

Erriez Timestamp library for Arduino
1.0.0

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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.

Usage

Initialization

Add include file:

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

Create timestamp object with microseconds resolution:

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

Create timestamp object with milliseconds resolution:

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

Single measurement

```
{c++}  
unsigned long duration;  
  
// Start measurement  
timestamp.start();  
// Do something  
duration = timestamp.end();  
  
// Start new measurement  
timestamp.start();  
// Do something  
duration = timestamp.end();
```

Multiple measurements

```
{c++}  
// Start timestamp  
timestamp.start();  
// Do something and print timestamp  
timestamp.print();  
  
// Do something and print timestamp without calling start()  
timestamp.print();
```

Examples

The following examples are available:

- Examples | Erriez [Timestamp](#) | [Microseconds](#)
- Examples | Erriez [Timestamp](#) | [Milliseconds](#)

Example output [Timestamp](#) | Microseconds

Timestamp with microseconds resolution example

```
Printing this message takes: 768us
And this message takes: 2044us
delayMicroseconds(15) duration: 20us
analogRead() duration: 212us
digitalRead() duration: 4us
```

Example output [Timestamp](#) | Milliseconds

Timestamp with milliseconds resolution example

```
delay(15) takes:
15ms
14ms
16ms
15ms
15ms
16ms
14ms
15ms
16ms
15ms
```

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 documentation

- [Doxygen online HTML](#)
- [Doxygen PDF](#)

Library installation

Please refer to the [Wiki](#) page.

Chapter 2

Hierarchical Index

2.1 Class Hierarchy

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

Timestamp	9
TimestampMicros	10
TimestampMillis	11

Chapter 3

Class Index

3.1 Class List

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

Timestamp	
Timestamp class	9
TimestampMicros	
TimestampMicros class derived from Timestamp	10
TimestampMillis	
TimestampMillis class derived from Timestamp	11

Chapter 4

File Index

4.1 File List

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

Timestamp.cpp	
Timestamp library for Arduino	13
Timestamp.h	
Timestamp library for Arduino	13

Chapter 5

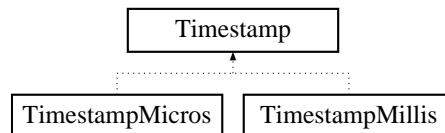
Class Documentation

5.1 Timestamp Class Reference

Timestamp 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

Timestamp class.

Definition at line 41 of file Timestamp.h.

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

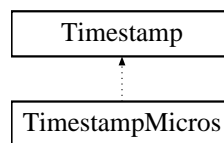
- [Timestamp.h](#)
- [Timestamp.cpp](#)

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 57 of file Timestamp.h.

5.2.2 Member Function Documentation

5.2.2.1 end()

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

End measurement.

Returns

Duration in micro seconds

Implements [Timestamp](#).

Definition at line 56 of file Timestamp.cpp.

5.2.2.2 print()

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

Print measurement in microseconds.

Returns

Duration in microseconds

Implements [Timestamp](#).

Definition at line 70 of file Timestamp.cpp.

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

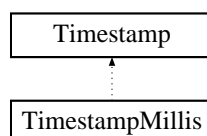
- [Timestamp.h](#)
- [Timestamp.cpp](#)

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 68 of file [Timestamp.h](#).

5.3.2 Member Function Documentation

5.3.2.1 [end\(\)](#)

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

End measurement.

Returns

Duration in milliseconds

Implements [Timestamp](#).

Definition at line 99 of file [Timestamp.cpp](#).

5.3.2.2 [print\(\)](#)

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

Print measurement in milliseconds.

Returns

Duration in milliseconds

Implements [Timestamp](#).

Definition at line 113 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.

<https://github.com/Erriez/ErriezTimestamp>

6.2 Timestamp.h File Reference

[Timestamp](#) library for Arduino.

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

Classes

- class [Timestamp](#)
Timestamp class.
- class [TimestampMicros](#)
TimestampMicros class derived from Timestamp.
- class [TimestampMillis](#)
TimestampMillis class derived from Timestamp.

6.2.1 Detailed Description

[Timestamp](#) library for Arduino.

<https://github.com/Erriez/ErriezTimestamp>

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end

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TimestampMillis, [12](#)

print

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