Edge Computing with High Res Camera for Display Inspection

An integrated service provider with test equipment as the core in the semiconductor, display and new energy industries

Submission to I-Zone 2024

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Abstract

This demo uses a monochrome camera of 151M high resolution, with integrated GPU and FPGA in the camera module, to illustrate some use cases of edge computing in display inspections. The built-in computation power is capable to perform image preprocessing tasks, to relieve the burden for the server, such as:

- Image rotation and ROI cropping;
- Lens dust masking;
- De-moire;
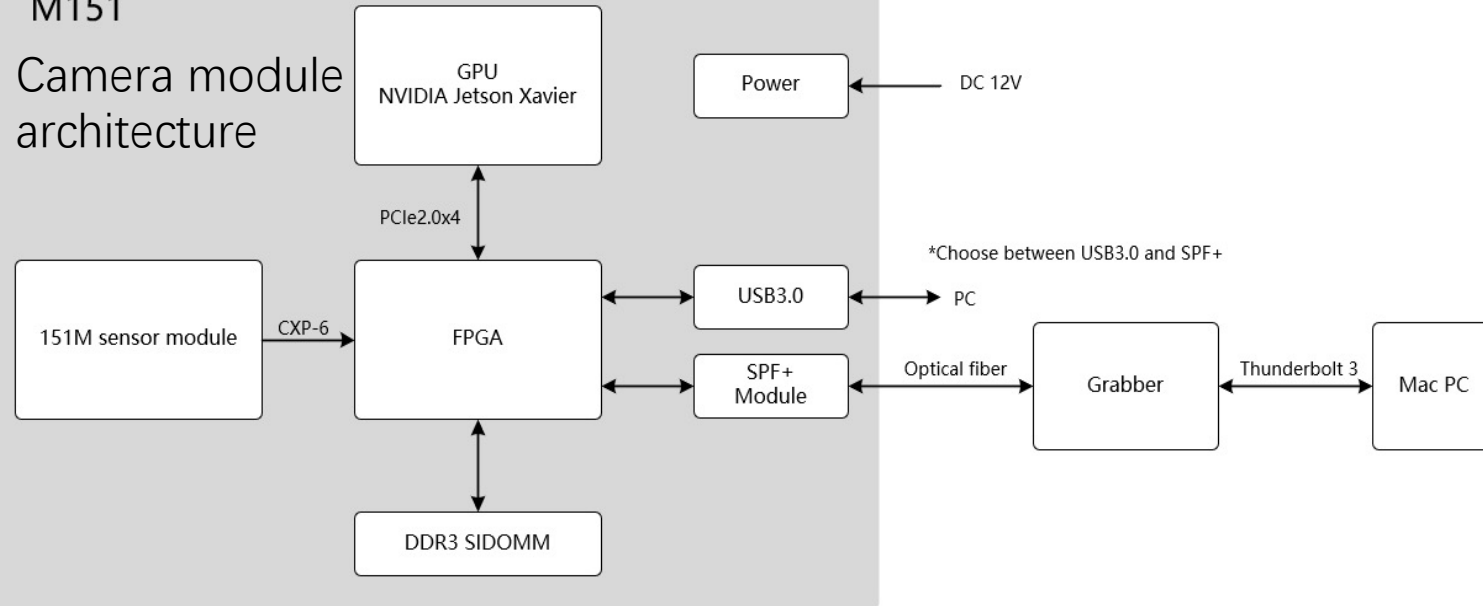- Color dot brightness determination for demura

The benefits of edge computing includes:

- Image transmission time reduction – avoid transmitting the full image;
- TACT reduction with image capturing and transmitting in parallel;
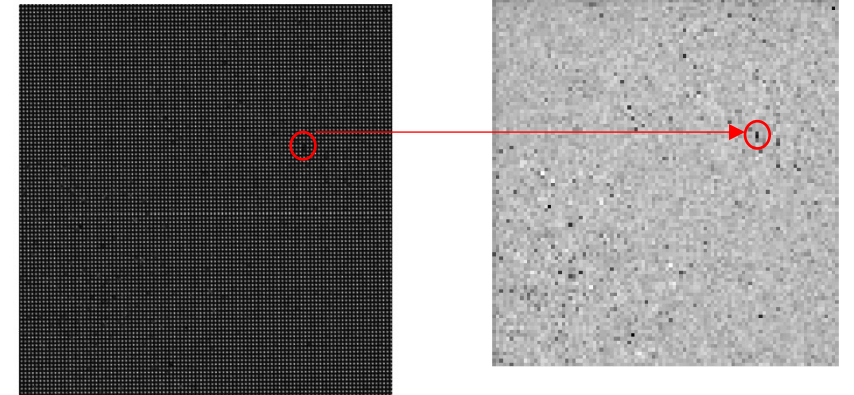- Cost saving by reducing the server load.

M151

Camera module architecture
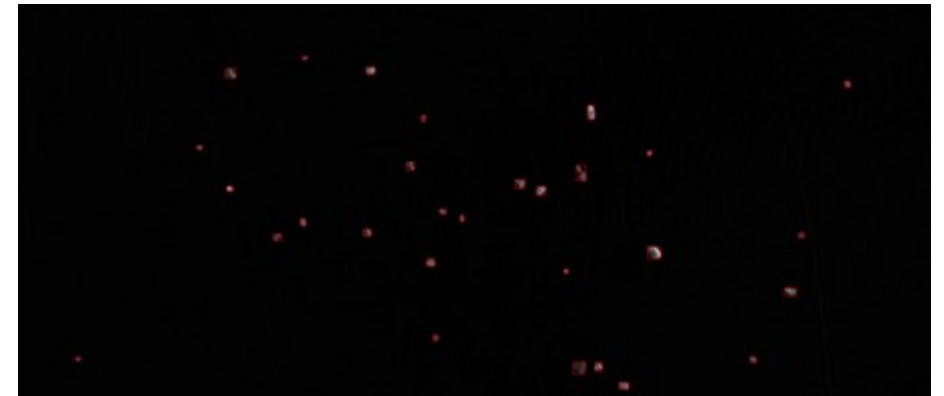
Dot brightness determination

Raw image

Dot brightness map

ROI cropping & image rotation

Lens dust inspection and masking

Video demo link:

FW151 – M151 camera with RGB color wheels

Demo -- Products

M151/250 -- Monochrome camera w/ built-in processing capability

Video Link: **https://www.jingceusa.com/jingceoptics**

Summary

We presented two demos for application of edge computing with high resolution camera for display testing:

- image rotation and cropping with dust particle detection;
- Demura

In both demos the image processing is implemented with the GPU/FPGA unit integrated on the camera module, without use of server CPU.

THANKS!