

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.

### 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 <ErriezTimestamp.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 timestamp
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:

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:

<a href="#">Timestamp</a>	
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TimestampMicros class derived from <a href="#">Timestamp</a> . . . . .	10
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TimestampMillis class derived from <a href="#">Timestamp</a> . . . . .	11



## Chapter 4

# File Index

### 4.1 File List

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

<a href="#">ErriezTimestamp.cpp</a>	
<a href="#">Timestamp</a> library for Arduino	13
<a href="#">ErriezTimestamp.h</a>	
<a href="#">Timestamp</a> library for Arduino	13



## Chapter 5

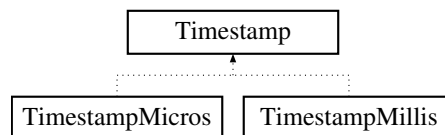
# Class Documentation

### 5.1 Timestamp Class Reference

Timestamp class.

```
#include <ErriezTimestamp.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 42 of file ErriezTimestamp.h.

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

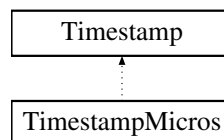
- [ErriezTimestamp.h](#)
- [ErriezTimestamp.cpp](#)

## 5.2 TimestampMicros Class Reference

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

```
#include <ErriezTimestamp.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 ErriezTimestamp.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 ErriezTimestamp.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 ErriezTimestamp.cpp.

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

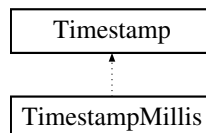
- [ErriezTimestamp.h](#)
- [ErriezTimestamp.cpp](#)

## 5.3 TimestampMillis Class Reference

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

```
#include <ErriezTimestamp.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 ErriezTimestamp.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 `ErriezTimestamp.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 `ErriezTimestamp.cpp`.

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

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



## Chapter 6

# File Documentation

### 6.1 ErriezTimestamp.cpp File Reference

Timestamp library for Arduino.

```
#include "ErriezTimestamp.h"
```

#### 6.1.1 Detailed Description

Timestamp library for Arduino.

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

### 6.2 ErriezTimestamp.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.

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



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