



KD240 FOC Control Demo

Field Application Engineer

Adaptive and Embedded Computing Group (AECG)

Revision History

Date	Version	Description
02/16/24	1.0	Initial version for flow introduction.

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KD240 FOC Control Demo

1. 先從以下網站安裝 KD240 的 Ubuntu 22.04

[Install Ubuntu on AMD | Ubuntu](#)

CHOOSE A BOARD

Kria™ K24 SOMs

Kria™ K26 SOMs

Zynq™ UltraScale+™ MPSoC
Development Boards

Versal™ Adaptive SoC Evaluation
Kit

Kria™ K24 SOMs
(KD240)



Ubuntu Server 22.04

The version of optimised Ubuntu Server 22.04 is beta for now, the certified version is coming soon.

Works on:

✓ AMD Kria™ KD240 Drives Starter Kit

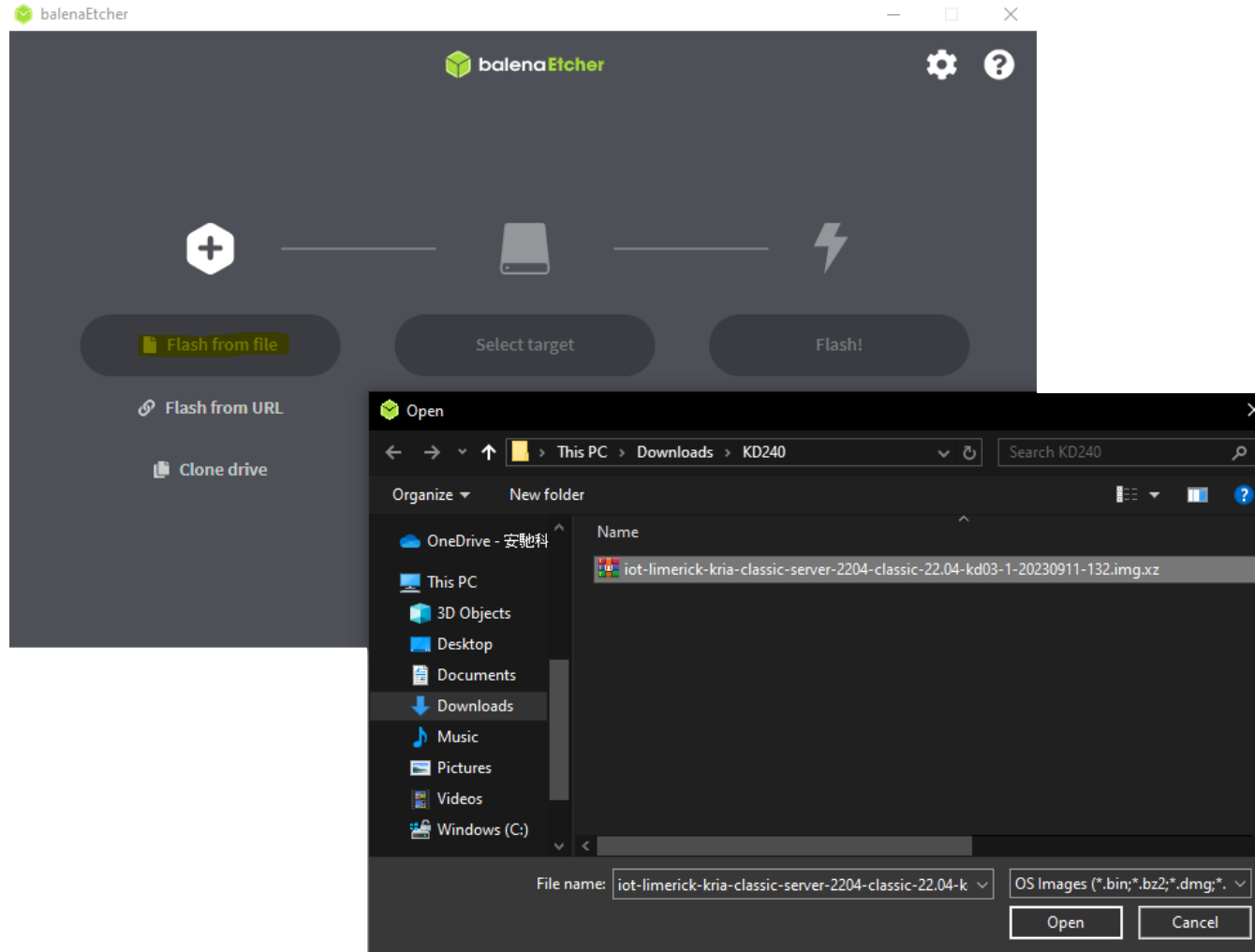
① Please check the [AMD Kria™ Wiki](#) for the platform's latest boot firmware, technical documentation, and the [Ubuntu for AMD-Xilinx Devices Wiki](#) for known issues and limitations.

Download 22.04

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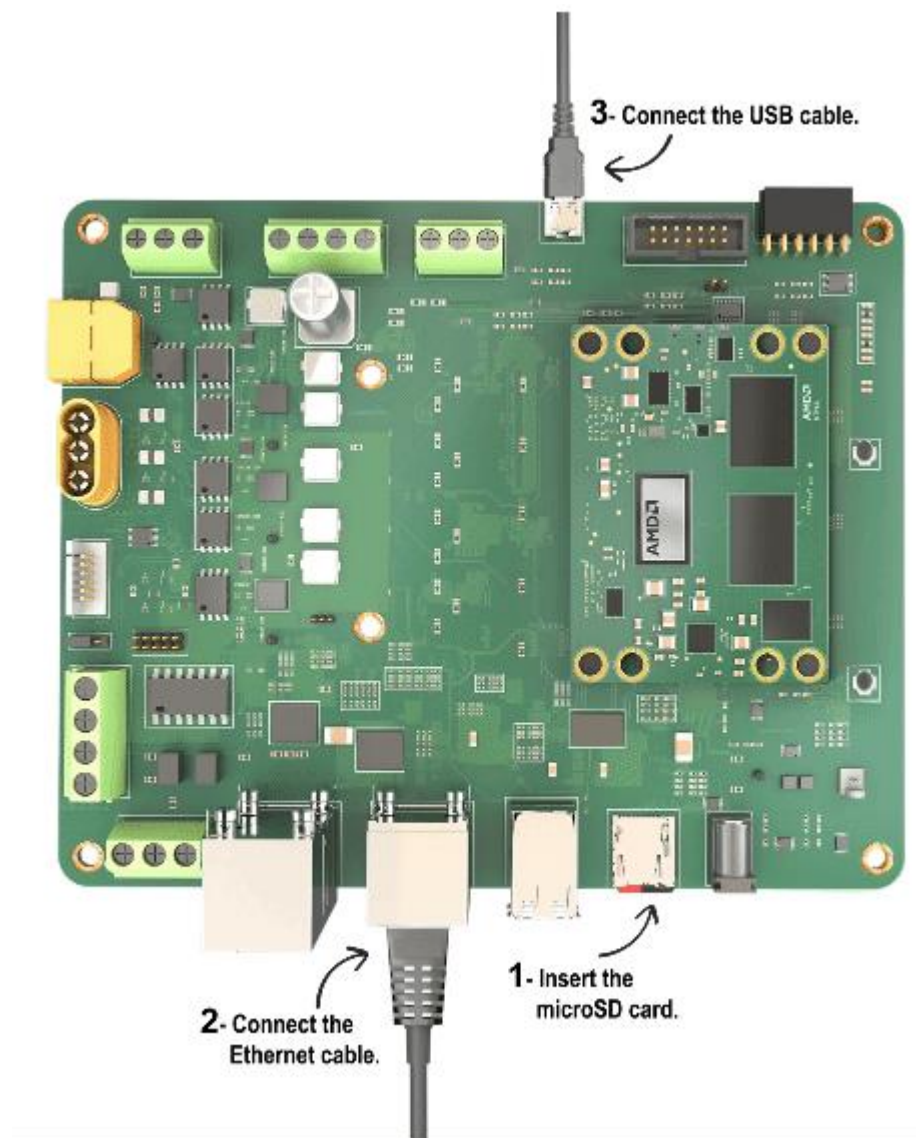
2. 使用 balenaEtcher 燒錄到 SD Card 內

[Setting up the SD Card Image \(xilinx.com\)](https://www.xilinx.com)



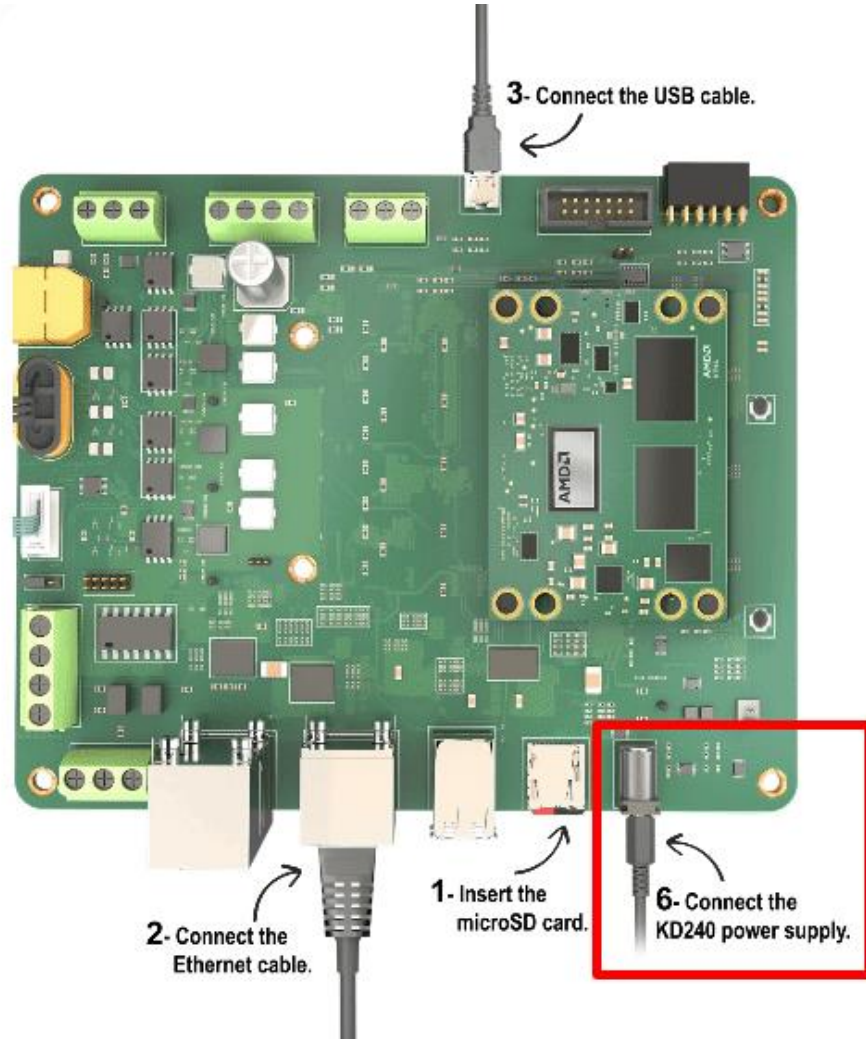
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3. 依照下面方式插入到 KD240 的 SD Card 槽中



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4. 上電並透過 MobaXterm 與 KD240 透過 UART 溝通



```
2. COM17 (USB Serial Port (COM1) x +
kria login: ubuntu
Password:
You are required to change your password immediately (administrator enforced).
Changing password for ubuntu.
Current password:
New password:
Retype new password:
Welcome to Ubuntu 22.04.3 LTS (GNU/Linux 5.15.0-9002-xilinx-zynqmp aarch64)

* Documentation: https://help.ubuntu.com
* Management:   https://landscape.canonical.com
* Support:      https://ubuntu.com/advantage

System information as of Thu Dec 21 05:15:06 UTC 2023

System load: 0.11962890625    Processes:           122
Usage of /: 6.2% of 28.21GB    Users logged in:     0
Memory usage: 10%             IPv4 address for eth0: 10.8.3.232
Swap usage: 0%

Expanded Security Maintenance for Applications is not enabled.

1 update can be applied immediately.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

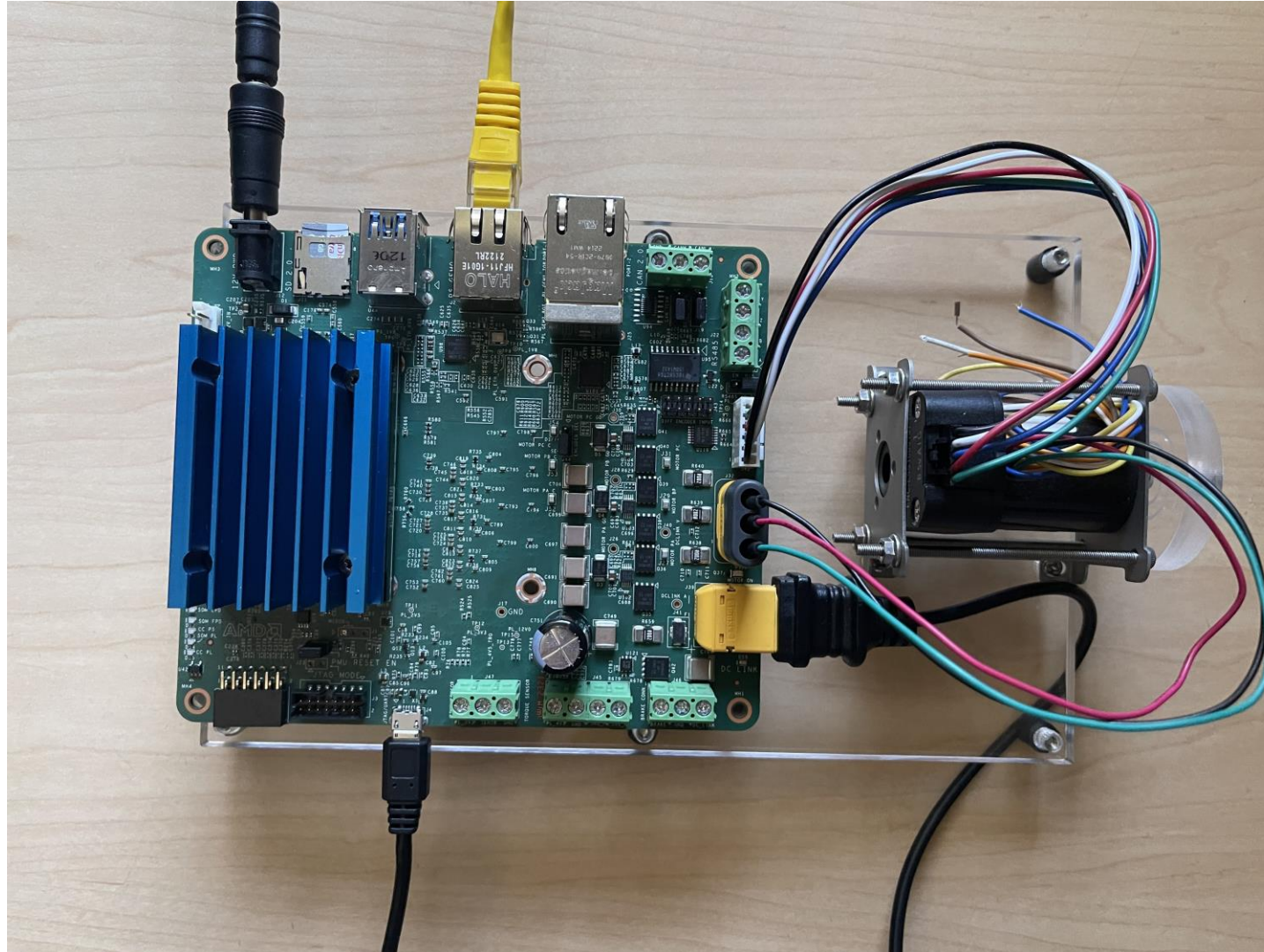
The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
```


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5. 因為需要接 FOC，所以整體接完會像下圖



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- 登入帳號與密碼皆為 ubuntu，第一次輸入密碼後會叫你改成自己的密碼
- 登入後一定要先進行以下指令

```
sudo snap install xlnx-config --classic --channel=2.x
```

```
sudo xlnx-config.sysinit
```

這條指令相當於作了以下的事情:

```
sudo add-apt-repository ppa:xilinx-apps
```

```
sudo add-apt-repository ppa:ubuntu-xilinx/sdk
```

```
sudo apt update
```

```
sudo apt upgrade
```

```
sudo apt search xlnx-firmware-kd240 ---> 尋找 FOC 的 firmware
```

```
sudo apt install xlnx-firmware-kd240-motor-ctrl-qei
```

```
sudo apt install libiio-utils libiio0 python3-pybind11 python3-bokeh=2.4.3-0ubuntu1 ---> 安裝 Dependencies
```

```
sudo xmutil getpkgs ---> 尋找 FOC 的 App
```

```
sudo apt install xlnx-app-kd240-foc-motor-ctrl
```

```
sudo xmutil unloadapp
```

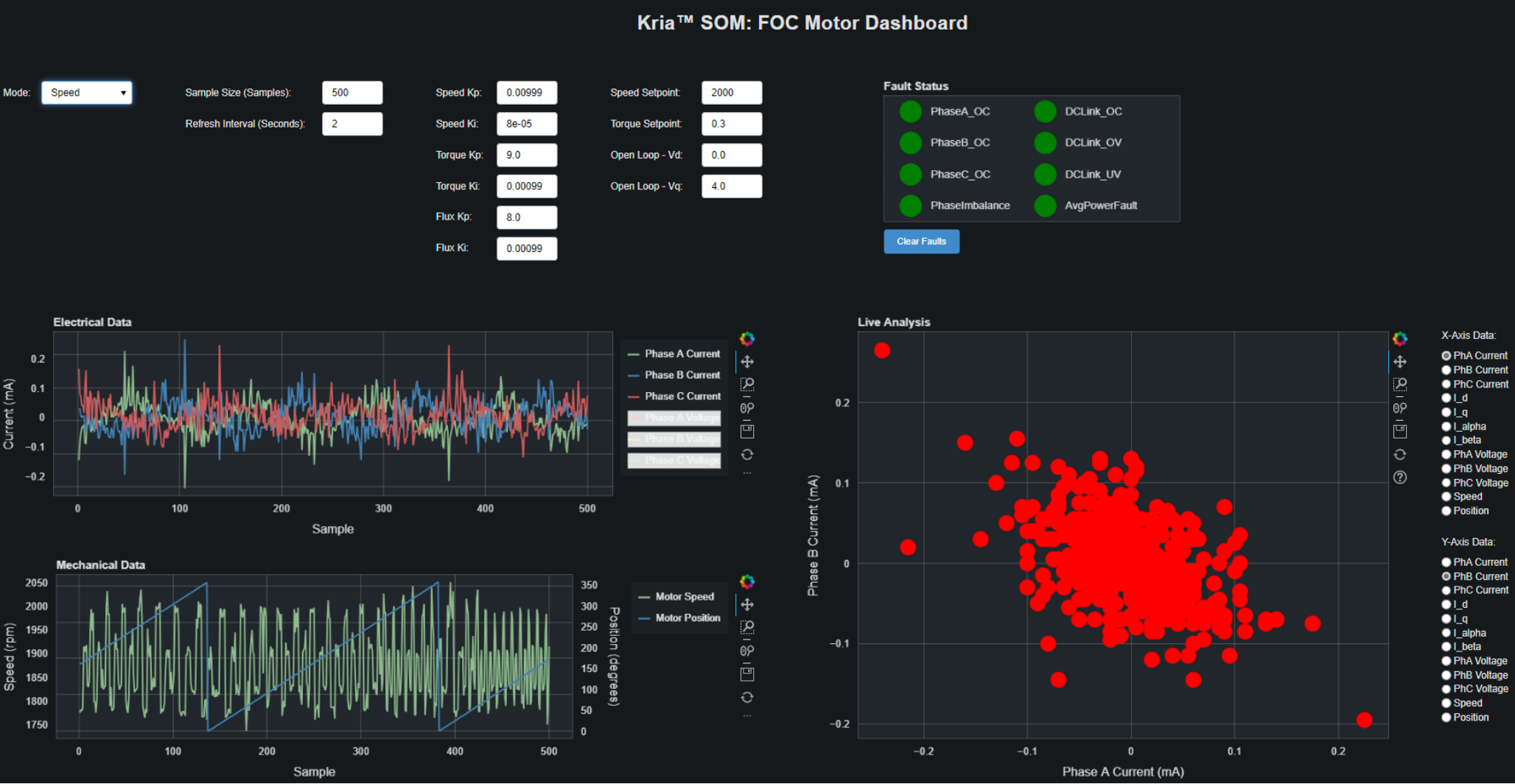
```
sudo xmutil loadapp kd240-motor-ctrl-qei
```

```
cd /opt/xilinx/xlnx-app-kd240-foc-motor-ctrl/bin
```

```
./start_motor_dashboard
```


KD240 FOC Control Demo

8. Demo 展示



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