|  |  |
| --- | --- |
| SCM  System Context Management | |
| **Summary** | This is the Software Detailed Design Document |

|  |  |  |
| --- | --- | --- |
| **Author** | **Review** | **Approval** |
| Title: Madalina Serban | See Project Master Document for the roles and Project Members List for the name of people | See Project Master Document for the roles and Project Members List for the name of people |
|  |  |  |
| **Distribution** | | |
| See Project Master Document for the roles and Project Members List for the name of people | See Project Master Document for the roles and Project Members List for the name of people | See Project Master Document for the roles and Project Members List for the name of people |

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# General Information

## Revision history \*

|  |  |  |  |
| --- | --- | --- | --- |
| **Revision** | **Date** | **Author(s)** | **Description/comment** |
| 1.1.3.2 | 08.30.2023 | Madalina Serban | Initial revision |
| 1.1.3.3 | 08.30.2023 | Madalina Serban | Updated revision |
|  |  |  |  |

*\* Template history is found in the CM tool used for templates*

## Purpose and Scope

The review of this document is done thanks to …

The purpose of this document is…

## Referenced documents

### External documents

|  |  |  |
| --- | --- | --- |
| **Id** | **Title** | **Reference** |
|  |  |  |
|  |  |  |
|  |  |  |

### Internal Documents

|  |  |  |
| --- | --- | --- |
| **Id** | **Title** | **Reference** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

## Terminology and definitions

The generic acronyms are available in the [AEM process and method wiki](https://alvteams.alv.autoliv.int/sites/aeuaeequalityassurance/AEM%20Process%20wiki/acronyms.aspx)

|  |  |
| --- | --- |
| **Terminology** | **Meaning** |
| AAU | Atomic architectural unit |
| SW | software |
|  |  |

# SW Module Detailed Design

## Overview

## Traceability

# Features

## Services

### scm\_ManageSystemContextStorage

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Function called in the context of a battery loss detection or standard shutdown situation. | | | |
| **Prototype** | | | |
| LOCAL void scm\_ManageSystemContextStorage (const uint8 b8IsBatteryLoss) | | | |
| **Parameters** | | | |
| b8IsBatteryLoss - KU8\_TRUE : function called in the context of a battery loss detection KU8\_FALSE : function called in the context of a standard shutdown situation. | | | |
| **Exceptions** | | | |
| None. | | | |
| **Precondition** | | | |
| None. | | | |
| **Postcondition** | | | |
| None. | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| NA | None. | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |



Figure :scm\_ManageSystemContextStorage

### SCM\_runMonitoreExecutedCycle

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Periodic function that shall be called with the same period that the Belt Function slack. | | | |
| **Prototype** | | | |
| EXPORTED void SCM\_runMonitoreExecutedCycle (void) | | | |
| **Parameters** | | | |
| None | | | |
| **Exceptions** | | | |
| None | | | |
| **Precondition** | | | |
| None | | | |
| **Postcondition** | | | |
| None | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| NA | None | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |



Figure : SCM\_runMonitoreExecutedCycle

### SCM\_runGetLastKL30LostStatus

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Callback function provided to the rest of the application to get the KL30 loss status. | | | |
| **Prototype** | | | |
| EXPORTED void SCM\_runGetLastKL30LostStatus (b8BooleanType \* pb8WasKl30Lost) | | | |
| **Parameters** | | | |
| pb8WasKl30Lost - KU8\_TRUE : means that the KL30 has been lost KU8\_FALSE : means that no battery cut has been detected by the application | | | |
| **Exceptions** | | | |
| None | | | |
| **Precondition** | | | |
| None | | | |
| **Postcondition** | | | |
| None | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| NA | None | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |



Figure : SCM\_runGetLastKL30LostStatus

### SCM\_runGetLastTensioningState

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Callback function provided to the rest of the application to get the last tensioning state. | | | |
| **Prototype** | | | |
| EXPORTED void SCM\_runGetLastTensioningState (u8CycleNumberType \* pu8LastExecutedCycle) | | | |
| **Parameters** | | | |
| pu8LastExecutedCycle - Refer to the type scaling (RTE) for more details | | | |
| **Exceptions** | | | |
| None | | | |
| **Precondition** | | | |
| None | | | |
| **Postcondition** | | | |
| None | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| NA | None | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |



Figure : SCM\_runGetLastTensioningState

### SCM\_runManageSystemContext

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Periodic main function that shall be called in the same task that the NV stack It collects all notifications from battery loss/recovery mechanism and supervises the executed belt function. | | | |
| **Prototype** | | | |
| EXPORTED void SCM\_runManageSystemContext (void) | | | |
| **Parameters** | | | |
| None | | | |
| **Exceptions** | | | |
| None | | | |
| **Precondition** | | | |
| None | | | |
| **Postcondition** | | | |
| None | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| NA | None | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |



Figure : SCM\_runManageSystemContext

### SCM\_runRestoreSystemContext

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Function called during Init sequence to load the last Valid system context stored in E2P This function shall not be called during the tasks scheduling !! | | | |
| **Prototype** | | | |
| EXPORTED void SCM\_runRestoreSystemContext (void) | | | |
| **Parameters** | | | |
| None | | | |
| **Exceptions** | | | |
| None | | | |
| **Precondition** | | | |
| None | | | |
| **Postcondition** | | | |
| None | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| NA | None | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |



Figure : SCM\_runRestoreSystemContext

### SCM\_runWriteSystemContextShutdown

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Function called during shutdown phase by ESM. | | | |
| **Prototype** | | | |
| EXPORTED void SCM\_runWriteSystemContextShutdown (void) | | | |
| **Parameters** | | | |
| None | | | |
| **Exceptions** | | | |
| None | | | |
| **Precondition** | | | |
| None | | | |
| **Postcondition** | | | |
| None | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| NA | None | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |



Figure : SCM\_runWriteSystemContextShutdown

### SCM\_CompareSystemContext

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Function called to compare the the current systeme context index with the context index declared into a WMBA frame. | | | |
| **Prototype** | | | |
| EXPORTED boolean SCM\_CompareSystemContext (uint8 IndexWriteBlock) | | | |
| **Parameters** | | | |
| IndexWriteBlock - Index of system contexty block given into the frame | | | |
| **Exceptions** | | | |
| None. | | | |
| **Precondition** | | | |
| None. | | | |
| **Postcondition** | | | |
| None. | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| boolean | bCompareResult - True if it is the same index False if it is not the case | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |

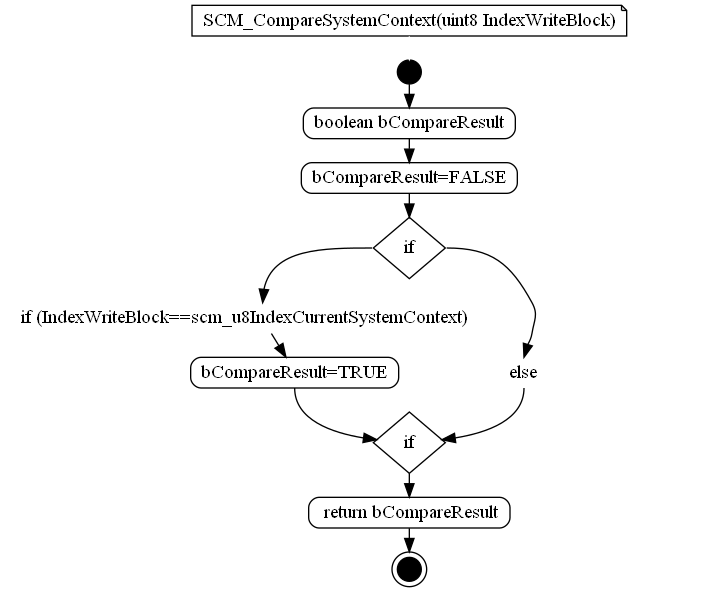


Figure :SCM\_CompareSystemContext

### SCM\_ComputeSystemContextChecksum

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| This function is called to compute system context checksum. | | | |
| **Prototype** | | | |
| EXPORTED uint8 SCM\_ComputeSystemContextChecksum (const SCM\_stSystemContextType \*const pstSystemContext) | | | |
| **Parameters** | | | |
| pstSystemContext - Pointer to the structure containing the data for which we need to compute a checksum. | | | |
| **Exceptions** | | | |
| None. | | | |
| **Precondition** | | | |
| None. | | | |
| **Postcondition** | | | |
| None. | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| uint8 | u8ChkSum - hecksum value for the system context structure passed as argument. | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |

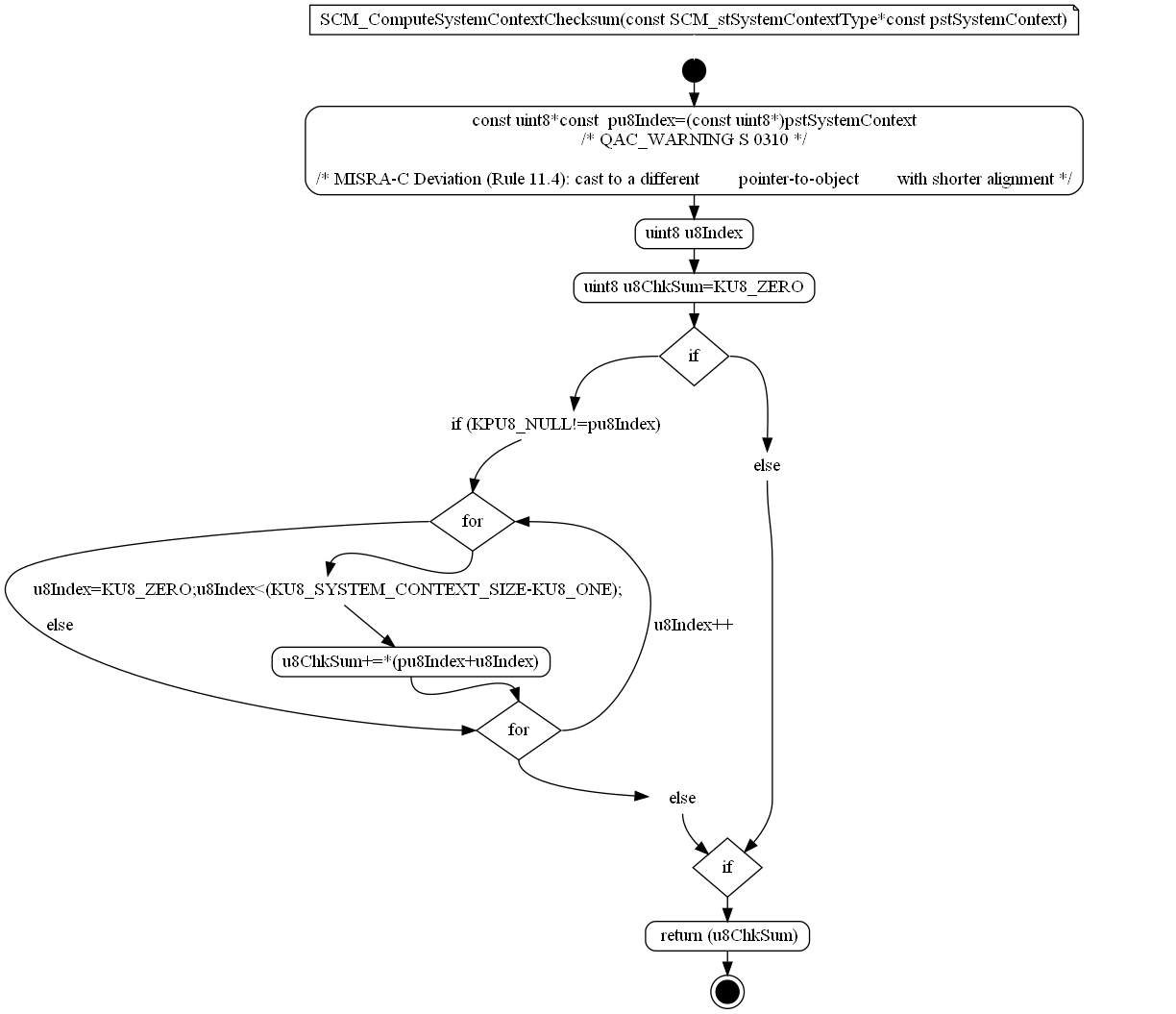


Figure : SCM\_ComputeSystemContextChecksum

### SCM\_GetReleaseInterruptionFlags

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Specific function to retrieve all interruption flags from BFD release algo This function is hand coded without function pointers because the RTE macros generated by SystemDesk are \*\*\*\*\*\*\*\*\*\*\* and can't be handled in a generic way. | | | |
| **Prototype** | | | |
| EXPORTED void SCM\_GetReleaseInterruptionFlags (void) | | | |
| **Parameters** | | | |
| None. | | | |
| **Exceptions** | | | |
| None. | | | |
| **Precondition** | | | |
| None. | | | |
| **Postcondition** | | | |
| None. | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| NA | None. | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |

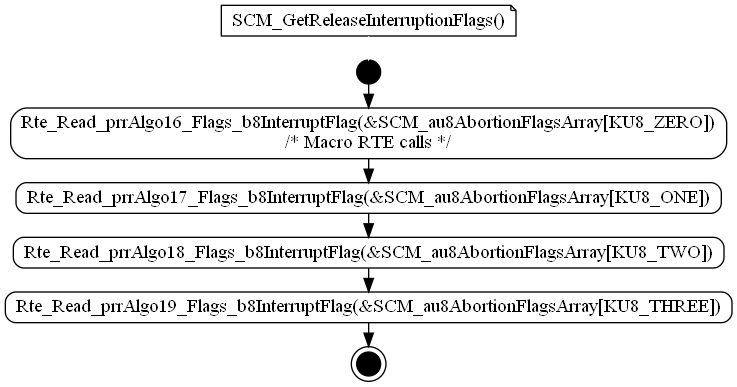


Figure : SCM\_GetReleaseInterruptionFlags

### SCM\_PrepareSystemContextStorage

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Specific function to prepare the E2P blocks before a write operation. | | | |
| **Prototype** | | | |
| EXPORTED void SCM\_PrepareSystemContextStorage (void) | | | |
| **Parameters** | | | |
| None. | | | |
| **Exceptions** | | | |
| None. | | | |
| **Precondition** | | | |
| None. | | | |
| **Postcondition** | | | |
| None. | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| NA | None. | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |

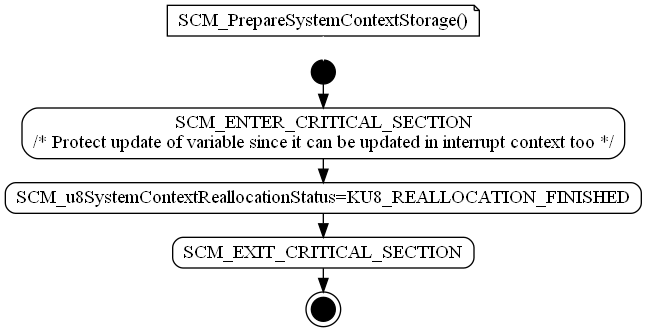


Figure : SCM\_PrepareSystemContextStorage

### SCM\_RecoverSystemContext

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Specific function to recover System Context and select the more recent one. Callback function provided to the rest of the application to get the KL30 loss status. | | | |
| **Prototype** | | | |
| EXPORTED void SCM\_RecoverSystemContext (void) | | | |
| **Parameters** | | | |
| None. | | | |
| **Exceptions** | | | |
| None. | | | |
| **Precondition** | | | |
| None. | | | |
| **Postcondition** | | | |
| None. | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| NA | None. | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |



Figure : SCM\_RecoverSystemContext

### scm\_RecoverSystemContextContent

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| The goal of this private function is to perform a read operation on a System context block in E2P during Init sequence This function shall not be called if the NV stack is already running !!!! | | | |
| **Prototype** | | | |
| LOCAL void scm\_RecoverSystemContextContent (const uint8 cu8ScIndex, SCM\_stSystemContextType \*const pstSystContext) | | | |
| **Parameters** | | | |
| cu8ScIndex - Block Identifier value that will be read during function execution pstSystContext - Pointer used as an output parameter to store the system context data | | | |
| **Exceptions** | | | |
| None. | | | |
| **Precondition** | | | |
| None. | | | |
| **Postcondition** | | | |
| None. | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| NA | None. | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |



Figure : scm\_RecoverSystemContextContent

### SCM\_runKL30bgSupervision

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| Function call under ADC interrupt context to check the battery loss hysteresis. | | | |
| **Prototype** | | | |
| EXPORTED void SCM\_runKL30bgSupervision (u16SampledSignalType u16KL30bgLevel) | | | |
| **Parameters** | | | |
| u16KL30bgAdcLevel - Logic Supply level directly read from ADC peripheral without rescaling. | | | |
| **Exceptions** | | | |
| None. | | | |
| **Precondition** | | | |
| None. | | | |
| **Postcondition** | | | |
| None. | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| NA | None. | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |



Figure : SCM\_runKL30bgSupervision

### SCM\_StoreSystemContext

|  |  |  |  |
| --- | --- | --- | --- |
| Object | | | |
| This function is called to manage the system context write operation. | | | |
| **Prototype** | | | |
| EXPORTED void SCM\_StoreSystemContext (void) | | | |
| **Parameters** | | | |
| None. | | | |
| **Exceptions** | | | |
| None. | | | |
| **Precondition** | | | |
| None. | | | |
| **Postcondition** | | | |
| None. | | | |
| **Input parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Output parameters** | | | |
| Name | Type | Description | Range |
| NA | NA | NA | NA |
| **Return value** | | | |
| Type | Description | | |
| NA | None. | | |
| **Dynamic aspect** | | | |
| Who(callers) | Description | | |
| \* | \* | | |
| **Static aspect** | | | |
| \* | | | |
| **Constrains** | | | |
|  | | | |



Figure :SCM\_StoreSystemContext

## Variabiles

### SCM\_u8LastInterruptedCycleNumber

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| uint8 | NA | |
| **Description** | | |
| Buffer for system context in order to know what belt function Id shall be stored in NVM during shutdown. | | |
| **Definition** | | |
| uint8 SCM\_u8LastInterruptedCycleNumber | | |
| **Remarks** | | |
| None. | | |

### SCM\_u8LastInterruptedCycleNumber\_Mirror

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| uint8 | NA | |
| **Description** | | |
| Mirror data to validate data integrityMirror data to validate data integrity | | |
| **Definition** | | |
| uint8 SCM\_u8LastInterruptedCycleNumber\_Mirror | | |
| **Remarks** | | |
| None. | | |

### scm\_b8NeedSystemContextToBeKeptForCycle

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| uint8 | KU8\_FALSE | |
| **Description** | | |
| Indicates if system context needs to be saved. | | |
| **Definition** | | |
| LOCAL uint8 scm\_b8NeedSystemContextToBeKeptForCycle = KU8\_FALSE | | |
| **Remarks** | | |
| None. | | |

### SCM\_b8ReleaseHasToBeTriggered

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| uint8 | KU8\_FALSE | |
| **Description** | | |
| Data to know if a Release has to be triggered. | | |
| **Definition** | | |
| EXPORTED uint8 SCM\_b8ReleaseHasToBeTriggered = KU8\_FALSE | | |
| **Remarks** | | |
| None. | | |

### scm\_bIsSystemContextReallocationRequested

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| boolean | KU8\_FALSE | |
| **Description** | | |
| Boolean set to TRUE when the battery level is OK after a battery loss situation. | | |
| **Definition** | | |
| LOCAL boolean scm\_bIsSystemContextReallocationRequested = KU8\_FALSE | | |
| **Remarks** | | |
| None. | | |

### scm\_bIsSystemContextShutdownStored

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| boolean | KU8\_FALSE | |
| **Description** | | |
| Boolean write in shutdown in order to perform only one time the saving of System context. | | |
| **Definition** | | |
| LOCAL boolean scm\_bIsSystemContextShutdownStored = KU8\_FALSE | | |
| **Remarks** | | |
| None. | | |

### SCM\_bIsSystemContextStorageRequested

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| boolean | KU8\_FALSE | |
| **Description** | | |
| Boolean set to TRUE when a battery loss is detected. | | |
| **Definition** | | |
| EXPORTED boolean SCM\_bIsSystemContextStorageRequested = KU8\_FALSE | | |
| **Remarks** | | |
| None. | | |

### SCM\_ENTER\_CRITICAL\_SECTION

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
|  | NA | |
| **Description** | | |
| This variable is used to ... | | |
| **Definition** | | |
| SCM\_ENTER\_CRITICAL\_SECTION | | |

### SCM\_u32OldSystemTime

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| uint32 | KU32\_ZERO | |
| **Description** | | |
| Data to store the last System Time used for the last System Context telegram. | | |
| **Definition** | | |
| EXPORTED uint32 SCM\_u32OldSystemTime = KU32\_ZERO | | |
| **Remarks** | | |
| None. | | |

### scm\_u8ExecutedCycleMemory

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| u8CycleNumberType | KU8\_NO\_CYCLE | |
| **Description** | | |
| Previous Executed cycle.Only used by SCM\_runMonitoreExecutedCycle. | | |
| **Definition** | | |
| LOCAL u8CycleNumberType scm\_u8ExecutedCycleMemory = KU8\_NO\_CYCLE | | |
| **Remarks** | | |
| None. | | |

### SCM\_au8AbortionFlagsArray

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| uint8 | NA | |
| **Description** | | |
| Abortion flags for Release cycles. | | |
| **Definition** | | |
| uint8 SCM\_au8AbortionFlagsArray[SCM\_KU8\_NUMBER\_OF\_RELEASE] | | |
| **Remarks** | | |
| None. | | |

### scm\_kau8ProductionCycleIdList

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| const u8CycleNumberType | NA | |
| **Description** | | |
| Production cycles. | | |
| **Definition** | | |
| const u8CycleNumberType scm\_kau8ProductionCycleIdList[SCM\_KU8\_NUMBER\_OF\_PRODUCTION\_CYCLE] | | |
| **= {** | | |
| 19u , 20u | | |
| **Remarks** | | |
| None. | | |

### scm\_kau8ReleaseIdList

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| const u8CycleNumberType | NA | |
| **Description** | | |
| Release belt function position in the cycle library. | | |
| **Definition** | | |
| const u8CycleNumberType scm\_kau8ReleaseIdList[SCM\_KU8\_NUMBER\_OF\_RELEASE] | | |
| **= {** | | |
| 15u , 16u , 17u , 18u | | |
| **Remarks** | | |
| None. | | |

### scm\_kstDefautSystemContextValue

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| const SCM\_stSystemContextType | NA | |
| **Description** | | |
| Default value for system Context in case of recovery error. | | |
| **Definition** | | |
| const SCM\_stSystemContextType scm\_kstDefautSystemContextValue | | |
| **= {** | | |
| 0u , 0u , B\_FALSE , KU8\_NO\_CYCLE , B\_FALSE , KU8\_MAX | | |
| **Remarks** | | |
| None. | | |

### SCM\_stSystemContextType

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| SCM\_stSystemContextType | NA | |
| **Description** | | |
| Variable used to store the current system context | | |
| **Definition** | | |
| EXPORTED SCM\_stSystemContextType SCM\_stCurrentSystemContextContent | | |

### scm\_u16BatteryHysteresisThrs

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| uint16 | KU16\_ZERO | |
| **Description** | | |
| Local variable which holds the treshold for battery loss. | | |
| **Definition** | | |
| LOCAL uint16 scm\_u16BatteryHysteresisThrs = KU16\_ZERO | | |
| **Remarks** | | |
| None. | | |

### scm\_u8IndexCurrentSystemContext

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| uint8 | NA | |
| **Description** | | |
| Local variable which indicates which NvM block of system context is currently used. | | |
| **Definition** | | |
| LOCAL uint8 scm\_u8IndexCurrentSystemContext | | |
| **Remarks** | | |
| None. | | |

### scm\_u8LastPreparedIndex

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| uint8 | KU8\_ZERO | |
| **Description** | | |
| Local variable which indicates which NvM block of system context was last used. | | |
| **Definition** | | |
| LOCAL uint8 scm\_u8LastPreparedIndex = KU8\_ZERO | | |
| **Remarks** | | |
| None. | | |

### SCM\_u8SystemContextReallocationStatus

|  |  |  |
| --- | --- | --- |
| Type | Value |  |
| uint8 | KU8\_REALLOCATION\_FINISHED | |
| **Description** | | |
| Variable used to store system context reallocation status | | |
| **Definition** | | |
| EXPORTED uint8 SCM\_u8SystemContextReallocationStatus = KU8\_REALLOCATION\_FINISHED | | |

## Macros

### KU32\_DELAY\_SYSTEM\_CONTEXT\_STORAGE

|  |  |
| --- | --- |
| Name | Value |
| KU32\_DELAY\_SYSTEM\_CONTEXT\_STORAGE | ((uint32)1) |
| **Definition** | |
| #define KU32\_DELAY\_SYSTEM\_CONTEXT\_STORAGE ((uint32)1) | |
| **Description** | |
| Value for system context storage delay | |

### KU32\_KL30\_MUL\_FACTOR

|  |  |
| --- | --- |
| Name | Value |
| KU32\_KL30\_MUL\_FACTOR | ((uint32)6 \* (uint32)5000) |
| **Definition** | |
| #define KU32\_KL30\_MUL\_FACTOR ((uint32)6 \* (uint32)5000) | |
| **Description** | |
| KL30 & KL30bg multiply factor to be applied on voltage threshold parameters to convert from mV into 10 bits ADC raw format. | |

### KU32\_KL30\_DIV\_FACTOR

|  |  |
| --- | --- |
| Name | Value |
| KU32\_KL30\_DIV\_FACTOR | ((uint32) 1024) |
| **Definition** | |
| #define KU32\_KL30\_DIV\_FACTOR ((uint32) 1024) | |
| **Description** | |
| KL30 & KL30bg divide factor to be applied on voltage threshold parameters to convert from mV into 10 bits ADC raw format. | |

### KU8\_SYSTEM\_CONTEXT\_BLOCK\_ID\_0

|  |  |
| --- | --- |
| Name | Value |
| KU8\_SYSTEM\_CONTEXT\_BLOCK\_ID\_0 | ((uint8) 0) |
| **Definition** | |
| #define KU8\_SYSTEM\_CONTEXT\_BLOCK\_ID\_0 ((uint8) 0) | |
| **Description** | |
| System context blocks ID 0 | |

### KU8\_SYSTEM\_CONTEXT\_BLOCK\_ID\_1

|  |  |
| --- | --- |
| Name | Value |
| KU8\_SYSTEM\_CONTEXT\_BLOCK\_ID\_1 | ((uint8) 1) |
| **Definition** | |
| #define KU8\_SYSTEM\_CONTEXT\_BLOCK\_ID\_1 ((uint8) 1) | |
| **Description** | |
| System context blocks ID 1 | |

### KU8\_SYSTEM\_CONTEXT\_BLOCK\_ID\_2

|  |  |
| --- | --- |
| Name | Value |
| KU8\_SYSTEM\_CONTEXT\_BLOCK\_ID\_2 | ((uint8) 2) |
| **Definition** | |
| #define KU8\_SYSTEM\_CONTEXT\_BLOCK\_ID\_2 ((uint8) 2) | |
| **Description** | |
| System context blocks ID 2 | |

### CAL\_SCM\_CYCLE\_PRIORITY

|  |  |
| --- | --- |
| Name | Value |
| CAL\_SCM\_CYCLE\_PRIORITY | (NVP\_au8BeltFctPriorities[x]) |
| **Definition** | |
| CAL\_SCM\_CYCLE\_PRIORITY(x) (NVP\_au8BeltFctPriorities[x]) | |
|  | |
| Priority level for cycles | |

## Types

### SCM\_stSystemContextType

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Field Type** | **Field description** |
| u32StoreSystemTime | uint32 | System Time |
| u32StoreDeficiencyLevel | uint32 | Deficiency level |
| b8StoreKL30Lost | uint8 | KL30 battery loss |
| u8StoreExecutedCycle | uint8 | Executed Cycle |
| u8CPLstatus | uint16 | CPL Status |
| u8StoreSystemContextChecksum | uint8 | System Context Chesksum |

## Constants

### KU8\_SYSTEM\_CONTEXT\_SIZE

|  |  |
| --- | --- |
| Name | Value |
| KU8\_SYSTEM\_CONTEXT\_SIZE | ((uint8) sizeof(SCM\_stSystemContextType)) |
| **Definition** | |
| #define KU8\_SYSTEM\_CONTEXT\_SIZE ((uint8) sizeof(SCM\_stSystemContextType)) | |
|  | |
| System context size | |

### KU8\_MAX\_SYSTEM\_CONTEXT\_SUBBLOCKS

|  |  |
| --- | --- |
| Name | Value |
| KU8\_MAX\_SYSTEM\_CONTEXT\_SUBBLOCKS | 3 |
| **Definition** | |
| #define KU8\_MAX\_SYSTEM\_CONTEXT\_SUBBLOCKS ((uint8) 3) | |
|  | |
| Number of System Context blocks configured in NVM | |

### KU8\_REALLOCATION\_NEEDED

|  |  |
| --- | --- |
| Name | Value |
| KU8\_REALLOCATION\_NEEDED | 0 |
| **Definition** | |
| #define KU8\_REALLOCATION\_NEEDED ((uint8) 0) | |
|  | |
| Value to indicate system context reallocation is needed | |

### KU8\_REALLOCATION\_STARTED

|  |  |
| --- | --- |
| Name | Value |
| KU8\_REALLOCATION\_STARTED | 1 |
| **Definition** | |
| #define KU8\_REALLOCATION\_STARTED ((uint8) 1) | |
|  | |
| Value to indicate system context reallocation is started | |

### KU8\_REALLOCATION\_FINISHED

|  |  |
| --- | --- |
| Name | Value |
| KU8\_REALLOCATION\_ FINISHED | 2 |
| **Definition** | |
| #define KU8\_REALLOCATION\_ FINISHED ((uint8) 2) | |
|  | |
| Value to indicate system context reallocation is finished | |

### SCM\_KU8\_NUMBER\_OF\_RELEASE

|  |  |
| --- | --- |
| Name | Value |
| SCM\_KU8\_NUMBER\_OF\_RELEASE | 4 |
| **Definition** | |
| #define SCM\_KU8\_NUMBER\_OF\_RELEASE ((uint8) 4) | |
|  | |
| Number of belt function for release | |

### SCM\_KU8\_NUMBER\_OF\_PRODUCTION\_CYCLE

|  |  |
| --- | --- |
| Name | Value |
| SCM\_KU8\_NUMBER\_OF\_PRODUCTION\_CYCLE | 2 |
| **Definition** | |
| #define SCM\_KU8\_NUMBER\_OF\_PRODUCTION\_CYCLE ((uint8) 2) | |
|  | |
| Number of production cycle | |

### KU32\_SW\_PROTECTION\_BIT\_MASK

|  |  |
| --- | --- |
| Name | Value |
| KU32\_SW\_PROTECTION\_BIT\_MASK | ((uint32) 0xAA000000) |
| **Definition** | |
| #define KU32\_SW\_PROTECTION\_BIT\_MASK ((uint32) 0xAA000000) | |
|  | |
| Mask used to access the MSB of the deficiency level | |

### KU8\_SW\_PROTECTION\_QUALIFIED\_MASK

|  |  |
| --- | --- |
| Name | Value |
| KU8\_SW\_PROTECTION\_QUALIFIED\_MASK | ((uint8) 0xAA) |
| **Definition** | |
| #define KU8\_SW\_PROTECTION\_QUALIFIED\_MASK ((uint8) 0xAA) | |
|  | |
| Mask used to store SW protection qualified status | |

# EEPROM

# Configuration

# Compilation Options