**Module Design Document**

**For**

**DualCtrlrOutpMgr**

**18-Oct-2017**

**Prepared For:**

**Software Engineering**

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|  |  |  |  |
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| **Description** | **Author** | **Version** | **Date** |
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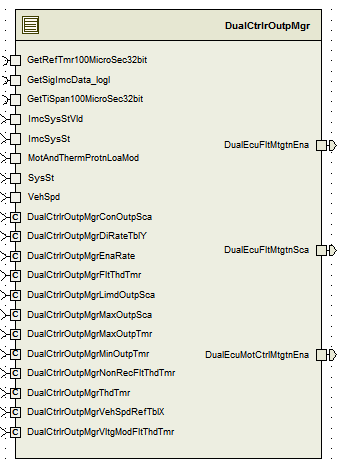
# DualCtrlrOutpMgr High-Level Description

Refer to FDD

# Design details of software module

Refer to FDD

## Graphical representation of DualCtrlrOutpMgr



## Data Flow Diagram

Refer to FDD

### Component level DFD

Refer to FDD

### Function level DFD

Refer to FDD

# Constant Data Dictionary

## Program (fixed) Constants

### Embedded Constants

#### Local Constants

|  |  |  |  |
| --- | --- | --- | --- |
| Constant Name | Resolution | Units | Value |
| Refer to .m file for constants |  |  |  |

# Software Component Implementation

## Sub-Module Functions

## Init: DualCtrlrOutpMgrInit1

## Design Rationale

Refer to FDD

## Module Outputs

None

## Per1: DualCtrlrOutpMgrPer1

## Design Rationale

Refer to FDD.

ElapsedTimeFlag function is used to avoid the repetitive code and make optimization.

## Module Outputs

None

## Per2: DualCtrlrOutpMgrPer2

## Design Rationale

Refer to FDD.

ElapsedTimeFlag function is used to avoid the repetitive code and make optimization.

## Module Outputs

None

## Server Runables

None

## Interrupt Functions

None

## Interrupt Function Name

None

## Module Internal (Local) Functions

## Local Function #1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Function Name** | ElapsedTimeFlag | Type | Min | Max |
| **Arguments Passed** | PrmTmrThd\_Cnt\_T\_u16 | uint16 | 0U | 1000 |
|  | FltStsFlag1\_Cnt\_T\_logl | boolean | FALSE | TRUE |
|  | \*PimFlag\_Cnt\_T\_logl | boolean | FALSE | TRUE |
|  | \*PimTmr\_Cnt\_T\_u32 | uint32 | 0U | 4294967295U |
|  | PimFlgPrev\_Cnt\_T\_logl | boolean | FALSE | TRUE |
|  | \*OutpFlg\_Cnt\_T\_logl | boolean | FALSE | TRUE |
| **Return Value** | NA | NA | NA | NA |

## Design Rationale

Implementation of 'ElapsedTimeX' block (X=1,2,3 etc).

## Processing

Please refer 'ElapsedTimeX' block (X=1,2,3 etc).

## Local Function #2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Function Name** | Andoper | Type | Min | Max |
| **Arguments Passed** | ImcDualMotCtrlMtgtnEnaVld\_Cnt\_T\_logl | boolean | FALSE | TRUE |
|  | ImcDualMotCtrlMtgtnEna\_Cnt\_T\_logl | boolean | FALSE | TRUE |
| **Return Value** |  | boolean | FALSE | TRUE |

## Design Rationale

Implementation of 'Andoper' block (X=1,2,3 etc).

## Processing

Please refer ‘Andoper' block (X=1,2,3 etc).

## Local Function #3

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Function Name** | Decoder | Type | Min | Max |
| **Arguments Passed** | MotAndThermProtnLoaMod\_Cnt\_T\_u08 | uint8 | 0U | 1000 |
| **Return Value** |  | boolean | FALSE | TRUE |

## Design Rationale

Implementation of 'Decoder' block (X=1,2,3 etc).

## Processing

Please refer 'Decoder' block (X=1,2,3 etc).

## GLOBAL Function/Macro Definitions

None

# Known Limitations with Design

None.

# UNIT TEST CONSIDERATION

None

Abbreviations and Acronyms

| **Abbreviation or Acronym** | **Description** |
| --- | --- |
|  |  |
|  |  |

Glossary

**Note**: Terms and definitions from the source “Nexteer Automotive” take precedence over all other definitions of the same term. Terms and definitions from the source “Nexteer Automotive” are formulated from multiple sources, including the following:

* ISO 9000
* ISO/IEC 12207
* ISO/IEC 15504
* Automotive SPICE® Process Please reference Model (PRM)
* Automotive SPICE® Process Assessment Model (PAM)
* ISO/IEC 15288
* ISO 26262
* IEEE Standards
* SWEBOK
* PMBOK
* Existing Nexteer Automotive documentation

| **Term** | **Definition** | **Source** |
| --- | --- | --- |
| MDD | Module Design Document |  |
| DFD | Data Flow Diagram |  |

Please references

| **Ref. #** | **Title** | **Version** |
| --- | --- | --- |
| 1 | AUTOSAR Specification of Memory Mapping (Link:[AUTOSAR\_SWS\_MemoryMapping.pdf](http://www.autosar.org/download/R4.0/AUTOSAR_SWS_MemoryMapping.pdf)) | v1.3.0 R4.0 Rev 2 |
| 2 | MDD Guideline | EA4 01.00.00 |
| 3 | [Software Naming Conventions.doc](http://misagweb01.nexteer.com/eRoomReq/Files/erooms8/NextGeneration/0_fc55f/Software%20Naming%20Conventions%2003x(In%20Work).doc) | 2.0 |
| 4 | [Software Design and Coding Standards.doc](http://eroom1.nexteer.com/eRoomReq/Files/erooms8/NextGeneration/0_1a67a9/Software%20Design%20and%20Coding%20Standards.doc) | 2.1 |
| 5 | FDD: SF062B\_DualCtrlrOutpMgr\_Design | See Synergy subproject version |