**Module Design Document**

**For**

**CDD\_NxtrTi**

**Aug 23, 2017**

**Prepared For:**

**Software Engineering**

**Nexteer Automotive,**

**Saginaw, MI, USA**

**Prepared By:**

**Shawn Penning,**

**Nexteer Automotive,**

**Saginaw, MI, USAChange History**

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# Introduction

## Purpose

## Scope

The following definitions are used throughout this document:

* **Shall**: indicates a mandatory requirement without exception in compliance.
* **Should**: indicates a mandatory requirement; exceptions allowed only with documented justification.
* **May**: indicates an optional action.

# CDD\_NxtrTi & High-Level Description

Nexteer Time Complex Driver

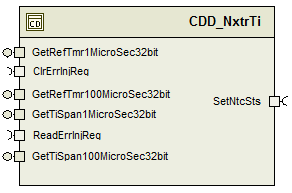
Refer to FDD to be created under CR EA4#164

# Design details of software module

Refer to FDD to be created under CR EA4#164

## Graphical representation of CDD\_NxtrTi

## 



## Data Flow Diagram

Refer to FDD to be created under CR EA4#164

### Component level DFD

Refer to FDD to be created under CR EA4#164

### Function level DFD

Refer to FDD to be created under CR EA4#164

# Constant Data Dictionary

## Program (fixed) Constants

### Embedded Constants

#### Local Constants

|  |  |  |  |
| --- | --- | --- | --- |
| Constant Name | Resolution | Units | Value |
| TMRFLTTHD\_CNT\_U32 | 1 | Counts | 200U |

# Software Component Implementation

Refer to FDD to be created under CR EA4#164

## Sub-Module Functions

## Init: NxtrTiInit1

## Design Rationale

*None*

## Store Module Inputs to Local copies

*None*

## (Processing of function)………

Refer to FDD to be created under CR EA4#164

## Module Outputs

*None*

## NxtrTiInit0

#### Design Rationale

*To be called by the user during initialization. If timers are not required prior to starting the*

*\* RTE, this function does not need to be called directly by a user.*

#### (Processing of function)

*Non-RTE version of Nexteer Time Initialization function. Calling this function will initialize and*

*\* start the hardware timers used by this module if not already done.*

## Per: NxtrTiPer1

## Design Rationale

*None*

## Store Module Inputs to Local copies

*None*

## (Processing of function)………

Refer to FDD to be created under CR EA4#164

## Store Local copy of outputs into Module Outputs

Refer to FDD to be created under CR EA4#164

## Server Runnables

## GetRefTmr100MicroSec32bit

#### Design Rationale

Refer to FDD to be created under CR EA4#164

#### (Processing of function)

Refer to FDD to be created under CR EA4#164

## GetRefTmr1MicroSec32bit

#### Design Rationale

Refer to FDD to be created under CR EA4#164

#### (Processing of function)

Refer to FDD to be created under CR EA4#164

## GetTiSpan100MicroSec32bit

#### Design Rationale

Refer to FDD to be created under CR EA4#164

#### (Processing of function)

Refer to FDD to be created under CR EA4#164

## GetTiSpan1MicroSec32bit

#### Design Rationale

Refer to FDD to be created under CR EA4#164

#### (Processing of function)

Refer to FDD to be created under CR EA4#164

## Interrupt Functions

*None*

## Interrupt Function Name

*None*

## Design Rationale

*None*

## Module Internal (Local) Functions

## Local Function #1

None

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Function Name** | (Exact name used) | Type | Min | Max |
| **Arguments Passed** | (if none, write None) | <Refer MDD guidelines[1]> | <Refer MDD guidelines[1]> | <Refer MDD guidelines[1]> |
|  | (Insert more rows for additional passed arguments) |  |  |  |
| **Return Value** | (if no value returned, write N/A) |  |  |  |

## Design Rationale

## Processing

## GLOBAL Function/Macro Definitions

Refer to 5.1.2

## GLOBAL Function #1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Function Name** | (Exact name used) | Type | Min | Max |
| **Arguments Passed** | (if none, write None) | <Refer MDD guidelines[1]> | <Refer MDD guidelines[1]> | <Refer MDD guidelines[1]> |
|  | (Insert more rows for additional passed arguments) |  |  |  |
| **Return Value** | (if no value returned, write N/A) |  |  |  |

## Design Rationale

## processing

# Known Limitations with Design

None

# UNIT TEST CONSIDERATION

None

Abbreviations and Acronyms

| **Abbreviation or Acronym** | **Description** |
| --- | --- |
|  |  |
|  |  |

Glossary

**Note**: Terms and definitions from the source “Nexteer Automotive” take precedence over all other definitions of the same term. Terms and definitions from the source “Nexteer Automotive” are formulated from multiple sources, including the following:

* ISO 9000
* ISO/IEC 12207
* ISO/IEC 15504
* Automotive SPICE® Process Reference Model (PRM)
* Automotive SPICE® Process Assessment Model (PAM)
* ISO/IEC 15288
* ISO 26262
* IEEE Standards
* SWEBOK
* PMBOK
* Existing Nexteer Automotive documentation

| **Term** | **Definition** | **Source** |
| --- | --- | --- |
| MDD | Module Design Document |  |
| DFD | Data Flow Diagram |  |

References

| **Ref. #** | **Title** | **Version** |
| --- | --- | --- |
| 1 | AUTOSAR Specification of Memory Mapping (Link:[AUTOSAR\_SWS\_MemoryMapping.pdf](http://www.autosar.org/download/R4.0/AUTOSAR_SWS_MemoryMapping.pdf)) | v1.3.0 R4.0 Rev 2 |
| 2 | MDD Guideline | EA4 01.00.00 |
| 3 | [Software Naming Conventions.doc](http://misagweb01.nexteer.com/eRoomReq/Files/erooms8/NextGeneration/0_fc55f/Software%20Naming%20Conventions%2003x(In%20Work).doc) | 2.0 |
| 4 | [Software Design and Coding Standards.doc](http://eroom1.nexteer.com/eRoomReq/Files/erooms8/NextGeneration/0_1a67a9/Software%20Design%20and%20Coding%20Standards.doc) | 2.1 |