TRAVEO™ T2G family AUTOSAR MCAL FLS release notes

SRN223408 version 1.17

About this document

Scope and purpose

Thank you for your interest in the TRAVEO™ T2G family AUTOSAR MCAL FLS driver version 1.17. This document lists the installation requirements, software changes, limitations, and known issues.

Intended audience

This document is intended for anyone who uses the FLS driver of the TRAVEO™ T2G family.

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1 System requirements and recommendations

Software prerequisites	Supported version
EB tresos Studio package for Infineon	26.2.0

1.1 Supported compilers

Green Hills Software, compiler v2017.1.4

IAR Embedded Workbench 8.0 EWARM FS 8.22.3

1.2 Compiler options

This section summarizes the compiler options used to build and test the module. When changing the compiler options, the module must be considered untested.

Compiler	Option (Cortex®-M4F core)
Green Hills Software, compiler v2017.1.4	`-cpu=cortexm4f -thumb -thumb_lib -C99 --short_enum -align4 --no_commons --no_alternative_tokens -asm3g -preprocess_assembly_files -nostartfiles -globalcheck=normal -globalcheck_qualifiers --prototype_errors -Wformat -Wimplicit-int -Wshadow -Wtrigraphs -Wundef -reject_duplicates -c -list -Ospeed -OI -Olink -Ointerproc -Omax -fsingle`

Compiler	Option (Cortex®-M7 core)
Green Hills Software, compiler v2017.1.4	`-cpu=cortexm7 -thumb -thumb_lib -C99 --short_enum -align4 --no_commons --no_alternative_tokens -asm3g -preprocess_assembly_files -nostartfiles -globalcheck=normal -globalcheck_qualifiers --prototype_errors -Wformat -Wimplicit-int -Wshadow -Wtrigraphs -Wundef -reject_duplicates -c -list -Ospeed -OI -Olink -Ointerproc -Omax -fhard`

Compiler	Option (Cortex®-M4F core)
IAR Embedded Workbench 8.0 EWARM FS 8.22.3	`--debug --endian=little --cpu=Cortex-M4 -e --fpu=VFPv4_sp -Ohs --no_size_constraints`

Compiler	Option (Cortex®-M7 core)
IAR Embedded Workbench 8.0 EWARM FS 8.22.3	`--debug --endian=little --cpu=Cortex-M7 -e --fpu=VFPv5_d16 -Ohs --no_size_constraints`

1.3 Library compiler options

If a binary library has been delivered with this module, it has been built using the following options:

Compiler	Option (Cortex®-M4F core)
Green Hills Software, compiler v2017.1.4	`-cpu=cortexm4f -thumb -thumb_lib -C99 --short_enum -align4 --no_commons --no_alternative_tokens -asm3g -preprocess_assembly_files -nostartfiles -globalcheck=normal -globalcheck_qualifiers --prototype_errors -Wformat -Wimplicit-int -Wshadow -Wtrigraphs -Wundef -reject_duplicates -c -list -Ospeed -OI -Olink -Ointerproc -Omax -fsingle`

Compiler	Option (Cortex®-M7 core)
Green Hills Software, compiler v2017.1.4	`-cpu=cortexm7 -thumb -thumb_lib -C99 --short_enum -align4 --no_commons --no_alternative_tokens -asm3g -preprocess_assembly_files -nostartfiles -globalcheck=normal -globalcheck_qualifiers --prototype_errors -Wformat -Wimplicit-int -Wshadow -Wtrigraphs -Wundef -reject_duplicates -c -list -Ospeed -OI -Olink -Ointerproc -Omax -fhard`

Compiler	Option (Cortex®-M4F core)
IAR Embedded Workbench 8.0 EWARM FS 8.22.3	`--debug --endian=little --cpu=Cortex-M4 -e --fpu=VFPv4_sp -Ohs --no_size_constraints`

Compiler	Option (Cortex®-M7 core)
IAR Embedded Workbench 8.0 EWARM FS 8.22.3	`--debug --endian=little --cpu=Cortex-M7 -e --fpu=VFPv5_d16 -Ohs --no_size_constraints`

1.4 Memory consumption

GHS (Fls_lib) section	Size (in bytes)
.text	7724
.bss	120
Combined	7844

GHS (Fls_src) section	Size (in bytes)
.text	1254
.bss	160
.rodata	435
Combined	1849

GHS (Fls_sub) section	Size (in bytes)
.text	6900
.bss	76
.rodata	3
Combined	6979

IAR (Fls_lib) section	Size (in bytes)
.text	7604
.bss	117
Combined	7721

IAR (Fls_src) section	Size (in bytes)
.text	1162
.bss	161
.rodata	444
Combined	1767

IAR (Fls_sub) section	Size (in bytes)
.text	6708
.bss	71
Combined	6779

Note: *The memory consumption of *_src.lib depends on the configuration.*

Note: *The listed memory consumption will vary depending on customer configuration.*

Explanatory notes for this section

Section	Description
.text	Program code
.data	Variables with explicitly initialized values
.bss	Variables that are not explicitly initialized
.rodata	Read-only data

1.5 Stack consumption

1.5.1 Green Hills Software

Function	Max stack usage (in bytes)
Fls_Init	28
Fls_Erase	116
Fls_Write	112
Fls_Cancel	88
Fls_GetStatus	0
Fls_GetJobResult	24
Fls_MainFunction	196
Fls_Read	100
Fls_Compare	92
Fls_SetMode	28
Fls_GetVersionInfo	28
Fls_GetStatusSub	64
Fls_BlankCheck	104
Fls_ReadImmediate	100
Fls_Suspend	108
Fls_Resume	104
Fls_SetCycleMode	28
Fls_Isr_Ipc_Cat1	84
Fls_Isr_Ipc_Cat2	84
Fls_Isr_Flash_Cat1	92
Fls_Isr_Flash_Cat2	92
Fls_Fault_Handling	0
Fls_Isr_FlsIpc_Cat1	20
Fls_Isr_FlsIpc_Cat2	20

Note: Stack consumption has been evaluated using the gstack utility program, which is part of the Green Hills release package. To enable the measurement of stack consumption in your project, build the source code according to the instructions given in the "Measuring the Stack Consumption" section of the module's user guide.

Note: The listed stack consumption will vary depending on customer configuration.

Note: The GHS stack consumption listed in the release notes was measured using the additional compile option "-gs". The GHS compiler cannot measure stack consumption for the selected optimization level (see compilation options). Green Hills cannot exclude possible effects of "-gs" on optimization and stack consumption. Therefore, Infineon cannot guarantee the accuracy of these values. For more information on measuring GHS stack consumption, see the section gstack utility program in Build_arm.pdf.

1.5.2 IAR Embedded Workbench

Function	Max stack usage (in bytes)
Fls_Init	48
Fls_Erase	144
Fls_Write	144
Fls_Cancel	112
Fls_GetStatus	0
Fls_GetJobResult	32
Fls_MainFunction	216
Fls_Read	128
Fls_Compare	128
Fls_SetMode	24
Fls_GetVersionInfo	32
Fls_GetStatusSub	88
Fls_BlankCheck	136
Fls_ReadImmediate	128
Fls_Suspend	144
Fls_Resume	144
Fls_SetCycleMode	40
Fls_Isr_Ipc_Cat1	88
Fls_Isr_Ipc_Cat2	88
Fls_Isr_Flash_Cat1	96
Fls_Isr_Flash_Cat2	96
Fls_Fault_Handling	0
Fls_Isr_FlsIpc_Cat1	24
Fls_Isr_FlsIpc_Cat2	24

Note: *To enable the measurement of stack consumption in your project, build the source code with the linker option "`--enable_stack_usage --log call_graph`". See stack usage analysis of the IAR C/C++ development guide for details.*

Note: *The listed stack consumption will vary depending on customer configuration.*

1.6 Note on "*_Bswmd.arxml"

Note that the *<Module>_Bswmd.arxml* files are templates that can be freely modified by the customer or RTE vendor.

These are in the *output\generated\swcd* subfolder of your *project* folder.

Named files are not tested.

1.7 Release details

Module software version
1.17.x (x=software patch version; see the delivery notes for details)

AUTOSAR specification version (ASR)
4.2.2

Target
MXS40

MCAL configuration settings	Supported derivatives
See the resource release notes	See the resource release notes

Corresponding Fls_MemMap.h stub file version
1.0.1

2 Installation

See the installation manual for EB tresos Studio for INFINEON AUTOSAR software products and installation manual for MCAL42-TRAVEO.

3 Deviations from AUTOSAR

T2MC-6734 - [ECUC_Fls_00310]

Title: [ECUC_Fls_00310]

Description:

SWS Item	**ECUC_Fls_00310: (Obsolete)**
Container Name	FlsDemEventParameterRefs
Description	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. **Tags:** atp.Status=obsolete atp.StatusComment=This container is set to obsolete and will be removed in release 4.3. atp.StatusRevisionBegin=4.2.2
Configuration Parameters	

Reason for rejection: This requirement is obsolete in the AUTOSAR specification.

T2MC-6736 - [ECUC_Fls_00311]

Title: [ECUC_Fls_00311]

Description:

SWS Item	**ECUC_Fls_00311: (Obsolete)**		
Name	FLS_E_ERASE_FAILED		
Description	Reference to the `DemEventParameter` which shall be issued when the error "Flash erase failed (HW)" has occurred. **Tags:** atp.Status=obsolete atp.StatusComment=This reference is set to obsolete and will be removed in release 4.3. atp.StatusRevisionBegin=4.2.2		
Multiplicity	0..1		
Type	Symbolic name reference to [DemEventParameter]		
Post-Build Variant Multiplicity	true		
Post-Build Variant Value	true		
Multiplicity Configuration Class	***Pre-compile time***	X	VARIANT-PRE-COMPILE
	Link time	--	
	Post-build time	X	VARIANT-POST-BUILD
Value Configuration Class	***Pre-compile time***	X	VARIANT-PRE-COMPILE

	Link time	--	
	Post-build time	X	VARIANT-POST-BUILD
Scope / Dependency	scope: local		

Reason for rejection: This requirement is obsolete in the AUTOSAR specification.

T2MC-6739 - [ECUC_Fls_00312]

Title: [ECUC_Fls_00312]

Description:

SWS Item	**ECUC_Fls_00312: (Obsolete)**		
Name	FLS_E_WRITE_FAILED		
Description	Reference to the `DemEventParameter` which shall be issued when the error "Flash write failed (HW)" has occurred. **Tags:** atp.Status=obsolete atp.StatusComment=This reference is set to obsolete and will be removed in release 4.3. atp.StatusRevisionBegin=4.2.2		
Multiplicity	0..1		
Type	Symbolic name reference to [DemEventParameter]		
Post-Build Variant Multiplicity	true		
Post-Build Variant Value	true		
Multiplicity Configuration Class	***Pre-compile time***	X	VARIANT-PRE-COMPILE
	Link time	--	
	Post-build time	X	VARIANT-POST-BUILD
Value Configuration Class	***Pre-compile time***	X	VARIANT-PRE-COMPILE
	Link time	--	
	Post-build time	X	VARIANT-POST-BUILD
Scope / Dependency	scope: local		

Reason for rejection: This requirement is obsolete in the AUTOSAR specification.

T2MC-6737 - [ECUC_Fls_00313]

Title: [ECUC_Fls_00313]

Description:

SWS Item	**ECUC_Fls_00313: (Obsolete)**
Name	FLS_E_READ_FAILED
Description	Reference to the `DemEventParameter` which shall be issued when the error "Flash read failed (HW)" has occurred. **Tags:** atp.Status=obsolete atp.StatusComment=This reference is set to obsolete and will be

	removed in release 4.3. atp.StatusRevisionBegin=4.2.2		
Multiplicity	0..1		
Type	Symbolic name reference to [DemEventParameter]		
Post-Build Variant Multiplicity	true		
Post-Build Variant Value	true		
Multiplicity Configuration Class	***Pre-compile time***	X	VARIANT-PRE-COMPILE
	Link time	--	
	Post-build time	X	VARIANT-POST-BUILD
Value Configuration Class	***Pre-compile time***	X	VARIANT-PRE-COMPILE
	Link time	--	
	Post-build time	X	VARIANT-POST-BUILD
Scope / Dependency	scope: local		

Reason for rejection: This requirement is obsolete in the AUTOSAR specification.

T2MC-6735 - [ECUC_Fls_00314]

Title: [ECUC_Fls_00314]

Description:

SWS Item	**ECUC_Fls_00314: (Obsolete)**		
Name	FLS_E_COMPARE_FAILED		
Description	Reference to the DemEventParameter which shall be issued when the error "Flash compare failed (HW)" has occurred. **Tags:** atp.Status=obsolete atp.StatusComment=This reference is set to obsolete and will be removed in release 4.3. atp.StatusRevisionBegin=4.2.2		
Multiplicity	0..1		
Type	Symbolic name reference to [DemEventParameter]		
Post-Build Variant Multiplicity	true		
Post-Build Variant Value	true		
Multiplicity Configuration Class	***Pre-compile time***	X	VARIANT-PRE-COMPILE
	Link time	--	
	Post-build time	X	VARIANT-POST-BUILD
Value Configuration Class	***Pre-compile time***	X	VARIANT-PRE-COMPILE
	Link time	--	
	Post-build time	X	VARIANT-POST-BUILD
Scope / Dependency	scope: local		

Reason for rejection: This requirement is obsolete in the AUTOSAR specification.

T2MC-6738 - [ECUC_Fls_00315]

Title: [ECUC_Fls_00315]

Description:

SWS Item	**ECUC_Fls_00315: (Obsolete)**		
Name	FLS_E_UNEXPECTED_FLASH_ID		
Description	Reference to the `DemEventParameter` which shall be issued when the error "Expected hardware ID not matched" has occurred. **Tags:** atp.Status=obsolete atp.StatusComment=This reference is set to obsolete and will be removed in release 4.3. atp.StatusRevisionBegin=4.2.2		
Multiplicity	0..1		
Type	Symbolic name reference to [DemEventParameter]		
Post-Build Variant Multiplicity	true		
Post-Build Variant Value	true		
Multiplicity Configuration Class	***Pre-compile time***	X	VARIANT-PRE-COMPILE
	Link time	--	
	Post-build time	X	VARIANT-POST-BUILD
Value Configuration Class	***Pre-compile time***	X	VARIANT-PRE-COMPILE
	Link time	--	
	Post-build time	X	VARIANT-POST-BUILD
Scope / Dependency	scope: local		

Reason for rejection: This requirement is obsolete in the AUTOSAR specification.

T2MC-6542 - [SWS_Fls_00048]

Title: [SWS_Fls_00048]

Description: If supported by hardware, the function `Fls_Init` shall set the flash memory erase/write protection as provided in the configuration set. (SRS_Fls_12132)

Reason for rejection: Protection is not within the scope of the flash driver.

T2MC-6466 - [SWS_Fls_00088]

Title: [SWS_Fls_00088]

Description: The functional requirements and the functional scope are the same for both internal and external drivers. Hence the API is semantically identical. (SRS_Fls_12147, SRS_Fls_12148)

Reason for rejection: The external flash device is not supported. Only internal work flash is supported.

T2MC-6512 - [SWS_Fls_00140]

Title: [SWS_Fls_00140]

Description: The FLS module's erase routine shall load the flash access code for erasing the flash memory to the location in RAM pointed to by the erase function pointer contained in the flash drivers configuration set if the FLS module is configured to load the flash access code to RAM on job start. (SRS_Fls_12193)

Reason for rejection: The code flash is not supported, so loading the code into RAM is unnecessary.

T2MC-6513 - [SWS_Fls_00141]

Title: [SWS_Fls_00141]

Description: The FLS module's write routine shall load the flash access code for writing the flash memory to the location in RAM pointed to by the write function pointer contained in the flash drivers configuration set if the FLS module is configured to load the flash access code to RAM on job start. (SRS_Fls_12193)

Reason for rejection: The code flash is not supported, so loading the code into RAM is unnecessary.

T2MC-6516 - [SWS_Fls_00143]

Title: [SWS_Fls_00143]

Description: After an erase or write job has been finished or canceled, the FLS module's main processing routine shall unload (i.e. overwrite) the flash access code (internal erase/write routines) from RAM if they have been loaded to RAM by the flash driver. (SRS_Fls_13300)

Reason for rejection: The code flash is not supported, so loading the code into RAM is unnecessary.

T2MC-6507 - [SWS_Fls_00144]

Title: [SWS_Fls_00144]

Description: During the initialization of the external flash driver, the FLS module shall check the hardware ID of the external flash device against the corresponding published parameter. If a hardware ID mismatch occurs, the FLS module shall report the error code FLS_E_UNEXPECTED_FLASH_ID to the Default Error Tracer (DET), set the FLS module status to FLS_E_UNINIT and shall not initialize itself. (SRS_Fls_12107)

A complete list of required parameters is specified in the SPI Handler/Driver Software Specification (Chapter ''Configuration Specification'', marked as ''SPI User'').

Reason for rejection: The external flash device is not supported. Only internal work flash is supported.

T2MC-6556 - [SWS_Fls_00145]

Title: [SWS_Fls_00145]

Description: If possible, e.g. with interrupt controlled implementations, the FLS module shall start the first round of the erase job directly within the function `Fls_Erase` to reduce overall runtime. (SRS_Fls_12136)

Reason for rejection: This requirement is not mandatory and the rejection is due to simplification of the implementation.

T2MC-6571 - [SWS_Fls_00146]

Title: [SWS_Fls_00146]

Description: If possible, e.g. with interrupt controlled implementations, the FLS module shall start the first round of the write job directly within the function `Fls_Write` to reduce overall runtime. (SRS_Fls_12135)

Reason for rejection: This requirement is not mandatory and the rejection is due to simplification of the implementation.

T2MC-6515 - [SWS_Fls_00213]

Title: [SWS_Fls_00213]

Description: The FLS module's main processing routine shall access the flash access code routines by means of the respective function pointer contained in the FLS module's configuration set (post-compile parameters) regardless whether the flash access code routines have been loaded to RAM or whether they can be executed directly from (flash) ROM. (SRS_Fls_12194)

Reason for rejection: The code flash is not supported, so loading the code into RAM is not necessary.

T2MC-6517 - [SWS_Fls_00214]

Title: [SWS_Fls_00214]

Description: The FLS module shall only load the access code to the RAM if the access code cannot be executed out of flash ROM.(SRS_Fls_12193)

Reason for rejection: The access code can be executed out of flash ROM.

T2MC-6510 - [SWS_Fls_00215]

Title: [SWS_Fls_00215]

Description: The FLS module's flash 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). (SRS_Fls_12194)
Reason for rejection: The code flash is not supported, therefore disabling interrupts and waiting is unnecessary. Writing to the work flash does not disturb code execution.

T2MC-6519 - [SWS_Fls_00302]

Title: [SWS_Fls_00302]

Description: {Obsolete}The module's status, mode and the job result shall be made available for debugging (reading). (RS_BRF_02240)

Reason for rejection: This requirement is obsolete in the AUTOSAR specification.

T2MC-6505 - [SWS_Fls_00319]

Title: [SWS_Fls_00319]

Description: The runtime error code `FLS_E_UNEXPECTED_FLASH_ID` shall be reported when the expected flash ID is not matched (see SWS_Fls_00144). (SRS_BSW_00337, SRS_BSW_00385, SRS_BSW_00327, SRS_BSW_00331)

Reason for rejection: Flash ID is not used because only internal flash memory is supported.

4 Limitations

T2MC-6704 - [ECUC_Fls_00169]

Title: [ECUC_Fls_00169]

Description:

SWS Item	**ECUC_Fls_00169:**		
Name	FlsBaseAddress		
Description	The flash memory start address (see also SWS_Fls_00208 and SWS_Fls_00209). This parameter defines the lower boundary for read / write / erase and compare jobs.		
Multiplicity	1		
Type	EcucIntegerParamDef		
Range	0 .. 4294967295		
Default value	--		
Post-Build Variant Value	false		
Value Configuration Class	***Pre-compile time***	X	All Variants
	Link time	--	
	Post-build time	--	
Scope / Dependency	scope: local		

Limitation: The flash memory address (“virtual” addresses) always starts from 0 in this implementation, so the configuration parameter `FlsBaseAddress` is fixed at 0.

T2MC-6718 - [ECUC_Fls_00270]

Title: [ECUC_Fls_00270]

Description:

SWS Item	**ECUC_Fls_00270:**		
Name	FlsAcErase		
Description	Address offset in RAM to which the erase flash access code shall be loaded. Used as function pointer to access the erase flash access code.		
Multiplicity	1		
Type	EcucIntegerParamDef		
Range	0 .. 4294967295		
Default value	--		
Post-Build Variant Value	true		
Value Configuration Class	***Pre-compile time***	X	VARIANT-PRE-COMPILE
	Link time	--	
	Post-build time	X	VARIANT-POST-BUILD
Scope / Dependency	scope: local		

Limitation: This implementation does not need to load the flash access code to RAM since code flash is out of scope. So, the configuration parameter `FlsAcErase` cannot be configured.

T2MC-6728 - [ECUC_Fls_00279]

Title: [ECUC_Fls_00279]

Description:

SWS Item	**ECUC_Fls_00279:**		
Name	FlsProtection		
Description	Erase/write protection settings. Only relevant if supported by hardware.		
Multiplicity	1		
Type	EcucIntegerParamDef		
Range	0 .. 4294967295		
Default value	--		
Post-Build Variant Value	true		
Value Configuration Class	***Pre-compile time***	X	VARIANT-PRE-COMPILE
	Link time	--	
	Post-build time	X	VARIANT-POST-BUILD
Scope / Dependency	scope: local dependency: Only relevant if supported by hardware.		

Limitation: The protection by the FLS driver is out of scope, the configuration parameter `FlsProtection` cannot be configured.

T2MC-6748 - [ECUC_Fls_00281]

Title: [ECUC_Fls_00281]

Description:

SWS Item	**ECUC_Fls_00281:**		
Name	FlsPageSize		
Description	Size of one page of this sector. Implementation Type: Fls_LengthType.		
Multiplicity	1		
Type	EcucIntegerParamDef		
Range	0 .. 4294967295		
Default value	--		
Post-Build Variant Value	false		
Value Configuration Class	***Pre-compile time***	X	All Variants
	Link time	--	
	Post-build time	--	
Scope / Dependency	scope: local dependency: The sector size has to be an integer multiple of the page size.		

Limitation: This parameter value is only four.

T2MC-6703 - [ECUC_Fls_00284]

Title: [ECUC_Fls_00284]

Description:

SWS Item	**ECUC_Fls_00284:**		
Name	FlsAcLoadOnJobStart		
Description	The flash driver shall load the flash access code to RAM whenever an erase or write job is started and unload (overwrite) it after that job has been finished or canceled. true: Flash access code loaded on job start /unloaded on job end or error. false: Flash access code not loaded to / unloaded from RAM at all.		
Multiplicity	1		
Type	EcucBooleanParamDef		
Default value	false		
Post-Build Variant Value	false		
Value Configuration Class	***Pre-compile time***	X	All Variants
	Link time	--	
	Post-build time	--	
Scope / Dependency	scope: local		

Limitation: This implementation does not need to load the flash access code to RAM since code flash is out of scope. So, the configuration parameter `FlsAcLoadOnJobStart` cannot be configured and is always false.

T2MC-6708 - [ECUC_Fls_00287]

Title: [ECUC_Fls_00287]

Description:

SWS Item	**ECUC_Fls_00287:**		
Name	FlsDevErrorDetect		
Description	Switches the Default Error Tracer (Det) detection and notification ON or OFF. true: enabled (ON). false: disabled (OFF).		
Multiplicity	1		
Type	EcucBooleanParamDef		
Default value	true		
Post-Build Variant Value	false		
Value Configuration Class	***Pre-compile time***	X	All Variants
	Link time	--	
	Post-build time	--	
Scope / Dependency	scope: local		

Limitation: The configuration parameter `FlsDevErrorDetect` can be set as false and notification is defined as OFF, but `ErrorCallOutFunction` is called for functional safety point of view.

T2MC-6709 - [ECUC_Fls_00288]

Title: [ECUC_Fls_00288]

Description:

SWS Item	**ECUC_Fls_00288:**		
Name	FlsDriverIndex		
Description	Index of the driver, used by FEE.		
Multiplicity	1		
Type	EcucIntegerParamDef (Symbolic Name generated for this parameter)		
Range	0 .. 254		
Default value	--		
Post-Build Variant Value	false		
Value Configuration Class	***Pre-compile time***	X	All Variants
	Link time	--	
	Post-build time	--	
Scope / Dependency	scope: ECU		

Limitation: Only one flash driver is provided, so the configuration parameter `FlsDriverIndex` cannot be configured and is fixed at 0.

T2MC-6754 - [ECUC_Fls_00294]

Title: [ECUC_Fls_00294]

Description:

SWS Item	**ECUC_Fls_00294:**		
Name	FlsAcLocationErase		
Description	Position in RAM, to which the erase flash access code has to be loaded. Only relevant if the erase flash access code is not position independent. If this information is not provided it is assumed that the erase flash access code is position independent and that therefore the RAM position can be freely configured.		
Multiplicity	1		
Type	EcucIntegerParamDef		
Range	0 .. 4294967295		
Default value	--		
Post-Build Variant Value	false		
Value Configuration Class	***Published Information***	X	All Variants
Scope / Dependency	scope: local		

Limitation: This implementation does not need to load the flash access code to RAM, since code flash is out of scope. So, the configuration parameter `FlsAcLocationErase` is not used.

T2MC-6755 - [ECUC_Fls_00295]

Title: [ECUC_Fls_00295]

Description:

SWS Item	**ECUC_Fls_00295:**		
Name	FlsAcLocationWrite		
Description	Position in RAM, to which the write flash access code has to be loaded. Only relevant if the write flash access code is not position independent. If this information is not provided it is assumed that the write flash access code is position independent and that therefore the RAM position can be freely configured.		
Multiplicity	1		
Type	EcucIntegerParamDef		
Range	0 .. 4294967295		
Default value	--		
Post-Build Variant Value	false		
Value Configuration Class	***Published Information***	X	All Variants
Scope / Dependency	scope: local		

Limitation: This implementation does not need to load the flash access code to RAM, since code flash is out of scope. So, the configuration parameter `FlsAcLocationWrite` is not used.

T2MC-6756 - [ECUC_Fls_00296]

Title: [ECUC_Fls_00296]

Description:

SWS Item	**ECUC_Fls_00296:**		
Name	FlsAcSizeErase		
Description	Number of bytes in RAM needed for the erase flash access code.		
Multiplicity	1		
Type	EcucIntegerParamDef		
Range	0 .. 4294967295		
Default value	--		
Post-Build Variant Value	false		
Value Configuration Class	***Published Information***	X	All Variants
Scope / Dependency	scope: local		

Limitation: This implementation does not need to load the flash access code to RAM, since code flash is out of scope. So, the configuration parameter `FlsAcSizeErase` is not used.

T2MC-6757 - [ECUC_Fls_00297]

Title: [ECUC_Fls_00297]

Description:

SWS Item	**ECUC_Fls_00297:**		
Name	FlsAcSizeWrite		
Description	Number of bytes in RAM needed for the write flash access code.		
Multiplicity	1		
Type	EcucIntegerParamDef		
Range	0 .. 4294967295		
Default value	--		
Post-Build Variant Value	false		
Value Configuration Class	***Published Information***	X	All Variants
Scope / Dependency	scope: local		

Limitation: This implementation does not need to load the flash access code to RAM, since code flash is out of scope. So, the configuration parameter `FlsAcSizeWrite` is not used.

T2MC-6760 - [ECUC_Fls_00300]

Title: [ECUC_Fls_00300]

Description:

SWS Item	**ECUC_Fls_00300:**		
Name	FlsExpectedHwId		
Description	Unique identifier of the hardware device that is expected by this driver (the device for which this driver has been implemented). Only relevant for external flash drivers.		
Multiplicity	1		
Type	EcucStringParamDef		
Default value	--		
maxLength	--		
minLength	--		
regularExpression	--		
Post-Build Variant Value	false		
Value Configuration Class	***Published Information***	X	All Variants
Scope / Dependency	scope: local		

Limitation: The external flash device is not supported, so the configuration parameter `FlsExpectedHwId` is not used.

T2MC-6719 - [ECUC_Fls_00305]

Title: [ECUC_Fls_00305]

Description:

SWS Item	**ECUC_Fls_00305:**		
Name	FlsAcWrite		
Description	Address offset in RAM to which the write flash access code shall be loaded. Used as function pointer to access the write flash access code.		
Multiplicity	1		
Type	EcucIntegerParamDef		
Range	0 .. 4294967295		
Default value	--		
Post-Build Variant Value	true		
Value Configuration Class	***Pre-compile time***	X	VARIANT-PRE-COMPILE
	Link time	--	
	Post-build time	X	VARIANT-POST-BUILD
Scope / Dependency	scope: local		

Limitation: This implementation does not need to load the flash access code to RAM, since code flash is out of scope. So, the configuration parameter `FlsAcWrite` cannot be configured.

T2MC-6741 - [ECUC_Fls_00316]

Title: [ECUC_Fls_00316]

Description:

SWS Item	**ECUC_Fls_00316:**
Container Name	FlsExternalDriver
Description	This container is present for external Flash drivers only. Internal Flash drivers do not use the parameter listed in this container, hence its multiplicity is 0 for internal drivers.
Configuration Parameters	

Limitation: The external flash device is not supported, so the container `FlsExternalDriver` cannot be configured.

T2MC-6742 - [ECUC_Fls_00317]

Title: [ECUC_Fls_00317]

Description:

SWS Item	**ECUC_Fls_00317:**
Name	FlsSpiReference
Description	Reference to SPI sequence (required for external Flash drivers).
Multiplicity	1..*
Type	Symbolic name reference to [SpiSequence]

Post-Build Variant Multiplicity	false		
Post-Build Variant Value	false		
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: local		

Limitation: The external flash device is not supported, so the configuration parameter FlsSpiReference cannot be configured.

T2MC-43889 - [FLS] AUTOSAR C implementation rules

Title: [FLS] AUTOSAR C implementation rules

Description: The MCAL modules shall fulfill all design and implementation guidelines as described in specification of C implementation rules AUTOSAR_TR_CImplementationRules.pdf.

Limitation: Out of scope: keyword macros 'CONST' and 'VAR' are not required for declaration/definition of the local variable, function parameter, and structure/union fields.

T2MC-6509 - [SWS_Fls_00137]

Title: [SWS_Fls_00137]

Description: The FLS module's implementer shall place the code of the flash access routines into a *separate C-module Fls_ac.c*. (SRS_Fls_12193)

Limitation: `Fls_ac.c` is replaced by `Fls_Sub` module, which is provided as hardware abstraction layer (HAL) part.

T2MC-6665 - [SWS_Fls_00234]

Title: [SWS_Fls_00234]

Description: If interrupt controlled job processing is supported and enabled with the configuration parameter `FlsUseInterrupts`, the interrupt service routine shall reset the interrupt flag, check for errors reported by the underlying hardware, reload the hardware finite state machine for the next round of the pending job or call the appropriate notification routine if the job is finished or aborted. (RS_BRF_01144)

Limitation: The notification routine is called by `Fls_MainFunction` or `Fls_Cancel` in this implementation.

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5 Known defects

The listed issues were known at the day this release note was generated. Further problems may have been discovered in the meantime. For an up-to-date list of known issues, contact your Infineon sales representative.

This release has no known issues at the time of release.

6 Documentation

All user guides for MCAL drivers are in the *doc* subdirectory of the *installation* directory. The default location is:

C:\INFINEON_ESDB\Tresos26_2_0\doc

7 Technical support

If you have questions related to the driver, contact the local support application engineer.

8 Version history

8.1 Module SW-Version 1.3

Initial module setup.

8.2 Module SW-Version 1.4

T2MC-39176 - [All] Correcting vendor-specific module definition

Title: [All] Correcting vendor-specific module definition

Description: The following rules should be followed in the vendor-specific module definition.

- The multiplicity of each AUTOSAR parameter, reference and container is not correctly derived.
- The DEFAULT-VALUE of each parameter is not valid.
- If the target of DESTINATION-REF is not the standard AUTOSAR container, the reference should not start with '/AUTOSAR/EcucDefs/'.

T2MC-38134 - [FLS] FLS module sets the wait states for all flash that MCU module configures.

Title: [FLS] FLS module sets the wait states for all flash that MCU module configures.

Description: FLS and MCU write to the same registers (flash wait states).

The following are the problems:

1. If MCU and FLS are used in the same project, then the configuration of one module (usually MCU) is overwritten and ignored.
2. FLS configures the wait states for all flash, including code flash. This has negative impact on system performance.
3. Requirement SWS_Fls_00086 is violated.

The registers should be written by MCU module only. FLS settings should be removed.

T2MC-38069 - [FLS] The durations of interrupt service routine for erase job and exclusive areas in Fls_Suspend / Fls_Resume are too long.

Title: [FLS] The durations of interrupt service routine for erase job and exclusive areas in Fls_Suspend / Fls_Resume are too long.

Description: The durations of interrupt service routine for erase job and exclusive areas in Fls_Suspend / Fls_Resume are too long.

- Measurement condition
  Source oscillation: 8MHz
  PLL clock multiplier: x10 (80MHz)
- Measurement result
  Fls_Suspend exclusive areas: 96usec (maybe depending on timing)
  Fls_Resume exclusive areas: 62usec (maybe depending on timing)
  erase ISR: 67.0 us
- Workaround
  The erase ISR would not been fixed because there is workaround which Fls_Erase should be called for erase every one sector when the configuration parameter *FlsGeneral/FlsUseInterrupts* is TRUE.

T2MC-38074 - File extension should be changed from .bmd to .arxml

Title: File extension should be changed from .bmd to .arxml

Description: The file extension should be changed from *.bmd to *.arxml.
Each module still has an autosar/<module>.bmd file.

8.3 Module SW-Version 1.5

T2MC-39747 - [All] Checking for valid C function name and including filename in configuration parameters

Title: [All] Checking for valid C function name and including filename in configuration parameters

Description: Checking for valid C function name:
Check all configuration parameters related to the function name to see if it is a valid C function name.
A part of parameters are not checked.
If an invalid function name is set, a compile error will occur during the build process, which is inconvenient for users.
Therefore, it is better to check whether the configured function names are valid C function names in advance (i.e. during configuration phase).

Checking for valid filename:
Check all configuration parameters related to the file name to see if it is valid.
A part of parameters cannot check the fact that empty file name (i.e. ".h") is wrong.
If an invalid file name is set, a compile error will occur during the build process, which is inconvenient for users.
Therefore, it is better, to check in advance, whether the configured file names are valid.

This CR is intended to solve the inconvenience.

T2MC-47850 - [FLS] When SourceAddressPtr of Fls_Write is not a multiple of FlsPageSize, the writing would not run normally

Title: [FLS] When SourceAddressPtr of Fls_Write is not a multiple of FlsPageSize, the writing would not run normally

Description: According to hardware specification, the address of programmed data passed to system call of ProgramRow is allowed only 32-bit aligned address.
It has not yet been considered.

T2MC-50581 - [FLS]: Dummy read is needed after erase operation in non-blocking mode is finished

Title: [FLS]: Dummy read is needed after erase operation in non-blocking mode is finished

Description: According to the latest hardware specification, requirement for a user to perform a dummy read in non-blocking mode was added by CDT 307046.

Dummy read is required to make the logical bank of work flash ready for read operation after a program or erase operation. (This is not applicable if EraseSector is invoked in blocking mode.)

- If dummy read is not done, the first read from the work flash logical bank which was programmed/erased will give error.

- Moreover, if you read from logical bank which completed program/erase operation, then FLASH_CTL.WORK_ERR_SILENT must be set to 1 in advance.

In current implementation, FLS invokes EraseSector in non-blocking mode, but has not done the dummy read after completion of erase operation. It has already set FLASH_CTL.WORK_ERR_SILENT.

Therefore, FLS must only do a dummy read after erase sector operation is finished.

T2MC-41850 - [General] <CODE-DESCRIPTORS> Node should be added to the *arxml* files of all modules

Title: [General] <CODE-DESCRIPTORS> Node should be added to the *arxml* files of all modules

Description: For all modules, the <CODE-DESCRIPTORS> Node needs to be added for the RTE within the BSWMD *arxml* file.

T2MC-39411 - [FLS]: Support TRAVEO™ T2G-B-H-8M.

Title: [FLS]: Support TRAVEO™ T2G-B-H-8M

Description: AUTOSAR MCAL supports the TRAVEO™ T2G-B-H-8M.

FLS is modified for the following change.

- Switch of the IPC structure No. for SROM API, the flash interface status register address and internal information for each core
  Because the above-mentioned items are separated by cores, FLS needs to switch them by referring the CPUSS.IDENTITY register.
- WorkFlash size
  It is required for BMD file to be added additional sectors for maximum size of TRAVEO™ T2G products.

8.4 Module SW-Version 1.6

T2MC-52843 - [FLS] Appearance of function interface is not unified between definition and declaration

Title: [FLS] Appearance of function interface is not unified between definition and declaration

Description: Appearances of function interfaces in some functions are not unified between definition and declaration.

T2MC-54374 - [FLS] Fls.h does not include Fls_Cfg.h

Title: [FLS] Fls.h does not include Fls_Cfg.h

Description: Fls.h does not include Fls_Cfg.h. So, the Fls module does not comply with the file structure represented in [SWS_Fls_00107] of AUTOSAR specification.

T2MC-55313 - [FLS] The mclass is missing in Fls.xdm

Title: [FLS] The mclass is missing in Fls.xdm

Description: The mclass in xdm file corresponds to ECUC-MULTIPLICITY-CONFIGURATION-CLASS in arxml file.

There are some configuration parameters that have ECUC-MULTIPLICITY-CONFIGURATION-CLASS in Fls.arxml and do not have mclass in Fls.xdm.

However, to avoid issuing many warning messages, the mclass is added for only two containers.

- FlsConfigSet
- FlsSector

T2MC-54377 - [FLS] The ptrclass of pointer to const variable is not FLS_APPL_CONST

Title: [FLS] The ptrclass of pointer to const variable is not FLS_APPL_CONST

Description: The ptrclass of pointer to const variable is FLS_APPL_DATA. It should be FLS_APPL_CONST.

T2MC-54375 - [FLS] There are some internal types whose prefix are not Fls

Title: [FLS] There are some internal types whose prefix are not Fls

Description: Following internal types have a prefix which is not Fls. The prefix should be Fls.

- FeeJobEndNotificationFctPtr

T2MC-50612 - [General] Delete device-dependent information from the user guide

Title: [General] Delete device-dependent information from the user guide

Description: Any device-dependent information should not be included in the user guide.

Therefore, delete the datasheet name from the related documentation in the user guide.

T2MC-50519 - [General] Export issue with MCAL ES10_20180308

Title: [General] Export issue with MCAL ES10_20180308

Description: An example of the issue is described below.
The configuration exported from Tresos does not correspond to the real configuration shown in Tresos. See the attached example.

The issue concerns other modules too, not only the port described in attached pdf file.

T2MC-56129 - [FLS]: Target name is changed from CYT2 to MXS40

Title: [FLS]: Target name is changed from CYT2 to MXS40

Description: Target name is changed from CYT2 to MXS40. Therefore, followings are modified.

- The makefile names are changed from Fls_defs_CYT2.mak and Fls_rules_CYT2.mak to Fls_defs_der.mak and Fls_rules_der.mak, respectively, to avoid depending on target name.
- The macro names are changed from FLS_CYT2 and FLS_CYT2XXXXXX to FLS_MXS40.

8.5 Module SW-Version 1.7

T2MC-59563 - [FLS] The description regarding registers in access register table of user guide is wrong

Title: [FLS] The description regarding registers in access register table of user guide is wrong

Description: The description regarding FLASHC FLASH_CTL register in access register table of user guide has the following mistakes:

(Wrong) Value: 0x00510000, Monitoring Value: 0x0051000F | MAIN_WS[3:0]

(Correct) Value: 0x00510000 | MAIN_WS[3:0], Monitoring Value: 0x00510000 | MAIN_WS[3:0]

The description regarding FAULT MASK1 register in access register table of user guide has following mistakes.

(Wrong) Value: 0x03380000, Mask Value: 0x03380000, Monitoring Value: 0x03380000

(Correct) Value: 0x00380000, Mask Value: 0x00380000, Monitoring Value: 0x00380000

T2MC-63150 - [FLS] Memory access order of IPC register writing and SRAM_SCRATCH writing must be ensured

Title: [FLS] Memory access order of IPC register writing and SRAM_SCRATCH writing must be ensured

Description: FLS design must consider the following characteristics of the Arm® architecture:

- SRAM_SCRATCH is in an area which has "Normal" memory attributes.
- IPC registers (like NOTIFY) are of course located in an area with "Device" memory attributes.

Therefore, memory access order of IPC register writing and SRAM_SCRATCH writing must be ensured by use of a memory barrier instruction.

T2MC-61562 - [FLS] Problem in FLS BSWMD file

Title: [FLS] Problem in FLS BSWMD file

Description: FLS BSWMD file (Fls_Bswmd.arxml) has some errors.

- The interrupt service routines are implemented in FLS, but BSW-INTERRUPT-ENTITY node does not exist in Fls_Bswmd.arxml.
- The nodes regarding the interrupt service routines are generated in Fls_Bswmd.arxml whether or not FlsUseInterrupts is true.
- Although Fls_Init has exclusive area, there is no CAN-ENTER-EXCLUSIVE-AREA-REFS node (in BSW-CALLED-ENTITY) for Fls_Init in Fls_Bswmd.arxml.

T2MC-63151 - [FLS] When a compare job fails due to hardware error, the job result is not MEMIF_JOB_FAILED

Title: [FLS] When a compare job fails due to hardware error, the job result is not MEMIF_JOB_FAILED

Description: When a compare job fails due to hardware error, the job result is not MEMIF_JOB_FAILED.

It is because the job result is replaced with MEMIF_BLOCK_INCONSISTENT in Fls_MainFunction.

There is similar error of processing for read job in Fls_MainFunction.

8.6 Module SW-Version 1.8

T2MC-65904 - [FLS] Non-cacheable setting in enabling data cache is not documented

Title: [FLS] Non-cacheable setting in enabling data cache is not documented

Description: When data cache is enabled, for erasing/writing to Flash memory, following area must be in non-cacheable area by use of MPU.

- Work flash region
- A section FLS_START_SEC_VAR_NO_INIT_UNSPECIFIED / FLS_STOP_SEC_VAR_NO_INIT_UNSPECIFIED (in Fls_MemMap.h)

Flash driver user guide does not describe the non-cacheable setting in enabling data cache.

T2MC-65997 - [FLS] The parameter FlsMaxWriteNormalMode should be configured in units of page size

Title: [FLS] The parameter FlsMaxWriteNormalMode should be configured in units of page size

Description: The minimum number is defined by the size of one flash page and therefore, depends on the underlying flash device.

In that case, the minimum number should be 4 bytes as the page size is 4.

T2MC-65903 - [FLS] Uninitialized variable is referred

Title: [FLS] Uninitialized variable is referred

Description: Following variables can be referred before setting:

1. Fls_FMAPIIpcStruct
2. Fls_ConfigPtr

The following is supported in release V1.2.4.

T2MC-77594 – Support IAR compiler

Title: Support IAR compiler

Description: Support IAR compiler (IAR EWARM FS 8.22.3.15992).

8.7 Module SW-Version 1.9

T2MC-88178 - [FLS] When the configuration FlsUseInterrupts is true, writing job rarely leads to the FLS_E_VERIFY_WRITE_FAILED error

Title: [FLS] When the configuration FlsUseInterrupts is true, writing job rarely leads to the FLS_E_VERIFY_WRITE_FAILED error

Description: In the FLS module, when the configuration “FlsUseInterrupts” is true (enabled) and writing on hardware is very fast (or software is slow), data writing job by Fls_Write() is not correctly performed occasionally on to few areas of Work Flash memory. As a result, the writing job leads to the FLS_E_VERIFY_WRITE_FAILED error.

8.8 Module SW-Version 1.10

T2MC-91144 - [FLS] The description for Fls_MainFunction shall not be generated in Fls_Bswmd.arxml file if "FlsCallCycle" is 0

Title: [FLS] The description for Fls_MainFunction shall not be generated in Fls_Bswmd.arxml file if "FlsCallCycle" is 0

Description: This requirement from customer is that the description for Fls_MainFunction shall not be generated in Fls_Bswmd.arxml file if the configuration parameter "FlsCallCycle" is set to 0.

T2MC-91523 - [FLS] Fls.xdm is inconsistent with Fls.arxml

Title: [FLS] Fls.xdm is inconsistent with Fls.arxml

Description: Fls.xdm is inconsistent with Fls.arxml.

Fls.arxml uses unnecessary tags.

Fls.arxml and Fls.xdm lack some essential tags.

T2MC-91800 - [FLS] The system call in user guide should be updated to match the new HW Spec

Title: [FLS] The system call in user guide should be updated to match the new HW Spec

Description: The system call described in "6.5 System Call" of the user guide does not match with the new hardware specification.

For example, "the last available SRAM is the allocated stack for system call and calling NMI Handler."

- SRAM area for system call is newly changed from last to first.
- The interrupt which triggers system call is no longer NMI handler.

The description should be modified.

8.9 Module SW-Version 1.11

T2MC-97037 - [FLS] Minimum time from resume to suspend for erase job should be described in user guide

Title: [FLS] Minimum time from resume to suspend for erase job should be described in user guide

Description: For TRAVEO™ T2G, minimum 250 µs must be ensured between an erase/erase resume to erase suspend operation.

This time should be described as the FLS specification in FLS user guide.

In addition, a missing limitation (SWS_Fls_00226) should be added in FLS release notes.

T2MC-97131 - Different macros are used for setting and checking the value

Title: Different macros are used for setting and checking the value

Description: Some modules differ in the macro names defined and the macro names used in the processing.

For example, when the macro set to TRUE is judged as STD_ON, the definition value is 1 for both, but the same macro must be used.

#define MACRO_DEFINE (TRUE)
-
#if MACRO_DEFINE == STD_ON
xxx
#endif

In Platform_Types.h of the base module
#define TRUE 1U
#define FALSE 0U

In Std_Types.h of the base module
#define STD_ON 0x01U
#define STD_OFF 0x00U

T2MC-97382 - Macro definition at variable declaration is missing and the limitation is not mentioned in release notes

Title: Macro definition at variable declaration is missing and the limitation is not mentioned in release notes

Description: Macro definitions are not used when declaring some variables and pointers (in FLS, MCU, PORT, SPI, and WDG).

According to AUTOSAR specification:
[SWS_COMPILER_00026]
#define VAR(vartype, memclass)

True:
volatile P2VAR(Spi_DmaChannelRegsType, AUTOMATIC, REGSPACE) retPtr;

False:
volatile Spi_DmaChannelRegsType * retPtr;

This issue is present in the following cases:
All types of pointer declaration/definition are defined without macros.
These contain the function parameter/global variable/local variable/structure field/union field.
All types of function declaration/definition are defined without macros.
When there is nested macro usage in function macros.
Raw pointer is used in the function macro:
e.g., FUNC(int *, memclass) function(void);
Global variable or static variable in the function is not defined with macros.
To fully comply with these cases, change the variable and function definitions in FLS, MCU, PORT, SPI, and WDG.
In requirements, keyword macros 'CONST' and 'VAR' are not required for declaration/definition of the local variable, function parameter, and structure/union fields.
The information must be described in all release notes.

T2MC-39519 - Support EB tresos V26.2.0

Title: Support EB tresos V26.2.0

Description: Support EB tresos V26.2.0

[Impact]
Strict AUTOSAR specification and check for parameter configuration errors are implemented in EB tresos V26.2.0.

In addition, handling of reference paths (relative paths) such as system description file (ARXML) is changed in EB tresos V26.2.0.

Therefore, if the current ECUC configuration definitions XML file contains deviations or errors, you may find errors during import to EB tresos V26.2.0. In that case, the ECUC configuration definitions XML file must be modified appropriately.
In addition, if the current ARXML file contains unresolvable paths, you may find errors during import to EB tresos V26.2.0. In that case, ARXML file must be modified.

The SW has been tested; no risks except for the low-level risk listed above were found.

8.10 Module SW-Version 1.12

T2MC-98286 - [FLS] Main flash dual bank register to be free control.

Title: [FLS] Main flash dual bank register to be free control.

Description: There are some requests regarding register settings and configuration.

- Main flash dual bank (FLASHC_FLASH_CTL) register to be free control
- FLASHC_WORK_FLASH_SAFETY register to be free control
- When CCR:UNALIGN_TRP is set, Fls_Write can be used with odd source address
- Watchdog clear routine can be removed from FLS
- Fault structure selection

[Impact]
When new configuration parameters are added, if an existing (old) project is applied for this version, you will find some warnings in “Load results” window during import to EB tresos V26.2.0. In that case, click OK button in the window to accept the default values for the new configuration parameters. FLS will be configured as before.

8.11 Module SW-Version 1.13

T2MC-164778 - Support MISRA C:2012 coding rule

Title: Support MISRA C:2012 coding rule

Description: Support MISRA C:2012 coding rule.

The MISRA C:2012 coding rule checks the source code.

If a deviation from the rules is required, add the deviation comment to the code and report the result.

If a deviation is for MISRA-C:2004 only, remove the deviation comment.

8.12 Module SW-Version 1.14

T2MC-164831 - [ALL] Misleading comment in Module_MemMap.h

Title: [ALL] Misleading comment in Module_MemMap.h

Description: *{Mip}_MemMap.h* files are provided as sample template files. But, the file header comment cannot be modified, which is a contradiction. To resolve this contradiction, change the file header comment to allow user modification.

Also, to make sure that the file is not a part of the commercial product, move the *{Mip}_MemMap.h* files to the *MemMap* stub folder.

T2MC-159174 - [FLS] C/NC ECC error on 32 bits read from CM7

Title: [FLS] C/NC ECC error on 32 bits read from CM7

Description: Read access of 32 bits on a Work Flash from CM7 causes C/NC ECC error on the next 32-bit address. Work Flash is always accessed 64-bit-wide when it is read by AXI. Therefore, FLS / FEE may not work properly on CM7; FLS must use DMA transfer to read the data from the work flash memory.

New configuration parameters of FLS are added:

- FlsDmaChannel: Specifies the DMA channel that is used for reading from Work Flash.
- FlsAuxiliaryBufferSize: The size of the auxiliary buffer that stores the data read from Work Flash through DMA transfer at a time, on reading, verifying, or comparing process.

[Impact]
When new configuration parameters are added, if an existing (old) project is applied for this version, you will find some warnings in the “Load results” window during import to EB tresos V26.2.0. In that case, click **OK** in the window to accept the default values for the new configuration parameters. FLS will be configured as before.

T2MC-165859 - [FLS] Support of writing with non-blocking mode

Title: [FLS] Support of writing with non-blocking mode

Description: With FLS, you can select either blocking mode or non-blocking mode for the system call for programming the data to flash memory; a new MCAL FLS configuration parameter is added for the selection.

- FlsUseNonBlockingWrite

[Impact]
When new configuration parameters are added, if an existing (old) project is applied for this version, you will find some warnings in “Load results” window during import to EB tresos V26.2.0. In that case, click **OK** in the window to accept the default values for the new configuration parameters. FLS will be configured as before.

T2MC-97198 - [FLS][HSM support] Support of CY HSM library

Title: [FLS][HSM support] Support of CY HSM library

Description: FLS supports multicore for FEE used by an AUTOSAR application and HSM.

- Multicore support is needed between main application (CM4/CM7) and HSM (CM0+). The two have separate builds

with different instruction sets.

- The flash is a shared resource. The concept of channel instances is not applicable.

8.13 Module SW-Version 1.15

T2MC-169023 - [FLS][HSM support] Issues with read from blank area and register setting

Title: [FLS][HSM support] Issues with read from blank area and register setting

Description: In HSM support, the following defects are fixed:

- A read job by Fls_Read API may return data other than all 0xF for blank area.
- The FLASHC.FLASH_CMD register is not set correctly by the HSM side.

T2MC-169020 - [FLS] Support for new API that disables timeout monitoring

Title: [FLS] Support for new API that disables timeout monitoring

Description: FLS supports a selectable specification for enabling or disabling timeout monitoring for asynchronous jobs.

A new MCAL FLS API is added.

- Fls_SetCycleMode: The parameter is MEMIF_MODE_SLOW (enabling) or MEMIF_MODE_FAST (disabling).

A new MCAL FLS configuration parameter is added.

- FlsSetCycleModeApi: Specifies whether the Fls_SetCycleMode is enabled (true) or disabled (false).

[Impact]
When new configuration parameters are added, if an existing (old) project is applied for this version, you will find some warnings in “Load results” window during import to tresos26. In that case, click OK in the window to accept the default values for the new configuration parameters. FLS will be configured as before.

T2MC-169021 - [FLS] Specification to select whether to use DMA usage in reading from flash memory

Title: [FLS] Specification to select whether to use DMA in reading from flash memory

Description: FLS supports a specification that determines whether to use DMA for reading data from flash memory on read/comparison/write(verification) job . A new MCAL FLS configuration parameter is added.

- FlsUseDmaForRead

[Impact]
When new configuration parameters are added, if an existing (old) project is applied for this version, you will find some warnings in “Load results” window during import to tresos26. In that case, click OK in the window to accept the default values for the new configuration parameters. FLS will be configured as before.

8.14 Module SW-Version 1.16

T2MC-170666 - [FLS] Code description improvement

Title: T2MC-170666 - [FLS] Code description improvement

Description:

1. Modified the two external variables declared in *Fls_LibInterface.h* so that they are declared between the start and stop symbols of the specified memory section to comply with the AUTOSAR specification.

2. Fixed the incorrect code comment.
   - Incorrect: /* call Fls_MainFinish() and finish an erase job */
   - Correct: /* call Fls_MainFinish() and finish a write job */

T2MC-170667 - [FLS] [HSM support] Register control improvement

Title: T2MC-170667 - [FLS] [HSM support] Register control improvement

Description: FLS supports selectable specification to indicate whether FLS sets fault mask register for work flash, and therefore a new MCAL FLS configuration parameter is added.

- FlsSetWorkFlashFaultMaskRegister

If you use HSM together with FLS, you may not want FLS to set the fault mask register for work flash. In that case, set the configuration parameter to FALSE.

The explanation on fault handling for such cases is also added in the user guide.

Moreover, FLS does not enable/disable DMA controller. You can enable using either of the following:

- Using the MCU module (i.e. McuDmaEnable=true)
- Setting the DMA register (without MCU module)

T2MC-170842 - [FLS] Support of configuration for not reporting to error callout

Title: T2MC-170842 - [FLS] Support of configuration for not reporting to error callout

Description: FLS supports selectable specification to indicate whether FLS calls error callout functions (i.e. Det_ReportError function and error callout handler) when a blank check job (started by Fls_BlankCheck()) detects FLS_E_VERIFY_ERASE_FAILED error, which means non-blank. Therefore, a new MCAL FLS configuration parameter is added.

- FlsReportErrorIfNotBlank

If you would not like FLS to call the error callout functions, set the configuration parameter to FALSE.

T2MC-170789 - [FLS] Some parameters are inconsistent between XDM and ARXML

Title: T2MC-170789 - [FLS] Some parameters are inconsistent between XDM and ARXML

Description: The default values of the following configuration parameters were mentioned in *Fls.arxml* and not in *Fls.xdm*, and this has been fixed:

- FlsJobEndNotification
- FlsJobErrorNotification
- FlsDedErrorNotification
- FlsSedErrorNotification

T2MC-172524 - [FLS] Modify description in the user guide

Title: T2MC-172524 - [FLS] Modify description in the user guide

Description: Modify the sections 5.1.12 Suspending a Jobs and 5.1.13 Resuming a Suspended Job of the user guide as follows.

Current description:

Note: This function should not be used for the Flash driver for HSM (Fls_TS_T40D13M2I0R0).

Updated description:

Note: This function can be called for Flash drivers for application (Fls_TS_T40D13M1I0R0) and HSM (Fls_TS_T40D13M2I0R0). However, make sure that arbitration is taken care, for example, make sure that one core does not start an erase job while the other core is suspending the erase operation.

The following is supported in release V1.12.0.

T2MC-178688 - Addition of the notice for Arm® errata and workaround in the user guide

Title: Addition of the notice for Arm® errata and workaround in the user guide

Description: Add a notice for Arm® Cortex®-M4 errata 838869 and software workaround in the user guide.

8.15 Module SW-Version 1.17

T2MC-181015 - [FLS] Robustness improvement for SROM status handling

Title: T2MC-181015 - [FLS] Robustness improvement for SROM status handling

Description: The FLS driver supports all defined results returned from the SROM BlankCheck API. The driver's behavior when undefined results are returned is not consistent. Add the handling for undefined SROM status to make the FLS driver more robust.

The following is supported in release V1.15.0.

T2MC-183983 - Update copyright notice and disclaimer statement

Title: Update copyright notice and disclaimer statement

Description: Copyright notice and disclaimer statement in the file header comment are updated to follow the up-to-date specifications.

The following is supported in release V1.16.0.

T2MC-184093 - [FLS] Inaccurate description for FlsTotalSize

Title: [FLS] Inaccurate description for FlsTotalSize

Description: It describes that the configuration parameter FlsTotalSize calculates from the configured sector list. However, the sector list configured by the user is not related to the value of FlsTotalSize. Configure this parameter to the available total size of Work Flash on the target device.

T2MC-184107 - [FLS] Add a definition of the data buffer to the user guide

Title: [FLS] Add a definition of the data buffer to the user guide

Description: The data buffer definition used in the user guide is missing and may cause user misunderstanding. It is necessary to clarify the definition in the user guide.

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