***Software Design Specification***

***Version***

**Project Name: *OOO***

**[*Target* / *Target version*]**

**Revision History**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Version** | **Date** | **Description** | **Author** | **Reviewer** | **Approver** |
| Ver. | YYYY/MM/DD | Draft | GD Hong | GD Hong | GD Hong |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**Contents**

# **Introduction**

## **Purpose**

## **Scope**

## **Terms, Abbreviations and Definitions**

|  |  |  |
| --- | --- | --- |
| Acronym. | Terms | Definition (or Description) |
|  |  |  |

## **Reference**

|  |  |  |
| --- | --- | --- |
| *No.* | *Title* | *Note* |
| *[1]* | *Documentation\_ProjectName\_Version* | *문서화 템플릿* |

# **Software states definition**



## **Software state transition diagram**

<Diagram Example>

## **Software state description**

|  |  |  |  |
| --- | --- | --- | --- |
| State\_ID | State Name | Safe State | Description |
|  |  |  |  |
|  |  |  |  |

## **Software state transition description**

### SwTR-001: Name

|  |
| --- |
| Transition Description |
| |  |  | | --- | --- | | Transition ID |  | | Current State |  | | Condition | | |  | | | Next State |  | | Action |  | | Description | | |  | | |
| Condition Description |
| |  |  | | --- | --- | | Condition |  | | Description |  | |
| Action Description |
| |  |  | | --- | --- | | Action |  | | Description |  | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Transition\_ID | Current\_State | Condition | Next\_State | Action | Description |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

Transition ID: SwTR-003

Condition: s\_CAN\_wake\_up == sleep

Action:

Description:

wefwefwegewg

Current State: CAN Active

Next State: OFF



### **Condition Definition**

|  |  |
| --- | --- |
| Condition | Description |
|  |  |
|  |  |
|  |  |

### **Action Definition**

|  |  |
| --- | --- |
| Action | Description |
|  |  |
|  |  |

# **Software static architecture**

## **Software component Diagram**

<Diagram Example>

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| SwC ID | SwC Name | Type | ASIL | Description |
|  |  | *New /*  *Reuse with modification/*  *Reuse without modification/*  *COTS* |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

## **Software partition information**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Partition ID | Partition Name | Mode1) | ASIL | SSR\_ID | Description |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| 1) Mode에는 User Mode와 Supervisor Mode가 있다. | | | | | |

## **Software interface error handling**

## **Software component information**

### **Software component name**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Software component information | | | | | | | |
|  | SwC\_ID |  | | | | | |
| SwC name |  | | | | | |
| Type |  | | | | | |
| Description |  | | | | | |
| ASIL |  | | | | | |
| From SwR\_ID |  | | | | | |
| General Information | | | | | | | |
|  | File Name |  | | | | Access Right |  |
| Location |  | | | | | |
| SwC Interface | | | | | | | |
|  | Interface ID | Name | Prototype | Description | | | |
|  |  |  | **Parameter:**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Name** | **Type** | **IN/OUT** | **Range** | **Description** | |  |  |  |  |  | |  |  |  |  |  |   **Return**:   |  |  |  | | --- | --- | --- | | **Type** | **Range** | **Description** | |  |  |  | | | | |
|  |  |  |  | | | |
|  |  |  |  |  | | | |
| SwC Data | | | | | | | |
|  | Data ID | Name | Type | | Description | | |
|  |  |  |  | |  | | |
|  |  |  |  | |  | | |
| Unit function | | | | | | | |
|  | Unit ID | Name | Prototype | | Description | | |
|  |  |  | | **Parameter:**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Name** | **Type** | **IN/OUT** | **Range** | **Description** | |  |  |  |  |  | |  |  |  |  |  |   **Return**:   |  |  |  | | --- | --- | --- | | **Type** | **Range** | **Description** | |  |  |  | | | |
|  |  |  | |  | | |
|  |  |  | |  | | |
|  |  |  | |  | | |
|  |  |  | |  | | |
| Interface function을 호출하는 함수 정보 | | | | | | | |
|  | | | | | | | |
| Interface function으로부터 internal unit함수간의 호출 관계 표현 | | | | | | | |
|  | | | | | | | |
| Verification Criteria | | | | | | | |
|  | | | | | | | |

## **Software component organization**

# **Software dynamic architecture**

## **Task scheduling summary**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Task Scheduling Information** | | | | | | |
|  | Task Scheduling Policy | | *Rate monotonic, Cyclic Executive, Earliest Deadline First* | | | |
| Comment | |  | | | |
| **Task Information** | | | | | | |
|  | Task ID | Task Name | | Priority1) | Period(ms) | Deadline |
|  |  | |  |  |  |
|  |  | |  |  |  |
|  |  | |  |  |  |
|  |  | |  |  |  |
|  |  | |  |  |  |
|  |  | |  |  |  |
| 1) 가능하면 각 task간 서로 다른 우선순위를 갖도록 한다. | | | | | |

*periodic task들에 대한 diagram*

|  |
| --- |
| task\_B  task\_A  100ms  10ms |

## **Behavior**

*Stateflow로 표현하거나 UML의 sequence diagram으로 표현하여 기술한다.*

*소프트웨어 요구사항에 대한 동작 시나리오와 관련된 행동을 컴포넌트간 interaction으로 표현하고자 할 경우 sequence diagram으로 작성하고, 컴포넌트 자체에 대한 behavior를 표현하고자 하는 경우는 Stateflow로 표현한다.*

### **xxx task behavior**

|  |  |  |  |
| --- | --- | --- | --- |
| SwT\_ID(Task ID) |  | Task Name |  |
| Priority |  | From SwR\_ID |  |
| ASIL |  |  |  |
| Description | *Task behavior description(natural language description)* | | |
| Behavior  (semi-formal notation) | *Semi-formal notation(Flowcharts, FSM, Stateflow등의 notation)*  *주의사항. Software unit 내부의 behavior를 기술하지 않는다.* | | |
| Behavior  (Natural language) |  | | |
| Constraints, if required |  | | |
| Verification Criteria |  | | |

### **xxx task behavior**

|  |  |  |  |
| --- | --- | --- | --- |
| SwT\_ID(Task ID) |  | Task Name |  |
| Priority |  | From SwR\_ID |  |
| ASIL |  |  |  |
| Description | *Task behavior description(natural language description)* | | |
| Behavior  (semi-formal notation) | *Semi-formal notation(Flowcharts, FSM, Stateflow등의 notation)*  *주의사항. Software unit 내부의 behavior를 기술하지 않는다.* | | |
| Behavior  (Natural language) |  | | |
| Constraints, if required |  | | |
| Verification Criteria |  | | |

<End of document>