# Module -- Configuration

# High-Level Description

Design of State and Modes configuration data. Generic design for all projects

# Figures

## Component Diagram

None, files are generated by Configurator.

# Variable Data Dictionary

|  |  |
| --- | --- |
| Module Inputs | Module Outputs |
| CTerm\_Cnt\_lgc |  |
| ATerm\_Cnt\_lgc |  |
| FTerm\_Cnt\_lgc |  |
| RampStatusComplete\_Cnt\_lgc |  |
| ControlledDampStatusComplete\_Cnt\_lgc |  |
| TMFTestComplete\_Cnt\_lgc |  |

## Module Internal Variables

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variable Name | DataType | Resolution | Legal Range  (min) | Legal Range  (max) | Multiplicity | Software Segment |
| StTrnsVctr\_Cnt\_D\_b08 | Bitfield8 | uint8:  Bit0:F  Bit1:C  Bit2:M  Bit3:A | FULL | FULL | 1:1 | STAMD#\_START\_SEC\_VAR\_CLEARED\_8 |
| WarmInitMilestoneRqst\_Cnt\_M\_u32 | Uint32 | 1 | 0 | FULL | 1:1 | STAMD#\_START\_SEC\_VAR\_CLEARED\_32 |
| WarmInitMilestoneRqst#\_Cnt\_M\_u32 | Uint32 | 1 | 0 | FULL | 0:n | STAMD#\_START\_SEC\_VAR\_CLEARED\_32 |
| EcuResetActive\_Cnt\_M\_lgc | boolean | N/A | FALSE | TRUE | 1:1 | STAMD#\_START\_SEC\_VAR\_CLEARED\_BOOLEAN |
| FinalNvMWriteInProgress\_Cnt\_M\_lgc | boolean | N/A | FALSE | TRUE | 1:1 | STAMD#\_START\_SEC\_VAR\_CLEARED\_BOOLEAN |
| StopTODPerOperation\_Cnt\_M\_lgc | boolean | N/A | FALSE | TRUE | 1:1 | STAMD#\_START\_SEC\_VAR\_CLEARED\_BOOLEAN |
| TODState\_Cnt\_M\_lgc | boolean | N/A | FALSE | TRUE | 1:1 | STAMD#\_START\_SEC\_VAR\_CLEARED\_BOOLEAN |
| TransitionComplete\_Cnt\_M\_lgc | N/A | FALSE | TRUE | N/A | 1:1 | STAMD#\_START\_SEC\_VAR\_CLEARED\_BOOLEAN |
| SystemState\_Cnt\_M\_enum | Rte\_ModeType\_StaMd\_Mode | N/A | N/A | N/A | 1:1 | STAMD#\_START\_SEC\_VAR\_INIT\_UNSPECIFIED |
| SystemState#\_Cnt\_M\_enum | Rte\_ModeType\_StaMd\_Mode | N/A | N/A | N/A | 0:n | STAMD#\_START\_SEC\_VAR\_INIT\_UNSPECIFIED |
| SysCSystemState\_Cnt\_M\_enum | Rte\_ModeType\_StaMd\_Mode | N/A | N/A | N/A | 1:1 | STAMD#\_START\_SEC\_VAR\_INIT\_UNSPECIFIED |
| Lnk\_TypeH#\_Start | uint8 | 1 | 0 | FULL | 0:n | AP\_STAMD\_CONST |
| Lnk\_TypeH#\_Size | Const uint32 pointer | 1 | 0 | 8192 | 0:n | AP\_STAMD\_CONST |
| StaMdsSysCFltCntr\_Cnt\_M\_u16 | Uint16 | 1 | 0 | FULL | 1:1 | STAMD#\_START\_SEC\_VAR\_CLEARED\_16 |

Note “#” denotes the application number. It can be any value =1 to n. Check project configuration files under UTP/Contract folder

### User defined typedef definition/declaration

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Typedef Name | Element Name | User Defined Type | Legal Range  (min) | Legal Range  (max) |
| Rte\_ModeType\_StaMd\_Mode | RTE\_MODE\_StaMd\_Mode\_DISABLE  RTE\_MODE\_StaMd\_Mode\_OFF  RTE\_MODE\_StaMd\_Mode\_OPERATE  RTE\_MODE\_StaMd\_Mode\_WARMINIT  RTE\_TRANSITION\_StaMd\_Mode | N/A | N/A | N/A |

# Constant Data Dictionary

## Calibration Constants

|  |
| --- |
| Constant Name |
| k\_StaMdsSysCDiag\_Cnt\_str |

## Program(fixed) Constants

### Embedded Constants

#### Local

|  |  |  |  |
| --- | --- | --- | --- |
| Constant Name | Resolution | Units | Value |

#### Global

|  |
| --- |
| Constant Name |
| BC\_STAMD\_SYSCHKINCOREAPP |

### Module specific Lookup Tables Constants

|  |  |  |  |
| --- | --- | --- | --- |
| Constant Name | Resolution | Value | Software Segment |
| Rte\_ModeType\_StaMd\_Mode t\_StateLkpTbl\_Cnt\_u8 [D\_STATELKPSTATES\_CNT\_U16] [D\_STATELKPVCTRS\_CNT\_U16] | N/A | { {RTE\_MODE\_StaMd\_Mode\_OFF,  RTE\_MODE\_StaMd\_Mode\_OFF,  RTE\_MODE\_StaMd\_Mode\_OFF,  RTE\_MODE\_StaMd\_Mode\_OFF,  RTE\_MODE\_StaMd\_Mode\_OFF,  RTE\_MODE\_StaMd\_Mode\_OFF,  RTE\_MODE\_StaMd\_Mode\_OFF,  RTE\_MODE\_StaMd\_Mode\_OFF,  RTE\_MODE\_StaMd\_Mode\_DISABLE,  RTE\_MODE\_StaMd\_Mode\_DISABLE,  RTE\_MODE\_StaMd\_Mode\_WARMINIT,  RTE\_MODE\_StaMd\_Mode\_DISABLE,  RTE\_MODE\_StaMd\_Mode\_ DISABLE,  RTE\_MODE\_StaMd\_Mode\_ DISABLE,  RTE\_MODE\_StaMd\_Mode\_ WARMINIT,  RTE\_MODE\_StaMd\_Mode\_ DISABLE },  {RTE\_MODE\_StaMd\_Mode\_OFF,  RTE\_MODE\_StaMd\_Mode\_OFF,  RTE\_MODE\_StaMd\_Mode\_OFF,  RTE\_MODE\_StaMd\_Mode\_OFF,  RTE\_MODE\_StaMd\_Mode\_OFF,  RTE\_MODE\_StaMd\_Mode\_OFF,  RTE\_MODE\_StaMd\_Mode\_OFF,  RTE\_MODE\_StaMd\_Mode\_OFF,  RTE\_MODE\_StaMd\_Mode\_WARMINIT,  RTE\_MODE\_StaMd\_Mode\_WARMINIT,  RTE\_MODE\_StaMd\_Mode\_WARMINIT,  RTE\_MODE\_StaMd\_Mode\_WARMINIT,  RTE\_MODE\_StaMd\_Mode\_WARMINIT,  RTE\_MODE\_StaMd\_Mode\_WARMINIT,  RTE\_MODE\_StaMd\_Mode\_WARMINIT,  RTE\_MODE\_StaMd\_Mode\_WARMINIT},  {RTE\_MODE\_StaMd\_Mode\_OPERATE,  RTE\_MODE\_StaMd\_Mode\_OPERATE,  RTE\_MODE\_StaMd\_Mode\_OPERATE,  RTE\_MODE\_StaMd\_Mode\_OPERATE,  RTE\_MODE\_StaMd\_Mode\_DISABLE,  RTE\_MODE\_StaMd\_Mode\_DISABLE,  RTE\_MODE\_StaMd\_Mode\_DISABLE,  RTE\_MODE\_StaMd\_Mode\_DISABLE,  RTE\_MODE\_StaMd\_Mode\_OPERATE,  RTE\_MODE\_StaMd\_Mode\_OPERATE,  RTE\_MODE\_StaMd\_Mode\_OPERATE,  RTE\_MODE\_StaMd\_Mode\_OPERATE,  RTE\_MODE\_StaMd\_Mode\_DISABLE,  RTE\_MODE\_StaMd\_Mode\_DISABLE,  RTE\_MODE\_StaMd\_Mode\_DISABLE,  RTE\_MODE\_StaMd\_Mode\_DISABLE},  {RTE\_MODE\_StaMd\_Mode\_DISABLE,  RTE\_MODE\_StaMd\_Mode\_DISABLE,  RTE\_MODE\_StaMd\_Mode\_DISABLE,  RTE\_MODE\_StaMd\_Mode\_DISABLE,  RTE\_MODE\_StaMd\_Mode\_DISABLE,  RTE\_MODE\_StaMd\_Mode\_DISABLE,  RTE\_MODE\_StaMd\_Mode\_DISABLE,  RTE\_MODE\_StaMd\_Mode\_DISABLE,  RTE\_MODE\_StaMd\_Mode\_WARMINIT,  RTE\_MODE\_StaMd\_Mode\_DISABLE,  RTE\_MODE\_StaMd\_Mode\_WARMINIT,  RTE\_MODE\_StaMd\_Mode\_DISABLE,  RTE\_MODE\_StaMd\_Mode\_WARMINIT,  RTE\_MODE\_StaMd\_Mode\_DISABLE,  RTE\_MODE\_StaMd\_Mode\_OPERATE,  RTE\_MODE\_StaMd\_Mode\_DISABLE}  } | CONST\_UNSPECIFIED |
| T\_CurrentSystemState\_Ptr\_enum[ \*SIZE] | N/A | {&SystemState#\_Cnt\_M\_enum,  } | AP\_STAMD\_CONST |
| T\_TypeHInfo\_Cnt\_Str[ \*SIZE] | TypeHInfoType\_Str | { {&Lnk\_TypeH#\_Start, &Lnk\_TypeH#\_Size},  } | AP\_STAMD\_CONST |
| T\_WarmInitMilestoneRqst\_Ptr\_enum[\*SIZE] | N/A | { &WarmInitMilestoneRqst#\_Cnt\_M\_u32,  } | AP\_STAMD\_CONST |

**Note:** The entries in the state lookup table rely on the fact that generated values for the system state are maintained. If the generated values are changed then the entries have to re arranged.

Note: \* SIZE for above tables varies across projects.Check Project configuration files for size and elements of tables.**.**

# Functions/Macros used by the Sub-Modules

## Library Functions / Macros

The library functions / Macros that are called by the various sub modules are identified below,

## Data Hiding Functions

None

## Global Functions/Macros Defined by this Module

### Process WarmInit Milestone Complete

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Function Name** | MilestoneRqst#\_WarmInitMilestoneComplete | Type | Min | Max |
| **Arguments Passed** | user | StaMd\_Users | 0 | 31 |
| **Return Value** | None |  |  | |

#### Description



### Process WarmInit Milestone Not Complete

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Function Name** | MilestoneRqst#\_WarmInitMilestoneNotComplete | Type | Min | Max |
| **Arguments Passed** | user | StaMd\_Users | 0 | 31 |
| **Return Value** | None |  |  | |

#### Description



### States and Modes Transition Function

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Function Name** | StaMd#\_Trns\_DemShutdown | Type | Min | Max |
| **Multiplicity** | 0 : 1 |  |  |  |
| **Arguments Passed** | none |  |  |  |
| **Return Value** | None |  |  | |

#### Description

Rte\_Call\_DiagMgr\_StaCtrl\_Shutdown

### States and Modes Initialization

NONE

#### Description

### States and Modes Periodic

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Function Name** | StaMd#\_Per1 | Type | Min | Max |
| **Multiplicity** | 0 : n |  |  |  |
| **Arguments Passed** | none |  |  |  |
| **Return Value** | None |  |  | |

#### Description



## Local Functions/Macros Used by this MDD only

### Macro Function #1

SetBits\_m(var, mask) : var = var | mask

### Macro Function #2

ClrBits\_m(var, mask) : var = var & mask

### Local Function #1

NONE

# Software Module Implementation

## Initial Data Values

|  |  |
| --- | --- |
| Data | Value |
| CTerm\_Cnt\_lgc | D\_FALSE\_CNT\_LGC |
| ATerm\_Cnt\_lgc | D\_TRUE\_CNT\_LGC |
| FTerm\_Cnt\_lgc | D\_FALSE\_CNT\_LGC |

## Initialization Functions

### Init:

## Periodic Functions

## Fault Recovery Functions

None

## Shutdown Functions

None

## Interrupt Functions

None

## Serial Communication Functions

## Execution Requirements

## Execution Sequence of the Module

## \_Init1 needs to RUN prior to any function that requires the use of TypeH data.Execution Rates for sub-modules called by the Scheduler

|  |  |  |
| --- | --- | --- |
| Function Name | Calling Frequency | System State(s) in which the function is called |
|  |  |  |
|  |  |  |
|  |  |  |

## Execution Requirements for Serial Communication Functions

|  |  |
| --- | --- |
| Function Name | Sub-Module called by (Serial Comm Function Name) |
|  |  |

# Memory Map Definition Requirements

## Sub Modules (Functions)

This table identifies the software segments for functions identified in this module.

|  |  |
| --- | --- |
| Name of Sub Module | Software Segment |
|  |  |
|  |  |
|  |  |
|  |  |

## Global and Local Functions

This table identifies the software segments for global and local functions identified in this module.

|  |  |
| --- | --- |
| Name of Sub Module | Software Segment |
| MilestoneRqst#\_WarmInitMilestoneComplete | RTE\_AP\_STAMD\_APPL\_CODE |
| MilestoneRqst#\_WarmInitMilestoneNotComplete | RTE\_AP\_STAMD\_APPL\_CODE |
| StaMd#\_Per1 | RTE\_AP\_STAMD\_APPL\_CODE |

# Known Issues / Limitations With Design

# Revision Control Log

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Item #** | **Rev #** | **Change Description** | **Date** | **Author Initials** |
| 1 | 1 | Initial version. | 18-June-13 | NRAR |