**Integration Manual**

**For**

**McuErrInj**

**VERSION: 2.0**

**DATE: 24-Jul-2017**

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

**Revision History**

|  |  |  |  |  |
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| **Sl. No.** | **Description** | **Author** | **Version** | **Date** |
| 1 | Initial version | Avinash James | 1.0 | 15-Mar-2017 |
| 2 | Update to include the tursted function | Avinash James | 2.0 | 24-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 | FDD – DF003A McuDiagc | See Synergy subproject version |
| 2 | Software Naming Conventions | Process 04.04.02 |
| 3 | Software Coding Standards | Process 04.04.02 |

# Dependencies

## SWCs

|  |  |
| --- | --- |
| **Module** | **Required Feature** |
| **None** |  |
|  |  |
|  |  |
|  |  |

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.

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

InjVrfyCritRegErr() – Function to Inject micro diagnostic error in Critical Registers

InjMcuVltgMonrErr() – Function to Inject micro diagnostic error in Core voltage monitor

InjClkMonrErr() – Function to Inject micro diagnostic error in Clock Monitors

InjOsTmpGenericRtErr () – Function to Inject Temporary Run time error in Operating System

InjOsPrmntGenericRtErr () – Function to Inject Permanent Run time error in Operating System

InjWdgErr () – Function to Watchdog errors

InjFpuErr () – Function to Inject floating point exceptions

InjMemProtnErr () – Function to Inject Memory protection errors

InjModErr () – Function to Inject mode errors

InjMcuRtErr () – Function to Inject Mcu Run Time errors

InjCodFlsEccErr() – Function to Inject Code flash ECC errors

InjRamMemErr( ) – Function to Inject peripheral and local RAM ECC errors

InjEcmMstChkrRtErr(void) () – Function to Inject micro diagnostic error in ECM Master and Slave

InjUkwnStrtUpDetdErr(void) -() – Function to Inject unknown startup

InjIpgRtErr(void) () – Function to Inject Run time IPG errors

InjRtPegErr(void) – Function to Inject Run time Peg errors

InjDataParErr() – Function to Inject Data Parity errors

InjDmaErr() – Function Dma errors

InjMcuDiagcErr() – Function to Inject loss ofmotor control ISR errors

InjAdcErr() – Function to Inject ADC errors

InjProgSeqErr () – Function to inject program sequence errors

InjPbgRtErr () - Function to inject PBG run time errors

InjSwFpuErr () – Function to inject software Floating point error

McuDiagcTestTrustd() – Trusted function call from OS

# Configuration REQUIREMeNTS

## Build Time Config

|  |  |  |
| --- | --- | --- |
| **Modules** | **Notes** |  |
| **MCUDIAGCERRINJ** | STD\_OFF for other builds  STD\_ON for uDiag test builds |  |

## Configuration Files to be provided by Integration Project

*None*

## 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** |
| **OS Memory protection has to be extended to include the reserved RAM & invalid memory area .Also execution from RAM need to be enabled too as per the settings below** |  |  |

**(osuint32)0x0100a000UL, /\* MPU region 3 \*/**

**(osuint32)0x0100bffcUL,**

**(osuint32)0x03ff00edUL,**

**(osuint32)0x10020000UL, /\* MPU region 4 \*/**

**(osuint32)0x10020848UL,**

**(osuint32)0x03ff00dbUL,**

**(osuint32)0xfb000000UL, /\* MPU region 5 \*/**

**(osuint32)0xfebdfffcUL,**

**(osuint32)0x03ff00d9UL,**

**(osuint32)** **0xF3000000UUL, /\* MPU region 6 \*/**

**(osuint32)** **0xF4000000UL,**

**(osuint32)0x03ff00dbUL,**

**(osuint32)&osGlobalShared\_StartAddr, /\* MPU region Global shared\*/**

**(osuint32)&osGlobalShared\_EndAddr,**

**(osuint32)0x03ff00fbUL,**

# Integration DATAFLOW REQUIREMENTS

## Required Global Data Inputs

Refer DataDict.m file

## Required Global Data Outputs

Refer DataDict.m file

## Specific Include Path present

Yes

# Runnable Scheduling

This section specifies the required runnable scheduling.

|  |  |  |
| --- | --- | --- |
| **Init** | **Scheduling Requirements** | **Trigger** |
| **McuDiagcInit1** | **None** | **RTE (Init)** |

|  |  |  |
| --- | --- | --- |
| **Runnable** | **Scheduling Requirements** | **Trigger** |
| **McuDiagcPer1** | **None** | **RTE (2 ms)** |
| **ClrErrInjReg\_Oper** | **None** | **On invocation** |
| **ReadErrInjReg\_Oper** | **None** | **On invocation** |
| **StrtErrInjCntr\_Oper** | **None** | **On invocation** |
| **UpdErrInjReg\_Oper** | **None** | **On invocation** |
|  |  |  |
|  |  |  |
|  |  |  |

# Memory Map REQUIREMENTS

## Mapping

|  |  |  |
| --- | --- | --- |
| **Memory Section** | **Contents** | **Notes** |
| **McuErrInj\_START\_SEC\_VAR\_INIT\_128** | Data section for DMA write |  |
| **McuErrInjGlobalShared\_START\_SEC\_VAR\_CLEARED\_32** | Global shared data access |  |

\* 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

## NvM Blocks

None

# Compiler Settings

## Preprocessor MACRO

None

## Optimization Settings

None

# Appendix

*None*