Integration Manual –CmMtrCurr

Table of Contents

[1 Dependencies 2](#_Toc391629931)

[1.1 SWCs 2](#_Toc391629932)

[1.2 Functions to be provided to Integration Project 2](#_Toc391629933)

[2 Configuration 3](#_Toc391629934)

[2.1 Build Time Config 3](#_Toc391629935)

[2.2 Configuration Files to be provided by Integration Project 3](#_Toc391629936)

[2.2.1 Da Vinci Config Configuration Changes 3](#_Toc391629937)

[2.2.2 Manual Configuration Changes 3](#_Toc391629938)

[3 Integration 5](#_Toc391629939)

[3.1 Required Global Data Inputs 5](#_Toc391629940)

[3.2 Required Global Output Inputs 5](#_Toc391629941)

[3.3 Specific Include Path present 5](#_Toc391629942)

[4 Runnable Scheduling 6](#_Toc391629943)

[5 Memory Mapping 7](#_Toc391629944)

[5.1 Mapping 7](#_Toc391629945)

[5.2 Usage 7](#_Toc391629946)

[5.3 RTE NvM Blocks 7](#_Toc391629947)

[5.4 Non RTE NvM Blocks 7](#_Toc391629948)

[6 Compiler Settings 7](#_Toc391629949)

[6.1 Preprocessor MACRO 7](#_Toc391629950)

[6.2 Optimization Settings 7](#_Toc391629951)

[7 Revision Control Log 8](#_Toc391629952)

# Dependencies

## SWCs

|  |  |
| --- | --- |
| Module | Required Feature |
| For version ES01 -008 or more | ADC 33E v3 or more |

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

## Functions to be provided to Integration Project

CurrDQPer1

# Configuration

## Build Time Config

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

## Configuration Files to be provided by Integration Project

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

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

Outputs from the CmMtrCurr (Motor Control ISR) periodic must be synchronized with the outputs from Motor position.

### Da Vinci Config Configuration Changes

|  |  |  |
| --- | --- | --- |
| Constant | Notes | SWC |
| MTRCURRPHASEBC | PhaseB and Phase C used in Curr Measurement |  |
| MTRCURRPHASECB | PhaseC and Phase B used in Curr Measurement |  |
| MTRCURRPHASEAC | PhaseA and Phase C used in Curr Measurement |  |
| MTRCURRPHASECA | PhaseC and Phase A used in Curr Measurement |  |
| MTRCURRPHASEAB | PhaseA and Phase B used in Curr Measurement |  |
| MTRCURRPHASEBA | PhaseB and Phase A used in Curr Measurement |  |

Note: Only one of the configuration can be selected based on the requirements. Make sure order matches oreder in ADC data read ie MTRCURRPHASEBC - “BC” represents current\_1 is phase B and current\_2 is phase C .

### Manual Configuration Changes

|  |  |  |
| --- | --- | --- |
| Constant | Notes | SWC |
| none |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

# Integration

## Required Global Data Inputs

ADC2OffsetComp\_Cnt\_u8p8 ( mapped from ADC Configuration 33E)

For other inputs. Refer the template in tools folder of this component

## Required Global Output Inputs

For other inputs. Refer the template in tools folder of this component

## Specific Include Path present

Yes

# Runnable Scheduling

This section specifies the required runnable scheduling.

|  |  |  |
| --- | --- | --- |
| Init | Scheduling Requirements | Trigger |
| CmMtrCurr\_Init | None | RTE |

|  |  |  |
| --- | --- | --- |
| Runnable | Scheduling Requirements | Trigger |
| CmMtrCurr\_Per2 | None | RTE(2MilliS) |
| CmMtrCurr\_Per3 | Runs only in operate. | RTE(2MilliS) |
| CmMtrCurr\_Per1 | None | RTE(100 MilliS) |
| CurrDQPer1 | After Motor position processing  (As Corrected Motor position is used as input for this component.) | ISR (125MicroS) |
|  |  |  |
|  |  |  |

**.**

# Memory Mapping

## Mapping

|  |  |  |
| --- | --- | --- |
| Memory Section | Contents | Notes |
| CMMTRCURR\_START\_SEC\_VAR\_CLEARED\_16 |  |  |
| CMMTRCURR\_START\_SEC\_VAR\_CLEARED\_8 |  |  |
| CMMTRCURR\_START\_SEC\_VAR\_CLEARED\_BOOLEAN |  |  |
| CMMTRCURR\_START\_SEC\_VAR\_CLEARED\_32 |  |  |
| SA\_CMMTRCURR\_CODE |  |  |
| RTE\_START\_SEC\_SA\_CMMTRCURR\_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 |
|  |  |  |

Table 1: ARM Cortex R4 Memory Usage

## RTE NvM Blocks

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

Note : Size of the NVM block if configured in developer

## Non RTE NvM Blocks

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

Note : Size of the NVM block if configured in developer

# Compiler Settings

## Preprocessor MACRO

None

## Optimization Settings

None

# Revision Control Log

|  |  |  |  |
| --- | --- | --- | --- |
| **Rev #** | **Change Description** | **Date** | **Author** |
| 1 | Initial version | 7-Sep- 13 | nzt9hv |
| 2 | Update for ADC Calibration compensation | 27-Ju-14 | Selva |
|  |  |  |  |
|  |  |  |  |