

Akida 1000 and 1500 Driver *User Guide*

version 1.0

1 Introduction

The Akida Driver supports all AKD1000 and AKD1500 modules including PCIe and M.2 form factors. It will work out-of-the-box using Ubuntu 16.04, 18.04, and 20.04. The Driver supports many Ubuntu-based Linux distributions running on x86-64 and aarch64 architecture, although some kernel versions are not officially supported. In this user guide, we will use PCIe as an example.

2 Installation steps

2.1 Plug in the board

After turning off the power supply of your host machine, you can plug in your Akida PCIe card on your system.

2.2 Check board presence

Open a terminal on your system and check if the PCIe card is plugged in correctly, entering

```
lspci | grep Co-processor
```

You should get this output

```
bcdemo@mypi:~$ lspci | grep Co-processor
01:00.0 Co-processor: Device 1e7c:bca1 (rev 01)
```

Or

```
bcdemo@mypi:~$ lspci | grep Co-processor
01:00.0 Co-processor: Brainchip Inc AKD1000 Neural Network Coprocessor [Akida] (rev 01)
```

2.3 Install the driver

Go to Brainchip GitHub: https://github.com/Brainchip-Inc/akida_dw_edma and follow the instructions given in the **README.md** file.

Or do the following:

Open a terminal and open a folder where you can put Akida PCIe driver

Enter

```
git clone https://github.com/Brainchip-Inc/akida_dw_edma
```

Then install needed libraries

```
sudo apt install build-essential linux-headers-$(uname -r)
```

And finally, get into the newly created folder and enter

```
sudo ./install.sh
```

You should get this output:

```
bcdemo@mypi:~$ mkdir WorkHere

bcdemo@mypi:~/WorkHere$ git clone https://github.com/Brainchip-Inc/akida_dw_edma
Cloning into 'akida_dw_edma'...
[...]
Resolving deltas: 100% (111/111), done.

bcdemo@mypi:~/WorkHere$ sudo apt install build-essential linux-headers-$(uname -r)
```

```
[sudo] password for bcdemo:  
Reading package lists... Done  
[...]  
1 upgraded, 1 newly installed, 0 to remove and 56 not upgraded.  
  
bcdemo@mypi:~/WorkHere$ cd akida_dw_edma/  
bcdemo@mypi:~/WorkHere/akida_dw_edma$ sudo ./install.sh
```

2.4 Check driver installation

Open a terminal on your system and check if Akida board driver is correctly installed, entering

```
lsmod | grep akida
```

You should get this output

```
bcdemo@mypi:~/WorkHere$ lsmod | grep akida  
akida_pcie                49152  0
```

2.5 Install MetaTF

Please refer to <https://doc.brainchipinc.com/installation.html> for an entire Akida installation, but if you only want the Akida library to check if Akida 'sees' the board, you can simply enter

```
pip install akida
```

And then

```
akida devices
```

You should get this output

```
ubuntu@mypi:~/WorkHere$ akida devices  
Available devices:  
PCIe/NSoC_v2
```

3 Notes and Troubleshooting

3.1 Previously installed driver

The steps given in section 1.3 will remove the old installed driver versions, if any, and install the new one. It will also configure modules to load it at every boot and provide read/write access on **/dev/akida*** to every user.

3.2 Help needed

If you face any issues along the way, please contact us in the Support Page (<https://developer.brainchip.com/support/>) by filling the form.

3.3 Sudoers

If you get this error during installation

bcdemo is not in the sudoers file. This incident will be reported.

It is because the user you are logged with has no roots privilege: Connect as root and add him to sudoers group with usermod command

```
ubuntu@mypi:~$ sudo usermod -a -G sudo bcdemo
```