
PyQuEST-ffi Documentation

Release 3.0.1

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May 07, 2021

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PyQuEST-ffi is a python interface to QuEST(<https://github.com/QuEST-Kit/QuEST>) based on cffi(<https://cffi.readthedocs.io/en/latest/index.html>) developed by HQS Quantum Simulations. QuEST is an open source toolkit for the simulation of quantum circuits (quantum computers).

PyQuEST-ffi provides two main functionalities:

1. An interactive python to QuEST interface based on cffi, mapping QuEST functions to python and executing them during runtime.
2. A compile function generating a complete QuEST c-source-file from python calls, building it and importing it into python via cffi).

For more information see the detailed code documentation below

Note

Please note, PyQuEST-cffi is currently in the alpha stage and not an official QuEST project.

PyQuEST-cffi currently depends on a forked version of the development branch of QuEST. We plan to move dependency to the official QuEST master and bring PyQuEST-cffi to beta stage after the next official QuEST release.

In the developing branches of QuEST the QuEST project has implemented a ctypes-based python interface QuestPy(<https://github.com/QuEST-Kit/QuEST/tree/PythonTesting/tests/QuESTPy>) for unit testing.

Do not assume that any bugs occurring using PyQuEST-cffi are QuEST bugs unless the same bug occurs when compiling/using a QuEST c-programm with the official release version of QuEST(<https://github.com/QuEST-Kit/QuEST>).

1.1 PyQuEST-cffi

Provides a python interface for QuEST.

<code>pyquest_cffi.ops</code>	Gate operations in PyQuest-cffi
<code>pyquest_cffi.cheat</code>	Cheated functions in PyQuest-cffi
<code>pyquest_cffi.utils</code>	Utilities to create and destroy environment etc.

1.2 PyQuEST-cffi README

[Documentation Status](#) [GitHub Workflow Status](#) [PyPI](#) [PyPI - License](#) [PyPI - Format](#)

PyQuEST-cffi is a python interface to [QuEST](#) based on [cffi](#) developed by HQS Quantum Simulations. QuEST is an open source toolkit for the simulation of quantum circuits (quantum computers).

PyQuEST-cffi provides an interactive python to QuEST interface based on cffi, mapping QuEST functions to python and executing them during runtime.

For more information see the detailed code [documentation](#)

1.2.1 Note

Please note, PyQuEST-cffi is not an official QuEST project.

In the developing branches of QuEST the QuEST project has implemented a `ctypes`-based python interface `QuestPy` for unit testing.

Do not assume that any bugs occurring using PyQuEST-cffi are QuEST bugs unless the same bug occurs when compiling/using a QuEST c-program with the official release version of `QuEST`.

1.2.2 Installation

We do provide a PyPi source packages. The recommended way to install PyQuEST-cffi is

```
pip install pyquest_cffi
```

If you want to install PyQuEST-cffi in development mode we recommend

```
# PyQuEST-cffi add QuEST as a git submodule
git clone --recurse-submodules https://github.com/HQSquantumsimulations/PyQuEST-cffi.
↪git
pip install -e PyQuEST-cffi/
```

CHAPTER 2

Indices and tables

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