MC-ISAR_AS42x_TC3xx_COM-E_1.30.0

Release Notes
Product name: MC_AURIX2G_SW_MCAL
Release number: 1.30.0
Type of release: PR*
Release method: via Release Area
AUTOSAR specification: 4.2.2
Compiler support: Tasking 6.2r2p2, HighTec GNU 4.9.2.0
Processor platform: TC39xBA, TC39xBB, TC39xBC, TC38xAA, TC38xAB, TC38xAC, TC38xAD, TC37xEDAA, TC37xEDAB, TC37xAA and TC35xAA
Date: 2019-10-24
Previous release number: 1.30.0-rc

About this document

Scope and purpose

This release notes, for the 1.30.0 delivery of TC3xx_SW_MCAL COM-E drivers, details the release contents, all known issues in this 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 modules supported in the release are:

- Eth_17_GEthMac (10.30.1)
- Fr_17_Eray (10.30.0)

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.*

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

Intended audience

This document is intended for anyone using the TC3xx_SW_MCAL 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.

TC36x and TC33x plug-in support is available in the current 1.30.0 release. However, customer should not use this release with TC36x and TC33x as validity of this release is limited to TC39xBA, TC39xBB, TC39xBC, TC38xAA, TC38xAB, TC38xAC, TC38xAD, TC37xEDAA, TC37xEDAB, TC37xAA and TC35xAA.

1.2 Released items

The release is contained in the `MC-ISAR_AS42x_TC3xx_COM-E_1.30.0.zip` file. The contents of this file include MCAL software, EB tresos plugin files (BMD included), User Manuals and Release Notes.

Note: The package also includes Build Environment and Demo Application, which are not attached with any quality but provided for demonstration purpose only.

Table 1 Release zip contents

Package content	Description
`MC-ISAR_AS42x_TC3xx_COM-E_1.30.0.exe`	Product installer to be used with AUTOSAR Version 4.2.2
User Manuals	Contains the MCAL User Manual and MCAL Configuration Verification User Manual
`Releasenote_MC-ISAR_AS42x_TC3xx_COM-E_1.30.0.pdf`	Contains the Release Notes

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

Refer to the `MC-ISAR_AS42x_TC3xx_BASIC_<yyy>-<zzzz>` for details on the common files, where <yyy> and <zzzz> are corresponding release numbers.

1.2.3 EB tresos plugin files

Note: Resource_Aurix2G contains the properties for the TC39xBA, TC39xBB, TC39xBC, TC38xAA, TC38xAB, TC38xAC, TC38xAD, TC37xEDAA, TC37xEDAB, TC37xAA and TC35xAA.

Table 3 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	Contains the plug-in information, located in `\McIsar\PluginsTresos\eclipse\Plugins\<Mod>_Aurix2G`
anchors.xml	

1.3 Safety

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

1.4 Module-wise quality

Table 4 Module-wise quality

Module	Release quality
Eth_17_GEthMac	PR
Fr_17_Eray	PR

1.5 Compatibility

This release is tested with the following SFR packages:

- TC37xPD: REG_TC37xPD_UM_V1.2.0.R0
- TC37xED: REG_TC37xED_UM_V1.2.0.R0
- TC35xA: REG_TC35XA_UM_V1.2.0.R0
- TC38xA: REG_TC38XA_UM_V1.1.0.R0
- TC39xB: REG_TC39XB_UM_V1.1.0.R0

Note: TC38x and TC39x SFR files were generated using UM 1.1. Changes between HW UM 1.1 and 1.2 were analyzed. No impact to SFR files due to the changes. Hence HW UM 1.2 is valid for TC38x and TC39x SFR files.

2 Tool information

Table 5 Tool information

Tool description	Version details
Compiler	TASKING TriCore 6.2r2p2 HighTec TriCore 4.9.2.0
Processor platform	TC39xBA, TC39xBB, TC39xBC, TC38xAA, TC38xAB, TC38xAC, TC38xAD, TC37xEDAA, TC37xEDAB, TC37xAA and TC35xAA
Evaluation hardware	TriBoard TC3x9 TriBoard TC3x7
Code configuration and generation tool	EB tresos Studio 23.0.0 Build Nr. b170330-0431

*Note: For more information on WibuKey issue related to the EB Tresos installation, refer to **https://www.wibu.com/us/support/user/downloads-user-software.html**. The WibuKey issue numbers are: CVE-2018-3989, CVE-2018-3990 and CVE-2018-3991. The Tresos license provided by Infineon Technologies does not require WibuKey software.*

Table 6 AURIX™2G umbrella device support

AURIX™ 2G umbrella device	Name displayed in Tresos tool	Tresos property file
SAK-TC399XE-256F300S	TC399	AURIX2G_TC399.properties
SAK-TC397XE-256F300S	TC397	AURIX2G_TC397.properties
SAK-TC397XT-256F300S	TC397_ADAS	AURIX2G_TC397_ADAS.properties
SAL-TC389QP-160F300S	TC389	AURIX2G_TC389.properties
SAL-TC387QP-160F300S	TC387	AURIX2G_TC387.properties
SAK-TC389QP-160F300S	TC389	AURIX2G_TC389.properties
SAK-TC387QP-160F300S	TC387	AURIX2G_TC387.properties
SAL-TC377TP-96F300S	TC377	AURIX2G_TC377.properties
SAL-TC375TP-96F300W	TC375	AURIX2G_TC375.properties
SAL-TC377DP-96F300S	TC377	AURIX2G_TC377.properties
SAL-TC377TX-96F300S	TC377_ED_EX	AURIX2G_TC377_ED_EX.properties
SAL-TC377TE-96F300S	TC377_ED	AURIX2G_TC377_ED.properties
SAL-TC375TE-96F300W	TC375_ED	AURIX2G_TC375_ED.properties
SAK-TC377TP-96F300S	TC377	AURIX2G_TC377.properties
SAK-TC375TP-96F300W	TC375	AURIX2G_TC375.properties
SAK-TC377DP-96F300S	TC377	AURIX2G_TC377.properties
SAK-TC356TA-64F300S	TC356_ADAS	AURIX2G_TC356_ADAS.properties
SAK-TC357TT-64F300S	TC357_ADAS	AURIX2G_TC357_ADAS.properties

Tool information

Table 7 AURIX™ 2G marking option device support[1)]

AURIX™ 2G marking option device	Name displayed in Tresos tool	Tresos property file
SAL-TC399XX-256F300S	TC399	AURIX2G_TC399.properties
SAL-TC399XP-256F300S	TC399	AURIX2G_TC399.properties
SAL-TC397XP-256F300S	TC397	AURIX2G_TC397.properties
SAK-TC399XP-256F300S	TC399	AURIX2G_TC399.properties
SAK-TC399XX-256F300S	TC399	AURIX2G_TC399.properties
SAK-TC397XP-256F300S	TC397	AURIX2G_TC397.properties
SAK-TC397XA-256F300S	TC397	AURIX2G_TC397.properties
SAK-TC397QA-160F300S	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-TC380QP-160F300S	TC389	AURIX2G_TC389.properties
SAK-TC387TP-128F300S	TC387	AURIX2G_TC387.properties
SAL-TC387TP-128F300S	TC387	AURIX2G_TC387.properties
SAK-TC387TP-160F300S	TC387	AURIX2G_TC389.properties
SAL-TC387TP-160F300S	TC387	AURIX2G_TC389.properties
SAK-TC387QN-160F300S	TC387	AURIX2G_TC387.properties
SAK-TC389QN-160F300S	TC389	AURIX2G_TC389.properties
SAL-TC370TP-96F300S	TC377	AURIX2G_TC377.properties
SAK-TC377TX-96F300S	TC377_ED_EX	AURIX2G_TC377_ED_EX.properties
SAK-TC357TA-64F300S	TC357_ADAS	AURIX2G_TC357_ADAS.properties
SAK-TC357TH-64F300S	TC357_ADAS	AURIX2G_TC357_ADAS.properties
SAK-TC356TH-64F300S	TC356_ADAS	AURIX2G_TC356_ADAS.properties

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

2.1 Compiler options

Table 8 TASKING compiler options used

Options	Description
Compiler options	`--core=tc1.6.2 --iso=99 -O2 --eabi-compliant -AGKpvX --switch=auto --integer-enumeration --default-near-size=0 --fp-model=1`

Tool information

Table 8 TASKING compiler options used (continued)

Options	Description
Assembler options	`--core=tc1.6.2 --list-format=1 --optimize=gs`
Linker options	`-OcLtXY --core=mpe:vtc`

Table 9 HighTec compiler options used

Options	Description
Compiler options	`-Wall -std=c99 -O2 -mtc162 -meabi -fno-short-enums -ffunction-sections -fdata-sections -fstrict-volatile-bitfields`
Assembler options	`-Wall -std=c99 -O2 -mtc162 -meabi -fno-short-enums -ffunction-sections -fdata-sections -fstrict-volatile-bitfields`
Linker options	`-Wl,--mcpu=tc162 -Wl,--gc-sections -nostartfiles -Wl,-n`

Note: Compiler options which influence code generation and are not listed, should be left to the default compiler settings. All the above-listed compiler options are mandatory.

***Attention**: If the compiler options are changed by the user, and if the generated binary output is different than the one generated by the usage of the mandatory compiler options, the functionality and reliability of the drivers cannot be ensured.*

3 Summary of changes

Configuration changes

Table 10 Configuration changes from 1.30.0-rc to 1.30.0

Compatibility check	Result
Are there any change in parameters supplied from previous version?	Yes
Added parameters	None
Deleted parameters	None
Modified parameters	**Eth_17_GEthMac:** Modules SwPatchVersion parameter default value is modified.
Can the previously saved configuration be reused?	Yes

3.1 Issues fixed in release 1.30.0

Table 11 Summary of changes from 1.30.0-rc to 1.30.0

Module	Issue number	Description
Eth_17_GEthMac	0000053912-7529	WCET time for SetControllerMode is exceeding more than 11 times than past RC release.
	0000053912-8038	EPNs (GETH_TC_002_v1_0 and GETH_AI_H001_v1_2) need SW update.
	0000053912-8281	VLAN used with in SWS_Eth_00079.
Fr_17_Eray	0000053912-8320	potential issue in macro "FR_17_ERAY_MSG_BUFF_COUNT_MAX_0".

Note: Generic ones are to be referred from BASIC Release notes.

3.2 Issues fixed in release 1.30.0-rc

Due to the modifications/enhancements to add new device(s) and features in the configuration structure, all configurations generated with 1.20.0-beta/1.30.0-alpha are not compatible with the 1.30.0-rc product.

Configuration changes

Table 12 Configuration changes from 1.20.0-beta/1.30.0-alpha to 1.30.0-rc

Compatibility check	Result
Are there any change in parameters supplied from previous version?	Yes
Added parameters	**Fr_17_Eray:** FrTxConflictDetection
Deleted parameters	No
Modified parameters	**Eth_17_GEthMac:** • PostBuildVariantValue attribute is added for all configuration parameters

Summary of changes

Table 12 Configuration changes from 1.20.0-beta/1.30.0-alpha to 1.30.0-rc (continued)

Compatibility check	Result
	General: • For all modules, the default value of the SwMinorVersion parameter is modified
Can the previously saved configuration be reused?	Yes

Table 13 Summary of changes from 1.20.0-beta/1.30.0-alpha to 1.30.0-rc

Module	Issue number	Description
Generic	0000053912-7100	<Mod>_Bswmd.arxml file enum data type update is required.
Eth_17_GEthMac	0000053912-6164	Compile the code with all single core configuration with RGMII 1000 Mbps.
	0000053912-6166	Ethernet driver cannot receive the incoming packet of size more than of the size configured in the EthCtrlRxBufLenByte parameter.
	0000053912-7169	Incorrect data generation in plug-ins when only controller 1 is configured.
	0000053912-7096	TC37x property file update as per AURIX™ TC37x Variants.pdf as few variants support only 100 Mbit/s (RMII) mode.
	0000053912-1956	Separate memory sections for Eth_RxBuffer and Eth_TxBuffer supported.
	0000053912-7079	Variation point not supported for parameters other than EthCtrlPhyAddress.
Fr_17_Eray	0000053912-6005	Implement Collision Detection feature is implemented in the FlexRay driver.

3.3 Issues fixed in release 1.30.0-alpha

This is the first Alpha delivery for the product.

3.4 Enhancements and issues fixed from 1.10.0 to 1.30.0-rc

This chapter describes the enhancements and issues fixed from 1.10.0 to 1.30.0-rc.

Table 14 Enhancements and issues fixed from 1.10.0 to 1.30.0-rc

Module	Issue number	Description
Eth_17_GEthMac	0000053912-6166	Ethernet driver cannot receive the incoming packet of size more than of the size configured in the EthCtrlRxBufLenByte parameter.
	0000053912-1956	Separate memory sections for Eth_RxBuffer and Eth_TxBuffer supported.
Fr_17_Eray	0000053912-6005	Implement Collision Detection feature is implemented in the FlexRay driver.

4 Known issues

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

Table 15 Known issues

Module	Issue number	Description
Eth_17_GEthMac	0000053912-4810	Impact: The transmission is failing intermittently in 10Mbps mode. Workaround: Disable time stamp feature through the EthGlobalTimeSupport parameter.

Note: Generic ones are to be referred from BASIC Release notes.

5 Limitations and deviations

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

5.1 Limitations

Table 16 Known limitations

Reference	Limitation
Enum input parameter	MCAL does not support negative values for enumeration type. User shall ensure that valid enumeration values are passed for the APIs where arguments of enumeration type are accepted.

Note: For driver specific Deviations and limitations refer to Deviations and limitations section in the respective driver chapters of MCAL User Manual.

5.2 Deviations

Table 17 Known deviations

Module name	Description	Impact on module
Tresos Tool/BMD	The BMD files provided in the package are not fully compliant to AS4.2.2.	Following warnings are observed in the plugin 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/VendorApiInfix 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
	Limited variation point support	Configuration testing with Variation Point Support is limited due to EB tresos tool issue. The tool hangs randomly with the variation points added.
Generic	MCAL treats the DET services to be of "void" return type.	• MCAL treats the DET services Det_ReportError() and Det_ReportRuntimeError() to be of "void" return type. This is an AUTOSAR deviation as AUTOSAR requires the return type to be "Std_ReturnType". • As per AUTOSAR SWS, E_OK shall be the only return value for DET services. For MCAL, MISRA Rule 17.7 violation will be reported for the modules calling the DET services. No functional impact seen.

5.2.1 HIS-MISRA violations

Table 18 MISRA violations

MISRA_2012_Rule	Rule description	Justification for deviation	Modules applicable
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.	Eth_17_GEthMac, Fr_17_Eray
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.	Eth_17_GEthMac, Fr_17_Eray
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.)	Eth_17_GEthMac, Fr_17_Eray
5.2	Identifiers 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.)	Eth_17_GEthMac, Fr_17_Eray
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 module design, but mostly in the generated code.)	Eth_17_GEthMac, Fr_17_Eray
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.)	Eth_17_GEthMac, Fr_17_Eray
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.	Eth_17_GEthMac
8.9	An object should be defined at block scope if its	Global constants not declared within block	Eth_17_GEthMac, Fr_17_Eray

Limitations and deviations

Table 18 MISRA violations (continued)

MISRA_2012_Rule	Rule description	Justification for deviation	Modules applicable
	identifier only appears in a single function	scope, but used only in one function. Declaring const in an API scope may lead to confusion.	
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 this will compromise the code maintainability and readability.	Fr_17_Eray
10.5	The value of an expression should not be cast to an inappropriate essential type	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 this will compromise the code maintainability and readability.	Fr_17_Eray
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.	Eth_17_GEthMac
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.	Eth_17_GEthMac
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.	Eth_17_GEthMac
11.6	A cast shall not be performed between pointer	Allowed violations for SFR access only.	Eth_17_GEthMac

Limitations and deviations

Table 18 MISRA violations (continued)

MISRA_2012_Rule	Rule description	Justification for deviation	Modules applicable
	to void and an arithmetic type		
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.	Eth_17_GEthMac
13.5	The right hand operand of a logical && or || operator shall not contain persistent side effects	OR operator required to check the RI and RBU bits of the SFR. This warning is due to the volatile qualifier in the SFRs and no side-affect foreseen by violation.	Eth_17_GEthMac
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.	Eth_17_GEthMac, Fr_17_Eray
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.	Eth_17_GEthMac, Fr_17_Eray
20.1	#include directives should only be preceded by pre-processor directives or comments	Allowed violations in cases where declaration before #include memap.h as per AUTOSAR.	Eth_17_GEthMac, Fr_17_Eray

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 Example demo application

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

Table 19 Demo workspace

Folder / file name	Description
`\DemoWorkspace\McalDemo\<device>\0_Src`	Contains the source files needed to run the Demo application
`\DemoWorkspace\McalDemo\<device>\1_ToolEnv`	Contains the tools necessary to build the Demo application

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