Vitis AI on Ubuntu 20.04 with KV260 Create Custom Acceleration App

1. 安裝 Ubuntu 20.04

   到這頁找版本

2. 開機安裝必要庫

   sudo apt -y update

   sudo apt -y install libopencv-dev

   sudo apt -y install libgoogle-glog-dev

   sudo apt -y install net-tools

   sudo apt -y install vitis-ai-library ---> 決定 Python 能不能 import vart 和 xir，必須裝

3. 安裝 xlnx-config snap for system management

   sudo snap install xlnx-config --classic --channel=1.x

4. 安裝設定 Gstreamer

   xlnx-config.sysinit

5. 安裝底層驅動 app

   sudo xlnx-config --snap --install xlnx-nlp-smartvision

6. Load the NLP-SmartVision overlay

   sudo xlnx-config --xmutil unloadapp

   sudo xlnx-config --xmutil loadapp nlp-smartvision

7. 有 load 到 firmware 後，才能鏈結 DPU

   sudo ln -sf /var/snap/xlnx-config/current/assets/dpu.xclbin /usr/lib/dpu.xclbin

8. 查看當前驅動 DPU 形式

   dexplorer -w

9. 查看當前 camera 狀態

v4l2-ctl --list-devices

10. 下載 facedetect model

wget https://www.xilinx.com/bin/public/openDownload?filename=densebox_640_360-DPUCZDX8G_ISA0_B3136_MAX_BG2-1.3.1-r241.tar.gz -O ~/densebox_640_360.tar.gz

tar -xzf ~/densebox_640_360.tar.gz -C ~

11. clone the Vitis AI repository

git clone https://github.com/Xilinx/Vitis-AI.git

cd Vitis-AI

git checkout tags/v1.3.2

12. Build Facedetect application

cd demo/Vitis-AI-Library/samples/facedetect/

sed -i 's/-std=c++17/-std=c++17 -I\/usr\/include\/opencv4/g' build.sh

./build.sh

13. link to the xmodel

sudo ln home/ubuntu/ densebox_640_360/ densebox_640_360.xmodel ./ densebox_640_360.xmodel

sudo ln home/ubuntu/ densebox_640_360/ densebox_640_360.prototxt ./ densebox_640_360.prototxt

14. 測試 application

./test_video_facedetect ./densebox_640_360.xmodel /dev/video0