

Software and hardware images decoding on the RaspberryPi

Friday, September 18, 2020 4:15 PM (20 minutes)

When it comes to the hardware acceleration on the RaspberryPi (or any other board, really), we often talk about the video encoding/decoding. With the modern ARM CPUs (with NEON support) and libraries (like libjpeg-turbo), usage of the dedicated hardware components for images encoding/decoding becomes less important. However, there is still low-end hardware on the market (like the RaspberryPi Zero) which can greatly benefit from usage of the hardware images decoding.

In this talk we will compare the performance of the software/hardware images decoding on the RaspberryPi devices. We will focus on the RaspberryPi Zero, as in this case the performance gain from using the hardware acceleration is the most significant. We base our experience on the digital-signage usecases, where both low device price and performance matters.

Although the OpenMAX is said to be practically deprecated, there might be no alternative to achieve the same level of performance on the RaspberryPi Zero. We will briefly present how the OpenMAX IL API is used to decode and display JPEG images. Apart from decoding 1080p images, we will also show how it performs when decoding the 4K images or how it can be used to zoom part of the image.

GSoC, EVoC or Outreachy

Code of Conduct

Yes

Primary author: Mr PIJANOWSKI, Maciej (3mdeb Embedded Systems Consulting)

Session Classification: Main Track

Track Classification: Talk (half slot) (Closed)