**Module Design Document**

**For**

**‘MotVel’**

**VERSION: 2.0**

**DATE: 25-Jul-2017**

**Prepared For:**

**Software Engineering**

**Nexteer Automotive,**

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**Location:** The official version of this document is stored in the Nexteer Configuration Management System.

**Revision History**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sl. No.** | **Description** | **Author** | **Version** | **Date** |
| 1 | Initial Version | Rijvi Ahmed | 1.0 | 12-April-2016 |
| 2 | Updated per design rev. 2.0.0 | TATA | 2.0 | 18-Nov-2016 |
| 3 | Updated per design rev. 2.1.0 | Shawn Penning | 3.0 | 25-Jul-2017 |

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# Abbrevations And Acronyms

|  |  |
| --- | --- |
| Abbreviation | Description |
| DFD | Design functional diagram |
| MDD | Module design Document |
| FDD | Functional Design Document |

# References

This section lists the title & version of all the documents that are referred for development of this document

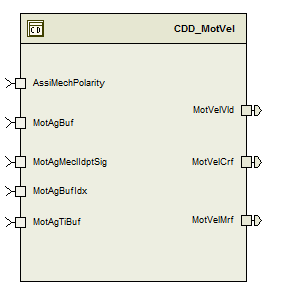
|  |  |  |
| --- | --- | --- |
| Sr. No. | Title | Version |
| 1 | MDD Guidelines | Process 04.02.01 |
| 2 | Software Naming Conventions | Process 04.02.01 |
| 3 | Software Design and Coding standards | Process 04.02.01 |
| 4 | FDD : SF40A\_MotVel\_Design | See Synergy sub project version |

# MotVel & High-Level Description

Please refer FDD.

# Design details of software module

## Graphical representation OF MotVel



## Data Flow Diagram

*Refer FDD*

## Module level DFD

*Refer FDD*

## Sub-Module level DFD

*Refer FDD*

## COMPONENT FLOW DIAGRAM

*Refer FDD*

# Variable Data Dictionary

## User defined typedef definition/declaration

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Typedef Name | Element Name | User Defined Type | Legal Range  (min) | Legal Range  (max) |
| None | N/A | N/A | N/A | N/A |

## Variable definition for enumerated types

|  |  |  |
| --- | --- | --- |
| Enum Name | Element Name | Value |
| None | N/A | N/A |

# Constant Data Dictionary

## Program(fixed) Constants

## Embedded Constants

## Local

|  |  |  |  |
| --- | --- | --- | --- |
| Constant Name | Resolution | Units | Value |
| Refer the m files | | | |

**6.1.1.2 Global**

|  |
| --- |
| Constant Name |
| N/A |

## Module specific Lookup Tables Constants

|  |  |  |  |
| --- | --- | --- | --- |
| Constant Name | Resolution | Value | Software Segment |
| None | N/A | N/A | N/A |

# Software Module Implementation

## Sub-Module Functions

## Initialization Functions

*None*

## PERIODIC FUNCTIONS

## INIT: MotVelPER1

## Design Rationale

*None*

## Store Module Inputs to Local copies

*Refer to FDD*

## (Processing of function)………

*Refer to FDD*

## Store Local copy of outputs into Module Outputs

*Refer to FDD*

## PERIODIC FUNCTIONS

## INIT: MotVelPER2

## Design Rationale

*None*

## Store Module Inputs to Local copies

*Refer to FDD*

## (Processing of function)………

*Refer to FDD*

## Store Local copy of outputs into Module Outputs

*Refer to FDD*

## Interrupt Functions

*None*

## Server runnables

*None*

## Store Local copy of outputs into Module Outputs

*None*

## Local Function/Macro Definitions

*None*

## GLObAL Function/Macro Definitions

None

## Tranisition FUNCTIONS

None

# Known Limitations With Design

1. Per-Instance Memory variables in Design 2.1, MotAgBufIdxPrev and MotAgBufIdxPrim, are set with range of 0 to 255, but are index variables for an array of only 8 elements. Design to be corrected in the next version as follows: the Max Value for both PIM’s to be 7 instead of 255 (range 0..7 instead of 0..255).

# UNIT TEST CONSIDERATION

Per-Instance Memory variables in Design 2.1, MotAgBufIdxPrev and MotAgBufIdxPrim, are set with range of 0 to 255, but are index variables for an array of only 8 elements. Design to be corrected in the next version as follows: the Max Value for both PIM’s to be 7 instead of 255 (range 0..7 instead of 0..255).

# Appendix

*None*