Qualcomm Developer Project

YOLOv10 det on 8550DK

Project Submission

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| **Project Title**\* | YOLOv10 det on 8550DK | |
| **Images**  *Upload up to 5 images of your project*  *Please submit/send the original JPEG/PNG files for all images included in the document* | **C8550 DK**    [Alt tag: “Blurred Image Clearness Processing using the C8550 Develop Kit”]  **Type-c usb line**  **typc**  [Alt tag: “using the USB line to develop on C8550 Develop Kit” ]  **Charger**  charger  [Alt tag: “using round-hole charger to power C8550 Develop Kit”] | |
| **Description**\*  *High level description of the project* ***(75 words or less)*** | The project built a CLI application that runs the open-source model “YOLOv10s “on the C8550DK platform, using SNPE to run the object detction without NMS postprocess. | |
| **Objective**   * *What inspired you to create this project?* * *What is your desired outcome?* | YOLOv10 is a cutting-edge object detection model that has garnered significant acclaim for its exceptional accuracy and speed in real-time applications. Its deployment in various fields, including autonomous driving, security surveillance, and robotics, represents a pivotal advancement in the realm of computer vision, facilitating the seamless integration of intelligent systems into everyday life. One of the standout features of YOLOv10 is its ability to operate without the need for Non-Maximum Suppression (NMS) post-processing, streamlining the detection pipeline and enhancing performance. This efficiency not only accelerates the detection process but also reduces computational overhead, making YOLOv10 an invaluable asset for real-time applications. Its contributions to the evolution of object detection technology are profound, positioning it as a crucial player in the ongoing development of generative AI and intelligent automation. | |
| **Materials Required / Parts List / Tools** | Part Name | Link to purchase |
| C8550 DK | https://www.thundercomm.com/product/c8550-development-kit/ |
| USB Line | https://item.jd.com/40759941966.html |
| Charger | https://www.thundercomm.com/product/c8550-development-kit/ |
| **Source Code / Source Examples / Application Executable**  *Link to open source / shareable code repository* | Description | Link |
| Source Code | https://github.com/ThunderSoft-XA/C8550-YOLOv10-det-on-8550DK |
| **Additional Resources**  *List related links or resources such as websites, videos, presentations, or other materials* | Resource Title | Link or File Name (and provide file) |
| Video | https://github.com/ThunderSoft-XA/ C8550-YOLOv10-det-on-8550DK/doc/usage.mp4 |
| **Build / Assembly Instructions** | # when C8550 SDK is activated  cd 8550-YOLOv10-det/; mkdir build; cd build; cmake ../; make -j6 | |
| **Usage Instructions** | Due to copyright requirements, the SNPE SDK and model files are not directly available. Download the SNPE SDK from https://softwarecenter.qualcomm.com/#/catalog/item/qualcomm\_neural\_processing\_sdk , select 2.13.0.230730 as the version, download and put it in the C8550DK device follow the guide directory. You can download yolov10 code from https://github.com/THU-MIG/yolov10 and export the onnx of the pretrained yolov10s model, then convert it to the dlc model tn the SNPE x86 environment. After the compilation is executed, you can generate a test app in the C8550DK LU system, then you can run the application on board. | |
| **Contributor(s) Info**  *Feel free to include headshots!* | Name | Title  Company |
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Filters and Tags for QDN projects page

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| **Platform/Hardware** | CSR 101x/102x Bluetooth  DragonBoard 410c  mangOH Red/Yellow  Qualcomm C6490P | MDM920x LTE for IoT  QCA-402x WiFi/BLE/Zigbee  Qualcomm Robotics RBx Dev Kit  √ Qualcomm C8550 DK |
| **Software Tools** | 3D Audio Plugin for Unity  Adreno GPU SDK  Hexagon DSP SDK | √ Neural Processing SDK for AI  　Qualcomm AI Engine Direct  Snapdragon Profiler |
| **Operating System** | Android  Linux  ThreadX RTOS | √ Ubuntu Core  Windows 10 IoT Core |
| **Cloud Services/Platform** | Sierra Wireless AirVantage  Gizwits Cloud Platform  AT&T M2X  IBM Bluemix | IBM Watson IoT  Microsoft Azure IoT  Amazon AWS IoT |
| **Skill Level Required** | Advanced  Beginner  √ Intermediate |  |
| **Areas of Focus** | 3D Printing & Modeling  Alexa Voice Service  √ Artificial Intelligence  Bluetooth  √ Computer Vision  Digital Signage  Education  √ Embedded  Gaming | Healthcare  IoT  Robotics  Security  Sensors  Smart Cities  Smart Home  Toys |

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