**Module Design Document**

**For**

**‘PolarityCfg’**

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**Revision History**

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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

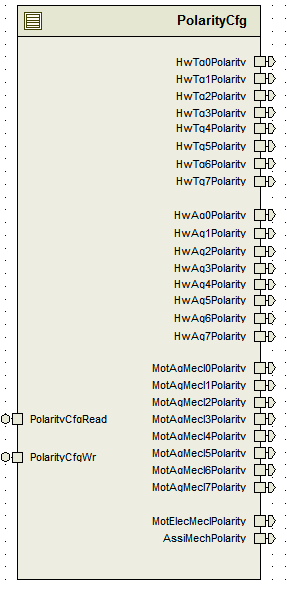
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| Sr. No. | Title | Version |
| 1 | MDD Guidelines | Process 3.06.00 |
| 2 | Software Naming Conventions | Process 3.06.00 |
| 3 | Software Design and Coding standards | Process 3.06.00 |
| 4 | FDD – ES102A\_PolarityCfg\_Design | See Synergy sub project version |
|  |  |  |

# Power Disconnect High-Level Description

*This function will identify polarity control settings for certain points in the design.*

# Design details of software module

## Graphical representation of POWER DISCONNECT



## 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

*<This section documents any user types uniquely used for the module.>*

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

## Variable definition for enumerated types

|  |  |  |
| --- | --- | --- |
| Enum Name | Element Name | Value |
| None |  |  |

# Constant Data Dictionary

## Program(fixed) Constants

## Embedded Constants

## Local

|  |  |  |  |
| --- | --- | --- | --- |
| Constant Name | Resolution | Units | Value |
| HWAG0POL\_CNT\_U32 | Bitfield Mask | NA | 0x00000001U |
| HWAG1POL\_CNT\_U32 | Bitfield Mask | NA | 0x00000002U |
| HWAG2POL\_CNT\_U32 | Bitfield Mask | NA | 0x00000004U |
| HWAG3POL\_CNT\_U32 | Bitfield Mask | NA | 0x00000008U |
| HWAG4POL\_CNT\_U32 | Bitfield Mask | NA | 0x00000010U |
| HWAG5POL\_CNT\_U32 | Bitfield Mask | NA | 0x00000020U |
| HWAG6POL\_CNT\_U32 | Bitfield Mask | NA | 0x00000040U |
| HWAG7POL\_CNT\_U32 | Bitfield Mask | NA | 0x00000080U |
| HWTQ0POL\_CNT\_U32 | Bitfield Mask | NA | 0x00000100U |
| HWTQ1POL\_CNT\_U32 | Bitfield Mask | NA | 0x00000200U |
| HWTQ2POL\_CNT\_U32 | Bitfield Mask | NA | 0x00000400U |
| HWTQ3POL\_CNT\_U32 | Bitfield Mask | NA | 0x00000800U |
| HWTQ4POL\_CNT\_U32 | Bitfield Mask | NA | 0x00001000U |
| HWTQ5POL\_CNT\_U32 | Bitfield Mask | NA | 0x00002000U |
| HWTQ6POL\_CNT\_U32 | Bitfield Mask | NA | 0x00004000U |
| HWTQ7POL\_CNT\_U32 | Bitfield Mask | NA | 0x00008000U |
| MOTAGMECL0POL\_CNT\_U32 | Bitfield Mask | NA | 0x00010000U |
| MOTAGMECL1POL\_CNT\_U32 | Bitfield Mask | NA | 0x00020000U |
| MOTAGMECL2POL\_CNT\_U32 | Bitfield Mask | NA | 0x00040000U |
| MOTAGMECL3POL\_CNT\_U32 | Bitfield Mask | NA | 0x00080000U |
| MOTAGMECL4POL\_CNT\_U32 | Bitfield Mask | NA | 0x00100000U |
| MOTAGMECL5POL\_CNT\_U32 | Bitfield Mask | NA | 0x00200000U |
| MOTAGMECL6POL\_CNT\_U32 | Bitfield Mask | NA | 0x00400000U |
| MOTAGMECL7POL\_CNT\_U32 | Bitfield Mask | NA | 0x00800000U |
| MOTELECMECLPOL\_CNT\_U32 | Bitfield Mask | NA | 0x01000000U |
| ASSIMECHPOL\_CNT\_U32 | Bitfield Mask | NA | 0x02000000U |

## Global

|  |
| --- |
| Constant Name |
|  |

## Module specific Lookup Tables Constants

|  |  |  |  |
| --- | --- | --- | --- |
| Constant Name | Resolution | Value | Software Segment |
| None |  |  |  |

# Software Module Implementation

## Sub-Module Functions

## Initialization Functions

*PolarityCfgInit*

## INIT: PolarityCfgInit

## Design Rationale

*Design follows implemenetation in FDD.*

## Module Outputs

*Refer ‘PolarityCfgInit’ block in FDD*

## Module Internal

None

## PERIODIC FUNCTIONS

None

## Interrupt Functions

*None*

## Server runnables

## PolarityCfgRead

## Design Rationale

*None*

## Store Module Inputs to Local copies

*None*

## (Processing of function)………

*Refer ‘PolarityCfgRead’ block in FDD*

## Store Local copy of outputs into Module Outputs

*None*

## PolarityCfgWr

## Design Rationale

*None*

## Store Module Inputs to Local copies

*None*

## (Processing of function)………

*Refer*  ‘*PolarityCfgWr’ block in FDD*

## Store Local copy of outputs into Module Outputs

*None*

## Local Function/Macro Definitions

## Local Function #1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Function Name** | GetPolarity | Type | Min | Max |
| **Arguments Passed** | Polarity\_Cnt\_T\_u32 | uint32 | 0 | 0xFFFFFFFF |
|  | PolarityMask\_Cnt\_T\_u32 | uint32 | 0x00000001 | 0x02000000 |
| **Return Value** | Polarity\_Cnt\_T\_s08 | sint08 | -1 | 1 |

## Description

* **Design:**

if ( (Polarity\_Cnt\_T\_u32 & PolarityMask\_Cnt\_T\_u32) == PolarityMask\_Cnt\_T\_u32 )

set ‘Polarity\_Cnt\_T\_s08’ to ‘1’

else

set ‘Polarity\_Cnt\_T\_s08’ to ‘-1’

* **Note:**  ‘PolarityMask\_Cnt\_T\_u32’ is a bit field mask and takes values mentioned in table at sec 6.1.1.1

## GLObAL Function/Macro Definitions

None

## Tranisition FUNCTIONS

None

# Known Limitations With Design

None

# UNIT TEST CONSIDERATION

None

# Appendix

*None*