specification Version 4.2 Rev0002 .

3.9.2 Enum Reference

Enumeration of all constants supported by the driver are as per AUTOSAR EEP Driver software specification Version 4.2 Rev0002 .

3.9.3 Function Reference

Functions of all functions supported by the driver are as per AUTOSAR EEP Driver software specification Version 4.2 Rev0002 .

3.9.3.1 Function Eep_Cancel

Cancel an ongoing eeprom read, write, erase or compare job.

Details:

Abort a running job synchronously so that directly after returning from this function a new job can be started.

Pre: The module must be initialized.

Post: Eep_Cancel changes module status and Eep_eJobResult internal variable.

Implements: Eep_Cancel_Activity

Violates: All declarations and definitions of objects or functions at file scope shall have internal linkage unless external linkage required

Prototype: `void Eep_Cancel(void);`

Note

Aborting an operation ongoing at hardware level is not supported.

3.9.3.2 Function Eep_Compare

Compares a eeprom memory area with an application data buffer.

Details:

Starts a compare job asynchronously. The actual job is performed by Eep_MainFunction .

Return: Std_ReturnType.

Pre: The module has to be initialized and not busy.

Violates: All declarations and definitions of objects or functions at file scope shall have internal linkage unless external linkage required

Prototype: `Std_ReturnType Eep_Compare(Eep_AddressType u32SourceAddress, const uint8 *pTargetAddressPtr, Eep_LengthType u32Length);`

Table 3-5. Eep_Compare Arguments

Type	Name	Direction	Description
Eep_AddressType	u32SourceAddress	input	Source address in eeprom memory.
const uint8 *	pTargetAddressPtr	input	Pointer to source data buffer.
Eep_LengthType	u32Length	input	Number of bytes to compare.

Table 3-6. Eep_Compare Return Values

Name	Description
E_OK	Compare command has been accepted.
E_NOT_OK	Compare command has not been accepted.

3.9.3.3 Function Eep_Erase

Erase a memory area of size length. The EEP driver writes and reads from the FLEXRAM memory which does not need erase before re-writing. In order to comply with AUTOSAR interface requirements, the NXP EEP provides the Eep_Erase API which will perform a software erase(write ERASED_VALUE 0xFF), in case it is needed by the EEP user.

Details:

Starts an erase job asynchronously. The actual job is performed by theEep_MainFunction.

Return: Std_ReturnType.

Pre: The module has to be initialized and not busy.

Prototype: Std_ReturnType Eep_Erase(Eep_AddressType u32TargetAddress, Eep_LengthType u32Length) ;

Table 3-7. Eep_Erase Arguments

Type	Name	Direction	Description
Eep_AddressType	u32TargetAddress	input	Target address in eeprom memory.
Eep_LengthType	u32Length	input	Number of bytes to erase.

Table 3-8. Eep_Erase Return Values

Name	Description
E_OK	Erase command has been accepted.
E_NOT_OK	Erase command has not been accepted.

3.9.3.4 Function Eep_GetJobResult

Returns the result of the last job.

Details:

Returns synchronously the result of the last job.

Return: MemIf_JobResultType.

Implements: Eep_GetJobResult_Activity

Violates: All declarations and definitions of objects or functions at file scope shall have internal linkage unless external linkage required

Prototype: MemIf_JobResultType Eep_GetJobResult(void);

Table 3-9. Eep_GetJobResult Return Values

Name	Description
MEMIF_JOB_OK	Successfully completed job.
MEMIF_JOB_FAILED	Not successfully completed job.
MEMIF_JOB_PENDING	Still pending job (not yet completed).
MEMIF_JOB_CANCELED	Job has been canceled.
MEMIF_BLOCK_INCONSISTENT	Inconsistent block requested, it may contains corrupted data.
MEMIF_BLOCK_INVALID	Invalid block requested.

3.9.3.5 Function Eep_GetStatus

Returns the EEP module status.

Details:

Returns the EEP module status synchronously.

Return: MemIf_StatusType.

Implements: Eep_GetStatus_Activity

Violates: All declarations and definitions of objects or functions at file scope shall have internal linkage unless external linkage required

Prototype: MemIf_StatusType Eep_GetStatus(void);

Table 3-10. Eep_GetStatus Return Values

Name	Description
MEMIF_UNINIT	Module has not been initialized (yet).
MEMIF_IDLE	Module is currently idle.
MEMIF_BUSY	Module is currently busy.

3.9.3.6 Function Eep_GetVersionInfo

Returns version information about EEP module.

Details:

Version information includes:

- Module Id
- Vendor Id
- Vendor specific version numbers (BSW00407).

Implements: Eep_GetVersionInfo_Activity

Prototype: void Eep_GetVersionInfo(Std_VersionInfoType *pVersionInfoPtr);

Table 3-11. Eep_GetVersionInfo Arguments

Type	Name	Direction	Description
Std_VersionInfoType *	pVersionInfoPtr	input, output	Pointer to where to store the version information of this module.

3.9.3.7 Function Eep_Init

The function initializes Eep module. The FLEXRAM and FLEXNVM must be partitioned for eeprom emulation usage prior to using API Eep_Init. The partitioning is done by running the "Program partition command".

Details:

Implements: Eep_Init_Activity

Prototype: void Eep_Init(const Eep_ConfigType *pConfigPtr);

Table 3-12. Eep_Init Arguments

Type	Name	Direction	Description
constEep_ConfigType*	pConfigPtr	input	Pointer to eeprom driver configuration set.

3.9.3.8 Function Eep_MainFunction

Performs actual eeprom read, write, erase and compare jobs.

Details:

Bytes number processed per cycle depends by job type (erase, write, read, compare) current EEP module's operating mode (normal, fast) and write, erase Mode of Execution (sync, async).

Pre: The module has to be initialized.

Implements: Eep_MainFunction_Activity

Note

This function have to be called ciclically by the Basic Software Module; it will do nothing if there aren't pending job.

Prototype: void Eep_MainFunction(void);

3.9.3.9 Function Eep_Read

Reads from eeprom memory.

Details:

Starts a read job asynchronously. The actual job is performed by Eep_MainFunction.

Return: MemIf_JobResultType.

Pre: The module has to be initialized and not busy.

Prototype: Std_ReturnType Eep_Read(Eep_AddressType u32SourceAddress, uint8 *pTargetAddressPtr, Eep_LengthType u32Length);

Table 3-13. Eep_Read Arguments

Type	Name	Direction	Description
Eep_AddressType	SourceAddress	input	Source address in eeprom memory.
Eep_LengthType	Length	input	Number of bytes to read.
uint8 *	TargetAddressPtr	output	Pointer to target data buffer.

Table 3-14. Eep_Read Return Values

Name	Description
MEMIF_JOB_OK	Successfully completed job.
MEMIF_JOB_FAILED	Not successfully completed job.
MEMIF_JOB_PENDING	Still pending job (not yet completed).
MEMIF_JOB_CANCELED	Job has been canceled.
MEMIF_BLOCK_INCONSISTENT	Inconsistent block requested, it may contains corrupted data.
MEMIF_BLOCK_INVALID	Invalid block requested.

3.9.3.10 Function Eep_SetMode

Sets the EEP module's operation mode to the given Mode.

Details:

Every given mode determinates maximum bytes for read-write operations. Every mode has a set of pre-configured values.

Pre: The module has to be initialized and not busy.

Post Eep_SetMode nchanges internal variables Eep_u32MaxRead and Eep_u32MaxWrite.

Implements: Eep_SetMode_Activity

Violates: All declarations and definitions of objects or functions at file scope shall have internal linkage unless external linkage required

Prototype: `void Eep_SetMode(MemIf_ModeType eMode);`

Table 3-15. Eep_SetMode Arguments

Type	Name	Direction	Description
MemIf_ModeType	Mode	input	MEMIF_MODE_FAST or MEMIF_MODE_SLOW.

3.9.3.11 Function Eep_Write

Write one or more complete eeprom pages to the eeprom device.

Details:

Starts a write job asynchronously. The actual job is performed by Eep_MainFunction.

Return: Std_ReturnType.

Pre: The module has to be initialized and not busy.

Prototype: `Std_ReturnType Eep_Write(Eep_AddressType u32TargetAddress, const uint8 *pSourceAddressPtr, Eep_LengthType u32Length);`

Table 3-16. Eep_Write Arguments

Type	Name	Direction	Description
Eep_AddressType	TargetAddress	input	Target address in eeprom memory.
const uint8 *	SourceAddressPtr	input	Pointer to source data buffer.
Eep_LengthType	Length	input	Number of bytes to write.

Table 3-17. Eep_Write Return Values

Name	Description
E_OK	Write command has been accepted.
E_NOT_OK	Write command has not been accepted.

3.9.3.12 Function Eep_QuickWrite

Write to the eeprom device using the hardware quick write mode.

Details:

Starts a write job asynchronously. The actual job is performed by Eep_MainFunction.

Return: Std_ReturnType.

Pre: The module has to be initialized and not busy.

Prototype: Std_ReturnType Eep_QuickWrite(Eep_AddressType u32TargetAddress, const uint8 *pSourceAddressPtr, Eep_LengthType u32Length, uint16 u16QuickWritesLength);

Table 3-18. Eep_QuickWrite Arguments

Type	Name	Direction	Description
Eep_AddressType	TargetAddress	input	Target address in eeprom memory.
const uint8 *	SourceAddressPtr	input	Pointer to source data buffer.
Eep_LengthType	Length	input	Number of bytes to write.
uint16	u16QuickWritesLength	input	Number of quick write bytes to setup in the hardware.

Table 3-19. Eep_QuickWrite Return Values

Name	Description
E_OK	Write command has been accepted.
E_NOT_OK	Write command has not been accepted.

3.9.4 Structs Reference

Data structures supported by the driver are as per AUTOSAR EEP Driver software specification Version 4.2 Rev0002 .

3.9.5 Types Reference

Types supported by the driver are as per AUTOSAR EEP Driver software specification Version 4.2 Rev0002 .

3.9.6 Variables Reference

Variables supported by the driver are as per AUTOSAR EEP Driver software specification Version 4.2 Rev0002 .

3.10 Symbolic Names Disclaimer

All containers having the symbolic name tag set as true in the Autosar schema will generate defines like:

```
#define <Container_Short_Name> <Container_ID>
```

For this reason it is forbidden to duplicate the name of such containers across the MCAL configuration, 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 EEP Driver. The most of the parameters are described below.

4.1 Configuration elements of Eep

Included forms :

- IMPLEMENTATION_CONFIG_VARIANT
- NonAutosar
- EepGeneral
- EepPublishedInformation
- CommonPublishedInformation
- EepInitConfiguration

4.2 Form IMPLEMENTATION_CONFIG_VARIANT

VariantPostBuild: Mix of precompile and postbuild time configuration parameters.

If Config Variant = VariantPostBuild, the files Eep_Cfg.h and Eep_PBcfg.c should be used.

If Config Variant = VariantPreCompile, the files Eep_Cfg.h and Eep_Cfg.c should be used.

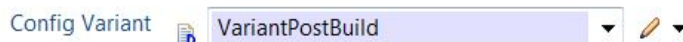


Figure 4-1. Tresos Plugin snapshot for IMPLEMENTATION_CONFIG_VARIANT form.

Table 4-1. Attribute IMPLEMENTATION_CONFIG_VARIANT detailed description

Property	Value
Label	Config Variant
Type	ENUMERATION
Default	VariantPostBuild
Range	VariantPostBuild VariantPreCompile

4.3 Form NonAutosar

Vendor specific: This container contains the global Non-Autosar configuration parameters of the Eep driver. This container is a MultipleConfigurationContainer, i.e. this container and its sub-containers exist once per configuration set.

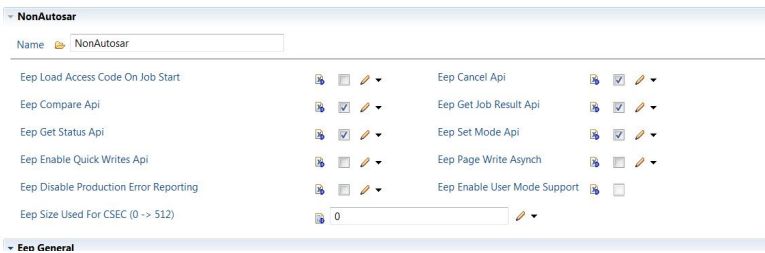


Figure 4-2. Tresos Plugin snapshot for NonAutosar form.

4.3.1 EepAcLoadOnJobStart (NonAutosar)

The EEP driver shall load the FLEXRAM access code to RAM whenever an erase, write job is started and unload (overwrite) it after that job has been finished or canceled. The EEP driver shall also load the FLEXRAM access code during the init phase, before using Set as Flexram command, and unload it after the command completes.

true: Eeprom access code loaded on job start / unloaded on job end or error.

false: Eeprom access code not loaded to / unloaded from RAM.

Table 4-2. Attribute EepAcLoadOnJobStart (NonAutosar) detailed description

Property	Value
Label	Eep Load Access Code On Job Start
Type	BOOLEAN
Origin	Custom

Table continues on the next page...

Table 4-2. Attribute EepAcLoadOnJobStart (NonAutosar) detailed description (continued)

Property	Value
Symbolic Name	false
Default	false

4.3.2 EepCancelApi (NonAutosar)

Compile switch to enable and disable the Eep_Cancel function.

true: API supported / function provided.

false: API not supported / function not provided

Table 4-3. Attribute EepCancelApi (NonAutosar) detailed description

Property	Value
Label	Eep Cancel Api
Type	BOOLEAN
Origin	Custom
Symbolic Name	false
Default	true

4.3.3 EepCompareApi (NonAutosar)

Compile switch to enable and disable the Eep_Compare function.

true: API supported / function provided.

false: API not supported / function not provided

Table 4-4. Attribute EepCompareApi (NonAutosar) detailed description

Property	Value
Label	Eep Compare Api
Type	BOOLEAN
Origin	Custom
Symbolic Name	false
Default	true

4.3.4 EepGetJobResultApi (NonAutosar)

Compile switch to enable and disable the Eep_GetJobResult function.

true: API supported / function provided.

false: API not supported / function not provided

Table 4-5. Attribute EepGetJobResultApi (NonAutosar) detailed description

Property	Value
Label	Eep Get Job Result Api
Type	BOOLEAN
Origin	Custom
Symbolic Name	false
Default	true

4.3.5 EepGetStatusApi (NonAutosar)

Compile switch to enable and disable the Eep_GetStatus function.

true: API supported / function provided.

false: API not supported / function not provided

Table 4-6. Attribute EepGetStatusApi (NonAutosar) detailed description

Property	Value
Label	Eep Get Status Api
Type	BOOLEAN
Origin	Custom
Symbolic Name	false
Default	true

4.3.6 EepSetModeApi (NonAutosar)

Compile switch to enable and disable the Eep_SetMode function.

true: API supported / function provided.

false: API not supported / function not provided

Table 4-7. Attribute EepSetModeApi (NonAutosar) detailed description

Property	Value
Label	Eep Set Mode Api
Type	BOOLEAN
Origin	Custom
Symbolic Name	false
Default	true

4.3.7 EepPageAsynchBehaviorEn (NonAutosar)

Vendor specific: Enable asynchronous execution of the write or erase job in the Eep_MainFunction function which doesn't wait (block) for completion of the page write or erase operation(s). The eeprom driver doesn't use the access code in asynchronous mode. Also, if EEP is used in the same application with CSEC or FLS, the asynchronous mode must not be used.

Table 4-8. Attribute EepPageAsynchBehaviorEn (NonAutosar) detailed description

Property	Value
Label	Eep Page Write Asynch
Type	BOOLEAN
Origin	Custom
Symbolic Name	false
Default	false

4.3.8 EepEnableQuickWriteApi (NonAutosar)

Vendor specific: Pre-processor switch to enable / disable Eep_QuickWrite API usage.

true: Eep_QuickWrite will be available

false: Eep_QuickWrite will not be available

Table 4-9. Attribute EepEnableQuickWriteApi (NonAutosar) detailed description

Property	Value
Label	Enable Eep_QuickWrite API usage
Type	BOOLEAN
Origin	Custom
Symbolic Name	false
Default	true

4.3.9 EepSizeUsedForCSEC (NonAutosar)

This parameter is needed only if CSEC driver is used. It represents the size of FLEXRAM used by CSEC in bytes. For example if the maximum number of CSEC keys is used, then the integrator should configure EepSizeUsedForCSEC to 512 bytes.

Table 4-10. Attribute EepSizeUsedForCSEC (NonAutosar) detailed description

Property	Value
Label	Eep Size Used For CSEC
Type	INTEGER
Origin	Custom
Symbolic Name	false
Default	0

4.3.10 EepDisableDemReportErrorStatus (NonAutosar)

Vendor specific: Switches the Diagnostic Error Reporting and Notification OFF.

Table 4-11. Attribute EepDisableDemReportErrorStatus (NonAutosar) detailed description

Property	Value
Label	Eep Disable Production Error Reporting
Type	BOOLEAN
Origin	Custom
Symbolic Name	false
Default	false

4.3.11 EepEnableUserModeSupport (NonAutosar)

When this parameter is enabled, the EEP module will adapt to run from User Mode, with the following measures:

configuring REG_PROT for Eep IPs so that the registers under protection can be accessed from user mode by setting UAA bit in REG_PROT_GCR to 1

for more information and availability on this platform, please see chapter User Mode Support in IM

Table 4-12. Attribute EepEnableUserModeSupport (NonAutosar) detailed description

Property	Value
Label	Eep Enable User Mode Support
Type	BOOLEAN
Origin	Custom
Symbolic Name	false
Default	false

4.4 Form EepGeneral

Container for general parameters of the eeprom driver. These parameters are always pre-compile.

Included forms :

- [Form EepTimeouts](#)

Figure 4-3. Tresos Plugin snapshot for EepGeneral form.

4.4.1 EepDevErrorDetect (EepGeneral)

Pre-processor switch to enable and disable development error detection (see EEP077).

true: Development error detection enabled.

false: Development error detection disabled.

Table 4-13. Attribute EepDevErrorDetect (EepGeneral) detailed description

Property	Value
Label	Eep Development Error Detect
Type	BOOLEAN
Origin	AUTOSAR_ECUC
Symbolic Name	false
Default	true

4.4.2 EepDriverIndex (EepGeneral)

Index of the driver, used by FEE.

Table 4-14. Attribute EepDriverIndex (EepGeneral) detailed description

Property	Value
Label	Eep Driver Index
Type	INTEGER
Origin	AUTOSAR_ECUC
Symbolic Name	true
Default	0
Invalid	Range <div style="margin-left: 20px;"> ≤ 254 ≥ 0 </div>

4.4.3 EepUseInterrupts (EepGeneral)

Job processing triggered by hardware interrupt.

true: Job processing triggered by interrupt (hardware controlled)

false: Job processing not triggered by interrupt (software controlled)

Note:

Not used by the EEP driver.

Table 4-15. Attribute EepUseInterrupts (EepGeneral) detailed description

Property	Value
Label	Eep Use Interrupts
Type	BOOLEAN
Origin	AUTOSAR_ECUC
Symbolic Name	false
Default	false

4.4.4 EepVersionInfoApi (EepGeneral)

Pre-processor switch to enable / disable the API to read out the modules version information.

true: Version info API enabled.

false: Version info API disabled.

Table 4-16. Attribute EepVersionInfoApi (EepGeneral) detailed description

Property	Value
Label	Eep Version Info Api
Type	BOOLEAN
Origin	AUTOSAR_ECUC
Symbolic Name	false
Default	true

4.4.5 EepWriteCycleReduction (EepGeneral)

Switches to activate or deactivate write cycle reduction (EEPROM value is read and compared before being overwritten). true: writecycle reduction enabled. false: Write cycle reduction disabled. The parameter is currently not used as the support for the write cycle reduction is implemented in hardware.

Table 4-17. Attribute EepWriteCycleReduction (EepGeneral) detailed description

Property	Value
Label	Eep Write Cycle Reduction Api
Type	BOOLEAN
Origin	AUTOSAR_ECUC
Symbolic Name	false
Default	false

4.5 Form EepTimeouts

Container for hardware timeout handling.

Is included by form : [Form EepGeneral](#)

Figure 4-4. Tresos Plugin snapshot for EepTimeouts form.

4.5.1 EepAsyncWriteTimeout (EepTimeouts)

Vendor specific: Eep Async Write Timeout is the timeout value for write operation in asynchronous mode.

Table 4-18. Attribute EepAsyncWriteTimeout (EepTimeouts) detailed description

Property	Value
Label	Eep Async Write Timeout
Type	INTEGER
Origin	Custom
Symbolic Name	false
Default	2147483647
Invalid	Range <div> <div><=2147483647</div> <div>>=0</div> </div>

4.5.2 EepSyncWriteTimeout (EepTimeouts)

Vendor specific: Eep Sync Write Timeout is the timeout value for write operation in synchronous mode.

Table 4-19. Attribute EepSyncWriteTimeout (EepTimeouts) detailed description

Property	Value
Label	Eep Sync Write Timeout
Type	INTEGER
Origin	Custom
Symbolic Name	false
Default	2147483647
Invalid	Range <div> <div><=2147483647</div> <div>>=0</div> </div>

4.5.3 EepAbortTimeout (EepTimeouts)

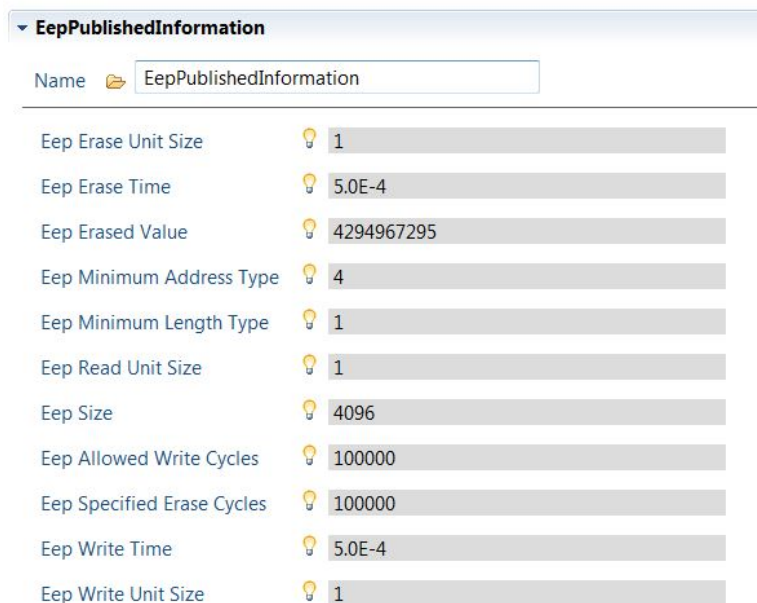
Vendor specific: Eep Abort Timeout is the timeout value for aborting an ongoing operation.

Table 4-20. Attribute EepAbortTimeout (EepTimeouts) detailed description

Property	Value
Label	Eep Async Abort Timeout
Type	INTEGER
Origin	Custom
Symbolic Name	false
Default	32767
Invalid	Range <div> <div><=2147483647</div> <div>>=0</div> </div>

4.6 Form EepPublishedInformation

Additional published parameters not covered by CommonPublishedInformation container. Note that these parameters do not have any configuration class setting, since they are published information.



EepPublishedInformation	
Name	EepPublishedInformation
Eep Erase Unit Size	1
Eep Erase Time	5.0E-4
Eep Erased Value	4294967295
Eep Minimum Address Type	4
Eep Minimum Length Type	1
Eep Read Unit Size	1
Eep Size	4096
Eep Allowed Write Cycles	100000
Eep Specified Erase Cycles	100000
Eep Write Time	5.0E-4
Eep Write Unit Size	1

Figure 4-5. Tresos Plugin snapshot for EepPublishedInformation form.

4.6.1 EepEraseUnitSize (EepPublishedInformation)

Size of smallest erasable EEPROM data unit in bytes.FLEXRAM does not allow erase.

Table 4-21. Attribute EepEraseUnitSize (EepPublishedInformation) detailed description

Property	Value
Label	Eep Erase Unit Size
Type	INTEGER_LABEL
Origin	AUTOSAR_ECUC
Symbolic Name	false
Default	1
Invalid	Range ≤ 4294967295 ≥ 0

4.6.2 EepEraseTime (EepPublishedInformation)

Maximum time to erase one complete eeprom data unit.

Note:

This value can be found on DS as the maximum erase time occurs after the specified number of program/erase cycles. FLEXRAM does not allow erase, only DFLASH, PFLASH allow erase.

Table 4-22. Attribute EepEraseTime (EepPublishedInformation) detailed description

Property	Value
Label	Eep Erase Time
Type	FLOAT_LABEL
Origin	AUTOSAR_ECUC
Symbolic Name	false
Default	0.0005
Invalid	Range ≤ 0.0005 ≥ 0

4.6.3 EepEraseValue (EepPublishedInformation)

The contents of an erased eeprom memory cell.

Table 4-23. Attribute EepEraseValue (EepPublishedInformation) detailed description

Property	Value
Label	Eep Erased Value

Table continues on the next page...

Table 4-23. Attribute EepEraseValue (EepPublishedInformation) detailed description (continued)

Property	Value
Type	INTEGER_LABEL
Origin	AUTOSAR_ECUC
Symbolic Name	false
Default	4294967295
Invalid	Range <=4294967295 >=0

4.6.4 EepMinimumAddressType (EepPublishedInformation)

Minimum expected size of Eep_AddressType.

Table 4-24. Attribute EepMinimumAddressType (EepPublishedInformation) detailed description

Property	Value
Label	Eep Minimum Address Type
Type	INTEGER_LABEL
Origin	AUTOSAR_ECUC
Symbolic Name	false
Default	4
Invalid	Range <=4294967295 >=0

4.6.5 EepMinimumLengthType (EepPublishedInformation)

Minimum expected size of Eep_LengthType.

Table 4-25. Attribute EepMinimumLengthType (EepPublishedInformation) detailed description

Property	Value
Label	Eep Minimum Length Type
Type	INTEGER_LABEL
Origin	AUTOSAR_ECUC
Symbolic Name	false
Default	1

Table continues on the next page...

Table 4-25. Attribute EepMinimumLengthType (EepPublishedInformation) detailed description (continued)

Property	Value
Invalid	Range <=4294967295 >=0

4.6.6 EepReadUnitSize (EepPublishedInformation)

Size of smallest readable EEPROM data unit in bytes.

Table 4-26. Attribute EepReadUnitSize (EepPublishedInformation) detailed description

Property	Value
Label	Eep Read Unit Size
Type	INTEGER_LABEL
Origin	AUTOSAR_ECUC
Symbolic Name	false
Default	1
Invalid	Range <=4294967295 >=0

4.6.7 EepTotalSize (EepPublishedInformation)

This parameter is the used size of EEPROM device in bytes.

Table 4-27. Attribute EepTotalSize (EepPublishedInformation) detailed description

Property	Value
Label	Eep Size
Type	INTEGER_LABEL
Origin	AUTOSAR_ECUC
Symbolic Name	false
Default	4096
Invalid	Range <=4294967295 >=0

4.6.8 EepAllowedWriteCycles (EepPublishedInformation)

Specified maximum number of write cycles under worst case conditions of specific EEPROM hardware.

Table 4-28. Attribute EepAllowedWriteCycles (EepPublishedInformation) detailed description

Property	Value
Label	Eep Allowed Write Cycles
Type	INTEGER_LABEL
Origin	AUTOSAR_ECUC
Symbolic Name	false
Default	100000
Invalid	Range <=4294967295 >=0

4.6.9 EepSpecifiedEraseCycles (EepPublishedInformation)

Number of erase cycles specified for the EEP device (usually given in the device data sheet). FLEXRAM does not allow erase.

Table 4-29. Attribute EepSpecifiedEraseCycles (EepPublishedInformation) detailed description

Property	Value
Label	Eep Specified Erase Cycles
Type	INTEGER_LABEL
Origin	AUTOSAR_ECUC
Symbolic Name	false
Default	100000
Invalid	Range <=4294967295 >=0

4.6.10 EepWriteTime (EepPublishedInformation)

Maximum time to program one complete eeprom page.

Table 4-30. Attribute EepWriteTime (EepPublishedInformation) detailed description

Property	Value
Label	Eep Write Time
Type	FLOAT_LABEL
Origin	AUTOSAR_ECUC
Symbolic Name	false
Default	0.0005
Invalid	Range <=0.0005 >=0

4.6.11 EepWriteUnitSize (EepPublishedInformation)

Size of smallest writeable EEPROM data unit in bytes.

Table 4-31. Attribute EepWriteUnitSize (EepPublishedInformation) detailed description

Property	Value
Label	Eep Write Unit Size
Type	INTEGER_LABEL
Origin	AUTOSAR_ECUC
Symbolic Name	false
Default	1
Invalid	Range <=4294967295 >=0

4.7 Form CommonPublishedInformation

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

General | EepSpiReference | Published Information

Common Published Information

Name: CommonPublishedInformation

- AUTOSAR Major Version: 4
- AUTOSAR Minor Version: 2
- AUTOSAR Patch Version: 2
- Numeric Module ID: 90
- Software Major Version: 1
- Software Minor Version: 0
- Software Patch Version: 2
- Vendor Api Infix:
- Vendor ID: 43

Figure 4-6. Tressos Plugin snapshot for CommonPublishedInformation form.

4.7.1 ArReleaseMajorVersion (CommonPublishedInformation)

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

Table 4-32. Attribute ArReleaseMajorVersion (CommonPublishedInformation) detailed description

Property	Value
Label	AUTOSAR Major Version
Type	INTEGER_LABEL
Origin	Custom
Symbolic Name	false
Default	4
Invalid	Range <div>>=4</div> <div><=4</div>

4.7.2 ArReleaseMinorVersion (CommonPublishedInformation)

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

Table 4-33. Attribute ArReleaseMinorVersion (CommonPublishedInformation) detailed description

Property	Value
Label	AUTOSAR Minor Version
Type	INTEGER_LABEL

Table continues on the next page...

Table 4-33. Attribute ArReleaseMinorVersion (CommonPublishedInformation) detailed description (continued)

Property	Value
Origin	Custom
Symbolic Name	false
Default	2
Invalid	Range <div>>=2</div> <div><=2</div>

4.7.3 ArReleaseRevisionVersion (CommonPublishedInformation)

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

Table 4-34. Attribute ArReleaseRevisionVersion (CommonPublishedInformation) detailed description

Property	Value
Label	AUTOSAR Release Revision Version
Type	INTEGER_LABEL
Origin	Custom
Symbolic Name	false
Default	2
Invalid	Range <div>>=2</div> <div><=2</div>

4.7.4 ModuleId (CommonPublishedInformation)

Module ID of this module from Module List.

Table 4-35. Attribute ModuleId (CommonPublishedInformation) detailed description

Property	Value
Label	Module Id
Type	INTEGER_LABEL
Origin	Custom
Symbolic Name	false
Default	90

Table continues on the next page...

Table 4-35. Attribute ModuleId (CommonPublishedInformation) detailed description (continued)

Property	Value
Invalid	Range >=90 <=90

4.7.5 SwMajorVersion (CommonPublishedInformation)

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

Table 4-36. Attribute SwMajorVersion (CommonPublishedInformation) detailed description

Property	Value
Label	Software Major Version
Type	INTEGER_LABEL
Origin	Custom
Symbolic Name	false
Default	1
Invalid	Range >=1 <=1

4.7.6 SwMinorVersion (CommonPublishedInformation)

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

Table 4-37. Attribute SwMinorVersion (CommonPublishedInformation) detailed description

Property	Value
Label	Software Minor Version
Type	INTEGER_LABEL
Origin	Custom
Symbolic Name	false
Default	0
Invalid	Range >=0 <=0

4.7.7 SwPatchVersion (CommonPublishedInformation)

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

Table 4-38. Attribute SwPatchVersion (CommonPublishedInformation) detailed description

Property	Value
Label	Software Patch Version
Type	INTEGER_LABEL
Origin	Custom
Symbolic Name	false
Default	2
Invalid	Range >=2 <=2

4.7.8 VendorApiInfix (CommonPublishedInformation)

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><Api name from SWS>. 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.

Table 4-39. Attribute VendorApiInfix (CommonPublishedInformation) detailed description

Property	Value
Label	Vendor Api Infix
Type	STRING_LABEL
Origin	Custom
Symbolic Name	false
Default	
Enable	false

4.7.9 VendorId (CommonPublishedInformation)

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

Table 4-40. Attribute VendorId (CommonPublishedInformation) detailed description

Property	Value
Label	Vendor Id
Type	INTEGER_LABEL
Origin	Custom
Symbolic Name	false
Default	43
Invalid	Range <div> <div>>=43</div> <div><=43</div> </div>

4.8 Form EepInitConfiguration

Container for runtime configuration parameters of the eeprom driver.

Implementation Type: Eep_ConfigType.

Included forms :

- [Form EepDemEventParameterRefs](#)
- [Form EepExternalDriver](#)

Name: EepInitConfiguration_0

General | EepSpiReference

Eep Size (0 -> 4294967295)	4096
Eep Base Address (0 -> 4294967295)	335544320
Eep Access Code Write (0 -> 4294967295)	1073751296
Eep Access Code Write Pointer	NULL_PTR
Eep Call Cycle (0 -> 1)	0.0
Eep Default Mode	MEMIF_MODE_SLOW
<input checked="" type="checkbox"/> Eep AC Callback	Eep_AC_Callback
<input checked="" type="checkbox"/> Eep Job End Notification	Fee_JobEndNotification
<input checked="" type="checkbox"/> Eep Job Error Notification	Fee_JobErrorNotification
<input checked="" type="checkbox"/> Eep Start Eeprom Access Notification	Eep_StartEepromAccessNotif
<input checked="" type="checkbox"/> Eep Finished Eeprom Access Notifications	Eep_FinishedEepromAccessNotif
Eep Max Read Fast Mode (0 -> 4294967295)	8
Eep Max Read Normal Mode (0 -> 4294967295)	8
Eep Max Write Fast Mode	8
Eep Max Write Normal Mode	8

Figure 4-7. Tressos Plugin snapshot for EepInitConfiguration form.

4.8.1 EepSize (EepInitConfiguration)

This parameter is the used size of EEPROM device in bytes.

Table 4-41. Attribute EepSize (EepInitConfiguration) detailed description

Property	Value
Label	Eep Size
Type	INTEGER_LABEL
Origin	AUTOSAR_ECUC
Symbolic Name	false
Default	4096
Invalid	Range <div> <div><=4294967295</div> <div>>=0</div> </div>

4.8.2 EepBaseAddress (EepInitConfiguration)

The eeprom memory start address (see also EEP118).

EEP169: This parameter defines the lower boundary for read / write / erase and compare jobs.

Note:

Not needed / supported by the driver.

Table 4-42. Attribute EepBaseAddress (EepInitConfiguration) detailed description

Property	Value
Label	Eep Base Address
Type	INTEGER_LABEL
Origin	AUTOSAR_ECUC
Symbolic Name	false
Default	335544320
Invalid	Range <div> <div><=4294967295</div> <div>>=0</div> </div>

4.8.3 EepAcWrite (EepInitConfiguration)

Address offset in RAM to which the erase eeprom access code shall be loaded. Used as function pointer to access the erase eeprom access code.

Note: To use Eep Access Code Erase be sure Eep Access Code Erase Pointer is NULL or NULL_PTR.

Table 4-43. Attribute EepAcWrite (EepInitConfiguration) detailed description

Property	Value
Label	Eep Access Code Write
Type	INTEGER
Origin	Custom
Symbolic Name	false
Invalid	Range <=4294967295 >=0

4.8.4 EepAcWritePointer (EepInitConfiguration)

Vendor specific: Pointer in RAM to which the write eeprom access code shall be loaded. Used as function pointer to access the write eeprom access code.

Table 4-44. Attribute EepAcWritePointer (EepInitConfiguration) detailed description

Property	Value
Label	Eep Access Code Write Pointer
Type	FUNCTION-NAME
Origin	Custom
Symbolic Name	false
Default	NULL_PTR

4.8.5 EepJobCallCycle (EepInitConfiguration)

Cycle time of calls of the eeprom driver main function

Note:

Not supported by the driver.

Table 4-45. Attribute EepJobCallCycle (EepInitConfiguration) detailed description

Property	Value
Label	Eep Call Cycle
Type	FLOAT_LABEL
Origin	AUTOSAR_ECUC
Symbolic Name	false
Default	0.0
Invalid	Range <div> <div><=1.0</div> <div>>=0.0</div> </div>

4.8.6 EepDefaultMode (EepInitConfiguration)

This parameter is the default EEP device mode after initialization.

Table 4-46. Attribute EepDefaultMode (EepInitConfiguration) detailed description

Property	Value
Label	Eep Default Mode
Type	ENUMERATION
Origin	AUTOSAR_ECUC
Symbolic Name	false
Default	MEMIF_MODE_SLOW
Range	MEMIF_MODE_FAST MEMIF_MODE_SLOW

4.8.7 EepACCallback (EepInitConfiguration)

Vendor specific: Mapped to the Access Code Callback provided by some upper layer module, typically the Wdg module.

Note: Disable the Access Code Callback to have it set as NULL_PTR.

Table 4-47. Attribute EepACCallback (EepInitConfiguration) detailed description

Property	Value
Label	Eep AC Callback
Type	FUNCTION-NAME
Origin	Custom
Symbolic Name	false
Default	Eep_AC_Callback

4.8.8 EepJobEndNotification (EepInitConfiguration)

Mapped to the job end notification routine provided by some upper layer module, typically the Fee module.

Note: Disable the end notification to have it set as NULL_PTR

Table 4-48. Attribute EepJobEndNotification (EepInitConfiguration) detailed description

Property	Value
Label	Eep Job End Notification
Type	FUNCTION-NAME
Origin	AUTOSAR_ECUC
Symbolic Name	false
Default	Fee_JobEndNotification

4.8.9 EepJobErrorNotification (EepInitConfiguration)

Mapped to the job error notification routine provided by some upper layer module, typically the Fee module.

Note: Disable the error notification to have it set as NULL_PTR

Table 4-49. Attribute EepJobErrorNotification (EepInitConfiguration) detailed description

Property	Value
Label	Eep Job Error Notification
Type	FUNCTION-NAME
Origin	AUTOSAR_ECUC
Symbolic Name	false
Default	Fee_JobErrorNotification

4.8.10 EepStartEepromAccessNotif (EepInitConfiguration)

Start eeprom access. If configured, this notification will be called before any EFLASH memory access in synchronuous mode.

The purpose of this notification together with EepFinishedEepromAccess, is to be used by the integrator in case operations are needed before and after EFLASH access, for eg to avoid concurrent access issue.

Table 4-50. Attribute EepStartEepromAccessNotif (EepInitConfiguration) detailed description

Property	Value
Label	Eep Start Eeprom Access Notification
Type	FUNCTION-NAME
Origin	Custom
Symbolic Name	false
Default	Eep_StartEepromAccessNotif

4.8.11 EepFinishedEepromAccessNotif (EepInitConfiguration)

Finished eeprom access. If configured, this notification will be called before any EFLASH memory access in synchronuous mode.

The purpose of this notification together with EepStartEepromAccess, is to be used by the integrator in case operations are needed before and after EFLASH access, for eg to avoid concurrent access issue.

Table 4-51. Attribute EepFinishedEepromAccessNotif (EepInitConfiguration) detailed description

Property	Value
Label	Eep Finished Eeprom Access Notifications
Type	FUNCTION-NAME
Origin	Custom
Symbolic Name	false
Default	Eep_FinishedEepromAccessNotif

4.8.12 EepFastReadBlockSize (EepInitConfiguration)

The maximum number of bytes to read or compare in one cycle of the eeprom driver's job processing function in fast mode.

Table 4-52. Attribute EepFastReadBlockSize (EepInitConfiguration) detailed description

Property	Value
Label	Eep Max Read Fast Mode
Type	INTEGER
Origin	AUTOSAR_ECUC
Symbolic Name	false
Default	128
Invalid	Range <=4294967295 >=0

4.8.13 EepNormalReadBlockSize (EepInitConfiguration)

The maximum number of bytes to read or compare in one cycle of the eeprom driver's job processing function in normal mode.

Table 4-53. Attribute EepNormalReadBlockSize (EepInitConfiguration) detailed description

Property	Value
Label	Eep Max Read Normal Mode
Type	INTEGER
Origin	AUTOSAR_ECUC
Symbolic Name	false
Default	128
Invalid	Range <=4294967295 >=0

4.8.14 EepFastWriteBlockSize (EepInitConfiguration)

The maximum number of bytes to write in one cycle of the eeprom driver's job processing function in fast mode.

Table 4-54. Attribute EepFastWriteBlockSize (EepInitConfiguration) detailed description

Property	Value
Label	Eep Max Write Fast Mode
Type	INTEGER
Origin	AUTOSAR_ECUC
Symbolic Name	false

Table continues on the next page...

Table 4-54. Attribute EepFastWriteBlockSize (EepInitConfiguration) detailed description (continued)

Property	Value
Default	128
Invalid	Range <=4294967295 >=0

4.8.15 EepNormalWriteBlockSize (EepInitConfiguration)

The maximum number of bytes to write in one cycle of the eeprom driver's job processing function in normal mode.

Table 4-55. Attribute EepNormalWriteBlockSize (EepInitConfiguration) detailed description

Property	Value
Label	Eep Max Write Normal Mode
Type	INTEGER
Origin	AUTOSAR_ECUC
Symbolic Name	false
Default	128
Invalid	Range <=4294967295 >=0

4.8.16 Form EepDemEventParameterRefs

Container for the references to DemEventParameter elements which shall be invoked using the Dem_ReportErrorStatus API in case the corresponding error occurs. The EventId is taken from the referenced DemEventParameter's DemEventId value. The standardized errors are provided in the container and can be extended by vendor specific error references.

Note

Disabling/deleting the container suppresses calling the Dem_ReportErrorStatus API.

Name*	EepDemEventParameterRefs
EEP_E_COMPARE_FAILED	
EEP_E_ERASE_FAILED	
EEP_E_READ_FAILED	
EEP_E_WRITE_FAILED	
EEP_E_BO_MAINTENANCE	
EEP_E_BO_QUICK_WRITES	
EEP_E_BO_NORMAL_WRITES	

Figure 4-8. Tresos Plugin snapshot for EepDemEventParameterRefs form.

4.8.16.1 EEP_E_COMPARE_FAILED (EepDemEventParameterRefs)

Reference to the DemEventParameter which shall be issued when the error "Eeprom compare failed (HW)" has occurred.

Note

Disabling/deleting the container suppresses calling the Dem_ReportErrorStatus API in case the corresponding error occurs.

Table 4-56. Attribute EEP_E_COMPARE_FAILED (EepDemEventParameterRefs) detailed description

Property	Value
Type	SYMBOLIC-NAME-REFERENCE
Origin	AUTOSAR_ECUC
Enable	true

4.8.16.2 EEP_E_ERASE_FAILED (EepDemEventParameterRefs)

Reference to the DemEventParameter which shall be issued when the error "Eeprom erase failed (HW)" has occurred.

Note

Disabling/deleting the container suppresses calling the Dem_ReportErrorStatus API in case the corresponding error occurs.

Table 4-57. Attribute EEP_E_ERASE_FAILED (EepDemEventParameterRefs) detailed description

Property	Value
Type	SYMBOLIC-NAME-REFERENCE
Origin	AUTOSAR_ECUC
Enable	true

4.8.16.3 EEP_E_READ_FAILED (EepDemEventParameterRefs)

Reference to the DemEventParameter which shall be issued when the error "Eeprom read failed (HW)" has occurred.

Note

Disabling/deleting the container suppresses calling the Dem_ReportErrorStatus API in case the corresponding error occurs.

Table 4-58. Attribute EEP_E_READ_FAILED (EepDemEventParameterRefs) detailed description

Property	Value
Type	SYMBOLIC-NAME-REFERENCE
Origin	AUTOSAR_ECUC
Enable	true

4.8.16.4 EEP_E_WRITE_FAILED (EepDemEventParameterRefs)

Reference to the DemEventParameter which shall be issued when the error "Eeprom write failed (HW)" has occurred.

Note

Disabling/deleting the container suppresses calling the Dem_ReportErrorStatus API in case the corresponding error occurs.

Table 4-59. Attribute EEP_E_WRITE_FAILED (EepDemEventParameterRefs) detailed description

Property	Value
Type	SYMBOLIC-NAME-REFERENCE

Table continues on the next page...

Table 4-59. Attribute EEP_E_WRITE_FAILED (EepDemEventParameterRefs) detailed description (continued)

Property	Value
Origin	AUTOSAR_ECUC
Enable	true

4.8.16.5 EEP_E_BO_MAINTENANCE (EepDemEventParameterRefs)

Reference to the DemEventParameter which shall be issued when the error "Brown out detected before completing EEPROM quick write maintenance." has occurred.

Note

Disabling/deleting the container suppresses calling the Dem_ReportErrorStatus API in case the corresponding error occurs.

Table 4-60. Attribute EEP_E_BO_MAINTENANCE (EepDemEventParameterRefs) detailed description

Property	Value
Type	SYMBOLIC-NAME-REFERENCE
Origin	NXP
Enable	true

4.8.16.6 EEP_E_BO_QUICK_WRITES (EepDemEventParameterRefs)

Reference to the DemEventParameter which shall be issued when the error "Brown out detected before completing EEPROM quick writes." has occurred.

Note

Disabling/deleting the container suppresses calling the Dem_ReportErrorStatus API in case the corresponding error occurs.

Table 4-61. Attribute EEP_E_BO_QUICK_WRITES (EepDemEventParameterRefs) detailed description

Property	Value
Type	SYMBOLIC-NAME-REFERENCE
Origin	NXP
Enable	true

4.8.16.7 EEP_E_BO_NORMAL_WRITES (EepDemEventParameterRefs)

Reference to the DemEventParameter which shall be issued when the error "Brown out detected during normal EEPROM write activity" has occurred.

Note

Disabling/deleting the container suppresses calling the Dem_ReportErrorStatus API in case the corresponding error occurs.

Table 4-62. Attribute EEP_E_BO_NORMAL_WRITES (EepDemEventParameterRefs) detailed description

Property	Value
Type	SYMBOLIC-NAME-REFERENCE
Origin	NXP
Enable	true

4.8.17 Form EepExternalDriver

This container is present for external Eeprom drivers only. Internal Eeprom drivers do not use the parameter listed in this container, hence its multiplicity is 0 for internal drivers.

4.8.17.1 EepSpiReference (EepSpiReference)

Reference to SPI sequence (required for external Eeprom drivers).

Table 4-63. Attribute EepSpiReference (EepSpiReference) detailed description

Property	Value
Label	Eep Spi Reference
Type	SYMBOLIC-NAME-REFERENCE
Origin	AUTOSAR_ECUC

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