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Portwell RS4U-B656
AI-Sales-kit installation Guide

V1.0

1. Intel AI Sales Kit

1-1. Introduction

The Portwell Intel AI Sales Kit is pre-installed with Intel OpenVINO Toolkits, which can help you run some examples in a simple way or test the performance of your device. The main features are as follows:

- Test the benchmarks for YOLO_v3 and YOLO_v4 models
- Run an example of Smart City object detection
- Run Human Pose Estimation Demo
- Run vehicle and pedestrian tracking Demo
- Download and run more functions by OpenVINO_Demo_Kit (network connection required to download the required AI model)
  - Security Barrier Camera Demo
  - Interactive Face Detection Demo
  - Crossroad Camera Demo
  - Image Processing Demo
  - Instance Segmentation Demo
  - Image Segmentation Demo
  - Text Spotting Demo
  - Action Recognition Demo
  - Gesture Recognition Demo
  - Face Recognition Demo
  - Social Distance Demo
  - Whiteboard Inpainting Demo

1-2. Environments

To keep the device on the best performance, you have to meet following settings:

Set “TDP Boot Mode” to “Nominal” in BIOS

1-3. Download Portwell Intel AI Sales Kit

Please note that all steps at this stage require an Internet connection.

1-3-1. Install Docker

Open the Terminal in Ubuntu 20.04 and Run following command in terminal:

$ sudo apt update

$ sudo apt install docker.io

To ensure that Docker can be executed as a non-root user and to avoid permissions issues, you can proceed to the following command:

$ sudo usermod -aG docker $USER

$ sudo chmod 777 /var/run/docker.sock

1-3-2. Pull Docker Image

OpenVINO 2021.4 Version

$ docker pull portwellcichc/rs4ub656

1-4. Run Portwell Intel AI Sales Kit

Open the Terminal in Ubuntu 20.04 and Run following command in terminal to run Portwell Intel AI Sales Kit:

$ docker run -it -v /tmp/.X11-unix:/tmp/.X11-unix -e DISPLAY=$DISPLAY -v ~/Downloads:/mnt --device /dev/dri:/dev/dri --group-add=$(stat -c "%g" /dev/dri/render*) --rm portwellcichc/rs4ub656:latest

then you can Access to the Portwell Intel AI Sales Kit environment.

If you want to bring your camera into the Portwell Intel AI Kit Sales environment, use the following
command:

$ docker run --device=/dev/video0:/dev/video0 -it -v /tmp/.X11-unix:/tmp/.X11-unix -e DISPLAY=$DISPLAY -v ~/Downloads:/mnt --device /dev/dri:/dev/dri --group-add=$(stat -c "%g" /dev/dri/render*) --rm portwellcichc/rs4ub656:latest

1-5. Run Demo

1-5-1. Yolo-v3 / Yolo-v4 Model Benchmark

Access in Portwell AI Sales Kit

$ docker run -it -v /tmp/.X11-unix:/tmp/.X11-unix -e DISPLAY=$DISPLAY -v ~/Downloads:/mnt --device /dev/dri:/dev/dri --group-add=$(stat -c "%g" /dev/dri/render*) --rm portwellcichc/rs4ub656:latest

Run Command

$ cd
$ python3 run_command.py

1-5-2. Smart City Demo

Download Sample Video

$ wget -O ~/Downloads/NewVideo2.mp4 https://github.com/incluit/OpenVino-For-SmartCity/raw/master/data/NewVideo2.mp4

Run the Demo

$ docker run -it -v /tmp/.X11-unix:/tmp/.X11-unix -e DISPLAY=$DISPLAY -v ~/Downloads:/mnt --device /dev/dri:/dev/dri --group-add=$(stat -c "%g" /dev/dri/render*) --rm portwellcichc/rs4ub656:latest /home/openvino/smartcity_demo.sh

This example performs object detection in a highway camera video, using OpenVINO DL Streamer. For more information, please refer to the following information:
https://docs.openvinotoolkit.org/latest/gst_samples_README.html

1-5-3. Human Pose Estimation Demo

This example performs a human Pose Estimation model on a video on Internet, so an Internet connection is required. Run the following command:

Run the Demo

$ docker run -it -v /tmp/.X11-unix:/tmp/.X11-unix -e DISPLAY=$DISPLAY -v ~/Downloads:/mnt --device /dev/dri:/dev/dri --group-add=$(stat -c "%g" /dev/dri/render*) --rm portwellcichc/rs4ub656:latest /home/openvino/human_pose_estimation.sh

Because the source of the film is on the Internet, the overall performance may be affected by the network speed.
This example uses OpenVINO DL Streamer human Pose Estimation. For more information, please refer to the following information:
https://docs.openvinotoolkit.org/latest/gst_samples_gst_launch_human_pose_estimation_README.htm

1-5-4. Vehicle and Pedestrian Tracking Demo

This example performs a video on a network Vehicle and pedestrian tracking models, so an Internet connection is required. Run the following command:

Run the Demo

$ docker run -it -v /tmp/.X11-unix:/tmp/.X11-unix -e DISPLAY=$DISPLAY -v ~/Downloads:/mnt --device /dev/dri:/dev/dri --group-add=$(stat -c "%g" /dev/dri/render*) --rm portwellcichc/rs4ub656:latest /home/openvino/vehicle_pedestrian_tracking.sh

Because the source of the film is on the Internet, the overall performance may be affected by the network speed.
This example uses OpenVINO DL Streamer Vehicle and Pedestrian Tracking Demo. For more information, please refer to the following information:
https://docs.openvinotoolkit.org/latest/gst_samples_gst_launch_vehicle_pedestrian_tracking_README.html

1-5-5. Run more demo through OpenVINO_Demo_Kit

OpenVINO Demo Kit is provide by Portwell Technology International Corp- a Distributor of Intel.Help you to run multiple OpenVINO Demos in an easy way, already preinstalled in Portwell AI Sales Kit. Please visit following website for more informations.
https://henry1758f.github.io/OpenVINO_Demo_Kit/

In order to save the size of the Docker Image, Portwell AI Sales Kit did not install Model Optimizer, so some of the sample that need public model in Open Model Zoo cannot be executed successfully. If you
still want to try these demos, please visit the OpenVINO_Demo_Kit Instructions to install and run outside of AI Sales Kit Demo Kit.
Also In order to save the size of the Docker Image, Portwell AI Sales Kit didn’t pre-download the Open Model Zoo’s Models, so the internet connection is needed to download the require models automatically.

1-6. Link

Software Info:

- OpenVINO Online Documents

  https://docs.openvinotoolkit.org/latest/index.html

- OpenVINO Demo Kit

  https://henry1758f.github.io/OpenVINO_Demo_Kit/