ligotimegps

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CONTENTS

ligotimegps provides a pure-python version of the `lal.LIGOTimeGPS` object, used to represent GPS times (number of seconds elapsed since GPS epoch) with nanoseconds precision.

The code provided here is much slower than the C-implementation provided by LAL, so if you really care about performance, don't use this module.

Documentation contents:

CHAPTER

ONE

INSTALLATION

1.1 Pip

```
python -m pip install ligotimegps
```

Supported python versions: 2.7, 3.4+.

1.2 Conda

```
conda install -c conda-forge ligotimegps
```

Supported python versions: 2.7, 3.5+.

CHAPTER

TWO

CLASSES

LIGOTimeGPS(seconds[, nanoseconds])	An object for storing times with nanosecond resolution

2.1 LIGOTimeGPS

class ligotimegps.**LIGOTimeGPS**(*seconds*, *nanoseconds=0*)

Bases: object

An object for storing times with nanosecond resolution

Internally the time is represented as a signed integer *gpsSeconds* part and an unsigned integer gpsNanoseconds part. The actual time is always constructed by adding the nanoseconds to the seconds. So -0.5 s is represented by setting seconds = -1, and nanoseconds to 500000000.

Parameters

- **seconds** (int, str) – the count of seconds
- **nanoseconds** (int, str, optional) – the count of nanoseconds

Examples

```
>>> LIGOTimeGPS(100.5)
LIGOTimeGPS(100, 500000000)
>>> LIGOTimeGPS("100.5")
LIGOTimeGPS(100, 500000000)
>>> LIGOTimeGPS(100, 500000000)
LIGOTimeGPS(100, 500000000)
>>> LIGOTimeGPS(0, 100500000000)
LIGOTimeGPS(100, 500000000)
>>> LIGOTimeGPS(100.2, 300000000)
LIGOTimeGPS(100, 500000000)
>>> LIGOTimeGPS("0.000000001")
LIGOTimeGPS(0, 1)
>>> LIGOTimeGPS("0.0000000012")
LIGOTimeGPS(0, 1)
>>> LIGOTimeGPS("0.0000000018")
LIGOTimeGPS(0, 2)
>>> LIGOTimeGPS("-0.8")
LIGOTimeGPS(-1, 200000000)
>>> LIGOTimeGPS("-1.2")
LIGOTimeGPS(-2, 800000000)
```

Attributes Summary

gpsNanoSeconds	residual nanoseconds
gpsSeconds	Seconds since 0h UTC 6 Jan 1980
nanoseconds	residual nanoseconds
seconds	Seconds since 0h UTC 6 Jan 1980

Methods Summary

ns()	Convert a *LIGOTimeGPS* to a count of nanoseconds as an int

Attributes Documentation

gpsNanoSeconds
residual nanoseconds

gpsSeconds
Seconds since 0h UTC 6 Jan 1980

nanoseconds
residual nanoseconds

seconds
Seconds since 0h UTC 6 Jan 1980

Methods Documentation

ns()
Convert a *LIGOTimeGPS* to a count of nanoseconds as an int

When running python2.7 on Windows this is returned as `numpy.long` to guarantee long-ness.

Examples

```
>>> LIGOTimeGPS(100.5).ns()
100500000000
```

CHAPTER

THREE

SUPPORT

To ask a question, report an issue, or suggest a change, please open a ticket on GitHub.

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