Integration Manual -- VehDyn

Table of Contents

[1 Dependencies 2](#_Toc365029097)

[1.1 SWCs 2](#_Toc365029098)

[1.2 Global Functions(Non RTE) to be provided to Integration Project 2](#_Toc365029099)

[2 Configuration 3](#_Toc365029100)

[2.1 Build Time Config 3](#_Toc365029101)

[2.2 Configuration Files to be provided by Integration Project 3](#_Toc365029102)

[2.2.1 Da Vinci Parameter Configuration Changes 3](#_Toc365029103)

[2.2.2 DaVinci Interrupt Configuration Changes 3](#_Toc365029104)

[2.2.3 Manual Configuration Changes 3](#_Toc365029105)

[3 Integration 4](#_Toc365029106)

[3.1 Required Global Data Inputs 4](#_Toc365029107)

[3.2 Required Global Data Outputs 4](#_Toc365029108)

[3.3 Specific Include Path present 4](#_Toc365029109)

[4 Runnable Scheduling 5](#_Toc365029110)

[5 Memory Mapping 6](#_Toc365029111)

[5.1 Mapping 6](#_Toc365029112)

[5.2 Usage 6](#_Toc365029113)

[5.3 Non RTE NvM Blocks 6](#_Toc365029114)

[5.4 RTE NvM Blocks 6](#_Toc365029115)

[6 Compiler Settings 6](#_Toc365029116)

[6.1 Preprocessor MACRO 6](#_Toc365029117)

[6.2 Optimization Settings 6](#_Toc365029118)

[7 Revision Control Log 7](#_Toc365029119)

# 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 refered. Developer should track the references.

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

< Global function (except the ones that are defined in RTE modules) that is defined in this component but used by other function>

None

# Configuration

## Build Time Config

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

## Configuration Files to be provided by Integration Project

Ap\_VehDyn\_Cfg.h (generated using Ap\_VehDyn\_Cfg.h.tt)

### Da Vinci Parameter Configuration Changes

|  |  |  |
| --- | --- | --- |
| Parameter | Notes | SWC |
| VehDynGeneral/VehDynCPEnable | Enable checkpoints if needed | VehDyn |

### DaVinci Interrupt Configuration Changes

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

### Manual Configuration Changes

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

# Integration

## Required Global Data Inputs

VehicleSpeed\_Kph\_f32

HwTorque\_HwNm\_f32

TorqueCmdCRF\_MtrNm\_f32

VehicleSpeedValid\_Cnt\_lgc

MotorVelCRF\_MtrRadpS\_f32

RelHwPos\_HwDeg\_f32

CcwEOT\_HwDeg\_f32

CwEOT\_HwDeg\_f32

HwAuth\_Uls\_f32

HandwheelPosition\_HwDeg\_f32

MechMtrPos1\_Rev\_f32

## Required Global Data Outputs

SensorlessHwAuth\_Uls\_f32

SensorlessHwPos\_HwDeg\_f32

## Specific Include Path present

< No >

# Runnable Scheduling

This section specifies the required runnable scheduling.

|  |  |  |
| --- | --- | --- |
| Init | Scheduling Requirements | Trigger |
| VehDyn\_Init1 | Called from RTE before first call of periodic function | RTE at init |

|  |  |  |
| --- | --- | --- |
| Runnable | Scheduling Requirements | Trigger |
| VehDyn\_Per1 | Should be called after the 2ms periodic that outputs RelHwPos and before the 2ms periodic that uses VDHwPos and VDAuthority | RTE 2 ms |

|  |  |  |
| --- | --- | --- |
| Runnable | Scheduling Requirements | Trigger |
| VehDyn\_Trns1 | triggered on entering of Mode <OFF> of ModeDeclarationGroupPrototype <Mode> of PortPrototype <SystemState> | RTE at shutdown |

**.**

# Memory Mapping

## Mapping

|  |  |  |
| --- | --- | --- |
| Memory Section | Contents | Notes |
| VEHDYN\_START\_SEC\_VAR\_CLEARED\_UNSPECIFIED |  |  |
| VEHDYN\_START\_SEC\_VAR\_CLEARED\_BOOLEAN |  |  |
| RTE\_START\_SEC\_AP\_VEHDYN\_APPL\_CODE |  |  |
| VEHDYN\_START\_SEC\_VAR\_CLEARED\_32 |  |  |

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

## Usage

|  |  |  |
| --- | --- | --- |
| Feature | RAM | ROM |
| <Memmap usage info> |  |  |

Table 1: 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 |
| VehDynReset |

Note : Size of the NVM block if configured in developer

# Compiler Settings

## Preprocessor MACRO

<Define all the preprocessor Macros needed and conditions when needed>.

## Optimization Settings

<Define Optimization levels that are needed and conditions when needed>.

# Revision Control Log

|  |  |  |  |
| --- | --- | --- | --- |
| **Rev #** | **Change Description** | **Date** | **Author** |
| 1 | Initial version | 19-Aug-13 | KMC |
| 2 | Updated per SF42 - VCDMotPos rev 002 | 21-Aug-14 | SB |
| 3 | Updated to SF42 – VCDMotPos v004 | 16-Jan-15 | SB |