UART Handler for UART Driver for STM32F103

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Chapter 1

File Index

1.1 File List

Here is a list of all documented files with brief descriptions:

Chapter 2

File Documentation

2.1 HUART/HUART.c File Reference

This file is the Implementation for UART Handler for UART Driver in STM32F103.

```
#include "STD_TYPES.h"
#include "DRCC.h"
#include "DGPIO.h"
#include "DMA.h"
#include "UART.h"
#include "UART_Private.h"
#include "HUART.h"
#include "HUART_config.h"
```

Macros

- #define UART_DMA_TX_ENABLE 0x00000080

  Enable Uart Transmit With DMA Mode.
- #define UART_DMA_RX_ENABLE 0x00000040

  Enable Uart Recieve with DMA Mode.
- #define LIN_ENABLE 0x00004000

  Enable LIN.
- #define LIN_BREAK_SIZE 0x00000020

  Size of LIN Break Frame
- #define LIN_INTERRUPT_ENABLE 0x00000040

  Enable Interrupt for LIN

Functions

- uint_8t HUART_Init (void)

  Function initilaize HUART.
- uint_8t HUART_Send (uint_8t *Buffer, uint_16t Length)

  Function sends bytes using UART.
- uint_8t HUART_Receive (uint_8t *Buffer, uint_16t Length)

  Function receives bytes using UART.
- uint_8t HUART_Config (uint_32t BaudRate, uint_32t ParityBits, uint_32t DataSize, uint_32t StopBits)

  Function configure HUART.
- uint_8t HUART_SetTxCbf (TxCbf_t TxCbf)

  Function sets the send call back function.
- uint_8t HUART_SetRxCbf (RxCbf_t RxCbf)

  Function sets the Received call back function.
- uint_8t HUART_SetLBDCbf (LBDCbf_t LBDCbf)

  Function sets the LIN Break call back function.
- uint_8t HUART_SendBreak (void)

  Function of Send LIN Break

Variables

- Notify_t **Notification_Send**
- Notify_t **Notification_Receive**
- uint_8t **UART_mode** = INTERRUPT_MODE
- uint_32t **Clk**

2.1.1 Detailed Description

This file is the Implementation for UART Handler for UART Driver in STM32F103.

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Version

0.1

Date

2020-06-05

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2.1.2 Function Documentation

2.1.2.1 HUART_Config()

```
uint_8t HUART_Config (
            uint_32t BaudRate,
            uint_32t ParityBits,
            uint_32t DataSize,
            uint_32t StopBits )
```

Function configure HUART.

Parameters

BaudRate	Variable of uint_32t, variable that contains Baud Rate
ParityBits	Variable of uint_32t, variable that contains ParityState ex (PARITY_DISABLED, PARITY_EVEN)
DataSize	Variable of uint_32t, variable that contains DataSize (DATA_8_BITS OR DATA_9_BITS)
StopBits	Variable of uint_32t, variable that contains number of StopBits (ONE_STOP_BIT OR TWO_STOP_BIT)

Returns

uint_8t : OK | NOK

2.1.2.2 HUART_Init()

```
uint_8t HUART_Init (
            void  )
```

Function initilaize HUART.

Parameters

NA	

Returns

uint_8t : OK | NOK

2.1.2.3 HUART_Receive()

```
uint_8t HUART_Receive (
            uint_8t * Buffer,
            uint_16t Length )
```

Function receives bytes using UART.

Parameters

Buffer	Pointer to uint_8t, pointer that receive bytes
Length	Variable of uint_16t, variable that contains the Received bytes

Returns

uint_8t : OK | NOK

2.1.2.4 HUART_Send()

```
uint_8t HUART_Send (
            uint_8t * Buffer,
            uint_16t Length )
```

Function sends bytes using UART.

Parameters

Buffer	Pointer to uint_8t, pointer that contain the bytes to be sent
Length	Variable of uint_16t, variable that contains the number of Bytes to be sent

Returns

uint_8t : OK | NOK

2.1.2.5 HUART_SendBreak()

```
uint_8t HUART_SendBreak (
            void  )
```

Function of Send LIN Break

Parameters

NA	

Returns

uint_8t : OK | NOK

2.1.2.6 HUART_SetLBDCbf()

```
uint_8t HUART_SetLBDCbf (
            LBDCbf_t LBDCbf )
```

Function sets the LIN Break call back function.

Parameters

LBDCbf	Pointer to function , Take address of call back fuction

Returns

uint_8t : OK | NOK

2.1.2.7 HUART_SetRxCbf()

```
uint_8t HUART_SetRxCbf (
            RxCbf_t RxCbf )
```

Function sets the Received call back function.

Parameters

RxCbf	Pointer to function , Take address of call back fuction

Returns

uint_8t : OK | NOK

2.1.2.8 HUART_SetTxCbf()

```
uint_8t HUART_SetTxCbf (
            TxCbf_t TxCbf )
```

Function sets the send call back function.

Parameters

TxCbf	Pointer to function , Take address of call back fuction

Returns

uint_8t : OK | NOK

2.2 HUART/HUART.h File Reference

This file is the User Interface for UART Handler for UART Driver in STM32F103.

Typedefs

- typedef void(∗ TxCbf_t) (void)
  Pointer to function of TX Call Back Function.
- typedef void(∗ RxCbf_t) (void)
  Pointer to function of RX Call Back Function.
- typedef void(∗ LBDCbf_t) (void)
  Pointer to function of LIN Break Call Back Function.

Functions

- uint_8t HUART_Init (void)
  Function initilaize HUART.
- uint_8t HUART_Send (uint_8t ∗Buffer, uint_16t Length)
  Function sends bytes using UART.
- uint_8t HUART_Receive (uint_8t ∗Buffer, uint_16t Length)
  Function receives bytes using UART.
- uint_8t HUART_Config (uint_32t BaudRate, uint_32t ParityBits, uint_32t DataSize, uint_32t StopBits)
  Function configure HUART.
- uint_8t HUART_SetTxCbf (TxCbf_t TxCbf)
  Function sets the send call back function.
- uint_8t HUART_SetRxCbf (RxCbf_t RxCbf)
  Function sets the Received call back function.
- uint_8t HUART_SetLBDCbf (LBDCbf_t LBDCbf)
  Function sets the LIN Break call back function.
- uint_8t HUART_SendBreak (void)
  Function of Send LIN Break

2.2.1 Detailed Description

This file is the User Interface for UART Handler for UART Driver in STM32F103.

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2.2.2 Function Documentation

2.2.2.1 HUART_Config()

```
uint_8t HUART_Config (
            uint_32t BaudRate,
            uint_32t ParityBits,
            uint_32t DataSize,
            uint_32t StopBits )
```

Function configure HUART.

Parameters

BaudRate	Variable of uint_32t, variable that contains Baud Rate
ParityBits	Variable of uint_32t, variable that contains ParityState ex (PARITY_DISABLED, PARITY_EVEN)
DataSize	Variable of uint_32t, variable that contains DataSize (DATA_8_BITS OR DATA_9_BITS)
StopBits	Variable of uint_32t, variable that contains number of StopBits (ONE_STOP_BIT OR TWO_STOP_BIT)

Returns

uint_8t : OK | NOK

2.2.2.2 HUART_Init()

```
uint_8t HUART_Init (
            void  )
```

Function initilaize HUART.

Parameters

NA	

Returns

uint_8t : OK | NOK

2.2.2.3 HUART_Receive()

```
uint_8t HUART_Receive (
            uint_8t * Buffer,
            uint_16t Length )
```

Function receives bytes using UART.

Parameters

Buffer	Pointer to uint_8t, pointer that receive bytes
Length	Variable of uint_16t, variable that contains the Received bytes

Returns

uint_8t : OK | NOK

2.2.2.4 HUART_Send()

```
uint_8t HUART_Send (
             uint_8t * Buffer,
             uint_16t Length )
```

Function sends bytes using UART.

Parameters

Buffer	Pointer to uint_8t, pointer that contain the bytes to be sent
Length	Variable of uint_16t, variable that contains the number of Bytes to be sent

Returns

uint_8t : OK | NOK

2.2.2.5 HUART_SendBreak()

```
uint_8t HUART_SendBreak (
             void  )
```

Function of Send LIN Break

Parameters

NA	

Returns

uint_8t : OK | NOK

2.2.2.6 HUART_SetLBDCbf()

```
uint_8t HUART_SetLBDCbf (
            LBDCbf_t LBDCbf )
```

Function sets the LIN Break call back function.

Parameters

LBDCbf	Pointer to function , Take address of call back fuction

Returns

uint_8t : OK | NOK

2.2.2.7 HUART_SetRxCbf()

```
uint_8t HUART_SetRxCbf (
            RxCbf_t RxCbf )
```

Function sets the Received call back function.

Parameters

RxCbf	Pointer to function , Take address of call back fuction

Returns

uint_8t : OK | NOK

2.2.2.8 HUART_SetTxCbf()

```
uint_8t HUART_SetTxCbf (
            TxCbf_t TxCbf )
```

Function sets the send call back function.

Parameters

TxCbf	Pointer to function , Take address of call back fuction

Returns

uint_8t : OK | NOK

2.3 HUART/HUART_config.h File Reference

This file is the Configuration for UART Handler for UART Driver in STM32F103.

Macros

- #define SEND_MODE_INTERRUPT 0

  Interrupt Mode for Sending.
- #define SEND_MODE_DMA 1

  DMA Mode for Sending

- #define RECEIVE_MODE_INTERRUPT 0

  Interrupt Mode for Receiving.
- #define RECEIVE_MODE_DMA 1

  DMA Mode for Receiving

- #define LIN_ON 0

  Enable LIN.
- #define LIN_OFF 1

  Disable LIN.
- #define INTERRUPT_MODE 0

  used to Enable Interrupt Mode
- #define DMA_MODE 1

  used to Enable DMA Mode
- #define PARITY_DISABLED 0x00000000

  used to Disable Parity
- #define PARITY_EVEN 0x00000400

  used to Enable Even Parity
- #define PARITY_ODD 0x00000600

  used to Enable ODD Parity
- #define ONE_STOP_BIT 0x00000000

  used to Enable One Stop Bit
- #define TWO_STOP_BIT 0x00002000

  used to Enable Two Stop Bit
- #define DATA_8_BITS 0x00000000

  used to Enable 8 Data bits
- #define **DATA_9_BITS** 0x00001000
- #define PARITY_BIT PARITY_DISABLED

  used to Configure Parity Bit (PARITY_DISABLED OR PARITY_EVEN OR PARITY_ODD)
- #define STOP_BITS ONE_STOP_BIT

  used to Configure Stop Bits (ONE_STOP_BIT OR TWO_STOP_BIT)
- #define DATA_BITS DATA_8_BITS

  used to Configure Data Bits (DATA_8_BITS OR DATA_9_BITS)
- #define BAUD_RATE_9600 9600

  Baud Rate is 9600.
- #define BAUD_RATE_115200 115200

  Baud Rate is 115200.
- #define SEND_MODE SEND_MODE_DMA

  used to Configure Mode (SEND_MODE_INTERRUPT OR SEND_MODE_DMA)
- #define RECEIVE_MODE RECEIVE_MODE_DMA

used to Configure Mode (RECEIVE_MODE_DMA OR RECEIVE_MODE_INTERRUPT)

- #define MODE DMA_MODE

  used to Configure Mode (DMA_MODE OR INTERRUPT_MODE)

- #define LIN_MODE LIN_ON

  used to Enable LIN

- #define BAUD_RATE BAUD_RATE_115200

  used to Configure Baud Rate (BAUD_RATE_115200 OR BAUD_RATE_9600)

2.3.1 Detailed Description

This file is the Configuration for UART Handler for UART Driver in STM32F103.

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2.3.2 Macro Definition Documentation

2.3.2.1 DATA_8_BITS

```
#define DATA_8_BITS 0x00000000
```

used to Enable 8 Data bits

used to Enable 9 Data bits

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