MC-ISAR_AS422_TC3xx_BASIC_2.0.0

Release Notes
Product name: MC-ISAR_AS422_TC3xx
Release number: 2.0.0
Type of release: PR*
Release method: via Release Area
AUTOSAR specification: 4.2.2
Processor platform: TC39x BC, TC39x BD, TC38x AD, TC38x AE, TC37x AA, TC37xEXT AB, TC35x AB, TC36x AA, TC33x AA, TC33xEXT AA, TC32x AA
Date: 2021-04-09
Previous release number: 2.0.0-rc

About this document

Scope and purpose

This release notes, for the 2.0.0 delivery of MC-ISAR_AS422_TC3xx basic drivers, details the release contents, all known issues in the release and the changes from the last release. This document also provides information on tools, compiler options and support packages.

New issues identified since the last release of this document are detailed first, followed by all issues identified in previous versions of this release.

The following modules are supported in this release:

- Adc (20.0.2)
- Bfx (20.0.1)
- Can_17_McmCan (20.0.2)
- CanTrcv_17_V9251 (20.0.1)
- CanTrcv_17_W9255 (20.0.1)
- Crc (20.0.2)
- Dio (20.0.1)
- Fee (20.0.2)
- Fls_17_Dmu (20.0.1)
- Gpt (20.0.1)
- Icu_17_TimerIp (20.0.1)
- Lin_17_AscLin (20.0.2)
- McalLib (20.0.1)
- Mcu (20.0.2)
- Ocu (20.0.1) (NA for 35x, 33xEXT)
- Port (20.0.1)
- Pwm_17_GtmCcu6 (20.0.2)
- Spi (20.0.2)
- Wdg_17_Scu (20.0.1)

Further generic references to Modules are indicated as <Mod>, where <Mod> represents the above module short names.

Note: ** This release is intended for production use.*

About this document

Attention**: **Refer to the Limitations and deviations section before using the software for integration.

Intended audience

This document is intended for anyone using the MC-ISAR_AS422_TC3xx software.

Reference documents

None.

Table of contents

1 Release contents

1.1 Release overview

This release is of PR quality. Section 1.4 provides module-wise quality information.

1.2 Released items

The release is contained in the `MC-ISAR_AS422_TC3xx_BASIC_2.0.0.zip` file. The contents of this file include the MCAL software, EB tresos plugin files (BMD included), User Manuals and Release Notes.

Note: The package also includes Build Environment, Demo Application, Fee Cycle Calculator, Fee GC & Write Cycles, Fee Initial Data Generator, MCU Clock Calculator which are not attached with any quality but provided for demonstration purpose only.

Table 1 Release zip contents

Package content	Description
`AoUs`	Contains Assumptions of Use for SW development.
User Manuals	Contains the MCAL User Manual and Configuration Verification Manual.
`MC-ISAR_AS422_TC3xx_BASIC_2.0.0.exe`	Product installer to be used with AUTOSAR Version 4.2.2
`Releasenote_MC-ISAR_AS422_TC3xx_BASIC_2.0.0.pdf`	Contains the Release Notes
`MC-ISAR_TC3xx_<Compiler>_2.0.0.pdf`	Contains compiler specific tool information.
`MC-ISAR_TC3xx_HWErrataAnalysis.xlsx`	Contains analysis for the hardware errata sheet
`MC-ISAR_TC3xx_FEE_Cycle_Calculator.xlsx`	Calculates required amount of threshold and flash cycles based on user provided block information, such as block size and no of writes over the lifecycle.
`MC-ISAR_TC3xx_FEE_Initial_Data_Generator.zip`	This tool can be used for creating hex file with initial state pages as per FEE design, with/without first version of data blocks. This zip includes a perl script, example input & out files and tool user manual.
`MC-ISAR_TC3xx_MemoryConsumption.zip`	Memory footprint and corresponding configuration files for drivers. *Note: The values are indicative. Exact values will depend on Configuration and compilers used.*
`MC-ISAR_TC3xx_MCU_Clock_Calculator.xslm`	Mcu clock calculator tool generates the clock tree frequencies which can be used for Mcu clock configuration. The tool accepts inputs like PLL divider values and oscillator frequency. Based on the input, it generates multiple sets of frequencies for different divider values for the clock tree.

Table 1 Release zip contents (continued)

Package content	Description
	Note: The values are indicative. Exact values will depend on Configuration and compilers used
`MC-ISAR_TC3xx_SW_WCET.xlsx`	File contains the Worst Case execution time for various drivers. *Note: The values are indicative. Exact values will depend on Configuration and compilers used.*
`MC-ISAR_TC3xx_Fee_GC_&_Write_Cycles.zip`	This perl script provides the estimated number of FEE and FLS Main Function cycles needed for completing Garbage Collection and 1 FEE write.

1.2.1 Driver files

Table 2 Driver file description

File name	Description
`<Mod>_<Ie>.c`	Contains the <Mod>_<Ie> source files located in `\McIsar\Src\Mcal\Tricore\<Mod>\ssc\src`.
`<Mod>_<Ie>.h`	Contains the <Mod>_<Ie> header files located in `\McIsar\Src\Mcal\Tricore\<Mod>\ssc\inc`.

Note: In the above table, `Ie` stands for implementation specific.

1.2.2 Common files

Table 3 Common files

File / folder name	Description
`McalLib.c`	Contains MCAL function source file located in `\McIsar\Src\Mcal\Tricore\McalLib\ssc\src`
`McalLib.h`	Contains MCAL library function header file located in `\McIsar\Src\Mcal\Tricore\McalLib\ssc\inc`
`\McIsar\Src\Infra_Prod\Platform`	Contains the compiler abstraction and standard type definitions

`\McIsar\Src\Infra_Prod\Sfr\TC32xA\_Reg`
`\McIsar\Src\Infra_Prod\Sfr\TC33xA\_Reg`
`\McIsar\Src\Infra_Prod\Sfr\TC33xA_ED\_Reg`
`\McIsar\Src\Infra_Prod\Sfr\TC35xA\_Reg`
`\McIsar\Src\Infra_Prod\Sfr\TC36xA\_Reg`
	Contains the Special Function Register (SFR) definitions for device(s)

Table 3 Common files (continued)

File / folder name	Description
\McIsar\Src\Infra_Prod\Sfr\TC37xA_Reg \McIsar\Src\Infra_Prod\Sfr\TC37xA_ED_Reg \McIsar\Src\Infra_Prod\Sfr\TC38xA_Reg \McIsar\Src\Infra_Prod\Sfr\TC39xB_Reg	
Mcal_Compiler.h	Contains MCAL-specific compiler abstractions file located in \McIsar\Src\Mcal\Tricore\McalLib\ssc\inc
Mcal_Version.h	Contains MCAL-specific compiler abstractions file located in \McIsar\Src\Mcal\Tricore\McalLib\ssc\inc\AS422

Note: SFRs are distributed with "'Dual-License" . Boost license is only applicable if no other terms of use are agreed.

1.2.3 EB tresos plugin files

Table 4 Plugin files

Folder name	Description
autosar	Contains the BMD files for the module located in \McIsar\PluginsTresos\eclipse\Plugins\<Mod>_Aurix2G
Config	Contains the XDM tresos plugin files for the module located in \McIsar\PluginsTresos\eclipse\Plugins\<Mod>_Aurix2G
Generate	Contains the template for the generated files for the module located in \McIsar\PluginsTresos\eclipse\Plugins\<Mod>_Aurix2G
plugin.properties	Contains the plugin property for the module located in \McIsar\PluginsTresos\eclipse\Plugins\<Mod>_Aurix2G
plugin.xml anchors.xml	Contains the plug-in information, located in \McIsar\PluginsTresos\eclipse\Plugins\<Mod>_Aurix2G

Note: Resource_Aurix2G contains the properties for the TC39x BC, TC39x BD, TC38x AD, TC38x AE, TC37x AA, TC37xEXT AB, TC35x AB, TC36x AA, TC33x AA, TC33xEXT AA, TC32x AA.

Note: The plugin is a sample for reference. The integrator shall take care of the appropriate plugin.This note applies for following plugins “Dem_Aurix2G, EcuC_Aurix2G, EcuM_Aurix2G, FrIf_Aurix2G".

Note: This package will allow the user to select TC3E7x device(s) from the target drop-down list while creating a configuration project in EB tresos. However this device is not supported for this release. Infineon recommends not to select the TC3E7x device(s).

1.3 Safety

For information on safety, refer to the Safety Case Report document.

1.4 Module-wise quality

Table 5 Module-wise quality

Module	Release quality
Adc	PR
Bfx	PR
Can_17_McmCan	PR
CanTrcv_17_V9251	PR
CanTrcv_17_W9255	PR
Crc	PR
Dio	PR
Fee	PR
Fls_17_Dmu	PR
Gpt	PR
Icu_17_TimerIp	PR
Lin_17_AscLin	PR
Mcu	PR
Ocu	PR (NA for 35x, 33xEXT)
Port	PR
Pwm_17_GtmCcu6	PR
Spi	PR
McalLib	PR
Wdg_17_Scu	PR

1.5 Compatibility

This release is tested with the following SFR packages:

- TC32xA: REG_TC33X32X_UM_V2.0.0.R0
- TC33xA: REG_TC33X32X_UM_V2.0.0.R0
- TC33xA_ED: REG_TC33XED_UM_V2.0.0.R0
- TC35xA: REG_TC35XA_UM_V2.0.0.R0
- TC36xA: REG_TC36XA_UM_V2.0.0.R0
- TC37xA: REG_TC37xPD_UM_V2.0.0.R0
- TC37xA_ED: REG_TC37xED_UM_V2.0.0.R0
- TC38xA: REG_TC38XA_UM_V2.0.0.R0
- TC39xA: REG_TC39XB_UM_V2.0.0.R0

2 Tool information

For compiler version refer release notes appendix MC-ISAR_TC3xx_<Compiler>_2.0.0.pdf available in release package where <Compiler> represent the corresponding compiler.

Table 6 Tool information

Tool description	Version details
Processor platform	TC39x BC, TC39x BD, TC38x AD, TC38x AE, TC37x AA, TC37xEXT AB, TC35x AB, TC36x AA, TC33x AA, TC33xEXT AA, TC32x AA
Evaluation hardware	TriBoard TC3x7 TriBoard TC3x9
Code configuration and generation tool	EB tresos Studio 26.2.0 Build Nr. b191017-0938

Table 7 AURIX™2G TC32xAA/TC33xAA/TC33xED AA/TC35xAB/TC36xAA/TC37xAA/TC37xED AB/ TC38x AD and AE/TC39x BC and BD umbrella device support

AURIX™ 2G umbrella device	Name displayed in the EB tresos tool	Tresos property file
SAK-TC332LP-32F300F	TC332	AURIX2G_TC332.properties
SAL-TC332LP-32F300F	TC332	AURIX2G_TC332.properties
SAK-TC333LP-32F300F	TC333	AURIX2G_TC333.properties
SAL-TC333LP-32F300F	TC333	AURIX2G_TC333.properties
SAK-TC334LP-32F300F	TC334	AURIX2G_TC334.properties
SAL-TC334LP-32F300F	TC334	AURIX2G_TC334.properties
SAK-TC336LP-32F300S	TC336	AURIX2G_TC336.properties
SAL-TC336LP-32F300S	TC336	AURIX2G_TC336.properties
SAK-TC337LP-32F300S	TC337	AURIX2G_TC337.properties
SAL-TC337LP-32F300S	TC337	AURIX2G_TC337.properties
SAK-TC356TA-64F300S	TC356_ADAS	AURIX2G_TC356_ADAS.properties
SAK-TC364DP-64F300W	TC364_LQFP	AURIX2G_TC364_LQFP.properties
SAK-TC365DP-64F300W	TC365_LQFP	AURIX2G_TC365_LQFP.properties
SAK-TC366DP-64F300S	TC366	AURIX2G_TC366.properties
SAK-TC367DP-64F300S	TC367	AURIX2G_TC367.properties
SAL-TC375TP-96F300W	TC375	AURIX2G_TC375.properties
SAL-TC377TP-96F300S	TC377	AURIX2G_TC377.properties
SAL-TC377DP-96F300S	TC377	AURIX2G_TC377.properties
SAL-TC377TX-96F300S	TC377_ED_EX	AURIX2G_TC377_ED.properties
SAL-TC387QP-160F300S	TC387	AURIX2G_TC387.properties
SAK-TC389QP-160F300S	TC389	AURIX2G_TC389.properties

Tool information

Table 8 AURIX™ 2G TC32xAA/TC33xAA/TC33xED AA/TC35xAB/TC36xAA/TC37xAA/TC37xED AA/TC38x AD and AE/TC39x BC and BD marking option device support[1]

AURIX™ 2G marking option device	Name displayed in the EB tresos tool	Tresos property file
SAK-TC322LP-16F160F[2)]	TC322	AURIX2G_TC322.properties
SAL-TC322LP-16F160F[2)]	TC322	AURIX2G_TC322.properties
SAK-TC322LS-24F160F[2)]	TC322	AURIX2G_TC322.properties
SAK-TC323LP-16F160F[2)]	TC323	AURIX2G_TC323.properties
SAL-TC323LP-16F160F[2)]	TC323	AURIX2G_TC323.properties
SAK-TC323LP-24F200F[2)]	TC323	AURIX2G_TC323.properties
SAL-TC323LP-24F200F	TC323	AURIX2G_TC323.properties
SAK-TC323L-24F200F[2)]	TC323	AURIX2G_TC323.properties
SAL-TC323L-24F200F[2)]	TC323	AURIX2G_TC323.properties
SAK-TC323LS-24F160F[2)]	TC323	AURIX2G_TC323.properties
SAK-TC324LP-16F160F[2)]	TC324	AURIX2G_TC324.properties
SAL-TC324LP-16F160F[2)]	TC324	AURIX2G_TC324.properties
SAK-TC324LP-24F200F[2)]	TC324	AURIX2G_TC324.properties
SAL-TC324LP-24F200F[2)]	TC324	AURIX2G_TC324.properties
SAK-TC324L-24F200F[2)]	TC324	AURIX2G_TC324.properties
SAL-TC324L-24F200F[2)]	TC324	AURIX2G_TC324.properties
SAK-TC327LP-16F160S[2)]	TC327	AURIX2G_TC327.properties
SAL-TC327LP-16F160S[2)]	TC327	AURIX2G_TC327.properties
SAL-TC332LP-32F200F	TC332	AURIX2G_TC332.properties
SAK-TC332LP-32F200F	TC332	AURIX2G_TC332.properties
SAL-TC333LP-32F200F	TC333	AURIX2G_TC333.properties
SAK-TC333LP-32F200F	TC333	AURIX2G_TC333.properties
SAK-TC333L-32F200F	TC333	AURIX2G_TC333.properties
SAL-TC333L-32F200F	TC333	AURIX2G_TC333.properties
SAL-TC334LP-32F200F	TC334	AURIX2G_TC334.properties
SAK-TC334LP-32F200F	TC334	AURIX2G_TC334.properties
SAK-TC334L-32F200F	TC334	AURIX2G_TC334.properties
SAL-TC334L-32F200F	TC334	AURIX2G_TC334.properties
SAL-TC336LP-32F200S	TC336	AURIX2G_TC336.properties
SAK-TC336LP-32F200S	TC336	AURIX2G_TC336.properties
SAL-TC337LP-32F200S	TC337	AURIX2G_TC337.properties
SAK-TC337LP-32F200S	TC337	AURIX2G_TC337.properties

Tool information

Table 8 AURIX™ 2G TC32xAA/TC33xAA/TC33xED AA/TC35xAB/TC36xAA/TC37xAA/TC37xED AA/ TC38x AD and AE/TC39x BC and BD marking option device support[1] (continued)

AURIX™ 2G marking option device	Name displayed in the EB tresos tool	Tresos property file
SAK-TC356TD-48F300S	TC356_ADAS	AURIX2G_TC356_ADAS.properties
SAK-TC356TH-64F300S	TC356_ADAS	AURIX2G_TC356_ADAS.properties
SAK-TC357TA-64F300S	TC357_ADAS	AURIX2G_TC357_ADAS.properties
SAK-TC357TH-64F300S	TC357_ADAS	AURIX2G_TC357_ADAS.properties
SAL-TC364DP-64F300F	TC364_TQFP	AURIX2G_TC364_TQFP.properties
SAK-TC364DP-48F200F	TC364_TQFP	AURIX2G_TC364_TQFP.properties
SAK-TC364DP-48F300F	TC364_TQFP	AURIX2G_TC364_TQFP.properties
SAL-TC365DP-64F300W	TC365_LQFP	AURIX2G_TC365_LQFP.properties
SAK-TC365DP-64F200W	TC365_LQFP	AURIX2G_TC365_LQFP.properties
SAL-TC366DP-64F300S	TC366	AURIX2G_TC366.properties
SAL-TC367DP-64F300S	TC367	AURIX2G_TC367.properties
SAK-TC367DP-48F200S	TC367	AURIX2G_TC367.properties
SAK-TC367DP-48F300S	TC367	AURIX2G_TC367.properties
SAK-TC367VB-32F200S	TC367	AURIX2G_TC367.properties
SAK-TC367V0-64F300S	TC367	AURIX2G_TC367.properties
SAK-TC375TP-96F300W	TC375	AURIX2G_TC375.properties
SAK-TC377TP-96F300S	TC377	AURIX2G_TC377.properties
SAK-TC377DP-96F300S	TC377	AURIX2G_TC377.properties
SAK-TC375DP-96F300W	TC375	AURIX2G_TC375.properties
SAL-TC375DP-96F300W	TC375	AURIX2G_TC375.properties
SAK-TC375TI-96F300W	TC375	AURIX2G_TC375.properties
SAL-TC375TI-96F300W	TC375	AURIX2G_TC375.properties
SAK-TC377TX-96F300S	TC377_ED_EX	AURIX2G_TC377_ED.properties
SAK-TC377TX-64F300S	TC377_ED_EX	AURIX2G_TC377_ED.properties
SAK-TC387QP-160F300S	TC387	AURIX2G_TC387.properties
SAL-TC387TP-128F300S	TC387	AURIX2G_TC387.properties
SAK-TC387TP-128F300S	TC387	AURIX2G_TC387.properties
SAL-TC387TP-160F300S	TC387	AURIX2G_TC387.properties
SAK-TC387TP-160F300S	TC387	AURIX2G_TC387.properties
SAK-TC387QN-160F300S	TC387	AURIX2G_TC387.properties
SAL-TC389QP-160F300S	TC389	AURIX2G_TC389.properties
SAK-TC389QN-160F300S	TC389	AURIX2G_TC389.properties

Table 8 AURIX™ 2G TC32xAA/TC33xAA/TC33xED AA/TC35xAB/TC36xAA/TC37xAA/TC37xED AA/ TC38x AD and AE/TC39x BC and BD marking option device support[1] (continued)

AURIX™ 2G marking option device	Name displayed in the EB tresos tool	Tresos property file
SAL-TC397XP-256F300S	TC397	AURIX2G_TC397.properties
SAK-TC397XP-256F300S	TC397	AURIX2G_TC397.properties
SAK-TC397XX-256F300S	TC397	AURIX2G_TC397.properties
SAK-TC397QP-192F300S	TC397	AURIX2G_TC397.properties
SAK-TC397QP-256F300S	TC397	AURIX2G_TC397.properties
SAK-TC397XZ-256F300S	TC397	AURIX2G_TC397.properties
SAK-TC397XM-256F300S	TC397	AURIX2G_TC397.properties
SAL-TC397QP-192F300S	TC397	AURIX2G_TC397.properties
SAL-TC397QP-256F300S	TC397	AURIX2G_TC397.properties
SAL-TC397XZ-256F300S	TC397	AURIX2G_TC397.properties
SAL-TC397XX-256F300S	TC397	AURIX2G_TC397.properties
SAK-TC397XA-256F300S	TC397_ADAS	AURIX2G_TC397_ADAS.properties
SAK-TC397QA-160F300S	TC397_ADAS	AURIX2G_TC397_ADAS.properties
SAL-TC399XX-256F300S	TC399	AURIX2G_TC399.properties
SAL-TC399XP-256F300S	TC399	AURIX2G_TC399.properties
SAK-TC399XP-256F300S	TC399	AURIX2G_TC399.properties
SAK-TC399XX-256F300S	TC399	AURIX2G_TC399.properties

Note: ***1.*** *For TC38x, TC39x, TC37x, TC37xEXT, TC36x, TC35x, TC33x, TC33xEXT marking option device support, range check has to be imposed by user, and not in the MCAL code.*

2. *TC32x marking option device support is added in MCAL through configuration.*

2.1 Compiler options

For compiler options refer release notes appendix MC-ISAR_TC3xx_<Compiler>_2.0.0.pdf available in release package where <Compiler> represent the corresponding compiler.

3 Summary of changes

Configuration changes

Table 9 Configuration changes from 2.0.0-rc to 2.0.0

Compatibility check	Result
Are there any change in parameters supplied from previous version?	Yes
Added parameters	None
Deleted parameters	None
Modified parameters	**Adc, Can_17_McmCan, Crc, Fee, Lin_17_AscLin, Port, Pwm_17_GtmCcu6, Spi** • SwPatchVersion is updated. **Mcu** • SwPatchVersion is updated. • McuGEthFrequency default value XPath expression is modified. • McuStdbyModeClkSelection editable condition is modified.
Can the previously saved configuration be reused?	Yes

Compatibility with 1.40.0 release

Table 10 1.40.0 to 2.0.0 compatibility

S.No	Change item	Reuse Possible(Yes/No)	Change Summary
1	API/Interface	Yes	1. No major changes at interface level for the existing APIs 2. New APIs are added for CRC, BFX, DIO, CAN, FEE, DSADC modules 3. Call back & Isr function input parameter type is modified Hssl_DmaCallout, Hssl_DmaErrCallout, Stm_Isr 4. CAN: Availability condition of ISRs have changed due to addition of mixed mode feature. 5. FLs: Fls_17_Dmu_ControlTimeoutDet() - Timeout supervision of erase and write jobs is done per command basis using

Summary of changes

Table 10 1.40.0 to 2.0.0 compatibility (continued)

S.No	Change item	Reuse Possible(Yes/No)	Change Summary
			hardware timers and not based on main function call cycles 6. Adc: i) AdcReadGroup API guarding is updated. 7. Spi: i) Spi_ControlLoopBack API guarded under SPI_CONTROL_LOOPBACK_API precompile switch ii) Spi_QspiDmaCallout parameter type updated (const uint8 Channel, const uint32 Event) iii) Spi_QspiDmaErrCallout parameter type is updated : (const uint8 Channel, const uint32 Event) iv) Spi_MainFunction_Handling API declaration moved from Spi.h to SchMSpi.h User manual can be referred for the new APIs or features added.
2	Files	Yes	New Infra files:- Added for relevant AUTOSAR interfaces (e.g: APIs, Macros and Data type definitions). Added Files - EcuM.h, Memif.h, WdgIf.h and NvM.h. Updated File :- CanIf.h for extern of APIs. New device support : AURIX2G_TC3E7.properties
3	Configuration	Yes	1. There are changes in the configuration parameter values, 1.40.0-PR Configuration can be

Summary of changes

Table 10 1.40.0 to 2.0.0 compatibility (continued)

S.No	Change item	Reuse Possible(Yes/No)	Change Summary
			reused with the latest 2.0.0 PR plugins. 2. New parameters added in some modules for additional feature support, but there is no impact to the existing functionality. 3. Customer shall take care of correcting the configuration errors reported in the configuration and code generation time after reusing the configuration. 4. Verify the generated configuration output using the configuration verification Manual. e.g configuration changes:- 1. Mcu configuration changes (GtmTimGlobalConf.parameter was part of Icu_17_TimerIp and now it is moved to Mcu module) 2. AdcMaxChConvTimeCount value is modified. 3. Updated the name of parameter DmaTriggerApiConfiguration as DmaTriggerApi. 4. McuStdbyModeClkSelection editable condition is modified 5. Config parameter LinInterruptEnable is renamed to LinMasterInterruptEnable. 5. SW Major, Minor, Patch version is modified for all modules.

Summary of changes

Table 10 1.40.0 to 2.0.0 compatibility (continued)

S.No	Change item	Reuse Possible(Yes/No)	Change Summary
			6. EthDevErrorDetect, EthMultiCoreErrorDetect, FrDevErrorDetect, LinDevErrorDetect, LinMultiCoreErrorDetect, LinTimeoutDuration, SentRxInput, SentDevErrorDetect, SentMultiCoreErrorDetect, I2cDevErrorDetect parameter default value is modified. 7. FLS: i) FlsDevErrorDetect – default value is modified ii) FlsWaitStateRead and FlsWaitStateErrorCorrecti on : Updated the names of literals 8. SPI i) SpiBaudrate : upper value is changed from 50000000 to 33000000 ii) SpiChannelIndex : postbuildvariant value made True iii) SpiMulticoreCheckEnable : name is changed to SpiMultiCoreErrorDetect and default value is made False iv) error check added : Multicore Error Detect can be configured true only when multiple cores are available v) SpiSafetyCheckEnable : name change to SpiSafetyEnable vi) SpiEnableLoopBackApi parameter added : to enable or disables the ControlLoopBack API
4	SchM/Memmap	Yes	SchM :

Summary of changes

Table 10 1.40.0 to 2.0.0 compatibility (continued)

S.No	Change item	Reuse Possible(Yes/No)	Change Summary
			These files are updated for extern declaration of scheduled Main functions for applicable drivers. (e.g: SchM_Fls_17_Dmu.h). These files SchM_Spi.c and SchM_Spi.h are updated with removal of SchM_Enter_Spi_Channel Lock() and SchM_Exit_Spi_ChannelL ock() APIs Memmap: Memory map sections updated for memory alignments in general for all modules.(e.g: Can_17_McmCan_MemMa p.h, Crc_Memmap.h).
5	Configuration Tool version	Yes	Tresos v26.2 is used for 2.0.0, configuration created using Tresos v23.0 can be reused in v26.2.
6	IRQ changes	Yes	Can_17_McmCan_Irq.c file is updated as per controller ID macro provided from Driver.

3.1 Issues fixed in release 2.0.0

Table 11 Summary of bugs from 2.0.0-rc to 2.0.0

Module	Issue number	Description
Generic	0000053912-16545	Description: Incorrect SWS ID provided in "Known deviation" of the SW module UMs. Impact: Incorrect documentation only, no functional impact. Applies to the following SW module UMs : LIN, WDG, CAN, CANTRCV and MCU.
	0000053912-16144	Description: <CoreScope> is used in MEMMAP macro for constant and config data and hence this violates the Autosar requirements. Impact: While integrating the MCAL, standard Autosar MEMMAP package needs modification.

Summary of changes

Table 11 Summary of bugs from 2.0.0-rc to 2.0.0 (continued)

Module	Issue number	Description
	0000053912-16150	Description: MCAL build failure on filesystems which are case-sensitive. Impact: MCAL build will fail on filesystems which are case-sensitive Impacted modules: DSADC, DMA, LIN, I2C, FEE
	0000053912-16606	Description: Inconsistency in the artifact file names for configuration plugins. Impact: The file names are not consistent with AUTOSAR standards, in the usage of uppercase/lowercase, for the following files: Dsadc_PBCfg.h, Dsadc_PBCfg.c, Crc_cfg.c, Iom_PBCfg.c. No functional impact. Impacted modules:DSADC, IOM, CRC
Adc	0000053912-16348	Description: ADC unavailable channels for TC322, TC332, TC323 and TC333 devices. Impact: As per TC33x_TC32x_Data_Sheet_Addendum_v1.4.pdf and TC33x_TC32xAA_DS_v10pdf_Z8F70651493_1.0.pdf, ADC channels G1CH2 and G8CH14 are unavailable in TC322, TC332, TC323 and TC333 devices.
Can_17_McmCan	0000053912-16125	Description: L-Pdu callout function call is done with hoh type as uint8. Impact: If more than 255 hardware objects are configured then the Hoh id passed to L-Pdu callout will not be correct.
	0000053912-16118	Description: During RxFIFO watermark interrupt processing interrupt flags are only cleared if FIFO level is greater than or equal to watermark. If level is crossed during the processing of FIFO watermark interrupt will be retriggered. During 2nd watermark interrupt, watermark interrupt flag will not be cleared if the FIFO level is less than the configured threshold. Impact: Watermark interrupts will not be triggered instead FIFO Full interrupt will be triggered, successive interrupt will again be watermark interrupt.
	0000053912-16624	Description: After reporting the DATALOST DET from the Can_MainFunction_Read() API, the API continue to perform its nominal functionality. This is the deviation of the PRQ. Impact: No functional impact is seen due to this. This behavior is intentionally implemented to enable the functionality of Can_MainFunction_Read() API even after DATALOST DET is reported.
Crc	0000053912-15755	Description: Crc driver will give build errors, if only CRC64 polynomial is enabled for any method. Impact: If CRC64 is enabled, without enabling any other polynomials, the driver would give build errors due to selective enabling of the shared code across the polynomials.
Fee	0000053912-16757	Description: Due to an error in the software implementation of FEE driver, when a pending user normal block write request which has

Summary of changes

Table 11 Summary of bugs from 2.0.0-rc to 2.0.0 (continued)

Module	Issue number	Description
		trigger the garbage collection (GC) operation or immediate block write request is pending due to garbage collection (GC) is cancelled by Fee_Cancel() then driver may write unintended data during garbage collection (GC). Impact: In the scenario mentioned in the description, the data flash content may be corrupted leading to • Data loss of user blocks and/or • Trap (DAE/DSE)
Lin_17_AscLin	0000053912-16000	Description: LIN frames not being transmitted after error is reported due to no response from slave node. Impact: No further Frames are transmitted after error occurrence.
Mcu	0000053912-16884	Description: MemMap start/stop sections not properly generated in Mcu_17_TimerIp_Cfg.c plugin for devices where GTM IP is not present Impact: For devices where GTM IP is not present, Mcu_17_TimerIp_Cfg.c will not generate the proper START or STOP memory map sections. This results in compilation error.
	0000053912-15987	Description: Mcu_Init() overwrites and disables the Standby controller (SCR) module. Impact: Mcu_Init() overwrites the other bits of PMSWCR4 which disable the SCR module. This impacts the customer who require SCR to remain enabled for standby related purposes like RTC functionality.
	0000053912-16904	Description: Mcu_InitCheck returns E_NOT_OK incorrectly if some GTM configuration parameters are enabled. Impact: Mcu_InitCheck will compare with the wrong SFR value of TOM/ATOM FUPD_CTRL or INT_TRIG against the configuration. This will result in E_NOT_OK being returned incorrectly.
Port	0000053912-16783	Description: Port_InitCheck() will fail if PORTS_TC.H012 errata is applicable. Impact: Port_InitCheck will fail since it compares against the configuration values and not the update done by Port_Init() for PORTS_TC.H012 errata workaround. This error will happen only if below conditions are met : - PORTS_TC.H012 errata which is applicable only for TC387, TC397, TC397_ADAS devices - LVDS pair 9,10 is configured - Port_InitCheck() is called
	0000053912-16680	Description: Incorrect code generation for PORTS_TC.H012 Errata fix for TC397 device.

Summary of changes

Table 11 Summary of bugs from 2.0.0-rc to 2.0.0 (continued)

Module	Issue number	Description
		Impact: Errata PORTS_TC.H012 fix will not work for TC397 device user.
Pwm_17_GtmCcu6	0000053912-16124	Description: Unreferenced function GHS compiler warning reported for Pwm_lClearDuty_0_Or_100_Status. Impact: Pwm_lClearDuty_0_Or_100_Status function will not be referenced resulting in GHS compiler warning. This compiler warning occurs due to configuration combination of below parameters 1) Parameter PwmNotificationSupported is enabled and 2) Parameter PwmSetPeriodAndDuty is enabled and 3) Parameter PwmEnable0Or100DutyNotification is enabled and 4) Parameter PwmSetDutyCycle is disabled
	0000053912-16675	Description: Limitation of PWM driver when PwmHandleShiftByOffset is FALSE. Impact: Channels of TGC or AGC can be shared across other drivers but users of the other drivers or within the PWM driver should not introduce the sequence of referenced fixed period and fixed period shifted channels when PwmHandleShiftByOffset parameter is FALSE or referenced fixed period and fixed period center-aligned channels in-between the other channels sequence. This is because, introducing channel sequence in-between will break the sequence of other channels.
Spi	0000053912-16245	Description: UM limitation description on TRL-lost is ambiguous and needs to be corrected. Impact: The TRL interrupt does occur, however its processing and further notification to the user (from DMA module) is avoided in case DmaTcsInterruptTransactionLoss is disabled.
	0000053912-16329	Description: IB buffer copy during Spi_WriteIB are protected within a critical section. Impact: In SPI driver IB buffer update is protected within a critical section (ChannelLock) which will disable the interrupt and will not allow any high priority tasks to copy IB buffers associated to a different channel.
	0000053912-16709	Description: If the sequence contains 1 Job, 1 channel with short data length (2 to 8bits) and a very small lead delay (in nsec) there is a possibility that sequence status will remain in pending state indefinitely. Impact: Successive transmission of sequences is not possible since the SPI driver will be stuck indefinitely due to sequence stuck in pending state.
	0000053912-16036	Description: QSPI2 doesn’t have QSPI2_MTSR pin available in TQFP-80 package. Impact: QSPI2 node for TC322 device cannot be used.

Summary of changes

Table 12 Summary of enhancement from 2.0.0-rc to 2.0.0

Module	Issue number	Description
Generic	0000053912-12771	Update of MCAL packaging startegy.
	0000053912-15446	MCAL package contents updated for non productive files.
	0000053912-15372	HW Errata analysis will be available for all the production releases.
Fee	0000053912-7114	Demo quality reference tool that provides an estimated number of FEE/FLS main function cycles required to complete 1 GC cycle and 1 block write.
	0000053912-16006	In the MC-ISAR_TC3xx_FEE_Cycle_Calculator tool HW limit on endurance is incorporated in the formulae and added warnings when this limit is crossed.
	0000053912-16007	FEE UM limitation section updated for Behavior of Fee_Cancel().
	0000053912-13105	In the MC-ISAR_TC3xx_FEE_Cycle_Calculator tool readMe sheet updated to enhance description of the parameters involved in the calculation.
Icu_17_TimerIp	0000053912-16868	Limitation section updated in ICU UM based on errata not to use Level mode if Timeout is enabled for that channel.
Mcu	0000053912-16873	MCU UM updated based on HW UM 2.0 not to use TCK_EXT_CLOCK0_SEL13 in configuration parameter "McuExtClockOutSel0" and OSCFL_EXT_CLOCK1_SEL15 in configuration parameter "McuExtClockOutSel1".
	0000053912-15988	Description corrected in the function banner for Mcu_SetMode .
Spi	0000053912-16233	Update of DemoApp to include Spi_AsyncTransmit.

3.2 Issues fixed in release 2.0.0-rc

Configuration changes

This is first release with AS422.

Table 13 Summary of bugs from 1.40.0 to 2.0.0-rc

Module	Issue number	Description
Generic	0000053912-8816	Description: Clarity to achieve SMC[SW]:SMU:CONFIG is incomplete in SW User Manual Impact: Due to incomplete information in the UM for SMC[SW]:SMU:CONFIG, User may incorrectly deploy the safety measure.
	0000053912-12177	Description: ESM[SW]:DMA:ERROR_HANDLING description insufficient. Impact: Due to incomplete information in the UM for ESM[SW]:DMA:ERROR_HANDLING, User may incorrectly deploy the safety measure.
	0000053912-12772	Description: OSS finding in ISAR_AS422_TC3xx_Greenhills_1-40-0

Summary of changes

Table 13 Summary of bugs from 1.40.0 to 2.0.0-rc (continued)

Module	Issue number	Description
		Impact: User would not understand the presence of an additional boost license in SFR files.
	0000053912-13053	Description: Compilation error if CONSTP2VAR and CONSTP2CONST macros are used. Impact: Compilation error will occur for the below macros: 1) CONSTP2CONST - Constant pointer to constant variable 2) CONSTP2VAR - Constant pointer to variable
Can_17_McmCan	0000053912-13114	Description: Can Controller State SLEEP (Can logical state : CAN_T_SLEEP) to Can controller state STOPPED happens by Can logical state request CAN_T_WAKEUP. However currently from CAN_T_SLEEP logical state CAN_T_STOP logical state is also considered by Can_SetControllermode API without throwing a DET. This is an invalid transition. Impact: To enter STOP state, the current state should only be STOP or START, any other state is invalid. This check is not performed.
	0000053912-15607	Description: If Rx objects not configured as mentioned in CAN UM rules, in a corner case empty structures are getting generated leading to compilation failures. Impact: Empty structure will get generated.
	0000053912-15350	Description: module header files SHALL NOT include the prototype declarations of MainFunctions. Impact: AUTOSAR violation in file inclusion structure in upper layers.
	0000053912-13560	Description: In Mixed mode Tx processing for Queue is not giving notification in the same order of transmission. Impact: Very first CanWrite notification is given at last and rest are given in same order.
	0000053912-13277	Description: Can_17_McmCan_DisableControllerInterrupts() should disable only the interrupt enabled for the Can Controller as per the Configuration. Impact: If user has enabled any interrupt for CAN controller outside of MCAL those interrupt will be disabled.
CanTrcv_17_V9251	0000053912-12336	Description: In tresos, option to add new element is not available in CanTrcvWaitTime and CanTrcvTimerType containers. Impact: User is not able to add the elements in CanTrcvWaitTime and CanTrcvTimerType containers.
	0000053912-12770	Description: As per Autosar specification CanTrcvWakeupByBusUsed parameter should be used as a Boolean parameter but in CanTrcv_17_W9255.xdm this parameter is added as a List parameter due to which error is reported during code generation. Impact: Code generation will not proceed, so build error will be observed.

Summary of changes

Table 13 Summary of bugs from 1.40.0 to 2.0.0-rc (continued)

Module	Issue number	Description
CanTrcv_17_W9255	0000053912-15350	Description: module header files SHALL NOT include the prototype declarations of MainFunctions. Impact: AUTOSAR violation in file inclusion structure in upper layers.
	0000053912-13366	Description: TC332 Device support missing Impact: User will not be able to select and configure TC332 device
Crc	0000053912-8823	Description: SMC[SW]:FCE:CRC_CFG safety measure to be handled by integrator Impact: No impact to CRC driver. User shall implement the safety measure described in SMC[SW]:FCE:CRC_CFG.
Fee	0000053912-13314	Description: Default value of FeeMaxBytesPerCycle configuration mentioned in user manual is wrong. Impact: None
	0000053912-15678	Description: Unnecessary re-generation even if configuration has not changed for DMA, PORT, FEE and PWM configuration plugins. Impact: Plugins for DMA, PORT, FEE and PWM will re-generate the configuration even though configuration has not changed. No functional impact, only extra time for re-generation.
	0000053912-15350	Description: module header files SHALL NOT include the prototype declarations of MainFunctions. Impact: AUTOSAR violation in file inclusion structure in upper layers.
	0000053912-12347	Description: When NVM block read request is made while QS block erase is ongoing in the hardware and if suspending the ongoing erase fails, then the NVM block read request will be rejected with E_NOT_OK along with DET error FEE_E_BUSY or Safety error FEE_SE_BUSY. Impact: Unintended DET or safety error (FEE_E_BUSY\FEE_SE_BUSY) is reported.
	0000053912-12595	Description: Fee cycle calculator formulas not populated in all cells. Impact: For some of the cells the value will not be calculated.
	0000053912-13370	Description: Fee initial data tool does not generate segment record correctly in the hex file before the sector 1 record. Impact: Hex file generated does not flash correctly.
Fls_17_Dmu	0000053912-15390	Description: OPER error handling during FLS initialization is not proper. When OPER error is detected during initialization , FEE illegal notification is called , this may lead to unintended safety error or Trap. Only applicable when FLS is used with IFX FEE. Impact: FEE Safety is ON: Fee will raise UNINT safety error , because of Fee is not yet initialized. In this case illegal state notification will not reach NVM. Also if FLS runtime error is enabled, then Fls_17_Dmu will report the FLS_17_DMU_E_INIT_FAILED.

Summary of changes

Table 13 Summary of bugs from 1.40.0 to 2.0.0-rc (continued)

Module	Issue number	Description
		FEE Safety is OFF: Trap will occur because of Fee_17_IllegalStateNotification() will try dereference the NULL pointer.
	0000053912-12365	Description: When configuration parameter FlsIfxFeeUse is not enabled and if erase operation fails due to EVER error, runtime error FLS_17_DMU_E_ERASE_FAILED is not reported. Impact: Run time error FLS_17_DMU_E_ERASE_FAILED is not reported.
	0000053912-12506	Description: In the Example code presented in the user manual, the call to Fls_17_Dmu_Write () function is incorrect. The parameter pass to this function are not in the correct order. Impact: If the customer uses the same example mentioned in the user manual, then 1. If DET/Safety is enabled, FLS_17_DMU_E_PARAM_ADDRESS DET will be raised. 2. If DET/Safety is disabled then incorrect behavior will occur and may lead to trap.
	0000053912-13365	Description: TC374_ED Device support missing Impact: User will not be able to select and configure TC374_ED device
Lin_17_AscLin	0000053912-13290	Description: When Sleep command is sent, illegal checksum issue is seen. Impact: No valid checksum will be reported when sleep command is sent
McalLib	0000053912-13551	Description: Mcal_WriteSafetyEndInitProtRegMask() does not mask the "DataValue". Impact: Mcal_WriteSafetyEndInitProtRegMask() does not mask the "DataValue" and undesired bits might be set in the register.
	0000053912-14150	Description: Mcal_WriteCpuEndInitProtReg, Mcal_WriteSafetyEndInitProtReg and Mcal_WriteSafetyEndInitProtRegMask APIs description update to additionally support endinit protected CSFRs. Impact: In addition to writing endinit protected peripheral SFRs, Mcal_WriteCpuEndInitProtReg, Mcal_WriteSafetyEndInitProtReg and Mcal_WriteSafetyEndInitProtRegMask APIs support write access to endinit protected CSFRs (using MTCR operation) which is missed in respective API description.
Mcu	0000053912-15679	Description: Mcu_InitCheck() failure for EXTCON register verification. Impact: DIV1 of EXTCON is wrongly masked in Mcu_InitCheck. The highest 2 MSB bits of DIV1 is always treated as 0., which is incorrect.
	0000053912-12690	Description: Mcu initialization and Mcu_InitCheck independence restricted to clock initialization only.

Summary of changes

Table 13 Summary of bugs from 1.40.0 to 2.0.0-rc (continued)

Module	Issue number	Description
		Impact: Mcu initialization (Mcu_Init(), Mcu_InitClock(), Mcu_DistributePllClock() functions) and Mcu_InitCheck independence has been analyzedok will rephrase only with respect to clock initialization. It has not considered the other aspects of Mcu_Init like GTM initialization etc.
	0000053912-12914	Description: Incorrect code generation error for GTM for clusters 5 and above. Impact: Cluster Clock frequency should be <=100 MHZ for GTM clusters 5 and above. Currently, Mcu plugin reports incorrect code generation error if GtmCmuClusterInputClockDividerEnable = CLS_CLK_CFG_ENABLED_WITHOUT_DIV_SEL1 for GTM cluster 5 and above, even though Cluster clock frequency is <= 100MHz
	0000053912-13562	Description: List of SMU Alarm names to be provided in AoU. Impact: The AoU to disable SMU alarms relating to the clock tree do not specify the alarm names.
	0000053912-13134	Description: Mcu.fERAYExists property plugin incorrect in 32x devices. Impact: As ERAY hardware is not present in 32x, Mcu.fERAYExists property variable should be false for TC32X devices.
	0000053912-11663	Description: As per GETH_TC.P001, Ethernet frequency operating range changed to 100 - 150 MHz from 150 - 200 MHz. Impact: User can configure wrong operation conditions for Ethernet frequency if > 150 MHz and may impact the Ethernet IP functionality.
	0000053912-12344	Description: Incorrect Tresos description for McuClockReferencePointFrequency2 Impact: No functional impact. Tresos description for McuClockReferencePointFrequency2 (fPLL2) should be calculated as : fPLL2 = ((N+1)* fOSC)/((P+1) * (K3 + 1)* 1, 6) if McuPll2DivSelect= MCU_K3_DIV_FACTOR_NOT_BYPASSED_SEL0 OR fPLL2 = ((N+1)* fOSC) / ((P+1) * (K3 + 1)) if McuPll2DivSelect= MCU_K3_DIV_FACTOR_BYPASSED_SEL1
Ocu	0000053912-13010	Description: AUTOSAR violation with respect to multiplicity of OCU configuration parameters Impact: Ocu plugin have conditional expression for the upper multiplicity of below AUTOSAR configuration parameters: - OcuNotification - OcuHardwareTriggeredAdc - OcuHardwareTriggeredDMA

Summary of changes

Table 13 Summary of bugs from 1.40.0 to 2.0.0-rc (continued)

Module	Issue number	Description
		- OcuOutputPinDefaultState BMD users cannot use the configuration parameters if upper multiplicity is 0.
Port	0000053912-13264	Description: Incorrect Port configuration in TC366, TC327 and TC337 devices. Impact: 1) For TC366 device, Port 11 pins 2,3 & 6 are wrongly mapped to FAST. These should be RFAST pins. 2) For TC327 and TC337 devices, P14.9 is wrongly mapped to SLOW. This should be FAST.
	0000053912-15247	Description: Configuration parameter PortLVDSTxPowerDownPullDown range values mismatch between Code (Port.xdm) and UM. UM Range ENABLE/DISABLE is updated to match with code. Impact: Configuration parameter range ambiguity between code and UM.
	0000053912-15678	Description: Unnecessary re-generation even if configuration has not changed for DMA, PORT, FEE and PWM configuration plugins. Impact: Plugins for DMA, PORT, FEE and PWM will re-generate the configuration even though configuration has not changed. No functional impact, only extra time for re-generation.
Pwm_17_GtmCcu6	0000053912-11103	Description: Glitch possible during Pwm_Init for ATOM fixed period/ variable period channels. Impact: Glitch is observed during Pwm_Init only for ATOM fixed period/variable period channels with shifted channels handled by offset (PwmHandleShiftByOffset = true) and with polarity LOW(PwmPolarity = PWM_LOW)
	0000053912-15908	Description: PwmInitCheckApi default value mismatch between PWM UM and code plugin. Impact: No functional impact, only wrong default value for PwmInitCheckApi in PWM UM
	0000053912-15678	Description: Unnecessary re-generation even if configuration has not changed for DMA, PORT, FEE and PWM configuration plugins. Impact: Plugins for DMA, PORT, FEE and PWM will re-generate the configuration even though configuration has not changed. No functional impact, only extra time for re-generation.
	0000053912-15992	Description: Pwm_17_GtmCcu6_InitCheck() may return false positive. Impact: ErrorStatus can be overwritten in local functions Pwm_lInitFixedPeriodCheck, Pwm_lInitVariablePeriodCheck and Pwm_lInitShiftedCentreAlignedCheck. If failure occurred in the above local functions, it may get overwritten with E_OK and return false positive result to Pwm_17_GtmCcu6_InitCheck().

Summary of changes

Table 13 Summary of bugs from 1.40.0 to 2.0.0-rc (continued)

Module	Issue number	Description
Spi	0000053912-13315	Description: The QSPI RX FIFO overflows due to DMA congestion. The RX FIFO overflow error triggered on QSPI, due to high priority DMA transfers. Impact: The transmission and Reception of a sequence will be incomplete due to the error getting triggered and respective job and sequence status will be FAILED.
	0000053912-12218	Description: SPI_E_UNINIT DET reported from Spi_MainFunction_Handling. Impact: DET reported when Spi_MainFunction_Handling is called when SPI module is not initialized .
	0000053912-12998	Description: If QSPI error occurs, the error is handled via IsrQspiError handler in which all ther error flgs are cleared in the GLOBALCON register. At this time, if another QSPI error comes before the current ISR is completed, then there is a possibility that a SPI_E_SAFETY_SPURIOUS_INTERRUPT is reported. Impact: Unexpected SPI_E_SAFETY_SPURIOUS_INTERRUPT is reported.
	0000053912-12685	Description: When an DMA error occurs during asynctransfer, sequence status if read to be SPI_SEQ_FAILED recommendation is to perform a DmaChDeInit and DmaChInit before successive SPI communication. Impact: Successive SPI asynchronous transfers fails.
	0000053912-15350	Description: module header files SHALL NOT include the prototype declarations of MainFunctions. Impact: AUTOSAR violation in file inclusion structure in upper layers.
	0000053912-11379	Description: Default value of xdm file and UM documents are not in sync for SpiIdleTime, SpiTrailingTime and SpiTimeClk2Cs. Impact: Much lower delay will be allowed to be configured since the start range is lower value.
	0000053912-12218	Description: SPI_E_UNINIT DET reported from Spi_MainFunction_Handling. Impact: DET reported when Spi_MainFunction_Handling is called when SPI module is not initialized.
Wdg_17_Scu	0000053912-15054	Description: Wdg_17_Scu_InitCheck() will fail if debugger is connected and Suspend mode if OFF (disabling the Wdg timer) Impact: If debugger is connected and suspend mode is OFF, it will disable the WDG timer causing Wdg_17_Scu_InitCheck() to fail. The reload value will be at 0xFFC and will not match the configured reload value.
	0000053912-15251	Description: Wdg_17_Scu_InitCheck() will fail if the WDG timer reload value has incremented after Wdg_17_Scu_Init() Impact: Wdg_17_Scu_InitCheck() will fail since it does an exact comparison of the timer reload value to the configured reload value.

Summary of changes

Table 13 Summary of bugs from 1.40.0 to 2.0.0-rc (continued)

Module	Issue number	Description
	0000053912-12307	Description: Incorrect information provided in WDG UM Impact: In WDG UM, "system WDT" is mentioned in Hardware-software mapping chapter. The "system WDT" peripheral does not exist and should be renamed as "Safety WDT"

Table 14 Summary of enhancement from 1.40.0 to 2.0.0-rc

Module	Issue number	Description
Generic	0000053912-9812	<Mod>_InitCheck() re-entrancy attribute corrected and made consistent across MCAL
	0000053912-9090	UM update : Provide SFRs accessed per API
	0000053912-8608	AoUs provided in a separate XML file, in addition documented in UM
	0000053912-8075	UM update : AMDC violations described
	0000053912-6691	Generate variation point from Tresos command line
	0000053912-661	DMA driver for User mode access corrected (instead of Mcal_SetBitAtomic mapping)
	0000053912-12549	JIRA descriptions in the Release note to be enhanced
	0000053912-12140	UM update : "HW features not supported by drivers" is part of Hardware-Software mapping section
	0000053912-13493	Impact analysis done based on safety manual SMv1.10
	0000053912-14031	BSWMD plugin update to handle enumeration literals and conditional inclusion of error reporting interfaces (like DET, DEM, Safety error)
	0000053912-14147	UM Update for AUTOSAR Release Version drop-down list in tresos
	0000053912-15725	Change in Tresos customer activation code from the current perpetual scheme to multiple time bound keys
Adc	0000053912-8275	Adc_TriggerStartupCal function description rephrased for clarity
	0000053912-10900	New diagnostic support feature for ADC driver
	0000053912-12604	Redundant AoUs for Adc driver removed.
Bfx	0000053912-4529	BFX APIs made inline
Can_17_McmCan	0000053912-7425	CanObjectId rules are not followed, empty structures will be generated. Refer to UM section : CanObjectId configuration rules.
	0000053912-6029	Implementation of the mixed mode as per AUTOSAR 4.4.0
	0000053912-15434	UM text enhancement related to configuration rules
	0000053912-15600	Can_write calls during busoff state blocks the transmit HW objects.
Crc	0000053912-7888	CRC based CPU instructions used for performance
	0000053912-4717	DMA support added for CRC driver
Dio	0000053912-8547	Dio_MaskedWritePort() API support added in Dio driver.

Summary of changes

Table 14 Summary of enhancement from 1.40.0 to 2.0.0-rc (continued)

Module	Issue number	Description
Fee	0000053912-12148	User manual update for better understanding and clarity regarding polling mode.
	0000053912-12726	Optimized the DFLASH scanning(Cache build) algorithm during initialization to reduces peak execution timing of Fee_MainFunction().
	0000053912-7024	Optimized the DFLASH scanning(Cache build) algorithm during initialization to reduces peak execution timing of Fee_MainFunction().
Fls_17_Dmu	0000053912-12163	Missing compilation error message for Fls_17_Dmu_VerifyErase when FlsIfxFeeUse not selected. This API is available only when FlsIfxFeeUse is selected.
	0000053912-10183	Driver is enhanced to change the job status only after the job request is accepted.
	0000053912-10197	Job error notification will not be raised when ever user job request is rejected
	0000053912-12708	User manual is updated for better clarification related to concurrent access to DFLASH0 by Fls_17_Dmu and user application
	0000053912-6713	Additional check is added to ensure FlsSectorSize is multiple of 4096 Bytes.
Gpt	0000053912-6550	AMDC violation corrected in GPT plugin
	0000053912-5341	Support for Gpt_GetTimeElapsed and Gpt_GetTimeRemaining to be invoked across cores
	0000053912-11152	New Safety error GPT_E_INVALID_START for Gpt_StartTimer
Icu_17_TimerIp	0000053912-11678	ICU driver InitCheck ASIL-B(D) performed to ensure safe initialization
	0000053912-12679	Configuration support of port pin connection to ICU TIM channels provided centrally in Mcu driver
	0000053912-3723	Support for ICU timeout detection feature (TDU)
	0000053912-6600	Support of incremental interface where GPT Timer is reset on zero position
Lin_17_AscLin	0000053912-4558	Timeout duration for hardware bit set/rest is made as configurable parameter
Mcu	0000053912-8481	MCU plugin : Restriction of GTM channel usage for one DSADC channel removed
	0000053912-8077	MCU UM limitation added for naming syntax of specific MCU configuration containers
	0000053912-5596	Performance improvements for MCU GTM library
	0000053912-11956	PERPLL errata warning to be raised for affected devices only
	0000053912-11726	MCU GTM library structures aligned to 4-byte boundary
	0000053912-11484	MCU plugin : Clock default values aligned with HW UM
	0000053912-11090	Allocation and association of ASCLIN Kernel to LIN or UART module

Summary of changes

Table 14 Summary of enhancement from 1.40.0 to 2.0.0-rc (continued)

Module	Issue number	Description
	0000053912-11053	ACCESS re-definition compilation error
	0000053912-10551	Peripheral PLL unstable clock output when PERPLLCON0.DIVBY=1 as per PER_PLL_TC.001_EPN
	0000053912-12679	Configuration support of port pin connection to ICU TIM channels provided centrally in Mcu driver
	0000053912-9533	Support for Standby entry on VEXT supply ramp-down/up
Port	0000053912-7527	Change port configuration at runtime
Spi	0000053912-9978	Two successive DEMs are reported with DEM_EVENT_STATUS_FAILED and DEM_EVENT_STATUS_PASSED.
	0000053912-7094	For every asynchronous channel transmission, couple of DMA TRL errors will be reported one during the BACON update and second after the last element movement from FIFO.
	0000053912-10697	SpiJobQueueLengthQspix to consider additional slot as part of code generation itself, documentation regarding SpiJobQueueLengthQspix to be updated.
	0000053912-10696	Spi_QspiDmaCallout,Spi_QspiDmaErrCallout and Spi_IsrQspiError functions does not report any errors if invalid DMA channeld / event / invalid QSPI number is passed to listed functions.
	0000053912-10277	SpiTrailingTime is the delay introduced for every data element transmitted on SPI interface, details about the same is missing in parameter description.
	0000053912-13386	Generic AOU present in the SPI UM, these AOUs are handled by common MCAL AOU.
	0000053912-15080	Image for configuring the DMA callout and DMA Errorhandler notification are not proper.

4 Known issues

This chapter describes the prescribed workarounds for all the open issues identified.

Table 15 Known issues

Module	Issue number	Description
No known issues.		

5 Limitations and deviations

This chapter describes the limitations and deviations due to software/hardware design constraints.

5.1 Limitations

Refer to the *Deviation and limitations* section in the respective MCAL User Manual.

5.2 Deviations

Table 16 Known deviations

Module name	Description	Impact on module
BMD	The BMD files provided in the package are not fully compliant to AUTOSAR.	Following warnings are observed in the plug-in files: • Software version check: No corresponding BSW-IMPLEMENTATION node for component 'MOD' found. • Vendor ID check: No corresponding BSW-IMPLEMENTATION node for component 'MOD' found. • BSW-IMPLEMENTATION node should exist but was not found. ArMajorVersion/ArMinorVersion/ArPatchVersion/ SwMajorVersion/SwMinorVersion/SwPatchVersion/ VendorId should not be set in the CommonPublishedInformation container in AUTOSAR Version 3.x or higher. Parameter maximum value should not be set with the value 'INF' in VSMD.

Note: For AMDC & VSMD deviations please refer to respective module User manual.

5.2.1 HIS-MISRA violations

Table 17 MISRA violations

MISRA_2012_Rule	Rule description	Justification for deviation	Modules applicable
1.3	There shall be no occurrence of undefined or critical unspecified behaviour	This rule violation is agreed as we need to store the address passed in the called function in many scenarios.	Icu_17_TimerIp, Port, Wdg_17_Scu

Limitations and deviations

Table 17 MISRA violations (continued)

MISRA_2012_Rule	Rule description	Justification for deviation	Modules applicable
2.2	There shall be no dead code	Values are assigned in assembly instructions. Therefore, they are actually used and not dead code.	Icu_17_TimerIp, Port, Pwm_17_GtmCcu6
2.5	A project should not contain unused macro declarations	Allowed violations as macros used in different configuration.	CanTrcv_17_V9251, Fls_17_Dmu, Gpt, Icu_17_TimerIp, Ocu, Port, Pwm_17_GtmCcu6, Spi
2.7	There should be no unused parameters in functions	Parameters are used in assembly instructions. Therefore, they are actually used.	Bfx, Icu_17_TimerIp, Mcu
4.9	A function should be used in preference to a function-like macro where they are interchangeable	Allowed violations in cases where function like macro, '*_GetVersionInfo', and intrinsic macros.	Adc, Bfx, Can_17_McmCan, Crc, Dio, Fee, Fls_17_Dmu, Gpt, Icu_17_TimerIp, Mcu, Port, Pwm_17_GtmCcu6, Spi, Wdg_17_Scu
4.10	Precautions shall be taken in order to prevent the contents of a header file being included more than once	Allowed violations in case where Mod_Memmap.h is repeatedly included without include guard. This is as per AUTOSAR.	Adc, Bfx, CanTrcv_17_V9251, CanTrcv_17_W9255, Can_17_McmCan, Crc, Dio, Fee, Fls_17_Dmu, Gpt, Icu_17_TimerIp, Lin_17_AscLin, Mcu, Ocu, Port, Pwm_17_GtmCcu6, Spi, Wdg_17_Scu
5.1	External identifiers shall be distinct	Allowed violations in cases where external identifiers are going beyond 32 chars (some due to AS naming conventions, some due to module design, but mostly in the generated code.)	Adc, CanTrcv_17_V9251, CanTrcv_17_W9255, Can_17_McmCan, Crc, Dio, Fee, Gpt, Icu_17_TimerIp, Lin_17_AscLin, Mcu, Ocu, Port, Pwm_17_GtmCcu6, Spi, Wdg_17_Scu
5.2	Identifers declared in the same scope and name space shall be distinct	Allowed violations in cases where external identifiers are going beyond 32 chars (some due to AS naming conventions, some due to module design, but mostly in the generated code.)	Adc, CanTrcv_17_V9251, CanTrcv_17_W9255, Can_17_McmCan, Crc, Dio, Fee, Gpt, Icu_17_TimerIp, Lin_17_AscLin, Mcu, Ocu, Port, Pwm_17_GtmCcu6, Spi, Wdg_17_Scu
5.4	Macro identifiers shall be distinct	Allowed violations in cases where external identifiers are going beyond 32 chars (some due to AS naming conventions, some due to	Adc, CanTrcv_17_V9251, CanTrcv_17_W9255, Can_17_McmCan, Crc, Dio, Fee, Gpt, Icu_17_TimerIp, Lin_17_AscLin, Mcu, Ocu,

Table 17 MISRA violations (continued)

MISRA_2012_Rule	Rule description	Justification for deviation	Modules applicable
		module design, but mostly in the generated code.)	Port, Pwm_17_GtmCcu6, Spi, Wdg_17_Scu
5.5	Identifiers shall be distinct from macro names	Allowed violations in cases where external identifiers are going beyond 32 chars (some due to AS naming conventions, some due to module design, but mostly in the generated code.)	Adc, CanTrcv_17_V9251, CanTrcv_17_W9255, Can_17_McmCan, Crc, Dio, Fee, Gpt, Icu_17_TimerIp, Lin_17_AscLin, Mcu, Ocu, Port, Pwm_17_GtmCcu6, Spi, Wdg_17_Scu
8.4	A compatible declaration shall be visible when an object or function with external linkage is defined	Allowed violations for the following intrinsic functions: IMASKLDMST, EXTRACT.	Crc, Fee, Spi
8.7	Functions and objects should not be defined with external linkage if they are referenced in only one translation unit	The extern declaration should be done by the application. Hence, the structure is not made static.	Fee, Spi
8.9	An object should be defined at block scope if its identifier only appears in a single function	Global constants not declared within block scope, but used only in one function. Declaring const in an API scope may lead to confusion.	CanTrcv_17_W9255, Crc, Gpt, Icu_17_TimerIp, Mcu, Spi, Wdg_17_Scu
8.13	A pointer should point to a const-qualified type whenever possible	Use of assembly instruction on some address pointers, hence cannot pass them as const.	Bfx, Icu_17_TimerIp, Port
10.1	Operands shall not be of an inappropriate essential-type	Measurement Mode Default Start Edge Measurement Property Wakeup capability Assigned Hardware Resource Number. Hence, no side effects foreseen by violating this.	Icu_17_TimerIp
10.3	The value of an expression shall not be assigned to an object with a narrower essential type or of a different essential type category	DataType is defined as enum to differentiate between type of data NORMAL DATA and IMMEDIATE DATA. It is defined as enum to increase the readability of the code such that the values being used could be identified. Changing	Fee, Port

Limitations and deviations

Table 17 MISRA violations (continued)

MISRA_2012_Rule	Rule description	Justification for deviation	Modules applicable
		this will compromise the code maintainability and readability.	
10.4	Both operands of an operator in which the usual arithmetic conversions are performed shall have the same essential type category	Typecasting is done. Types are same and hence no issue is seen.	Icu_17_TimerIp
10.8	The value of a composite expression shall not be cast to a different essential type category or a wider essential type	Impermissible cast of composite expression used for hardware descriptor access. Hence no issues are seen.	Fls_17_Dmu
11.1	Conversions shall not be performed between a pointer to a function and any other type	Cast between pointer to another type does not cause any side effect.	Mcu
11.3	A cast shall not be performed between a pointer to object type and a pointer to a different object type	Cast performed between a pointer to object type and a pointer to a different object type due to SFR access.	Fee, Fls_17_Dmu, Icu_17_TimerIp, Port, Pwm_17_GtmCcu6
11.4	A conversion should not be performed between a pointer to object and an integer type	Allowed violations in cases where rule is violated for SFR access only.	Can_17_McmCan, Fls_17_Dmu, Mcu
11.5	A conversion should not be performed from pointer to void into pointer to object	Allowed violations as internal function performs initialization at 1 byte at a time. For such operations, the pointer type conversion is required.	Icu_17_TimerIp, Port
11.6	A cast shall not be performed between pointer to void and an arithmetic type	Allowed violations for SFR access only.	Can_17_McmCan, Fls_17_Dmu, Mcu
11.8	A cast shall not remove any const or volatile qualification from the type pointed to by a pointer	Allowed violation for SFR access only and the solution gives compile time warning with different compilers.	Icu_17_TimerIp, Lin_17_AscLin, Port, Pwm_17_GtmCcu6
15.4	There should be no more than one break or	Terminating the loop is required since every element needs to be	Spi

Limitations and deviations

Table 17 MISRA violations (continued)

MISRA_2012_Rule	Rule description	Justification for deviation	Modules applicable
	goto statement used to terminate any iteration statement	checked before inserting in the Queue.	
18.1	A pointer resulting from arithmetic on a pointer operand shall address an element of the same array as that pointer operand	The timer values are read from status register and, therefore, the value of timer is within range.	Fee
18.4	The +, -, += and -= operators should not be applied to an expression of pointer type	Allowed violation in cases where pointer arithmetic other than array indexing is used.	Fee, Port
19.2	The union keyword should not be used	Allowed violation in cases where pointer arithmetic other than array indexing is used for SFR access.	Icu_17_TimerIp, Mcu, Spi, Wdg_17_Scu
20.1	#include directives should only be preceded by preprocessor directives or comments	Allowed violations in cases where declaration before #include memap.h as per AUTOSAR.	Adc, Bfx, CanTrcv_17_V9251, CanTrcv_17_W9255, Can_17_McmCan, Crc, Dio, Fee, Fls_17_Dmu, Gpt, Icu_17_TimerIp, Lin_17_AscLin, Mcu, Ocu, Port, Pwm_17_GtmCcu6, Spi, Wdg_17_Scu

6 Support packages

Attention: ***The following information is given for evaluation purposes only. Modifications to these packages are made at your own risk.***

6.1 Build environment

Table 18 Build environment

Folder name	Description
Tools\ Bifaces	Contains tools for the Build environment

6.1.1 Open source software

The `Tools\Bifaces` folder contains items that are governed by Open Source Software.

The following table lists details related to copyright information, licensing terms and additional information (for example, how to obtain the source code of such Open Source Software).

Table 19 Bifaces and tools

Folder name	Copyright and licensing details
`bin`	Contains GNU tools. GNU General Public License, version 2 (GPLv2): ***https://www.gnu.org/licenses/old-licenses/gpl-2.0.en.html*** GNU General Public License, version 3 (GPLv3): ***https://www.gnu.org/licenses/gpl.html***
`DocTools\doxygen`	Contains Doxygen tool. GNU General Public License, version 2 (GPLv2): ***https://www.gnu.org/licenses/old-licenses/gpl-2.0.en.html***
`DocTools\Graphviz`	Contains Graph tool. Common Public License, version 1.0 (CPL-1.0) ***https://opensource.org/licenses/cpl1.0.php***

`Php\license.txt`
`Php\php.exe`
`Php\php5.dll`
	Contains PHP script interpreter.
	PHP License, version 3.01
	http://php.net/license/3_01.txt

6.2 Example demo application

These files contain the TC3xx demo routines. The following table describes different folders/files.

Table 20 Demo workspace

Folder / file name	Description
`\DemoWorkspace\McalDemo\<device>\0_Src`	Contains the source files needed to run the Demo application

Support packages

Table 20 Demo workspace (continued)

Folder / file name	Description
\DemoWorkspace\McalDemo\<device>\1_ToolEnv	Contains the tools necessary to build the Demo application
DemoAppBuild.bat	Batch file that can be used to build the Demo application

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