Timing Library

0.1.0

Project Overview

Contents

1 Changelog for the Timing Library

Release v0.1.0 - [2018-11-07]

1. Initial release of library. Validated to work on:
   - PIC32MX370F512L
   - PIC32MX795F512H
2. Developed using Microchip's legacy library on MPLAB 8 and then ported over to MPLAB X.
3. Contains support for delay's (micro and milli second support).

2 Background

The 'Timing Library' provides utility timing functions for the following platform(s):

- PIC32MX

Dependencies

This project is dependent upon the following projects:

1. `doxygen`
   - Used to generate <docs> folder output.
   - Cloned instance should be named "doxygen" and live as a sibling to this repository.

Detailed Overview

For complete details on how to use, modify, and expand this utility, please see the provided `Doxygen Summary`

Development History

For complete details on the what was changed for the latest release, please see the Changelog.md

Licensing

3 File Index

3.1 File List

Here is a list of all files with brief descriptions:

4 File Documentation

4.1 Changelog.md File Reference

4.2 delay.c File Reference

Implements functions used to abstract away interacting with Wii devices over I2C.

```
#include "delay.h"
```
Include dependency graph for delay.c:

4.3 delay.h File Reference

Defines public constants and prototypes related to delaying processing.

```
#include <stdint.h>
```
Include dependency graph for delay.h: This graph shows which files directly or indirectly include this file:

Macros

- #define MICRO_SECONDS_PER_TICK 1000000

  Number of microseconds that will occur within one tick of the system clock.
- #define MILLI_SECONDS_PER_TICK 1000

  Number of milliseconds that will occur within one tick of the system clock.

Functions

- void Delay_Init (uint32_t sysClk)

  Initializes internal variable(s) used to determine delay time in system ticks.
- void Delay_Us (uint32_t duration)

  Delays processing for the given number of microseconds.
- void Delay_Ms (uint32_t duration)

  Delays processing for the given number of milliseconds.

4.3.1 Detailed Description

Defines public constants and prototypes related to delaying processing.

4.3.2 Macro Definition Documentation

4.3.2.1 MICRO_SECONDS_PER_TICK

```
#define MICRO_SECONDS_PER_TICK 1000000
```

Number of microseconds that will occur within one tick of the system clock.

4.3.2.2 MILLI_SECONDS_PER_TICK

```
#define MILLI_SECONDS_PER_TICK 1000
```

Number of milliseconds that will occur within one tick of the system clock.

4.3.3 Function Documentation

4.3.3.1 Delay_Init()

```
void Delay_Init (
             uint32_t sysClk )
```

Initializes internal variable(s) used to determine delay time in system ticks.

[in] sysClk Current system clock value in Hz (e.g. 80000000).

4.3.3.2 Delay_Ms()

```
void Delay_Ms (
             uint32_t duration )
```

Delays processing for the given number of milliseconds.

Uses the number of core processor ticks to determine the number of ticks to execute a while-loop. This loop effectively delays non-interrupt driven processing. Bare in mind, this is not a precise implementation but will [minimally] provide the delay requested.

[in] duration Number of milliseconds to delay processing.

4.3.3.3 Delay_Us()

```
void Delay_Us (
             uint32_t duration )
```

Delays processing for the given number of microseconds.

Uses the number of core processor ticks to determine the number of ticks to execute a while-loop. This loop effectively delays non-interrupt driven processing. Bare in mind, this is not a precise implementation but will [minimally] provide the delay requested.

[in] duration Number of microseconds to delay processing.

4.4 README.md File Reference