



KD240 BIST

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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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

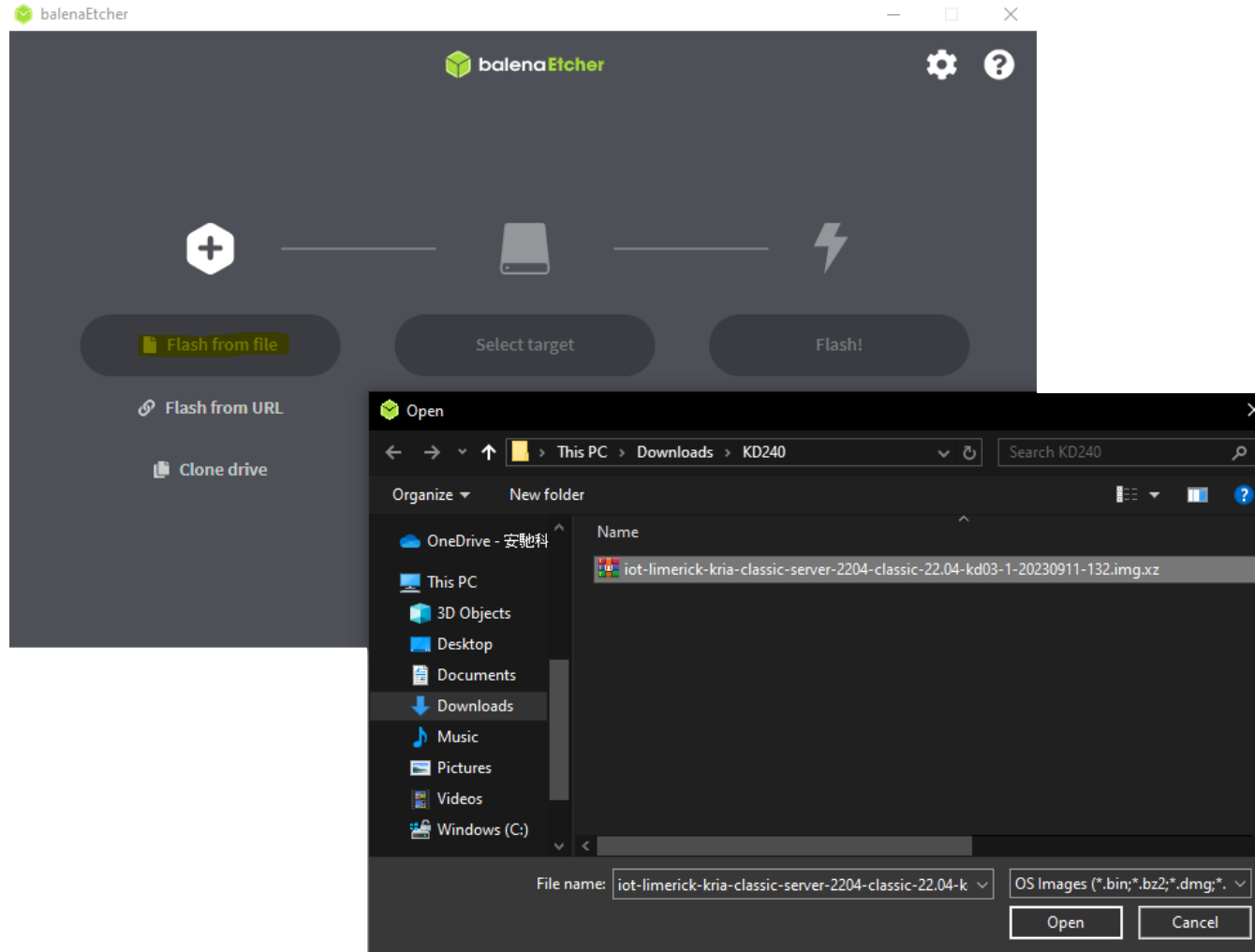
① Please check the [AMD Kria™ Wiki](#) for the platform's latest boot firmware, technical documentation, and the [Ubuntu for AMD-Xilinx Devices Wiki](#) for known issues and limitations.

[Download 22.04](#)

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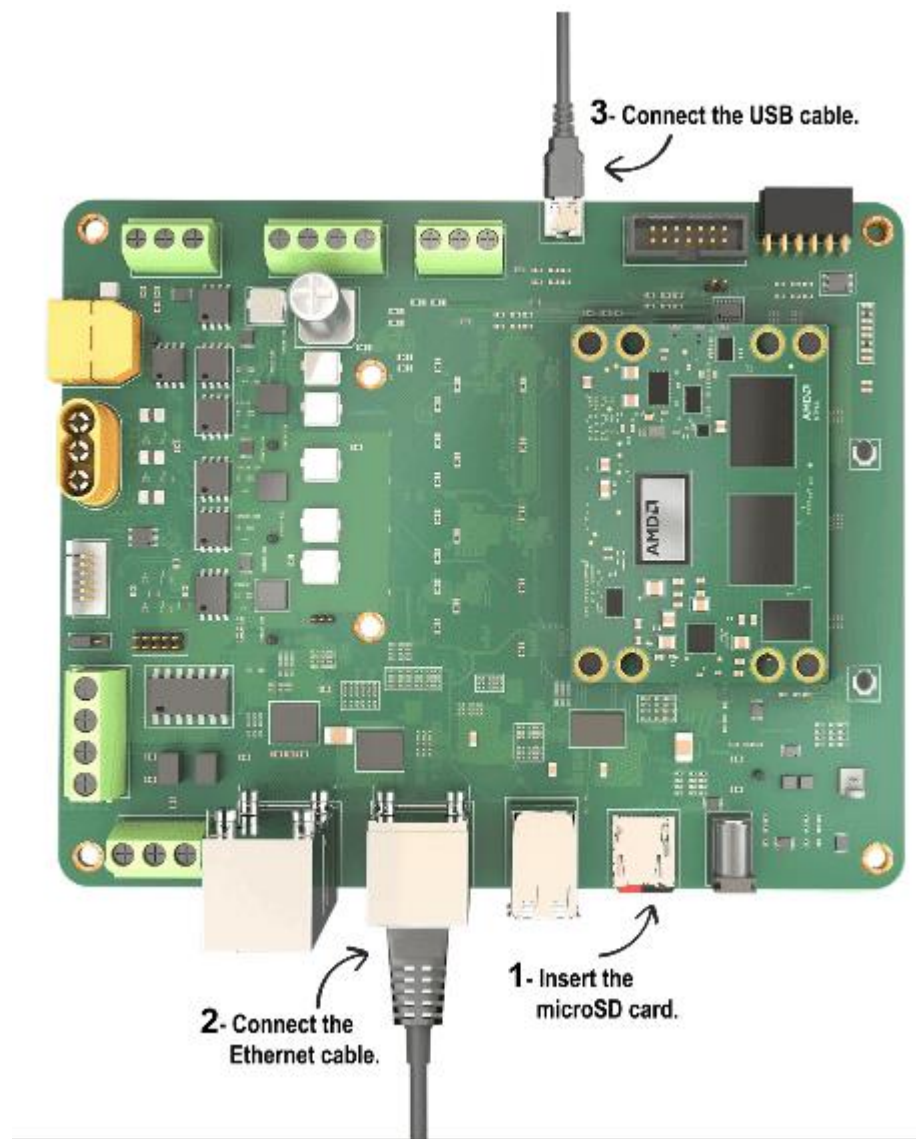
2. 使用 balenaEtcher 燒錄到 SD Card 內

[Setting up the SD Card Image \(xilinx.com\)](https://www.xilinx.com/support/boards/balena-single-board.html)



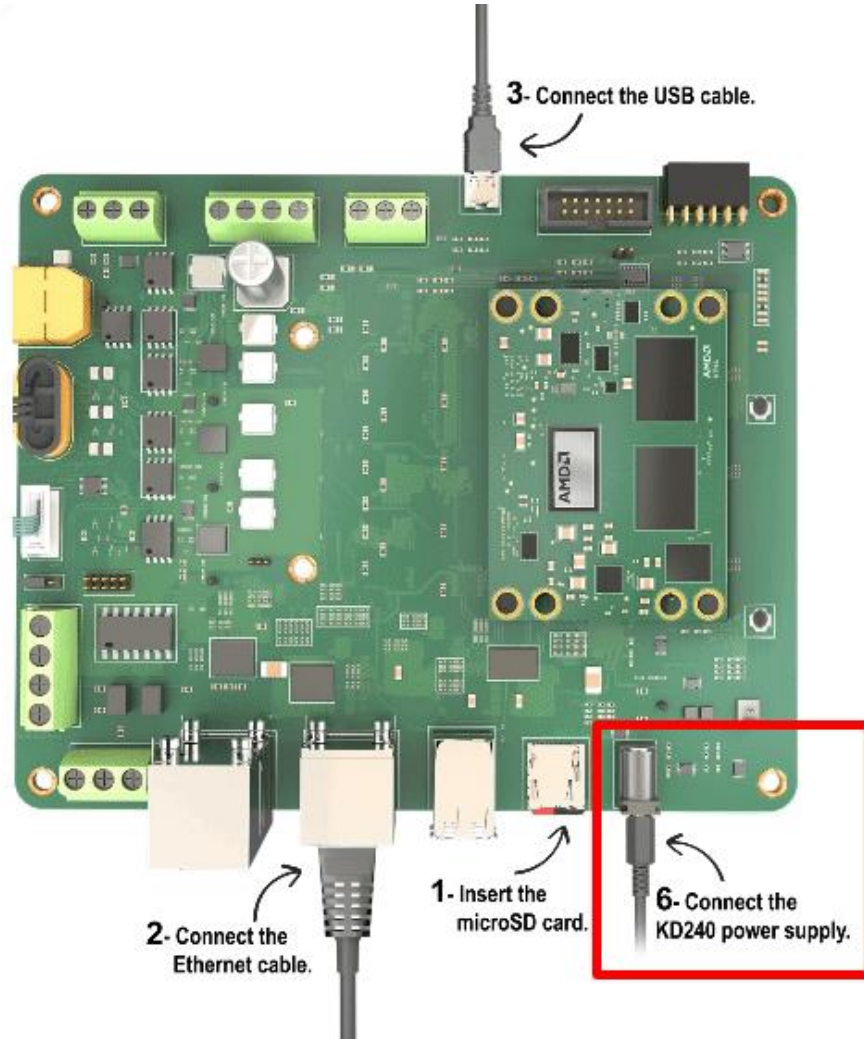
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3. 依照下面方式插入到 KD240 的 SD Card 槽中



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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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- 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 BIST 的 firmware
```

也可以用 `sudo apt search bist` 尋找

```
sudo apt install xlnx-firmware-kd240-bist
```

```
sudo xmutil unloadapp
```

```
sudo xmutil loadapp kd240-bist
```

```
sudo apt-get install docker.io
```

```
docker pull xilinx/kria-bist:2023.1
```

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8. Docker 啟動 !

```
sudo docker run \  
--env=DISPLAY \  
--env=XDG_SESSION_TYPE \  
--net=host \  
--privileged \  
--volume=/home/ubuntu/.Xauthority:/root/.Xauthority:rw \  
-v /tmp:/tmp \  
-v /dev:/dev \  
-v /sys:/sys \  
-v /etc/vart.conf:/etc/vart.conf \  
-v /lib/firmware/xilinx:/lib/firmware/xilinx \  
-v /run:/run \  
-it xilinx/kria-bist:2023.1 bash
```


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9. `cd /opt/xilinx/kria-bist/tests`
10. `pytest-3 --board kd240`
11. Result 如下:

測試成功項

```
-----
Start of test
Operation Mode: MotorOpMode.kModeOff
Measuring motor ADC voltage feedback for ElectricalData.kDCLink ...
Average measured motor voltage: 24.11V
Motor voltage ADC feedback test successful in 'OFF' mode
Test passed
End of test
PASSED
motor/test_bist_motor.py::test_motor[dc_link_curr_adc_fb_test]
-----
```

測試失敗項

```
-----
Start of test
Please set the BIST_REMOTE_HOST_IP environment variable.
Test failed
End of test
FAILED
eth/test_bist_eth.py::test_eth[ethernet3_perf]
-----
```

測試總結

```
===== short test summary info =====
FAILED can/test_bist_can.py::test_can[can_bus_send] - assert False
FAILED can/test_bist_can.py::test_can[can_bus_receive] - assert False
FAILED disk/test_bist_disk.py::test_disk[usb1_read_performance] - assert False
FAILED disk/test_bist_disk.py::test_disk[usb1_write_performance] - assert False
FAILED disk/test_bist_disk.py::test_disk[usb2_read_performance] - assert False
FAILED disk/test_bist_disk.py::test_disk[usb2_write_performance] - assert False
FAILED eth/test_bist_eth.py::test_eth[ethernet1_ping] - assert False
FAILED eth/test_bist_eth.py::test_eth[ethernet1_perf] - assert False
FAILED eth/test_bist_eth.py::test_eth[ethernet2_ping] - assert False
FAILED eth/test_bist_eth.py::test_eth[ethernet2_perf] - assert False
FAILED eth/test_bist_eth.py::test_eth[ethernet3_ping] - assert False
FAILED eth/test_bist_eth.py::test_eth[ethernet3_perf] - assert False
FAILED pwm/test_bist_pwm.py::test_pwm[fan] - assert False
FAILED tty/test_bist_tty.py::test_tty[rs485_temp_humidity_sensor_read] - AssertionError: assert False
===== 14 failed, 26 passed, 2 skipped in 145.11s (0:02:25) =====
```

