Erriez Timestamp library for Arduino

1.0.0

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Contents

Chapter 1

Timestamp measuring library for Arduino

This is a timestamp library for Arduino to measure execution durations in microseconds or milliseconds resolution.

Hardware

Any Arduino / ESP8266 board.

Library documentation

- Doxygen online HTML
- Doxygen PDF

Examples

The following examples are available:

- Examples | Erriez Timestamp | Microseconds
- Examples | Erriez Timestamp | Milliseconds

Example output Timestamp | Microseconds

```
1 Timestamp with microseconds resolution example
2
3 Printing this message takes: 768us
4 And this message takes: 2044us
5 delayMicroseconds(15) duration: 20us
6 analogRead() duration: 212us
7 digitalRead() duration: 4us
```

Example output Timestamp | Milliseconds

```
1 Timestamp with milliseconds resolution example
2
3 delay(15) takes:
4 15ms
5 14ms
6 16ms
7 15ms
8 15ms
9 16ms
10 14ms
11 15ms
12 16ms
13 15ms
```

Usage

Initialization

Add include file:

```
1 {c++}
2 #include <Timestamp.h>
```

Create timestamp object with microseconds resolution:

```
1 {c++}
2 TimestampMicros timestamp;
```

Create timestamp object with milliseconds resolution:

```
1 {c++}
2 TimestampMillis timestamp;
```

Single measurement

```
1 {c++}
2 unsigned long duration;
3
4 // Start measurement
5 timestamp.start();
6 // Do something
7 duration = timestamp.end();
8
9 // Start new measurement
10 timestamp.start();
11 // Do something
12 duration = timestamp.end();
```

Multiple measurements

```
1 {c++}
2 // Start timestamp
3 timestamp.start();
4 // Do something and print timstamp
5 timestamp.print();
6
7 // Do something and print timestamp without calling start()
8 timestamp.print();
```

Constraints

TimestampMicros uses the function micros(). TimestampMillis uses the function millis().

Please refer to the description of these functions for the maximum possible duration:

- https://www.arduino.cc/reference/en/language/functions/time/micros/
- https://www.arduino.cc/reference/en/language/functions/time/millis/

Library installation

Please refer to the Wiki page.

Other Arduino Libraries and Sketches from Erriez

- Erriez Libraries and Sketches

Chapter 2

Hierarchical Index

2.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

Chapter 3

Class Index

3.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

Chapter 4

File Index

4.1 File List

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

Chapter 5

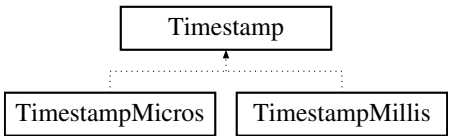
Class Documentation

5.1 Timestamp Class Reference

Timstamp class.

`#include <Timestamp.h>`

Inheritance diagram for Timestamp:



Public Member Functions

- Timestamp ()

  Timestamp constructor.
- virtual void start ()=0

  Derived class must implement start()
- virtual unsigned long end ()=0

  Derived class must implement end()
- virtual unsigned long print ()=0

  Derived class must implement print()

Protected Attributes

- unsigned long _timestampStart

  Timestamp at the beginning of a measurement.

5.1.1 Detailed Description

Timstamp class.

Definition at line 42 of file Timestamp.h.

The documentation for this class was generated from the following files:

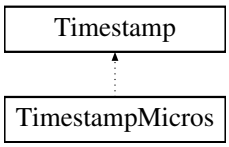
- Timestamp.h
- Timestamp.cpp

5.2 TimestampMicros Class Reference

TimestampMicros class derived from Timestamp.

`#include <Timestamp.h>`

Inheritance diagram for TimestampMicros:



Public Member Functions

- void start () override

  Start measurement in microseconds.
- unsigned long end () override

  End measurement.
- unsigned long print () override

  Print measurement in microseconds.

5.2.1 Detailed Description

TimestampMicros class derived from Timestamp.

Definition at line 58 of file Timestamp.h.

5.2.2 Member Function Documentation

5.2.2.1 unsigned long TimestampMicros::end ( ) [override], [virtual]

End measurement.

Returns

Duration in micro seconds

Implements Timestamp.

Definition at line 57 of file Timestamp.cpp.

5.2.2.2 unsigned long TimestampMicros::print ( ) [override], [virtual]

Print measurement in microseconds.

Returns

Duration in microseconds

Implements Timestamp.

Definition at line 71 of file Timestamp.cpp.

The documentation for this class was generated from the following files:

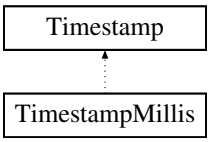
- Timestamp.h
- Timestamp.cpp

5.3 TimestampMillis Class Reference

TimestampMillis class derived from Timestamp.

`#include <Timestamp.h>`

Inheritance diagram for TimestampMillis:



Public Member Functions

- void start () override

  Start measurement in milliseconds.
- unsigned long end () override

  End measurement.
- unsigned long print () override

  Print measurement in milliseconds.

5.3.1 Detailed Description

TimestampMillis class derived from Timestamp.

Definition at line 69 of file Timestamp.h.

5.3.2 Member Function Documentation

5.3.2.1 unsigned long TimestampMillis::end ( ) [override], [virtual]

End measurement.

Returns

Duration in milliseconds

Implements Timestamp.

Definition at line 100 of file Timestamp.cpp.

5.3.2.2 unsigned long TimestampMillis::print ( ) [override], [virtual]

Print measurement in milliseconds.

Returns

Duration in milliseconds

Implements Timestamp.

Definition at line 114 of file Timestamp.cpp.

The documentation for this class was generated from the following files:

- Timestamp.h
- Timestamp.cpp

Chapter 6

File Documentation

6.1 Timestamp.cpp File Reference

Timestamp library for Arduino.

```
#include "Timestamp.h"
```

6.1.1 Detailed Description

Timestamp library for Arduino.

Source: https://github.com/Erriez/ErriezTimestamp Documentation: https://erriez.↩
github.io/ErriezTimestamp

6.2 Timestamp.h File Reference

Timestamp library for Arduino.

```
#include <Arduino.h>
```

Classes

- class Timestamp

  Timstamp class.
- class TimestampMicros

  TimestampMicros class derived from Timestamp.
- class TimestampMillis

  TimestampMillis class derived from Timestamp.

6.2.1 Detailed Description

Timestamp library for Arduino.

Source: https://github.com/Erriez/ErriezTimestamp Documentation: https://erriez.↩
github.io/ErriezTimestamp

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