

Python on ADAM5630

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I/O Library.

Why Python

Simple and Easy

Free and Open-source

Extensive Support Libraries

High Portability

Why Python

Simple and Easy

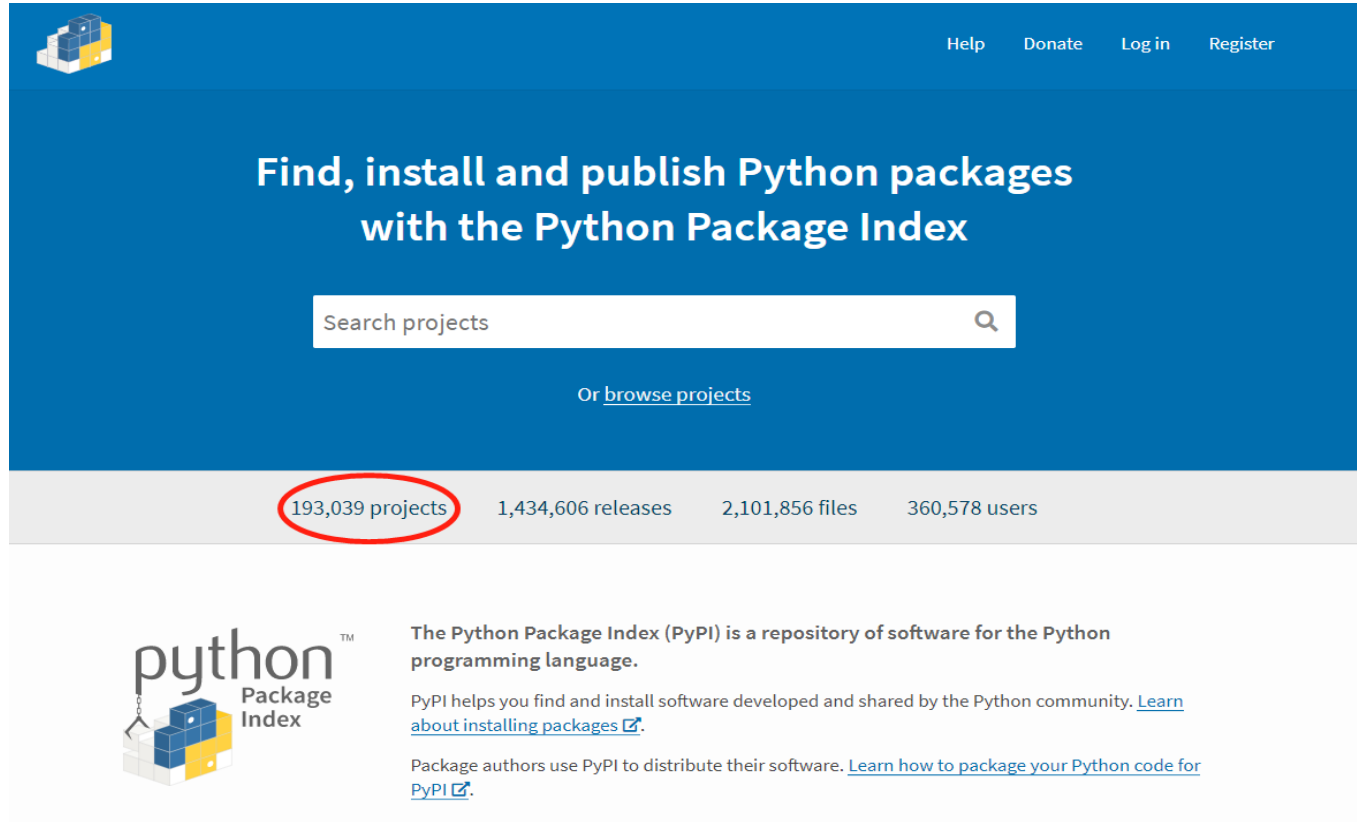
```
script.py  IPython Shell
1  # Python Program to calculate the square root
2
3  # Note: change this value for a different result
4  num = 8
5
6  # uncomment to take the input from the user
7  #num = float(input('Enter a number: '))
8  num_sqrt = num ** 0.5
9  print('The square root of %.3f is %.3f'%(num ,num_sqrt))|
```

Output

```
The square root of 8.000 is 2.828
```

Why Python

Extensive Support Libraries



The screenshot shows the Python Package Index (PyPI) website. At the top, there is a blue header with a logo on the left and links for Help, Donate, Log in, and Register on the right. The main content area has a blue background with the text "Find, install and publish Python packages with the Python Package Index". Below this is a search bar with the placeholder text "Search projects" and a magnifying glass icon. Under the search bar, there is a link that says "Or [browse projects](#)". A light gray bar below the search area displays statistics: "193,039 projects" (circled in red), "1,434,606 releases", "2,101,856 files", and "360,578 users". At the bottom, there is a section with the Python Package Index logo on the left and text on the right. The text describes PyPI as a repository of software for the Python programming language and provides links to learn more about installing packages and packaging Python code for PyPI.


Help Donate Log in Register

Find, install and publish Python packages
with the Python Package Index

Search projects

Or [browse projects](#)

193,039 projects 1,434,606 releases 2,101,856 files 360,578 users

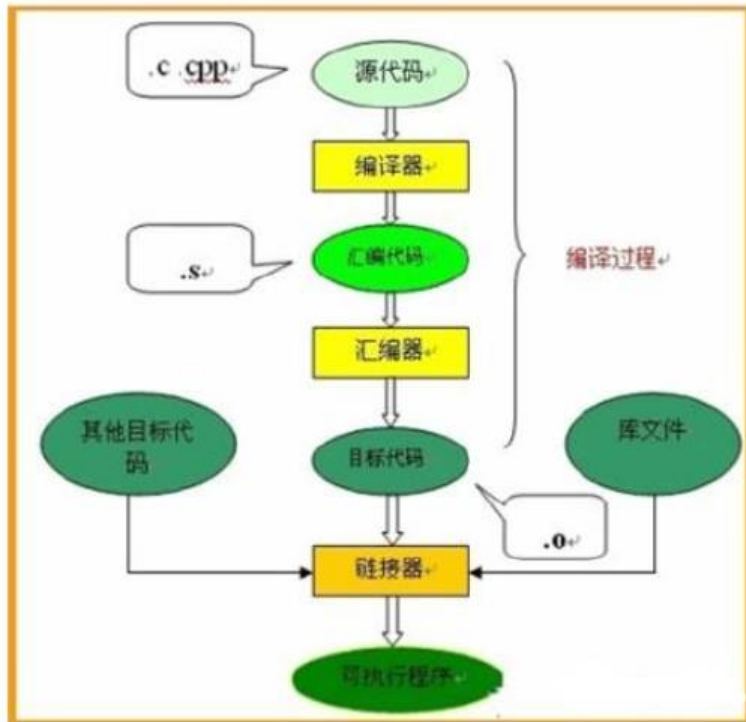
 The Python Package Index (PyPI) is a repository of software for the Python programming language.

PyPI helps you find and install software developed and shared by the Python community. [Learn about installing packages](#).

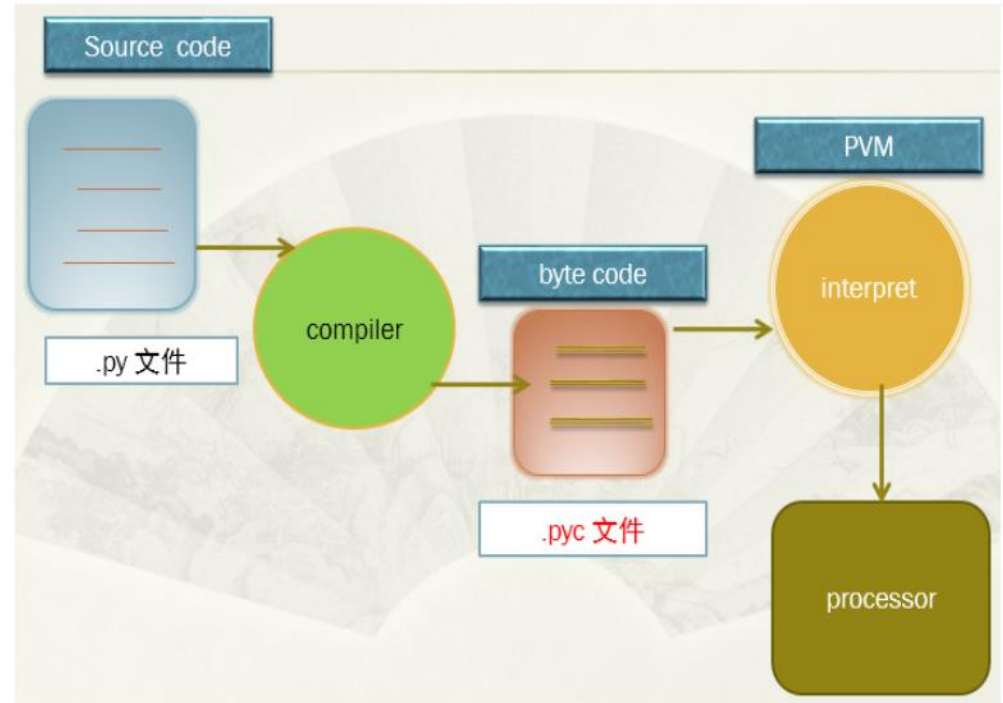
Package authors use PyPI to distribute their software. [Learn how to package your Python code for PyPI](#).

Why Python

High Portability



C/C++ 代码编译流程



Python 代码编译流程

How to Install Python on ADAM5630 ?

(1) Copy the Compression packages to ADAM5630

using your any network tools ,such as : scp , nfs , ssh , ftp

(2) Unzip to ADAM5630

```
$ tar xvf python2.7.14.tar.gz -C /home
```

(3) Modify Environment Variables

```
$ sh /home/python2.7.14/share/set_env.sh
```

```
$ reboot
```

How to Install Python on ADAM5630 ?

(4) Check if python is installed

```
root@adam5630:/home# python
Python 2.7.14 (default, Nov 30 2017, 17:21:19)
[GCC 4.7.3 20130226 (prerelease)] on linux2
Type "help", "copyright", "credits" or "license" for more information.
>>>
>>>
>>>
>>>
```


How to Install Python on ADAM5630 ?

(5) How to Install Extensive Support Libraries

```
$ pip install pyserial
```

```
root@adam5630:/home/python2.7.14/share/python-adam5630# pip install pyserial
DEPRECATION: Python 2.7 will reach the end of its life on January 1st, 2020.
on of pip will drop support for Python 2.7.
Looking in indexes: http://mirrors.aliyun.com/pypi/simple/
Collecting pyserial
  Downloading http://mirrors.aliyun.com/pypi/packages/0d/e4/2a744dd9e3be04a0c
    100% |#####| 194kB 2.3MB/s
Installing collected packages: pyserial
Successfully installed pyserial-3.4
```

<https://pythonhosted.org/pyserial/>

Care : we can not install some libraries that depend on C libraries on embedded platform.

Show how to use ADAM5630 IO example.

(1) Where to find Python IO example

\$ cd /home/python2.7.14/share/python-adam5630

```
root@adam5630:/home/python2.7.14/share/python-adam5630# ls
AIIntgrationTime  adam5024          adam5081          adamdi            bdaqadamio.py
GetSlotInfo       adam5080          adamAIread        adamdo            bdaqadamio.pyc
```

Show how to use ADAM5630 IO example.

(1) GetSlotInfo

```
root@adam5630:/home/python2.7.14/share/python-adam5630# ./GetSlotInfo
/*** GetSlotInfo Sample ***/
myprocHandle612264
Node ID:0x3
Slot 0: ADAM5052
Slot 1: ADAM5024
Slot 2: ADAM5017
Slot 3: ADAM5081
Slot 4: ADAM5056
Slot 5: ADAM5057
Slot 6: ADAM5055
Slot 7: ADAM5050
/***          END          ***/
```

Show how to use ADAM5630 IO example.

(2) AllIntegrationTime

```
root@adam5630:/home/python2.7.14/share/python-adam5630# ./AIIntgrationTime
/*** Intgration Time sample ***/
Select slotid: 1
AI_GetRangeIntegrationTime:
Enter IntegrationTime[0:60Hz,1:50Hz] 0 50 Hz
AI_SetRangeIntegrationTime done.
AI_GetRangeIntegrationTime: 60 Hz
/***          END          ***/
root@adam5630:/home/python2.7.14/share/python-adam5630# ./AIIntgrationTime
/*** Intgration Time sample ***/
Select slotid: 1
AI_GetRangeIntegrationTime:
Enter IntegrationTime[0:60Hz,1:50Hz]: 60 Hz
```

Diagram annotations:

- A red box around the input `0` is labeled **Set** with a red arrow.
- A red box around the output `50 Hz` is labeled **Current** with a red arrow.
- A red box around the input `60 Hz` is labeled **Success** with a red arrow.

Show how to use ADAM5630 IO example.

(3) adam5024

```
root@adam5630:/home/python2.7.14/share/python-adam5630# ./adam5024
/*** Adam5024 Sample ***/
Select slotid:2
Get Current Status.
=====
AO0 : 0x7FF      5.000000
Range0 : 0~10v
AO1 : 0x20       0.080000
Range1 : 0~10v
AO2 : 0x4CC      3.000000
Range2 : 0~10v
AO3 : 0x20       0.080000
Range3 : 0~10v
Set output value :1
Set AO0: 1.000000
Set AO1: 1.000000
Set AO2: 1.000000
Set AO3: 1.000000

Check Result.
=====
AO0 : 0x199      1.000000
Range0 : 0~10v
AO1 : 0x199      1.000000
Range1 : 0~10v
AO2 : 0x199      1.000000
Range2 : 0~10v
AO3 : 0x199      1.000000
Range3 : 0~10v

/***          END          ***/
```

Show how to use ADAM5630 IO example.

(4) adam5081

```
root@adam5630:/home/python2.7.14/share/python-adam5630# ./adam5081
/*** Adam5081 Sample ***/
Select slotid:3
Counter Mode: Up
Counter Mode: Up
Counter Mode: Up
Counter Mode: Up
Cnt0 : 0

Cnt1 : 0

Cnt2 : 0

Cnt3 : 0

CNT_SetRange(ch0) done.
CNT_SetRange(ch1) done.
CNT_SetRange(ch2) done.
CNT_SetRange(ch3) done.
```

```
Counter Mode: Up
Counter Mode: Up
Counter Mode: Up
Counter Mode: Up
Cnt0 : 0

Cnt1 : 0

Cnt2 : 0

Cnt3 : 0

Cnt0 : 0

Cnt1 : 0

Cnt2 : 0

Cnt3 : 0
```

Show how to use ADAM5630 IO example.

(5) adamdi

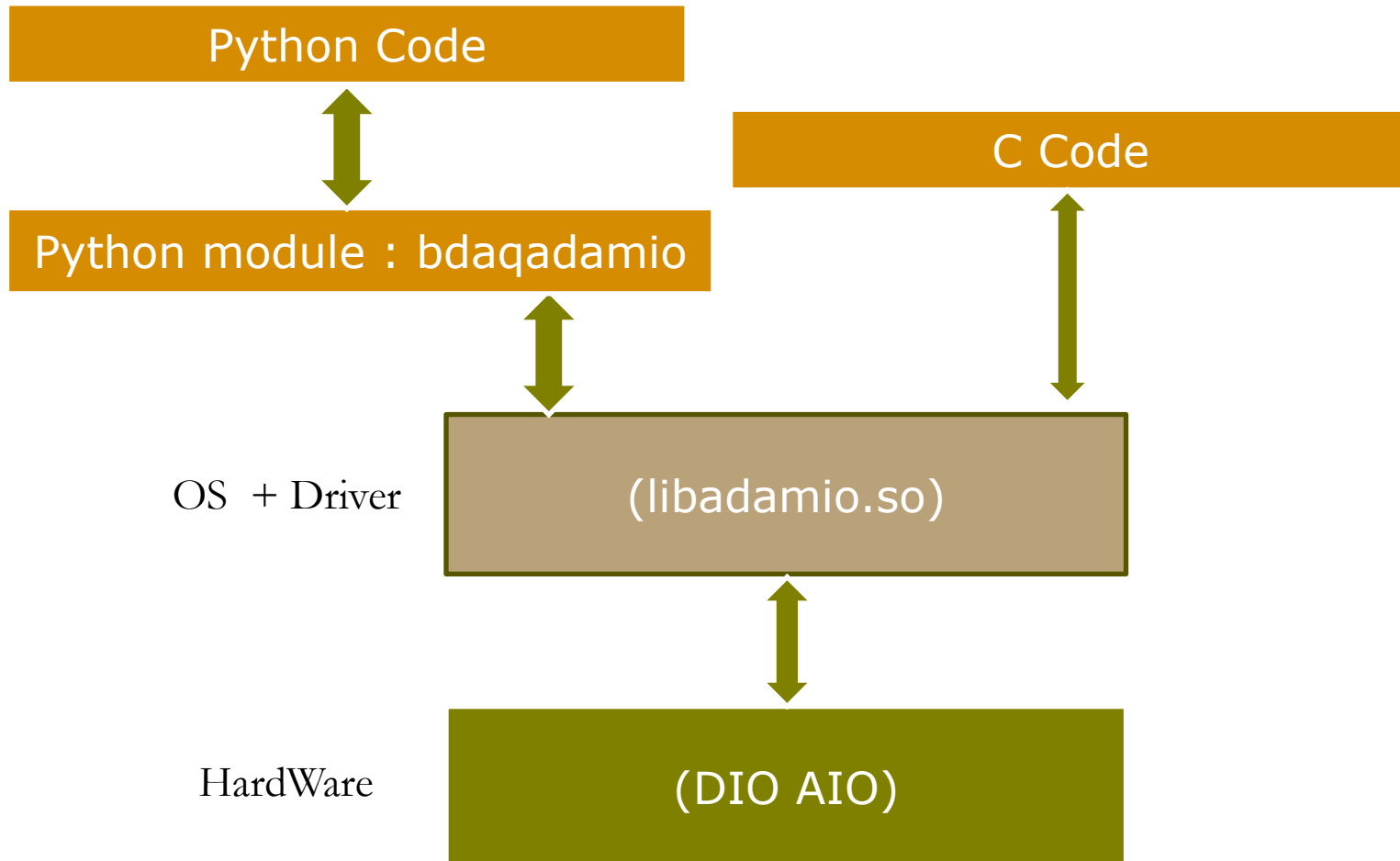
```
root@adam5630:/home/python2.7.14/share/python-adam5630# ./adamdi
/*** Adam50XXDI Sample ***/
Select slotid: 3
Select channel: 0
GetValues: 0
Ch0:0
```

Show how to use ADAM5630 IO example.

(6) adamdo

```
root@adam5630:/home/python2.7.14/share/python-adam5630# ./adamdo
/*** Adam50XXDO Sample ***/  
Select slotid: 4  
Set output value(HEX): 0xf0f0  
SetValue done: 0xF0F0.  
GetValues: f0f0  
Ch0:0  
/***          END          ***/  
ADAM5056  
-16DO
```


Secondary Development on Python I/O Library.



Secondary Development on Python I/O Library.

Python module : bdaqadamio

```
root@adam5630:/home/python2.7.14/share/python-adam5630# ls -l
total 88
-rwx--x--x  1 root    root      2066 Jul 28  2015 AIIntgrationTime
-rwx--x--x  1 root    root      1871 Jul 28  2015 GetSlotInfo
-rwx--x--x  1 root    root      5207 Jul 28  2015 adam5024
-rwx--x--x  1 root    root     16720 Jul 28  2015 adam5080
-rwx--x--x  1 root    root      5785 Jul 28  2015 adam5081
-rwx--x--x  1 root    root     14907 Jul 28  2015 adamAIread
-rwx--x--x  1 root    root      1259 Jul 28  2015 adamdi
-rwx--x--x  1 root    root      1696 Jul 28  2015 adamdo
-rwx--x--x  1 root    root     19386 Aug 23 11:06 bdaqadamio.py
root@adam5630:/home/python2.7.14/share/python-adam5630#
```

Secondary Development on Python I/O Library.

Python module : bdaqadamio

```
import ctypes
from ctypes import cdll
from ctypes import *

Lib5630 = cdll.LoadLibrary('/home/root/lib/libadamio.so')

def ADAMDrvOpen(myprocHandle) :
    ret = Lib5630.ADAMDrvOpen(byref(myprocHandle))
    return ret

def ADAMDrvClose(myprocHandle) :
    ret = Lib5630.ADAMDrvClose(byref(myprocHandle))
    return ret

def SYS_GetModuleID(myprocHandle, iSlot, id) :
    ret = Lib5630.SYS_GetModuleID(myprocHandle, iSlot, byref(id))
    return ret

def SYS_GetModuleName(myprocHandle, iSlot, byName) :
    ret = Lib5630.SYS_GetModuleName(myprocHandle, iSlot, (byName))
    return ret

def SYS_GetNodeID(myprocHandle, nodeid) :
    ret = Lib5630.SYS_GetNodeID(myprocHandle, byref(nodeid))
    return ret
```

bdaqadamio.py

```
#!/usr/bin/env python

#coding=utf-8
from ctypes import *
import bdaqadamio
import time

def OpenLib() :
    global myprocHandle
    ret = bdaqadamio.ADAMDrvOpen(myprocHandle)
    print("myprocHandle%d"%myprocHandle.value)

    if ret == 0:
        return 0
    else :
        return -99

def CloseLib() :
    global myprocHandle
    if myprocHandle != 0 :
        bdaqadamio.ADAMDrvClose(myprocHandle)
```

example.py

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