

# **Detailed Design (DD)**

## **ADC (Analog to Digital Converter)**

Authors: Burners Team (Ahmed Salah, Basem Moufreh, Hassan El Gabass , Hazem El Morshedi , Mohamed Safwat).

Customer: NTI

Instructor: Mahmoud Ali, Ahmed Abd El Reheem.

## **APIs**

1. Initialization API
2. Start Conversion Asynchronous API
3. Start Conversion Synchronous API
4. Start Chain Conversion API

## 1. Initialization API

Name	Initialization Function
Prototype	STD MCAL_ADC_u8Init(void);
Parameter in	-
Parameter out	-
Parameter in-out	-
Return Type	STD OK \ STD NOK
Description	This Function is responsible of initializing the ADC: 1. Choose Reference voltage 2. Choose prescaller 3. Enable ADC
Covered Requirement	[SRS_ADC_3.1], [SRS_ADC_4.1], [SRS_ADC_4.2]

## 2. Start Conversion Asynchronous API

Name	Start Conversion Asynchronous
Prototype	STD MCAL_ADC_u8StartConversionAsynch(u8 Copy_u8Channel,u8* Copy_pu8Reading, <b>void</b> (*Copy_pvNotificationFunc)( <b>void</b> ));
Parameter in	u8 Copy_u8Channel, u8* Copy_pu8Reading, <b>void</b> (*Copy_pvNotificationFunc)( <b>void</b> )
Parameter out	-
Parameter in-out	-
Return Type	STD OK \ STD NOK
Description	This Function is responsible of: Conversion of the ADC Reading Asynchronous.
Covered Requirement	[SRS_ADC_3.3], [SRS_ADC_4.1]

### 3. Start Conversion Synchronous API

Name	Start Conversion Synchronous
Prototype	STD MCAL_ADC_u8StartConversionSynch(u8 Copy_u8Channel,u8* Copy_pu8Reading);
Parameter in	u8 Copy_u8Channel, u8* Copy_pu8Reading
Parameter out	-
Parameter in-out	-
Return Type	STD OK \ STD NOK
Description	This Function is responsible of: Conversion of the ADC Reading Synchronos.
Covered Requirement	[SRS_ADC_3.2], [SRS_ADC_4.2], [SRS_ADC_4.3]

### 4. Start Chain Conversion API

Name	Start Chain Conversion
Prototype	u8 MCAL_ADC_u8StartChainAsynch(struct * Copy_Chain);
Parameter in	struct * Copy_Chain
Parameter out	-
Parameter in-out	-
Return Type	STD OK \ STD NOK
Description	This Function is responsible of: Multiple Conversions of the ADC Reading Asynchronous.
Covered Requirement	[SRS_ADC_3.4], [SRS_ADC_4.3], [SRS_ADC_4.2]