MCAL User Manual for Iom

32-bit TriCore™ AURIX™ TC3xx microcontroller

About this document

Scope and purpose

This User Manual is intended to enable users to integrate the Microcontroller Abstraction Layer (MCAL) software for the TriCore™ AURIX™ family of 32-bit microcontrollers.

This document describes responsibilities of integrator in-charge of integrating MCAL software with the basic software (BSW) stack. This document also provides detailed information on safety, configuration and functions along with examples of usage of significant features.

Note: Detailed information about package installation, safety and other generic information that are common across all modules are provided in MCAL User Manual General.

Intended audience

This document is intended for anyone using the Iom module of the TC3xx MCAL software.

Document conventions

Table 1 Conventions

Convention	Explanation
Bold	Emphasizes heading levels, column headings, table and figure captions, screen names, windows, dialog boxes, menus, sub-menus
Italics	Denotes variable(s) and reference(s)

`Courier`
 	
`New`
	Denotes APIs, functions, interrupt handlers, events, data types, error handlers, file/folder names, directories, command line inputs, code snippets

>	Indicates that a cascading sub-menu opens when you select a menu item
[cover parentID=<alpha numeric value>]	Used for traceability completeness. Reader should ignore these.

Reference documents

This User Manual should be read in conjunction with the following documents:

- AURIX™ TC3xx MCAL User Manual General

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1 IOM driver

1.1 User information

1.1.1 Description

The Input-Output Monitor (IOM) driver serves as a comparison unit, checking the correct operation of the system peripherals output that may serve as input to the monitoring function. The monitoring function should be achieved by configuring the IOM hardware. It generates global system event to the SMU.

The IOM driver initializes and controls the IOM unit of the microcontroller. The driver also provides services for the user to initialize and set the threshold values for the internal units of the IOM. It should also provide services to reset the IOM kernel.

The service should be provided to combine individual or multiple local events in order to generate a single global system event. The IOM driver is heavily dependent on initialization and configurations.

1.1.2 Hardware-software mapping

This section describes the system view of the IOM driver and peripherals administered by it.

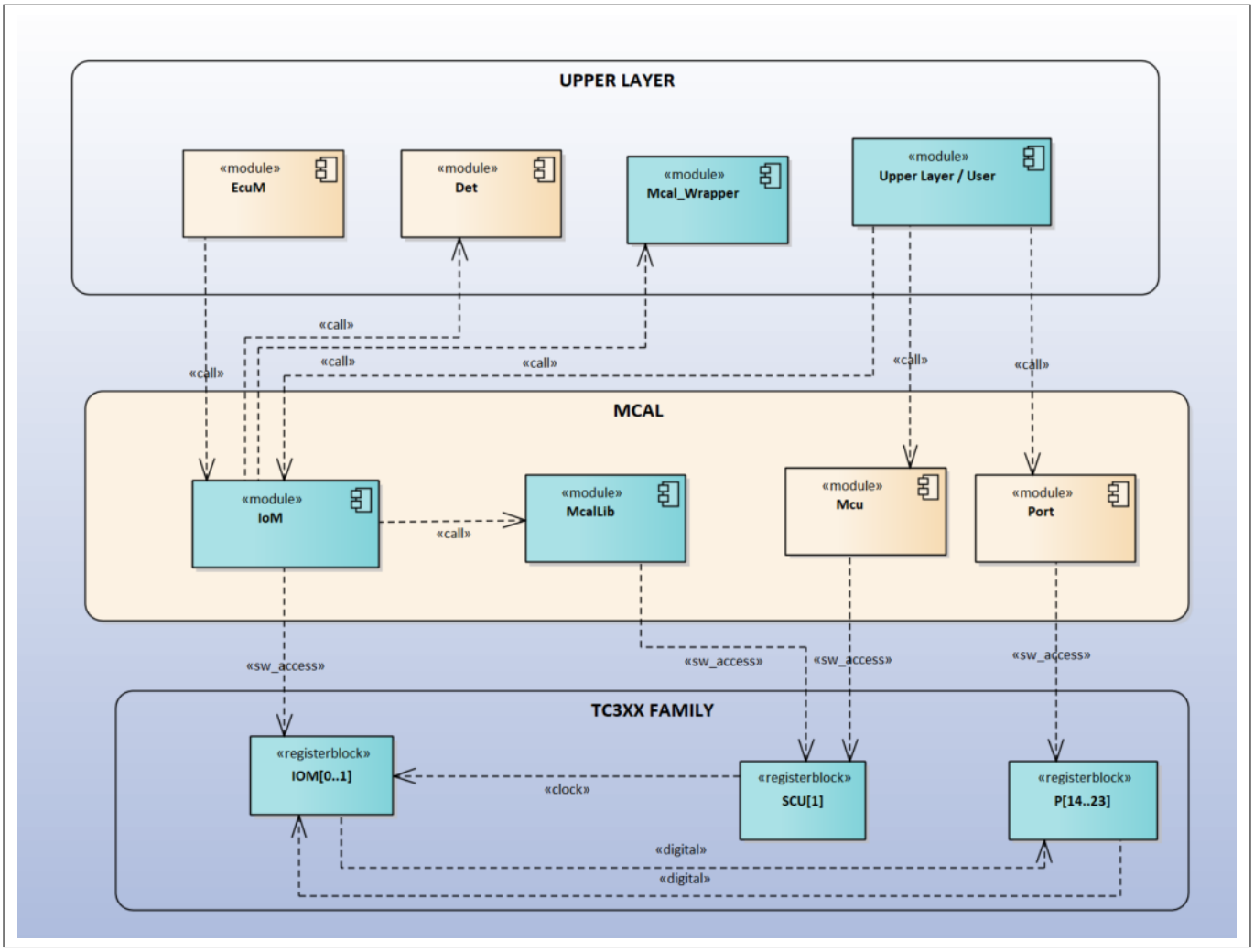

Figure 1 Mapping of hardware-software interfaces

1.1.2.1 IOM: primary hardware peripheral

Hardware functional features

The IOM driver is needed for the input output monitoring of signals.

Users of the hardware

The IOM driver exclusively utilizes the IOM IP for its functionality.

Hardware diagnostic features

Not applicable.

Hardware events

Not applicable.

1.1.2.2 SCU: primary hardware peripheral

The SCU is needed for the CLOCK for the registers, and ENDINIT functionality is used to update certain registers.

Hardware functional features

The IOM driver depends on the SCU for the clock, ENDINIT and reset functionalities.

Users of the hardware

The SCU module supplies the clock for all the peripherals and the MCU driver is responsible for configuring the clock tree. In order to avoid conflicts, update to the ENDINIT protected registers is performed using the MCALLIB.

Hardware diagnostic features

The SMU alarms configured for the SCU are not monitored by the IOM driver.

Hardware events

Hardware events from the SCU are not used by the IOM driver.

1.1.2.3 Port: dependent hardware peripheral

Hardware functional features

The PORT driver controls all access to the pins required by the IOM for input and output configuration.

Users of the hardware

The port pads are configured and used by the PORT and DIO drivers.

Hardware diagnostic features

Not applicable.

Hardware events

Not applicable.

1.1.3 File structure

1.1.3.1 C file structure

This section provides details of the C files of the IOM driver.

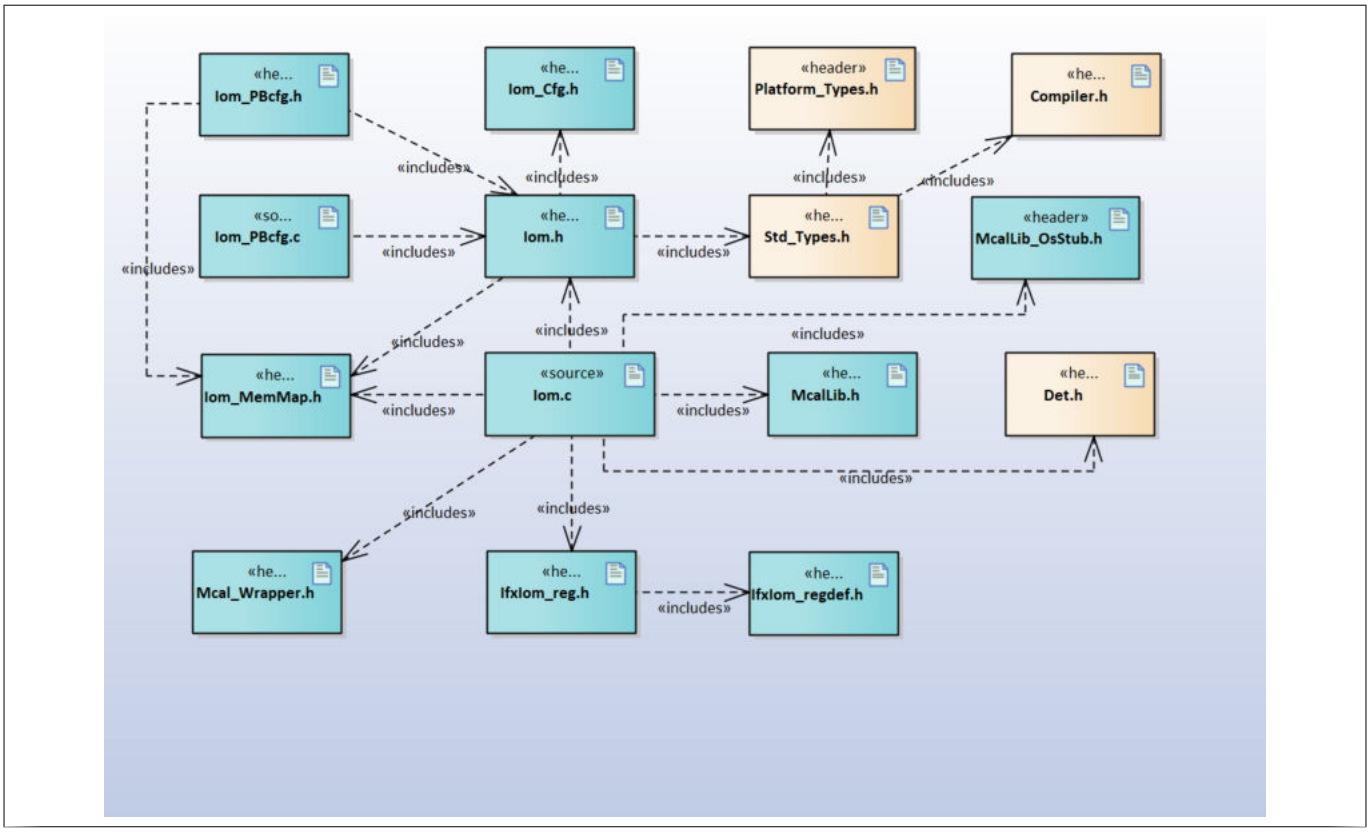

Figure 2 **Iom_C_File_Structure-1.png**

Table 2 **C file structure**

Filename	Description
`Std_Types.h`	Standard type declaration file as defined by AUTOSAR. It is independent of compiler or platform.
`Compiler.h`	Provides macros for the encapsulation of definitions and declarations
`Platform_Types.h`	Platform-specific type declaration file as defined by AUTOSAR
`IfxIom_reg.h`	SFR header file for the IOM
`Det.h`	Provides the exported interfaces of the DET
`Mcal_Wrapper.h`	Provides the exported interfaces for Production Error and Runtime Development Errors. Implemented by default to include functions of Dem.h and Det.h files. This file can be modified by the user but function prototype is not user modifiable.
`McalLib_OsStub.h`	McalLib_OsStub.h provides macros to support user mode of the TriCore™.
`Iom_MemMap.h`	File (Static) containing the memory section definitions used by the IOM driver
`Iom_Cfg.h`	Header file (Generated) containing constants and pre-processor macros as #defines
`Iom.c`	File (Static) containing implementation of the APIs
`Iom_PBcfg.h`	File (Generated) containing declaration of the post-build configuration data structures

(table continues...)

Table 2 (continued) C file structure

Filename	Description
Iom_PBcfg.c	File (Generated) containing a definition of the configuration data structures
McalLib.h	The header file (Static) defining prototypes of data structures and APIs of end-init and delay services and included by McalLib.c

1.1.3.2 Code generator plugin files

This section provides details of the code generator plugin files of the IOM driver.

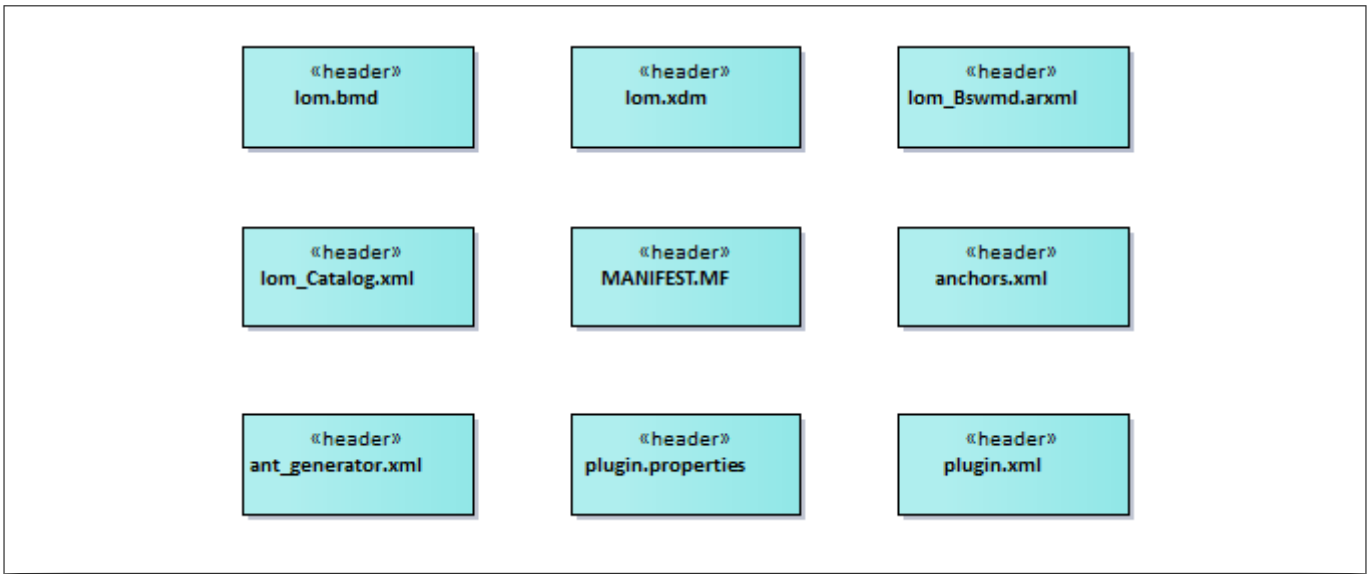

Figure 3 Iom_Code_Generator_Plugin_Files-1.png

Table 3 Code generator plugin files

File name	Description
anchors.xml	Tresos anchors support file for the IOM driver
Iom.xdm	Iom.xdm Tresos format XML data model schema file
Iom.bmd	AUTOSAR format XML data model schema file (for each device)
Iom_Catalog.xml	AUTOSAR format catalog file
Iom_Bswmd.arxml	AUTOSAR format module description file
MANIFEST.MF	Tresos plugin support file containing the metadata for the IOM driver
plugin.xml	Tresos plugin support file for the IOM driver
plugin.properties	Tresos plugin support file for the IOM driver
ant_generator.xml	Tresos support file to generate and rename multiple post-build configurations when using the variation point

1.1.4 Integration hints

This section lists the key points that an integrator or user of the IOM driver must consider.

1.1.4.1 Integration with AUTOSAR Stack

This section lists the modules,which are not part of MCAL, but are required to integrate the IOM driver.

- **ECuM**

  The ECU Manager module is a part of the AUTOSAR stack that manages common aspects of ECU. Specifically, in the context of MCAL, EcuM is used for initialization and de-initialization of the software drivers. The EcuM module provided in the MCAL package is a stub code and needs to be replaced with a complete EcuM module during the integration phase.

- **Memory Mapping**

  Memory mapping is a concept from AUTOSAR that allows relocation of text, variables, constants and configuration data to user-specific memory regions. To achieve this, all the relocatable elements of the driver are encapsulated in different memory-section macros. These macros are defined in the `Iom_MemMap.h` file. The `Iom_MemMap.h` file is provided in the MCAL package as a stub code. The integrator must place appropriate compiler pragmas within the memory-section macros. The pragmas ensure that the elements

are relocated to the correct memory region. A sample implementation listing the memory-section macros is shown as follows.

```
#if defined IOM_START_SEC_VAR_CLEARED_QM_LOCAL_32
  #ifdef _TASKING_C_TRICORE_
  /*****User pragmas here*****/
  #undef IOM_START_SEC_VAR_CLEARED_QM_LOCAL_32
  #undef MEMMAP_ERROR
  #elif defined IOM_STOP_SEC_VAR_CLEARED_QM_LOCAL_32
  #ifdef _TASKING_C_TRICORE_
  /*****User pragmas here*****/
  #undef IOM_STOP_SEC_VAR_CLEARED_QM_LOCAL_32
  #undef MEMMAP_ERROR

  /*****  CONFIG DATA  *****/
  #elif defined IOM_START_SEC_CONFIG_DATA_QM_LOCAL_UNSPECIFIED
  #ifdef _TASKING_C_TRICORE_
  /*****User pragmas here*****/
  #undef IOM_START_SEC_CONFIG_DATA_QM_LOCAL_UNSPECIFIED
  #undef MEMMAP_ERROR
  #elif defined IOM_STOP_SEC_CONFIG_DATA_QM_LOCAL_UNSPECIFIED
  #ifdef _TASKING_C_TRICORE_
  /*****User pragmas here*****/
  #undef IOM_STOP_ SEC_CONFIG_DATA_QM_LOCAL_UNSPECIFIED
  #undef MEMMAP_ERROR

  /*****  CODE  *****/
  #elif defined IOM_START_SEC_CODE_QM_LOCAL
  #ifdef _TASKING_C_TRICORE_
  /*****User pragmas here*****/
  #undef IOM_START_SEC_CODE_QM_LOCAL
  #undef MEMMAP_ERROR
  #elif defined IOM_STOP_SEC_CODE_QM_LOCAL
  #ifdef _TASKING_C_TRICORE_
  /*****User pragmas here*****/
  #undef IOM_STOP_SEC_CODE_QM_LOCAL
  #undef MEMMAP_ERROR

  #endif

  #if defined MEMMAP_ERROR
  #error "Iom_MemMap.h, wrong pragma command"
  #endif
```

- **DET**

  The DET module is a part of the AUTOSAR stack that handles all the development and runtime errors reported by the BSW modules. The IOM driver reports all the development errors to the DET module through the `Det_ReportError()` API. The user of the IOM driver must process all the errors reported to the DET module through the `Det_ReportError()` API. The `Det.h` and `Det.c` files are provided in the MCAL package as a stub code and need to be replaced with a complete DET module during the integration phase.
- **Mcal_Wrapper**

This Driver performs reporting of the Production and Runtime errors. The Handling of the reported errors shall be done by the user. The Mcal_Wrapper_Det_ReportRuntimeError() API, Mcal_Wrapper_Dem_SetEventStatus() API and Mcal_Wrapper_Dem_ReportErrorStatus() API are provided in the Mcal_Wrapper.c and Mcal_Wrapper.h files as a stub code, and can be updated by the integrator to handle the reported errors. The files Mcal_Wrapper.c and Mcal_Wrapper.h are user modifiable, Where the function prototype is not user modifiable and by default the Mcal Wrapper function shall calls AUTOSAR DEM and DET Modules.

The IOM driver reports all the production errors through the interfaces provided by the Mcal_Wrapper module. The user of the IOM driver shall process all the production errors (fail/pass) reported to the Mcal_Wrapper module. The interface used for reporting in AUTOSAR version 4.2.2 is Mcal_Wrapper_Dem_ReportErrorStatus() and for AUTOSAR version 4.4.0 is Mcal_Wrapper_Dem_SetEventStatus(). The Mcal_Wrapper.h and Mcal_Wrapper.c files are provided in the MCAL package as a stub code and needs to be replaced with a complete Mcal_Wrapper module during the integration phase.

- **Schm**

  The SchM is not required for the integration of the IOM driver.
- **Safety error**

  The IOM library does not report any safety errors.
- **Notification and callbacks**

  The IOM driver does not provide any callbacks or notifications.
- **Operating system**

  The IOM driver does not program any Service Request(SR). The OS or the application must ensure the correct type of service and interrupt priority is configured in the SR register. Enabling and disabling of interrupts must also be managed by the OS or the application.

1.1.4.2 Multicore and Resource Manager

The IOM driver does not support execution on multiple cores in parallel.

1.1.4.3 MCU support

The system clock is set up through the MCU driver. The MCU initialization should be performed before using the IOM APIs to ensure the clock supply to the IOM hardware.

1.1.4.4 Port support

The PORT driver configures the port pins of the entire microcontroller. The user must configure the port pins used by the IOM driver through the PORT configuration and initialize the port pins prior to invoking the IOM initialization.

1.1.4.5 DMA support

The IOM driver does not use any services provided by the DMA driver.

1.1.4.6 Interrupt connections

The IOM driver does not use any interrupt source.

1.1.4.7 Example usage

This section explains one of the example usage of the IOM driver for a nominal case.

Configuration of the driver

The IOM driver is configured before usage and the configuration files are generated and made available during the software build process.

Initialization of the driver

The code sequence for initializing the IOM driver is as follows:

```
#include “Iom.h”
#include “Mcu.h”
#include “Port.h”

extern const Iom_ConfigType Iom_Config;

/* MCU Initialization */
Mcu_Init(&Mcu_Config);
   Mcu_InitClock( 0 );
   while(Mcu_GetPllStatus() != MCU_PLL_LOCKED);
   Mcu_DistributePllClock();

  /* Port Initialization */
Port_Init(&Port_Config);

/* Iom Initialization */
Iom_Init(&Iom_Config);


/* Further APIs of IOM driver can be called now */
```

The following code snippet shows call to Iom_ClrResetStatus(() and Iom_ResetKernel() APIs.

```
/* To Reset the Kernel */
Iom_ResetKernel();

/* To Clear the Reset status */
Iom_ClrResetStatus();
```

The following code is used to set values using for the Iom_SetLamThreshold () and Iom_ Iom_SetLamConfig() APIs.

```
/* To set the Threshold value for Lam */
Iom_SetLamThreshold(LamNo,ThresholdValue);

/*To update the configuration of Lam unit */
Iom_SetLamConfig(LamNo,ConfigurationValue);
```

The following code is used to read values from the Iom_GetResetStatus(),Iom_GetLamThreshold() and Iom_GetEcmThresVal() APIs.

```
/* To read threshold value of the counter in Ecm */
ThresVal = Iom_GetEcmThresVal(CounterNo)
/* CounterNo = Counter number in ECM  */

/* To read the Lam threshold value */
      status32 = Iom_GetLamThreshold(LamNo);
      /* LamNo = LAM unit number */

      /* read the kernel reset status bit */
      status8 = Iom_GetResetStatus();
```

Deinitialization of the driver

The following code is used to de-initialize IOM the driver.

```
/* Iom De-Initialization */
Iom_DeInit();
```

1.1.5 Key architectural considerations

There are no key architectural considerations for IOM driver.

1.2 Assumptions of Use (AoU)

There are no AoU for IOM driver.

1.3 Reference information

1.3.1 Configuration interfaces

The following diagram depicts the hierarchy along with their configuration parameters.

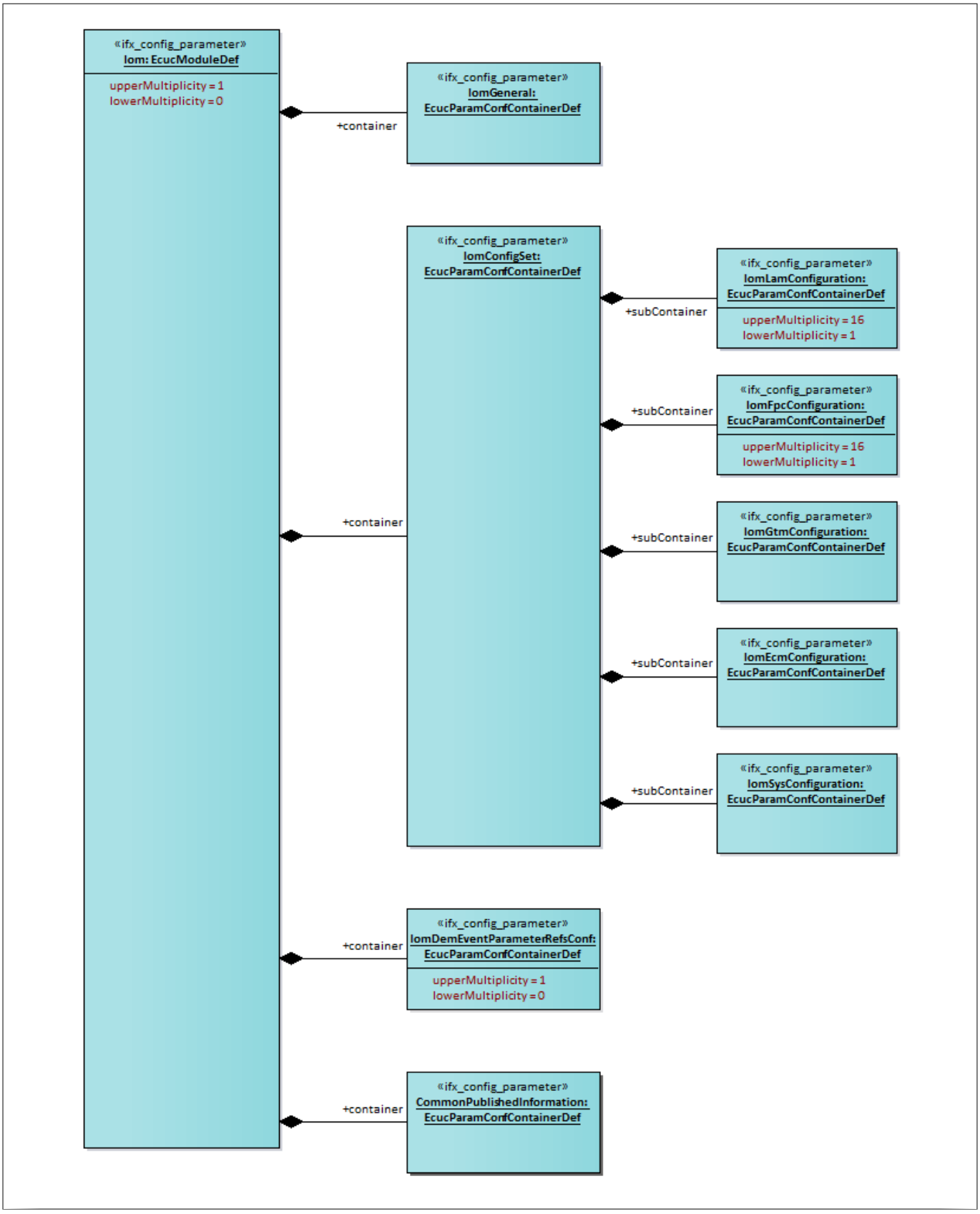

Figure 4 Configuration container relationship

1.3.1.1 Container: CommonPublishedInformation

Multiplicity Configuration Class: -

1.3.1.1.1 ArMajorVersion

Table 4 Specification for ArMajorVersion

Name	ArMajorVersion		
Description	This parameter provides the major version of the AUTOSAR specification.		
Multiplicity	1..1	**Type**	EcucIntegerParamDef
Range	0 - 255		
Default value	4		
Post-build variant value	FALSE	**Post-build variant multiplicity**	-
Value configuration class	Published-Information	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.1.2 ArMinorVersion

Table 5 Specification for ArMinorVersion

Name	ArMinorVersion		
Description	This parameter provides the minor version of the AUTOSAR specification.		
Multiplicity	1..1	**Type**	EcucIntegerParamDef
Range	0 - 255		
Default value	As per the selected Autosar version		
Post-build variant value	FALSE	**Post-build variant multiplicity**	-
Value configuration class	Published-Information	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.1.3 ArPatchVersion

Table 6 Specification for ArPatchVersion

Name	ArPatchVersion

(table continues...)

Table 6 (continued) Specification for ArPatchVersion

Description	This parameter provides the patch version of the AUTOSAR specification.		
Multiplicity	1..1	**Type**	EcucIntegerParamDef
Range	0 - 255		
Default value	As per the selected Autosar version		
Post-build variant value	FALSE	**Post-build variant multiplicity**	-
Value configuration class	Published-Information	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.1.4 ModuleId

Table 7 Specification for ModuleId

Name	ModuleId		
Description	This parameter provides the module ID of IOM.		
Multiplicity	1..1	**Type**	EcucIntegerParamDef
Range	0 - 65535		
Default value	255		
Post-build variant value	FALSE	**Post-build variant multiplicity**	-
Value configuration class	Published-Information	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.1.5 Release

Table 8 Specification for Release

Name	Release		
Description	This parameter indicates the TC3xx device derivative used for the implementation.		
Multiplicity	1..1	**Type**	EcucStringParamDef
Range	String		
Default value	As per hardware derivative		

(table continues...)

Table 8 (continued) Specification for Release

Post-build variant value	FALSE	**Post-build variant multiplicity**	-
Value configuration class	Published-Information	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.1.6 SwMajorVersion

Table 9 Specification for SwMajorVersion

Name	SwMajorVersion		
Description	This parameter provides the major version of the software.		
Multiplicity	1..1	**Type**	EcucIntegerParamDef
Range	0-255		
Default value	As per Driver version		
Post-build variant value	FALSE	**Post-build variant multiplicity**	-
Value configuration class	Published-Information	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.1.7 SwMinorVersion

Table 10 Specification for SwMajorVersion

Name	SwMinorVersion		
Description	This parameter provides the minor version of the software.		
Multiplicity	1..1	**Type**	EcucIntegerParamDef
Range	0-255		
Default value	As per Driver version		
Post-build variant value	FALSE	**Post-build variant multiplicity**	-
Value configuration class	Published-Information	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL

(table continues...)

Table 10 (continued) Specification for SwMajorVersion

Dependency	-
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0

1.3.1.1.8 SwPatchVersion

Table 11 Specification for SwMajorVersion

Name	SwPatchVersion		
Description	This parameter provides the patch version of the software.		
Multiplicity	1..1	**Type**	EcucIntegerParamDef
Range	0-255		
Default value	As per Driver version		
Post-build variant value	FALSE	**Post-build variant multiplicity**	-
Value configuration class	Published-Information	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.1.9 VendorId

Table 12 Specification for VendorId

Name	VendorId		
Description	This parameter provides the vendor ID.		
Multiplicity	1..1	**Type**	EcucIntegerParamDef
Range	0 - 65535		
Default value	17		
Post-build variant value	FALSE	**Post-build variant multiplicity**	-
Value configuration class	Published-Information	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.2 Container: IomGtmConfiguration

This container holds the Lam Configuration.

Multiplicity Configuration Class: -

1.3.1.2.1 IomGtmInputx

Table 13 Specification for IomGtmInputx

Name	IomGtmInputx		
Description	Disables/Enables the GTM input signal x to be included in EXOR combiner. x varies from 0 to 7. IOM_DISABLE_GTM_INPUT – disables the selected GTM input signal. IOM_ENABLE_GTM_INPUT – enables the selected GTM input signal.		
Multiplicity	1..1	**Type**	EcucEnumerationParamDef
Range	IOM_DISABLE_GTM_INPUT IOM_ENABLE_GTM_INPUT		
Default value	IOM_DISABLE_GTM_INPUT		
Post-build variant value	TRUE	**Post-build variant multiplicity**	-
Value configuration class	Post-Build	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.3 Container: IomEcmConfiguration

This container holds the ECM Configuration.

Multiplicity Configuration Class: -

1.3.1.3.1 IomEcmThresholdx

Table 14 Specification for IomEcmThresholdx

Name	IomEcmThresholdx		
Description	Indicates threshold count value for the counter x (varies from 0 to 3) of the ECM module. Upon counter meet this value, the counter event output becomes high for one clock cycle. If the count is set to zero, the counter is disabled		
Multiplicity	1..1	**Type**	EcucIntegerParamDef
Range	0 to 15		
Default value	0		
Post-build variant value	TRUE	**Post-build variant multiplicity**	-
Value configuration class	Post-Build	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		

(table continues...)

Table 14 (continued) Specification for IomEcmThresholdx

Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0

1.3.1.3.2 IomEcmEventSelx

Table 15 Specification for IomEcmEventSelx

Name	IomEcmEventSelx		
Description	Determines which LAM channel event output is routed to counter x(varies from 0 to 3) of ECM module.		
Multiplicity	1..1	**Type**	EcucIntegerParamDef
Range	0 to 15		
Default value	0		
Post-build variant value	TRUE	**Post-build variant multiplicity**	-
Value configuration class	Post-Build	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.4 Container: IomEventCombModGlobalSel

This container holds the ECM Configuration.

Multiplicity Configuration Class: -

1.3.1.4.1 IomEcmEventCombSelx

Table 16 Specification for IomEcmEventCombSelx

Name	IomEcmEventCombSelx x varies from 0 to 15		
Description	Add/Remove LAMx (x varies from 0 to 15) output event in global event generation. IOM_DISABLE_CHANNEL_EVENT- disables LAM output event in global event generation. IOM_ENABLE_CHANNEL_EVENT - enables LAM output event in global event generation.		
Multiplicity	1..1	Type	EcucEnumerationParamDef
Range	IOM_DISABLE_CHANNEL_EVENT IOM_ENABLE_CHANNEL_EVENT		
Default value	IOM_DISABLE_CHANNEL_EVENT		

(table continues...)

Table 16 (continued) Specification for IomEcmEventCombSelx

Post-build variant value	TRUE	Post-build variant multiplicity	-
Value configuration class	Post-Build	Multiplicity configuration class	-
Origin	IFX	Scope	LOCAL
Dependency			
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.4.2 IomEcmAccEventCombSelx

Table 17 Specification for IomEcmAccEventCombSelx

Name	IomEcmAccEventCombSelx x varies from 0 to 3		
Description	Add/Remove counter x output event in global event generation. IOM_DISABLE_COUNT_EVENT- disables counter x output event in global event generation. IOM_ENABLE_COUNT_EVENT - enables counter x output event in global event generation. *Note: x varies from 0 to 3.*		
Multiplicity	1..1	Type	EcucEnumerationParamDef
Range	IOM_DISABLE_COUNT_EVENT IOM_ENABLE_COUNT_EVENT		
Default value	IOM_DISABLE_COUNT_EVENT		
Post-build variant value	TRUE	Post-build variant multiplicity	-
Value configuration class	Post-Build	Multiplicity configuration class	-
Origin	IFX	Scope	LOCAL
Dependency			
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.5 Container: IomSysConfiguration

This container holds the ECM Configuration.

Multiplicity Configuration Class: -

1.3.1.5.1 IomClcSleepModeEn

Table 18 Specification for IomClcSleepModeEn

Name	IomClcSleepModeEn		
Description	Used to enable or disable the sleep mode of the module. FALSE – disable module sleep mode TRUE – enable module sleep mode		
Multiplicity	1..1	**Type**	EcucBooleanParamDef
Range	TRUE FALSE		
Default value	FALSE		
Post-build variant value	TRUE	**Post-build variant multiplicity**	-
Value configuration class	Post-Build	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.5.2 IomClcRmcVal

Table 19 Specification for IomClcRmcVal

Name	IomClcRmcVal		
Description	Determines 8 bit clock divider value in the RUN mode.		
Multiplicity	1..1	**Type**	EcucIntegerParamDef
Range	1 to 255		
Default value	1		
Post-build variant value	TRUE	**Post-build variant multiplicity**	-
Value configuration class	Post-Build	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.6 Container: IomGeneral

The container contains all the general configuration parameters for the IOM driver.
Multiplicity Configuration Class: -

1.3.1.6.1 IomVersionInfoApi

Table 20 Specification for IomVersionInfoApi

Name	IomVersionInfoApi		
Description	Parameter adds or removes the Iom_GetVersionInfo() API from the code. The default value of this parameter is set to false to minimize the executable code size		
Multiplicity	1..1	**Type**	EcucBooleanParamDef
Range	TRUE FALSE		
Default value	FALSE		
Post-build variant value	FALSE	**Post-build variant multiplicity**	-
Value configuration class	Pre-Compile	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.6.2 IomDeInitApi

Table 21 Specification for IomDeInitApi

Name	IomDeInitApi		
Description	Parameter adds or removes the Iom_DeInit () API from the code. The default value of this parameter is set to false to minimize the executable code size		
Multiplicity	1..1	**Type**	EcucBooleanParamDef
Range	TRUE FALSE		
Default value	FALSE		
Post-build variant value	FALSE	**Post-build variant multiplicity**	-
Value configuration class	Pre-Compile	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.6.3 IomDevErrorDetect

Table 22 Specification for IomDevErrorDetect

Name	IomDevErrorDetect		
Description	Parameter enables or disables the Default Error Tracer (DET) detection and reporting.		
Multiplicity	1..1	**Type**	EcucBooleanParamDef
Range	TRUE FALSE		
Default value	TRUE		
Post-build variant value	FALSE	**Post-build variant multiplicity**	-
Value configuration class	Pre-Compile	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.6.4 IomIndex

Table 23 Specification for IomIndex

Name	IomIndex		
Description	Specifies instance id for this module instance.		
Multiplicity	1..1	**Type**	EcucIntegerParamDef
Range	0 to 255		
Default value	0		
Post-build variant value	FALSE	**Post-build variant multiplicity**	-
Value configuration class	Pre-Compile	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.6.5 IomRuntimeApiMode

Table 24 Specification for IomRuntimeApiMode

Name	IomRuntimeApiMode

(table continues...)

Table 24 (continued) Specification for IomRuntimeApiMode

Description	The parameter defines the privilege mode in which the runtime APIs would operate. Since IOM driver accesses the SFRs, it is more efficient to operate the IOM driver in supervisor mode. Hence, the default mode of operation is a supervisor.		
Multiplicity	1..1	**Type**	EcucEnumerationParamDef
Range	IOM_MCAL_SUPERVISOR IOM_MCAL_USER1		
Default value	IOM_MCAL_SUPERVISOR		
Post-build variant value	FALSE	**Post-build variant multiplicity**	-
Value configuration class	Pre-Compile	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.6.6 IomInitDeInitApiMode

Table 25 Specification for IomInitDeInitApiMode

Name	IomInitDeInitApiMode		
Description	Configuration parameter defines the privilege mode in which the initialization and deinitialization APIs would operate. Since IOM driver accesses the SFRs, it is more efficient to operate the IOM driver in supervisor mode. Hence, the default mode of operation is a supervisor.		
Multiplicity	1..1	**Type**	EcucEnumerationParamDef
Range	IOM_MCAL_SUPERVISOR IOM_MCAL_USER1		
Default value	IOM_MCAL_SUPERVISOR		
Post-build variant value	FALSE	**Post-build variant multiplicity**	-
Value configuration class	Pre-Compile	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.7 Container: IomDemEventParameterRefsConf

This container holds the ECM Configuration.

Multiplicity Configuration Class: - Pre-Compile

1.3.1.7.1 IomClcFailureNotification

Table 26 Specification for IomClcFailureNotification

Name	IomClcFailureNotification		
Description	The parameter defines whether CLC failure DEM notification is enabled or not.		
Multiplicity	0..1	**Type**	
Range	Reference to Node: DemEventParameter		
Default value	NULL		
Post-build variant value	FALSE	**Post-build variant multiplicity**	FALSE
Value configuration class	Pre-Compile	**Multiplicity configuration class**	Pre-Compile
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.8 Container: IomFpcConfiguration

This container holds the Fpc Configuration.
Multiplicity Configuration Class: - Pre-Compile

1.3.1.8.1 IomFpcHwUnit

Table 27 Specification for IomFpcHwUnit

Name	IomFpcHwUnit		
Description	Identification number for Fpc unit.		
Multiplicity	1..1	**Type**	EcucIntegerParamDef
Range	0-15		
Default value	0		
Post-build variant value	TRUE	**Post-build variant multiplicity**	-
Value configuration class	Post-Build	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.8.2 IomFpcCompareVal

Table 28 Specification for IomFpcCompareVal

Name	IomFpcCompareVal		
Description	This parameter is used to set the compare value of Fpc.		
Multiplicity	1..1	**Type**	EcucIntegerParamDef
Range	0-65535		
Default value	0		
Post-build variant value	TRUE	**Post-build variant multiplicity**	-
Value configuration class	Post-Build	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.8.3 IomFpcMode

Table 29 Specification for IomFpcMode

Name	IomFpcMode		
Description	Used to select a mode of operation for FPC. IOM_MOD_0_BOTHEDGES_DD – FPC is configured to operate in delayed debounce filter mode on both edges IOM_MOD_1_BOTHEDGES_ID – FPC is configured to operate in immediate debounce filter mode on both edges IOM_MOD_2_RISINGEDGE_ID – FPC is configured to operate in Delayed debounce filter mode on the rising edge and no filtering on falling edge IOM_MOD_3_FALLINGEDGE_ID - FPC is configured to operate in immediate debounce filter mode on falling edge and no filtering on rising edge IOM_MOD_4_RISING_DD_FALLING_ID - FPC is configured to operate in delayed debounce filter mode on the rising edge and immediate debounce filter mode on falling edge IOM_MOD_5_RISING_ID_FALLING_DD - FPC is configured to operate in immediate debounce filter mode on the rising edge and delayed debounce filter mode on the falling edge. IOM_MOD_6_RISINGEDGE_PRESCALER – prescaler mode is triggered on the rising edge IOM_MOD_7_FALLINGEDGE_PRESCALER – prescaler mode is triggered on a falling edge.		
Multiplicity	1..1	**Type**	EcucEnumerationParamDef

(table continues...)

Table 29 (continued) Specification for IomFpcMode

Range	IOM_MOD_0_BOTHEDGES_DD IOM_MOD_1_BOTHEDGES_ID IOM_MOD_2_RISINGEDGE_ID IOM_MOD_3_FALLINGEDGE_ID IOM_MOD_4_RISING_DD_FALLING_ID IOM_MOD_5_RISING_ID_FALLING_DD IOM_MOD_6_RISINGEDGE_PRESCALER IOM_MOD_7_FALLINGEDGE_PRESCALER		
Default value	IOM_MOD_0_BOTHEDGES_DD		
Post-build variant value	TRUE	**Post-build variant multiplicity**	-
Value configuration class	Post-Build	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.8.4 IomFpcMonInputSel

Table 30 Specification for IomFpcMonInputSel

Name	IomFpcMonInputSel		
Description	This parameter is used to select the monitor input signal. IOM_PNIN_0 – signal input from port logic is selected IOM_MON0_1 – monitor input signal 0 is selected IOM_MON1_2 - monitor input signal 1 is selected IOM_MON2_3 - monitor input signal 2 is selected		
Multiplicity	1..1	**Type**	EcucEnumerationParamDef
Range	IOM_PNIN_0 IOM_MON0_1 IOM_MON1_2 IOM_MON2_3		
Default value	IOM_PNIN_0		
Post-build variant value	TRUE	**Post-build variant multiplicity**	-
Value configuration class	Post-Build	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.8.5 IomFpcReferInputSel

Table 31 Specification for IomFpcReferInputSel

Name	IomFpcReferInputSel		
Description	This parameter is used to select the reference input signal. IOM_PNIN_0 – signal input from port logic is selected IOM_REF0_1 – reference input signal 0 is selected IOM_REF1_2 – reference input signal 1 is selected IOM_REF2_3 – reference input signal 2 is selected. IOM_GTMC_4-referenece input 3 is selected		
Multiplicity	1..1	**Type**	EcucEnumerationParamDef
Range	IOM_PNIN_0 IOM_REF0_1 IOM_REF1_2 IOM_REF2_3 IOM_GTMC_4		
Default value	IOM_PNIN_0		
Post-build variant value	TRUE	**Post-build variant multiplicity**	-
Value configuration class	Post-Build	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.8.6 IomFpcResetTimer

Table 32 Specification for IomFpcResetTimer

Name	IomFpcResetTimer		
Description	Indicates whether FPC reset timer should be decremented or cleared on the glitch. IOM_TIMER_DECREMENT – Timer FPCk is decremented on the glitch. IOM_TIMER_CLEAR – Timer FPCk is cleared on the glitch.		
Multiplicity	1..1	**Type**	EcucEnumerationParamDef
Range	IOM_TIMER_DECREMENT IOM_TIMER_CLEAR		
Default value	IOM_TIMER_DECREMENT		
Post-build variant value	TRUE	**Post-build variant multiplicity**	-
Value configuration class	Post-Build	**Multiplicity configuration class**	-

(table continues...)

Table 32 (continued) Specification for IomFpcResetTimer

Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.9 Container: IomLamConfiguration

This container holds the Lam Configuration.
Multiplicity Configuration Class: - Pre-Compile

1.3.1.9.1 IomLamHwUnit

Table 33 Specification for IomLamHwUnit

Name	IomLamHwUnit		
Description	Identification number for LAM unit.		
Multiplicity	1..1	**Type**	EcucIntegerParamDef
Range	0-15		
Default value	0		
Post-build variant value	TRUE	**Post-build variant multiplicity**	-
Value configuration class	Post-Build	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.9.2 IomLamThreshold

Table 34 Specification for IomLamThreshold

Name	IomLamThreshold		
Description	This parameter is used to set the threshold value for event window counter from which an event is generated.		
Multiplicity	1..1	**Type**	EcucIntegerParamDef
Range	0-16777215		
Default value	0		
Post-build variant value	TRUE	**Post-build variant multiplicity**	-
Value configuration class	Post-Build	**Multiplicity configuration class**	-

(table continues...)

Table 34 (continued) Specification for IomLamThreshold

Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.9.3 IomLamInvReferSignal

Table 35 Specification for IomLamInvReferSignal

Name	IomLamInvReferSignal		
Description	This parameter is used to enable/disable inversion of the reference signal to LAM FALSE – disables inversion of the reference signal to selected LAM module. TRUE – enables inversion of the reference signal to selected LAM module.		
Multiplicity	1..1	**Type**	EcucBooleanParamDef
Range	TRUE FALSE		
Default value	FALSE		
Post-build variant value	TRUE	**Post-build variant multiplicity**	-
Value configuration class	Post-Build	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.9.4 IomLamInvMonSignal

Table 36 Specification for IomLamInvMonSignal

Name	IomLamInvMonSignal		
Description	This parameter is used to enable/disable inversion of monitor signal to LAM FALSE – disables inversion of monitor signal to selected LAM module. TRUE – enables inversion of monitor signal to selected LAM module.		
Multiplicity	1..1	**Type**	EcucBooleanParamDef
Range	TRUE FALSE		
Default value	FALSE		
Post-build variant value	TRUE	**Post-build variant multiplicity**	-
Value configuration class	Post-Build	**Multiplicity configuration class**	-

(table continues...)

Table 36 (continued) Specification for IomLamInvMonSignal

Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.9.5 IomLamInvEventWin

Table 37 Specification for IomLamInvEventWin

Name	IomLamInvEventWin		
Description	This parameter is used to enable/disable inversion of event window in the LAM module FALSE – disables inversion of event window signal in selected LAM module. TRUE – enables inversion of event window signal in selected LAM module.		
Multiplicity	1..1	**Type**	EcucBooleanParamDef
Range	TRUE FALSE		
Default value	FALSE		
Post-build variant value	TRUE	**Post-build variant multiplicity**	-
Value configuration class	Post-Build	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.9.6 IomLamMonSrcSelect

Table 38 Specification for IomLamMonSrcSelect

Name	IomLamMonSrcSelect		
Description	The parameter defines whether monitor signal sourced directly or EXOR'd with a reference signal. IOM_MON_SIGNAL_FPCM – monitor signal is sourced directly from FPC monitor signal IOM_MON_SIGNAL_EXOR_FPCM – monitor signal is EXOR'd with FPC reference signal		
Multiplicity	1..1	**Type**	EcucEnumerationParamDef
Range	IOM_MON_SIGNAL_FPCM IOM_MON_SIGNAL_EXOR_FPCM		
Default value	IOM_MON_SIGNAL_FPCM		

(table continues...)

Table 38 (continued) Specification for IomLamMonSrcSelect

Post-build variant value	TRUE	**Post-build variant multiplicity**	-
Value configuration class	Post-Build	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.9.7 IomLamRunMode

Table 39 Specification for IomLamRunMode

Name	IomLamRunMode		
Description	The parameter defines whether event window generation is free running or gated with monitor or reference signal. IOM_EVENT_WINDOW_FREE_RUNNING – event window generation is free running. IOM_EVENT_WINDOW_GATED – event window generation is gated with monitor or reference signal.		
Multiplicity	1..1	**Type**	EcucEnumerationParamDef
Range	IOM_EVENT_WINDOW_FREE_RUNNING IOM_EVENT_WINDOW_GATED		
Default value	IOM_EVENT_WINDOW_FREE_RUNNING		
Post-build variant value	TRUE	**Post-build variant multiplicity**	-
Value configuration class	Post-Build	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.9.8 IomLamEventWinSelect

Table 40 Specification for IomLamEventWinSelect

Name	IomLamEventWinSelect
Description	The parameter defines whether event window generation is from monitor signal or reference signal. IOM_EVENT_WIN_GEN_REFER – event window generation is determined from the reference signal. IOM_EVENT_WIN_GEN_MON – event window generation is determined from the monitor signal.

(table continues...)

Table 40 (continued) Specification for IomLamEventWinSelect

Multiplicity	1..1	**Type**	EcucEnumerationParamDef
Range	IOM_EVENT_WIN_GEN_REFER IOM_EVENT_WIN_GEN_MON		
Default value	IOM_EVENT_WIN_GEN_REFER		
Post-build variant value	TRUE	**Post-build variant multiplicity**	-
Value configuration class	Post-Build	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.9.9 IomLamDisableEvents

Table 41 Specification for IomLamDisableEvents

Name	IomLamDisableEvents		
Description	The parameter defines whether to suppress alarm outputs from LAM block to the ECM. FALSE – disables alarm output from LAM to ECM. TRUE – enables alarm output from LAM to ECM.		
Multiplicity	1..1	**Type**	EcucBooleanParamDef
Range	TRUE FALSE		
Default value	FALSE		
Post-build variant value	TRUE	**Post-build variant multiplicity**	-
Value configuration class	Post-Build	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.9.10 IomLamEveWinActiveEdgeSelect

Table 42 Specification for IomLamEveWinActiveEdgeSelect

Name	IomLamEveWinActiveEdgeSelect

(table continues...)

Table 42 (continued) Specification for IomLamEveWinActiveEdgeSelect

Description	The parameter defines which active edges of reference and monitor signals are used for event window generation. IOM_NEITHER_CLR_NEITHER_GATE – neither edge used to clear event window counter and gate event generation. IOM_NEITHER_CLR_POS_GATE - neither edge used to clear event window counter and positive edge used to gate event generation IOM_NEITHER_CLR_NEG_GATE - neither edge used to clear event window counter and negative edge used to gate event generation IOM_NEITHER_CLR_EITHER_GATE - neither edge used to clear the event window counter and either edge used to gate event generation. IOM_POS_CLR_NEITHER_GATE - positive edge used to clear event window counter and neither edge used to gate event generation. IOM_POS_CLR_POS_GATE - positive edge used to clear event window counter and gate event generation. IOM_POS_CLR_NEG_GATE - positive edge used to clear event window counter and negative edge used to gate event generation. IOM_POS_CLR_EITHER_GATE - positive edge used to clear event window counter and either edge used to gate event generation. IOM_NEG_CLR_NEITHER_GATE - negative edge used to clear event window counter and neither edge used to gate event generation. IOM_NEG_CLR_POS_GATE – negative edge used to clear event window counter and positive edge used to gate event generation. IOM_NEG_CLR_NEG_GATE - negative edge used to clear event window counter and to gate event generation. IOM_NEG_CLR_EITHER_GATE - negative edge used to clear event window counter and either edge used to gate event generation. IOM_EITHER_CLR_NEITHER_GATE - either edge used to clear event window counter and neither edge used to gate event generation. IOM_EITHER_CLR_POS_GATE - either edge used to clear event window counter and positive edge used to gate event generation. IOM_EITHER_CLR_NEG_GATE - either edge used to clear event window counter and negative edge used to gate event generation. IOM_EITHER_CLR_EITHER_GATE - either edge used to clear event window counter and to gate event generation.		
Multiplicity	1..1	**Type**	EcucEnumerationParamDef

(table continues...)

Table 42 (continued) Specification for IomLamEveWinActiveEdgeSelect

Range	IOM_NEITHER_ CLR_NEITHER_ GATE IOM_NEITHER_CLR_POS_GATE IOM_NEITHER_CLR_NEG_GATE IOM_NEITHER_CLR_EITHER_GATE IOM_POS_CLR_NEITHER_GATE IOM_POS_CLR_POS_GATE IOM_POS_CLR_NEG_GATE IOM_POS_CLR_EITHER_GATE IOM_NEG_CLR_NEITHER_GATE IOM_NEG_CLR_POS_GATE IOM_NEG_CLR_NEG_GATE IOM_NEG_CLR_EITHER_GATE IOM_EITHER_CLR_NEITHER_GATE IOM_EITHER_CLR_POS_GATE IOM_EITHER_CLR_NEG_GATE IOM_EITHER_CLR_EITHER_GATE		
Default value	IOM_NEITHER_ CLR_NEITHER_ GATE		
Post-build variant value	TRUE	**Post-build variant multiplicity**	-
Value configuration class	Post-Build	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.9.11 IomLamMonInputSel

Table 43 Specification for IomLamMonInputSel

Name	IomLamMonInputSel		
Description	A parameter to select the monitor output signal from FPC block to LAM block.		
Multiplicity	1..1	**Type**	EcucEnumerationParamDef
Range	IOM_MONITOR_SIGNAL_FPCx x varies from 00 to 15		
Default value	IOM_MONITOR_SIGNAL_FPC00		
Post-build variant value	TRUE	**Post-build variant multiplicity**	-
Value configuration class	Post-Build	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL

(table continues...)

Table 43 (continued) Specification for IomLamMonInputSel

Dependency	-
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0

1.3.1.9.12 IomLamRefInputSel

Table 44 Specification for IomLamRefInputSel

Name	IomLamRefInputSel		
Description	A parameter to select the reference output signal from FPC block to LAM block.		
Multiplicity	1..1	**Type**	EcucEnumerationParamDef
Range	IOM_REFER_SIGNAL_FPCx x varies from 00 to 15		
Default value	IOM_ REFER _SIGNAL_FPC00		
Post-build variant value	TRUE	**Post-build variant multiplicity**	-
Value configuration class	Post-Build	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.10 Container: IomClcConfiguration

This container holds the Clc Configuration.
Multiplicity Configuration Class: - Pre-Compile

1.3.1.10.1 IomClcSleepModeEn

Table 45 Specification for IomClcSleepModeEn

Name	IomClcSleepModeEn		
Description	Used to enable or disable sleep mode of the module.		
Multiplicity	0..1	**Type**	EcucBooleanParamDef
Range	TRUE FALSE		
Default value	FALSE		
Post-build variant value	FALSE	**Post-build variant multiplicity**	-
Value configuration class	Post Build	**Multiplicity configuration class**	-

(table continues...)

Table 45 (continued) Specification for IomClcSleepModeEn

Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.10.2 IomClcRmcVal

Table 46 IomClcRmcVal

Name	IomClcRmcVal		
Description	Determines 8 bit clock divider value in the RUN mode.		
Multiplicity	1..1	**Type**	EcucIntegerParamDef
Range	1-255		
Default value	1		
Post-build variant value	FALSE	**Post-build variant multiplicity**	-
Value configuration class	Post Build	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL
Dependency	-		
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0		

1.3.1.11 Container: Iom

Configuration of the Iom(Input Output Manager)

Multiplicity Configuration Class: -

1.3.1.11.1 Config Variant

Table 47 Specification of Config Variant

Name	Config Variant		
Description	-		
Multiplicity	1..1	**Type**	EcucIntegerParamDef
Range	Variant Post Build: Post Build Support		
Default value	Variant Post Build		
Post-build variant value	False	**Post-build variant multiplicity**	-
Value configuration class	Pre-Compile	**Multiplicity configuration class**	-
Origin	IFX	**Scope**	LOCAL

(table continues...)

Table 47 (continued) Specification of Config Variant	
Dependency	-
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0

1.3.2 Functions – Type definitions

This section describes all the type definitions used by APIs.

1.3.2.1 Iom_RstStatusType

Table 48 Specification for Iom_RstStatusType		
Syntax	Iom_RstStatusType	
Type	uint8	
File	Iom.h	
Range	0	No kernel reset was executed
	1	Kernel reset was executed
	255	Indicates invalid value
Description	Indicates the reset status of the kernel.	
Source	IFX	
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0	

1.3.2.2 Iom_Ecm_ThresType

Table 49 Specification for Iom_Ecm_ThresType		
Syntax	Iom_Ecm_ThresType	
Type	uint8	
File	Iom.h	
Range	0-15	Threshold count value
	255	Indicates invalid value
Description	Indicates the threshold value of the counter in ECM.	
Source	IFX	
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0	

1.3.2.3 Iom_Fpc_CompareType

Table 50 Specification for Iom_Fpc_CompareType	
Syntax	Iom_Fpc_CompareType
Type	uint32

(table continues...)

Table 50 (continued) Specification for Iom_Fpc_CompareType

File	Iom.h	
Range	0x0 – 0xFFFF	Fpc compare value
	0xFFFFFFFF	Indicates invalid value
Description	Indicates the compare value of the FPC.	
Source	IFX	
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0	

1.3.2.4 Iom_FpcStatusType

Table 51 Specification for Iom_FpcStatusType

Syntax	Iom_FpcStatusType	
Type	uint 8	
File	Iom.h	
Range	0-3	Fpc edge status
	255	Indicates invalid value
Description	Indicates the value of the FPC edge status	
Source	IFX	
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0	

1.3.2.5 Iom_Ecm_EveHistype

Table 52 Specification for Iom_Ecm_EveHisType

Syntax	Iom_Ecm_EveHisType	
Type	uint32	
File	Iom.h	
Range	0x0 – 0xFFFF	ECM event trigger history
	0xFFFFFFFF	Indicates invalid value
Description	Indicates the ECM event history	
Source	IFX	
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0	

1.3.2.6 Iom_Lam_Configtype

Table 53 Specification for Iom_Lam_ConfigType

Syntax	Iom_Lam_ConfigType
Type	uint32

(table continues...)

Table 53	(continued) Specification for Iom_Lam_ConfigType
File	Iom.h
Range	0x0 - 0xFFFFFFFFu
Description	Indicates to the Lam Configuration Value
Source	IFX
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0

1.3.2.7 Iom_Lam_ThresType

Table 54	Specification for Iom_Lam_ThresType
Syntax	Iom_Lam_ThresType
Type	Uint32
File	Iom.h
Range	0-0xFFFFFFFFu
Description	Indicates the threshold value of the Lam.
Source	IFX
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0

1.3.2.8 Iom_Lam_CountType

Table 55	Specification for Iom_Lam_CountType	
Syntax	Iom_Lam_CountType	
Type	uint32	
File	Iom.h	
Range	0x0-0xFFFFFF	LAM count
	0xFFFFFFFF	Indicates invalid value
Description	Indicates to the count value of the Lam event.	
Source	IFX	
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0	

1.3.2.9 Iom_Ecm_EveSelType

Table 56	Specification for Iom_Ecm_EveSelType	
Syntax	Iom_Ecm_EveSelType	
Type	Uint32	
File	Iom.h	
Range	0-0xFFFFFu	ECM global event selection

(table continues...)

Table 56	(continued) Specification for Iom_Ecm_EveSelType	
	0xFFFFFFFF	Indicates invalid value
Description	Indicates the value of the global event selection register.	
Source	IFX	
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0	

1.3.2.10 Iom_EventHistory

Table 57	Specification for Iom_EventHistory
Syntax	Iom_EventHistory
Type	Enumeration
File	Iom.h
Range	IOM_EVETRIG_HISTORY_A = 0U, IOM_EVETRIG_HISTORY_B = 1U, IOM_EVETRIG_HISTORY_C = 2U, IOM_EVETRIG_HISTORY_D = 3U,
Description	Selects the history of the events recorded.
Source	IFX
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0

1.3.2.11 Iom_FpcConfigType

Table 58	Specification for Iom_FpcConfigType	
Syntax	Iom_FpcConfigType	
Type	Structure	
File	Iom.h	
Range	uint32 FpcCfg	FPC control value and compare value
	Uint16 FpcUnitNo	FPC unit Id
Description	Type for the definition of Fpc Module	
Source	IFX	
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0	

1.3.2.12 Iom_LamConfigType

Table 59	Specification for Iom_LamConfigType
Syntax	Iom_LamConfigType
Type	Structure
File	Iom.h

(table continues...)

Table 59	(continued) Specification for Iom_LamConfigType	
Range	uint32 LamentWinCount	LAM event window threshold
	uint32 LamCfg	LAM configuration register value
	uint16 LamNo	LAM unit Id
Description	Type definition of the Lam module.	
Source	IFX	
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0	

1.3.2.13 Iom_EcmConfigType

Table 60	Specification for Iom_EcmConfigType	
Syntax	Iom_EcmConfigType	
Type	structure	
File	Iom.h	
Range	uint32 EcmCountConfig	ECM counter configuration register value
	uint32 EcmGlobEntSel	ECM global event selection register value
Description	Type definition for the ECM module.	
Source	IFX	
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0	

1.3.2.14 Iom_ConfigType

Table 61	Specification for Iom_ConfigType
Syntax	Iom_ConfigType
Type	Structure
File	Iom.h
Description	Defines the type for data structure containing the set of configuration parameters required for initializing the IOM driver.
Source	IFX
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0

1.3.3 Functions - APIs

This section lists all the APIs of the IOM driver.

1.3.3.1 Iom_Init

Table 62 Specification for Iom_Init API

Syntax	void Iom_Init (const Iom_ConfigType * const ConfigPtr)	
Service ID	0x5F	
Sync/Async	Synchronous	
Safety Level	Refer to the release notes for the safety related info	
Reentrancy	Non Reentrant	
Parameters (in)	ConfigPtr	Pointer to configuration set
Parameters (out)	-	
Parameters (in-out)	-	
Return	void	-
Description	This API initializes the IOM driver. This function will initialize all relevant registers of IOM hardware with the values of structure referenced by the parameter ConfigPtr. The IOM initialization status is set at the end of the Initialization function execution.	
Source	IFX	
Error handling	IOM_E_INIT, IOM_E_PARAM_CONFIG, IOM_E_CLC_ENABLE_ERR	
Configuration dependencies	-	
User hints	-	
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0	

1.3.3.2 Iom_DeInit

Table 63 Specification for Iom_DeInit API

Syntax	void Iom_DeInit (void)	
Service ID	0x60	
Sync/Async	Synchronous	
Reentrancy	Non Reentrant	
Safety Level	Refer to the release notes for the safety related info	
Parameters (in)	-	-
Parameters (out)	-	
Parameters (in-out)	-	
Return	void	-

(table continues...)

Table 63 (continued) Specification for Iom_DeInit API

Description	This API deinitializes the IOM driver. Service for deinitializing all hardware registers to their power on reset state. This API is only available when IomDeInitApi is configured as true
Source	IFX
Error handling	IOM_E_UNINIT
Configuration dependencies	-
User hints	-
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0

1.3.3.3 Iom_ResetKernel

Table 64 Specification for Iom_ResetKernel API

Syntax	void Iom_ResetKernel (void)	
Service ID	0x61	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Safety Level	Refer to the release notes for the safety related info	
Parameters (in)	-	-
Parameters (out)	-	
Parameters (in-out)	-	
Return	void	
Description	This API resets the IOM module kernel.	
Source	IFX	
Error handling	IOM_E_UNINIT	
Configuration dependencies	-	
User hints	-	
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0	

1.3.3.4 Iom_GetResetStatus

Table 65 Specification for Iom_GetResetStatus API

Syntax	Iom_RstStatusType Iom_GetResetStatus (void)
Service ID	0x62
Sync/Async	Synchronous
Reentrancy	Reentrant

(table continues...)

Table 65 (continued) Specification for Iom_GetResetStatus API

Safety Level	Refer to the release notes for the safety related info	
Parameters (in)	-	-
Parameters (out)	-	
Parameters (in-out)	-	
Return	Iom_RstStatusType	Reset status for IOM kernel.
Description	This API returns the reset status for IOM kernel.	
Source	IFX	
Error handling	IOM_E_UNINIT	
Configuration dependencies	-	
User hints	-	
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0	

1.3.3.5 Iom_ClrResetStatus

Table 66 Specification for Iom_ClrResetStatus API

Syntax	void Iom_ClrResetStatus (void)	
Service ID	0x63	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Safety Level	Refer to the release notes for the safety related info	
Parameters (in)	-	-
Parameters (out)	-	
Parameters (in-out)	-	
Return	void	-
Description	This service clear the kernel reset status bit.	
Source	IFX	
Error handling	IOM_E_UNINIT	
Configuration dependencies	-	
User hints	-	
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0	

1.3.3.6 Iom_ClrFpcEdgeStatus

Table 67 Specification for Iom_ClrFpcEdgeStatus API

Syntax	void Iom_ClrFpcEdgeStatus (const uint8 FpcNo, const uint8 Edge)	
Service ID	0x64	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Safety Level	Refer to the release notes for the safety related info	
Parameters (in)	FpcNo	FPC unit number
	Edge	Indicates rising edge or falling edge or both edges to be cleared.
Parameters (out)	-	
Parameters (in-out)	-	
Return	void	-
Description	This API provides service to clear rising, falling or both edge.	
Source	IFX	
Error handling	IOM_E_UNINIT, IOM_E_PARAM_FPC, IOM_E_PARAM_EDGE	
Configuration dependencies	-	
User hints	-	
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0	

1.3.3.7 Iom_GetFpcEdgeStatus

Table 68 Specification for Iom_GetFpcEdgeStatus API

Syntax	Iom_FpcStatusType Iom_GetFpcEdgeStatus (const uint8 FpcNo, const uint8 Edge)	
Service ID	0x65	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Safety Level	Refer to the release notes for the safety related info	
Parameters (in)	FpcNo	FPC unit number
	Edge	Indicates rising edge or falling edge or both edges to be cleared
Parameters (out)	-	
Parameters (in-out)	-	
Return	Iom_FpcStatusType	Indicates the value of the FPC edge status
Description	This API provides service to read and return the FPC edge status register value.	

(table continues...)

Table 68 (continued) Specification for Iom_GetFpcEdgeStatus API

Source	IFX
Error handling	IOM_E_UNINIT, IOM_E_PARAM_FPC, IOM_E_PARAM_EDGE
Configuration dependencies	-
User hints	-
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0

1.3.3.8 Iom_SetFpcCompare

Table 69 Specification for Iom_SetFpcCompare API

Syntax	void Iom_SetFpcCompare (const uint8 FpcNo, const uint16 CompVal)	
Service ID	0x66	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Safety Level	Refer to the release notes for the safety related info	
Parameters (in)	FpcNo	FPC unit number
	Edge	Compare value of the FPC unit
Parameters (out)	-	
Parameters (in-out)	-	
Return	void	-
Description	This API provides service to set FPC compare value.	
Source	IFX	
Error handling	IOM_E_UNINIT, IOM_E_PARAM_FPC	
Configuration dependencies	-	
User hints	-	
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0	

1.3.3.9 Iom_GetFpcCompare

Table 70 Specification for Iom_GetFpcCompare API

Syntax	Iom_Fpc_CompareType Iom_GetFpcCompare (const uint8 FpcNo)
Service ID	0x67
Sync/Async	Synchronous
Reentrancy	Reentrant
Safety Level	Refer to the release notes for the safety related info

(table continues...)

Table 70 (continued) Specification for Iom_GetFpcCompare API

Parameters (in)	FpcNo	Fpc unit number
Parameters (out)	-	
Parameters (in-out)	-	
Return	Iom_Fpc_CompareType	Indicates the compare value of the Fpc
Description	This API provides service to set FPC compare value.	
Source	IFX	
Error handling	IOM_E_UNINIT, IOM_E_PARAM_FPC	
Configuration dependencies	-	
User hints	-	
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0	

1.3.3.10 Iom_SetLamConfig

Table 71 Specification for Iom_SetLamConfig API

Syntax	void Iom_SetLamConfig (const uint8 LamNo, const uint32 ConfigVal)	
Service ID	0x68	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Safety Level	Refer to the release notes for the safety related info	
Parameters (in)	LamNo	LAM unit number
	ConfigVal	LAM configuration value
Parameters (out)	-	
Parameters (in-out)	-	
Return	void	
Description	This API provides service to set LAM configuration.	
Source	IFX	
Error handling	IOM_E_UNINIT, IOM_E_PARAM_LAM	
Configuration dependencies	-	
User hints	-	
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0	

1.3.3.11 Iom_GetLamConfig

Table 72 Specification for Iom_GetLamConfig API

Syntax	Iom_Lam_ConfigType Iom_GetLamConfig (const uint8 LamNo)	
Service ID	0x69	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Safety Level	Refer to the release notes for the safety related info	
Parameters (in)	LamNo	Lam unit number
Parameters (out)	-	
Parameters (in-out)	-	
Return	Iom_Lam_ConfigType	Definition for Iom_Lam_ConfigType
Description	This API provides service to get LAM configuration.	
Source	IFX	
Error handling	IOM_E_UNINIT, IOM_E_PARAM_LAM	
Configuration dependencies	-	
User hints	-	
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0	

1.3.3.12 Iom_SetLamThreshold

Table 73 Specification for Iom_SetLamThreshold API

Syntax	void Iom_SetLamThreshold(const uint8 LamNo, const uint32 ThresVal)	
Service ID	0x6A	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Safety Level	Refer to the release notes for the safety related info	
Parameters (in)	LamNo	LAM unit number
	ThresVal	The threshold value of the LAM unit
Parameters (out)	-	
Parameters (in-out)	-	
Return	void	-
Description	This API provides service to set the threshold value of the LAM unit.	
Source	IFX	
Error handling	IOM_E_UNINIT, IOM_E_PARAM_LAM, IOM_E_PARAM_THRES	

(table continues...)

Table 73 (continued) Specification for Iom_SetLamThreshold API	
Configuration dependencies	-
User hints	-
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0

1.3.3.13 Iom_GetLamThreshold

Table 74 Specification for Iom_GetLamThreshold API		
Syntax	Iom_Lam_ThresType Iom_GetLamThreshold(const uint8 LamNo)	
Service ID	0x6B	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Safety Level	Refer to the release notes for the safety related info	
Parameters (in)	LamNo	LAM unit number
Parameters (out)	-	
Parameters (in-out)	-	
Return	Iom_Lam_ThresType	Indicates the threshold value of the Lam
Description	This service is provided to read and return the selected LAM unit threshold value.	
Source	IFX	
Error handling	IOM_E_UNINIT, IOM_E_PARAM_LAM	
Configuration dependencies	-	
User hints	-	
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0	

1.3.3.14 Iom_GetLamEntWinCount

Table 75 Specification for Iom_GetLamEntWinCount API		
Syntax	Iom_Lam_CountType Iom_GetLamEntWinCount(const uint8 LamNo)	
Service ID	0x6C	
Sync/Async	Synchronous	
Reentrancy	Non Reentrant	
Safety Level	Refer to the release notes for the safety related info	
Parameters (in)	LamNo	LAM unit number
Parameters (out)	-	
Parameters (in-out)	-	

(table continues...)

Table 75 (continued) Specification for Iom_GetLamEntWinCount API

Return	Iom_Lam_CountType	Indicates the Count value of the Lam event
Description	This service is provided to read and return LAM unit event window count register value.	
Source	IFX	
Error handling	IOM_E_UNINIT, IOM_E_PARAM_LAM	
Configuration dependencies	-	
User hints	-	
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0	

1.3.3.15 Iom_SetEcmGlobalEveSel

Table 76 Specification for Iom_SetEcmGlobalEveSel API

Syntax	void Iom_SetEcmGlobalEveSel(const uint32 EventSel)	
Service ID	0x6D	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Safety Level	Refer to the release notes for the safety related info	
Parameters (in)	EventSel	Value to change ECM global event selection register.
Parameters (out)	-	
Parameters (in-out)	-	
Return	void	-
Description	This service is provided to set/change ECM global event selection register.	
Source	IFX	
Error handling	IOM_E_UNINIT, IOM_E_PARAM_EVESEL	
Configuration dependencies	-	
User hints	-	
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0	

1.3.3.16 Iom_GetEcmGlobalEveSel

Table 77 Specification for Iom_GetEcmGlobalEveSel API

Syntax	Iom_Ecm_EveSelType Iom_GetEcmGlobalEveSel(void)
Service ID	0x6E

(table continues...)

Table 77 (continued) Specification for Iom_GetEcmGlobalEveSel API

Sync/Async	Synchronous	
Reentrancy	Reentrant	
Safety Level	Refer to the release notes for the safety related info	
Parameters (in)	void	-
Parameters (out)	-	
Parameters (in-out)	-	
Return	Iom_Ecm_EveSelType	Indicates the value of the global event selection register.
Description		
Source	IFX	
Error handling	IOM_E_UNINIT	
Configuration dependencies	-	
User hints	-	
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0	

1.3.3.17 Iom_SetEcmThresVal

Table 78 Specification for Iom_SetEcmThresVal API

Syntax	void Iom_SetEcmThresVal(const uint8 CounterNo, const uint8 CountVal, const uint8 SelInput)	
Service ID	0x6F	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Safety Level	Refer to the release notes for the safety related info	
Parameters (in)	CounterNo	Counter number
	CounterVal	The threshold value of the selected counter
	SelInput	LAM channel output is routed to counter
Parameters (out)	-	
Parameters (in-out)	-	
Return	void	
Description		
Source	IFX	
Error handling	IOM_E_UNINIT, IOM_E_PARAM_CNT, IOM_E_PARAM_THRES	

(table continues...)

Table 78 (continued) Specification for Iom_SetEcmThresVal API

Configuration dependencies	-
User hints	-
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0

1.3.3.18 Iom_GetEcmThresVal

Table 79 Specification for Iom_GetEcmThresVal API

Syntax	Iom_Ecm_ThresType Iom_GetEcmThresVal(const uint8 CounterNo)	
Service ID	0x70	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Safety Level	Refer to the release notes for the safety related info	
Parameters (in)	CounterNo	Counter number in Ecm
Parameters (out)	-	
Parameters (in-out)	-	
Return	Iom_Ecm_ThresType	Indicates the threshold value of the counter in ECMs
Description	This service is provided to read and return threshold value of the selected ECM counter.	
Source	IFX	
Error handling	IOM_E_UNINIT, IOM_E_PARAM_CNT	
Configuration dependencies	-	
User hints	-	
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0	

1.3.3.19 Iom_GetEcmEveTrigHis

Table 80 Specification for Iom_GetEcmEveTrigHis API

Syntax	Iom_Ecm_EveHisType Iom_GetEcmEveTrigHis(const Iom_EventHistory EveHistory)	
Service ID	0x71	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Safety Level	Refer to the release notes for the safety related info	
Parameters (in)	EveHistory	Event trigger history recorded in ETA, ETB,ETC and ETD

(table continues...)

Table 80 (continued) Specification for Iom_GetEcmEveTrigHis API

Parameters (out)	-	
Parameters (in-out)	-	
Return	Iom_Ecm_EveHisType	Ecm event trigger history
Description	This service is provided to read and return the ECM event trigger history.	
Source	IFX	
Error handling	IOM_E_UNINIT, IOM_E_PARAM_EVEHSTRY	
Configuration dependencies	-	
User hints	-	
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0	

1.3.3.20 Iom_ClrEcmStatusHistory

Table 81 Specification for Iom_ClrEcmStatusHistory API

Syntax	void Iom_ClrEcmStatusHistory(void)	
Service ID	0x72	
Sync/Async	Synchronous	
Reentrancy	Reentrant	
Safety Level	Refer to the release notes for the safety related info	
Parameters (in)	void	-
Parameters (out)	-	
Parameters (in-out)	-	
Return	void	-
Description	This service will reset the ECM event trigger status history.	
Source	IFX	
Error handling	IOM_E_UNINIT	
Configuration dependencies	-	
User hints	-	
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0	

1.3.3.21 Iom_GetVersionInfo

Table 82 Specification for Iom_GetVersionInfo API

Syntax	void Iom_GetVersionInfo (Std_VersionInfoType * const versioninfo)
Service ID	0x73

(table continues...)

Table 82 (continued) Specification for Iom_GetVersionInfo API

Sync/Async	Synchronous	
Reentrancy	Non Reentrant	
Safety Level	Refer to the release notes for the safety related info	
Parameters (in)	versioninfo	Pointer to where to store the version information of the IOM driver
Parameters (out)	-	
Parameters (in-out)	-	
Return	void	-
Description	API returns the version information of the IOM module. *Note: This API is available only when IomVersionInfoApi is configured as true.*	
Source	IFX	
Error handling	IOM_E_PARAM_INVALID	
Configuration dependencies	IomVersionInfoApi	
User hints	-	
Autosar Version	Applicable for Autosar versions 4.2.2 and 4.4.0	

1.3.4 Notifications and callbacks

The IOM driver does not provide any notifications and callbacks.

1.3.5 Scheduled functions

The IOM driver does not provide any scheduled functions.

1.3.6 Interrupt service routines

The IOM driver does not provide any interrupt handlers.

1.3.7 Callout

The IOM driver does not provide any callout.

1.3.8 Error Handling

This section describes the various errors reported by the IOM driver.

Error Name: Description	Source	Error ID	Type
IOM_E_UNINIT: An API called before invocation of Iom_Init.	IFX	0x11	DET

Error Name: Description	Source	Error ID	Type
IOM_E_INIT: API Iom_Init service called while the IOM a driver has already been initialized.	IFX	0x10	DET
IOM_E_PARAM_CONFIG: The error is reported if API is invoked with a null pointer.	IFX	0x12	DET
IOM_E_PARAM_INVALID: The error is reported if API is invoked with null-pointer as a parameter.	IFX	0x13	DET
IOM_E_PARAM_FPC: The error is reported if API is invoked with wrong FPC number.	IFX	0x14	DET
IOM_E_PARAM_LAM: The error is reported if API is invoked with wrong LAM number.	IFX	0x15	DET
IOM_E_PARAM_EDGE: The error is reported if API is invoked with wrong edge number.	IFX	0x16	DET
IOM_E_PARAM_THRES: The error is reported if API is invoked with an invalid threshold value.	IFX	0x17	DET
IOM_E_PARAM_EVESEL: The error is reported if API is invoked with invalid global event selection value.	IFX	0x18	DET
IOM_E_PARAM_CNT: The error is reported if API is invoked with the invalid counter value.	IFX	0x19	DET
IOM_E_PARAM_CHNLSEL : The error is reported if API is invoked with invalid channel select value.	IFX	0x20	DET
IOM_E_PARAM_EVEHSTRY: The error is reported if API is invoked with invalid event history value.	IFX	0x21	DET

Error Name: Description	Source	Error ID	Type
IOM_E_CLC_ENABLE_ERR : This error is reported when enabling of CLC (module clock) fails.	IFX	Assigned by DEM	DEM

1.3.9 Deviations and limitations

This section describes deviations and limitations of the IOM driver.

1.3.9.1 Deviations

This section describes the deviations of the IOM driver.

1.3.9.1.1 Software specification deviations

The IOM driver does not have any deviations.

1.3.9.1.2 AMDC Violations

The IOM driver does not have any AMDC violations.

1.3.9.1.3 VSMD Violations

The IOM driver does not have any VSMD violations.

1.3.9.2 Limitations

The IOM driver does not have any limitations.

Revision history

Major changes since the last revision

Date	Version	Description
2023-07-11	6.0	Document is released.
2023-07-11	5.1	Added Mcal_Wrapper.h in Table 2 C File Structure.
2023-07-10	5.0	Document is released.
2023-07-10	4.1	Updated Figure 1 Mapping of hardware-software interfaces and Figure 2 Iom_C_File_Structure-1.png.
2023-06-28	4.0	Document is released.
2023-06-20	3.2	• In 1.1.4 Integration hints section, the following points are modified - DEM module section has been removed - Mcal_wrapper module section has been added.
2023-05-25	3.1	Safety Level Tagged value added for all API's and ASIL Level tagged value removed since module specific safety level captured in release notes.

Revision history

Date	Version	Description
2021-03-23	3.0	Document is released
2021-03-23	2.1	• Updated the filename from Iom_PBCfg.h to Iom_PBcfg.h in Table 2 C file structure • Updated the filename from Iom_PBCfg.c to Iom_PBcfg.c in Table 2 C file structure
2020-11-18	2.0	Document is released
2020-11-06	1.1	• Error handling format of all the APIs updated in Functions – APIs section • Reference to Dem_SetEventStatus API for AUTOSAR 4.4.0 added in section DEM under Integration with AUTOSAR stack • Autosar Version applicability information added in Configuration interfaces, Functions - Type definitions and Functions – APIs sections • User hints added for all the APIs in Functions – APIs section • Error Handling section format modified by consolidating all the errors to a single table • Deviations and limitations section format updated
2020-08-13	1.0	Document is released
2020-08-10	0.1	• Initial version • IOM driver chapter moved from TC3xx_SW_MCAL_UM_DEMO to this document

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Edition 2023-07-11

Published by

Infineon Technologies AG

81726 Munich, Germany

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Document reference
IFX-cep1596793936944

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