Component Design Document

For

<Motor module>

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Revision History

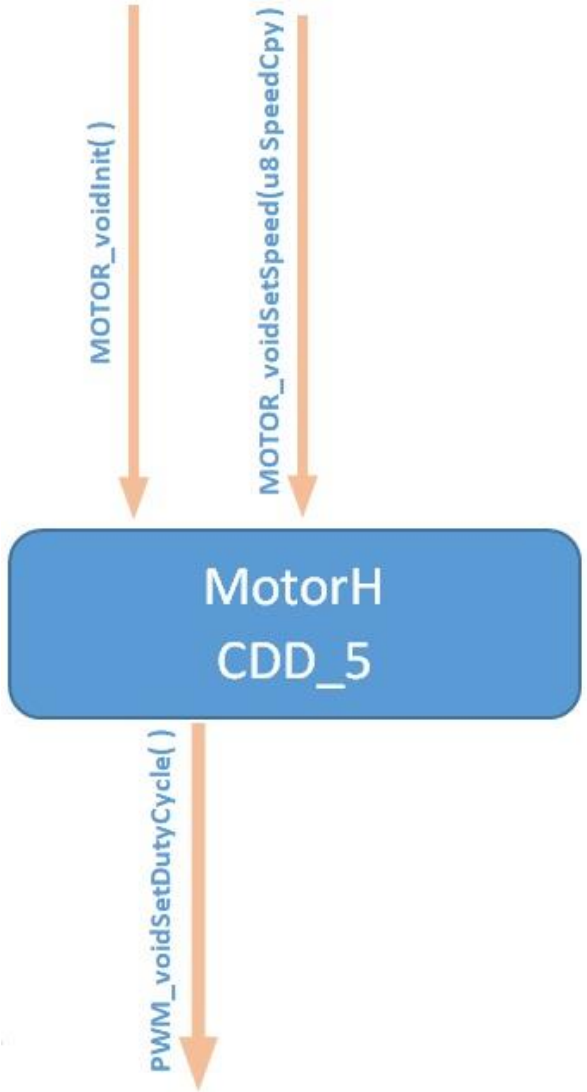
Name	Date	Reason For Changes	Version
Ahmed Raafat	18th April 2018	Create the template	1.0

1. Introduction

1.1 Objective

The purpose of this module is to control DC motor speed. This module abstract the hardware in HAL layer from the microcontroller hardware which is specified in MCAL later.

1.2 Context Diagram



2. *External Interface*

2.1 <PWM.h>

2.1.1 STD_TYPES.h

Data Type	Description
U8	Unsigned int

2.1.2 Interface

Function	Description
PWM_SetDuty(u8 val)	This function set the duty cycle in order to control PWM signal to control the motor speed

2.1.3 Const there is no const from external interfaces

2.1.4 Symbol there is no symbols from external interfaces

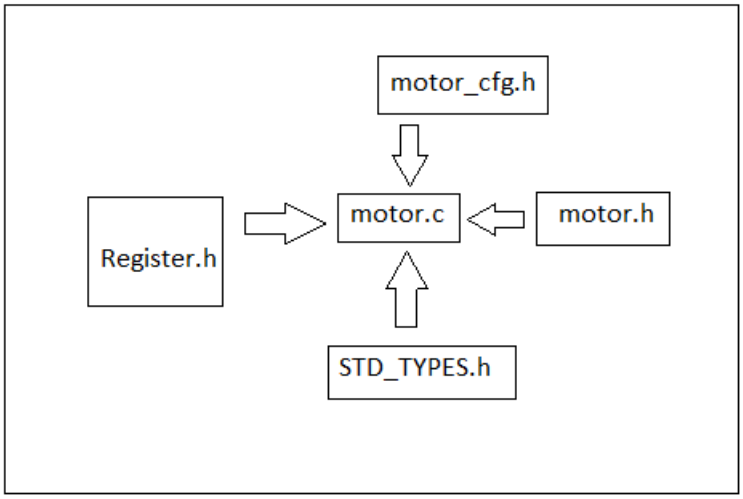
3. *Static Design*

3.1 Files

3.1.1 Used Files

FILE NAME	Description
Motor.c	This file includes the implementation of different functions
Motor.h	This file includes the prototypes of the function(the interface file)
Motor_cfg.h	This file includes the configurations of the motor

3.1.2 Files Inclusion



3.2 Types

<Not applicable for this module>

3.3 Symbol

<Not applicable for this module>

3.4 Const

<Not applicable for this module>

3.5 Interface (Services)

Req ID	MOTOR_001	
Covers	HLD_5	
Name/protoTypes	MOTOR_INIT	
Service ID	0x00	
Re-entrant / Non re- entrant	Reentrant	
Synchronous/Asynchronous	synchronous	
Return Value	Void	No return value needed
Input parameter	Void	No input parameters
Output parameter	Na	Na
Input /Output Parameter	Na	Na

Req ID	MOTOR_002	
Covers	HLD_5	
Name/protoTypes	MOTOR_voidSetSpeed(u8 SpeedCpy)	
Service ID	0x01	
Re-entrant / Non re- entrant	Reentrant	
Synchronous/Asynchronous	synchronous	
Return Value	Void	No return value needed
Input parameter	U8	Desired motor speed
Output parameter	Na	Na
Input /Output Parameter	Na	Na

4. Dynamic Design

4.1 Mode Management

<Not applicable for this module>

4.2 Sequence Diagram

<Not applicable for this module>

5. Shared Resources

5.1 Analysis

<Not applicable for this module>

5.2 Protection

<Not applicable for this module>

6. *Configuration Parameters*

6.1 Pre-compile time

6.1.1 Define the motor rotating direction

6.1.2 Define the motor initial speed

6.2 Link time

6.2.1 There is no link time configuration

6.3 Post-build

6.3.1 There is no post build configuration

7. Configuration Constrains

The motor control pin must be connected to OC2 pin

8. Integration Constrains

The PWM_init() function in the PWM module should be called before the motor_Init function()

9. History

<The changes happened in the documents>

Appendix A: Glossary