**Integration Manual**

**For**

**DigMSB (ES-50A)**

**VERSION: 8.0**

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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 | nzt9hv | 1 | 31-May-13 |
| 2 | Corrected the Digital MSB | Nzt9hv | 2 | 02-Aug-13 |
| 3 | Updated for v 2 ES 50A Draft | Nzt9hv | 3 | 08-Aug-13 |
| 4 | Note added to provide buffer output synchronisation | Nzt9hv | 4 | 28-Aug-13 |
| 5 | Added new Memmap statement for cleared DIGMSB\_START\_SEC\_VAR\_CLEARED\_8 | Nzt9hv | 5 | 23-Sep-13 |
| 6 | Updated for ES50A prerelease | Selva | 6 | 3-Apr-14 |
| 7 | Updated for ES50A v6 | Selva | 7 | 23-Apr-14 |
| 8 | Updated for FDD rev.008 and updated to latest Integration Manual Template | Rijvi | 8 | 06-Feb-15 |

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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 | ES50A\_DigMSBAllegro1331 | 008 |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

# Dependencies

## SWCs

|  |  |
| --- | --- |
| **Module** | **Required Feature** |
| **SPINxt** |  |

Note : Referencing the external components should be avoided in most cases. Only in unavoidable circumstance external components should be referred. Developer should track the references.

Note: Integration of DigMSBSigCorr component is required if using DigMSB component of version 5 or less. DigMSBCorr Component is not needed after the integration DigMSB v6 or more.

## Global Functions(Non RTE) to be provided to Integration Project

DigMSB\_Per1

# Configuration REQUIREMeNTS

## Build Time Config

|  |  |  |
| --- | --- | --- |
| **Modules** | **Notes** |  |
| **None** |  |  |

## Configuration Files to be provided by Integration Project

DigMSB\_Cfg.h ( Refer DigMSB\_Cfg\_Template.h in tools folder)

(Data synchronization must be provided at the integration level between 2 ms periodic and Motor Control ISR Periodics)

## Da Vinci Parameter Configuration Changes

|  |  |  |
| --- | --- | --- |
| **Parameter** | **Notes** | **SWC** |
| **None** |  |  |

## DaVinci Interrupt Configuration Changes

|  |  |  |  |
| --- | --- | --- | --- |
| **ISR Name** | **VIM #** | **Priority Dependency** | **Notes** |
| **None** |  |  |  |

## Manual Configuration Changes

|  |  |  |
| --- | --- | --- |
| **Constant** | **Notes** | **SWC** |
| **None** |  |  |

# Integration DATAFLOW REQUIREMENTS

## Required Global Data Inputs

## Required Global Data Outputs

MechMtrPos1\_Rev\_u0p16

SysCMechMtrPos1\_Rev\_u0p16

SysCorrectedElecMtrPos\_Rev\_u0p16

MechMtrPos1TimeStamp\_uSec\_u32

MechMtrPos2TimeStamp\_uSec\_u32

CorrectedElecMtrPos\_Rev\_u0p16

UncorrMechMtrPos1\_Rev\_u0p16

CumMechMtrPos\_Rev\_s15p16

Die1RxError\_Cnt\_u16

Die2RxError\_Cnt\_u16

Die1RxRevCtr\_Cnt\_u16

Die2RxRevCtr\_Cnt\_u16

Die1RxMtrPos\_Cnt\_u16

Die2RxMtrPos\_Cnt\_u16

RxMtrPos1ParityAccum\_Cnt\_u16

RxMtrPos1UnderVoltgFltAccum\_Cnt\_u16

## Specific Include Path present

Yes

# Runnable Scheduling

This section specifies the required runnable scheduling.

|  |  |  |
| --- | --- | --- |
| **Init** | **Scheduling Requirements** | **Trigger** |
| **DigMSB\_Init** | None | RTE |

|  |  |  |
| --- | --- | --- |
| **Runnable** | **Scheduling Requirements** | **Trigger** |
| **DigMSB\_Per2** | None | RTE(2 ms) |
| **DigMSB\_Per3** | None | RTE(100 ms) |
| **DigMSB\_Per1** | Before Motor  Velocity and before Current Measurement | ISR (50 us) |

**.**

# Memory Map REQUIREMENTS

## Mapping

|  |  |  |
| --- | --- | --- |
| **Memory Section** | **Contents** | **Notes** |
| **DIGMSB\_START\_SEC\_VAR\_CLEARED\_16** |  |  |
| **DIGMSB\_START\_SEC\_VAR\_CLEARED\_8** |  |  |
| **DIGMSB\_START\_SEC\_VAR\_CLEARED\_BOOLEAN** |  |  |
| **DIGMSB\_START\_SEC\_VAR\_CLEARED\_UNSPECIFIED** |  |  |
| **DIGMSB\_START\_SEC\_VAR\_CLEARED\_32** |  |  |
| **SA\_DIGMSB\_CODE** |  |  |
| **RTE\_START\_SEC\_SA\_DIGMSB\_APPL\_CODE** |  |  |

\* Each …START\_SEC… constant is terminated by a …STOP\_SEC… constant as specified in the AUTOSAR Memory Mapping requirements.

## Usage

|  |  |  |
| --- | --- | --- |
| **Feature** | **RAM** | **ROM** |
| **None** |  |  |

Table : ARM Cortex R4 Memory Usage

## Non RTE NvM Blocks

|  |
| --- |
| **Block Name** |
| **None** |

Note : Size of the NVM block if configured in developer

## RTE NvM Blocks

|  |
| --- |
| **Block Name** |
| **DigMSBEOLData** |

Note : Size of the NVM block if configured in developer

# Compiler Settings

## Preprocessor MACRO

None

## Optimization Settings

None

# Appendix

*None*