

Choose the Right Hardware

Proposal Template

Scenario 1: Manufacturing

Client Requirements and Potential Hardware Solution

Look through the scenario and find any relevant client requirements. Then, suggest a potential hardware type and explain how this hardware would satisfy each of the requirements.

Which hardware might be most appropriate for this scenario? (CPU / IGPU / VPU / FPGA)
CPU + FPGA

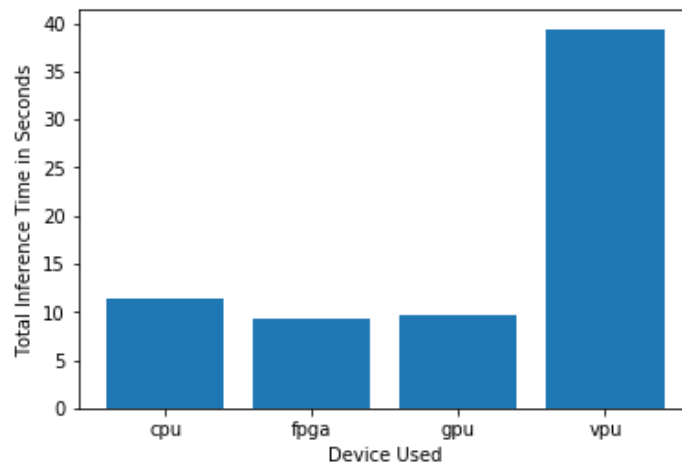
Requirement Observed (Include at least two.)	How does the chosen hardware meet this requirement?
Naomi Semiconductors has plenty of revenue to install a quality system.	FPGA is expensive compared to GPU and CPUs. and customer is willing to pay for that.
Clients would ideally like it to last for at least 5-10 years.	FPGA have good durability
Clients requires 30-35 FPS which can process 5 images per second	FPGA have better FPS handling capability compared to other devices.

Queue Monitoring Requirements

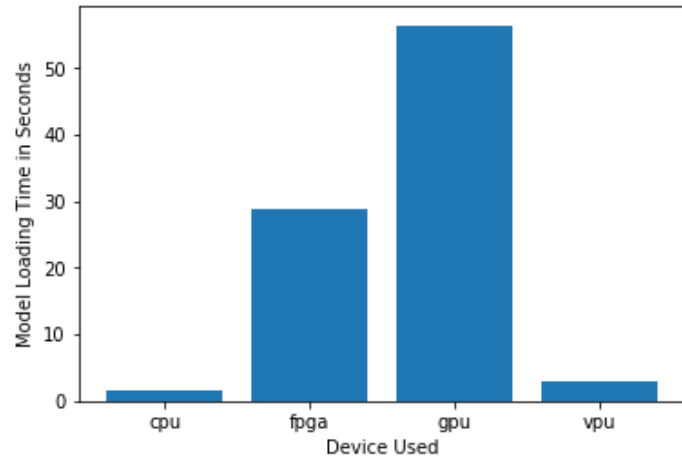
Maximum number of people in the queue	9
Model precision chosen (FP32, FP16, or Int8)	FP16

Test Results

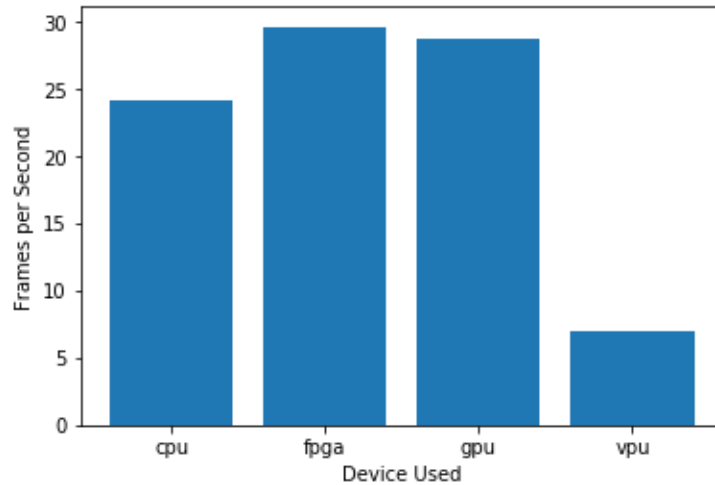
After you've tested your application on all four hardware types (CPU, IGPU, VPU, and FPGA), copy the matplotlib output showing the comparison into the spaces below. You should have three graphs (for model load time, inference time, and FPS).



Inference Time



Model Loading Time



FPS

Final Hardware Recommendation

Now synthesize your points from above and provide a brief write-up describing why the chosen hardware is the best choice for this scenario. Be sure to discuss the client's requirements, the test results, and how these relate to one another (e.g., perhaps one of the devices performed better than the rest, but does not meet one of the client's requirements).

Write-up: Final Hardware Recommendation

CPU + FPGA combination works best for this Manufacturing scenario

Scenario 2: Retail

Client Requirements and Potential Hardware Solution

Look through the scenario and find any relevant client requirements. Then, suggest a potential hardware type and explain how this hardware would satisfy each of the requirements.

Which hardware might be most appropriate for this scenario? (CPU / IGPU / VPU / FPGA)

CPU + IGPU

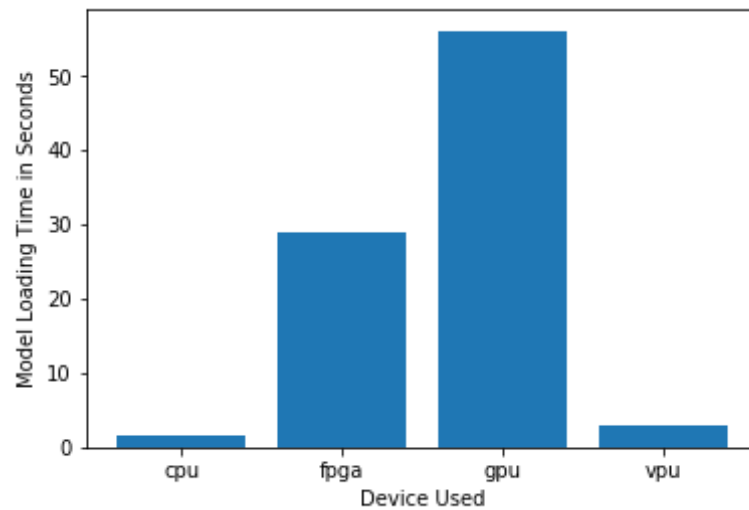
Requirement Observed (Include at least two.)	How does the chosen hardware meet this requirement?
Client does not have much money to invest in additional hardware	Integrated GPU is best use of investment without additional hardware. Since they already have Intel i7 core processor. The integrated graphics part of that processor can be used from them.
Client would like to save as much as possible on his electric bill	Integrated GPU can help in saving power consumption

Queue Monitoring Requirements

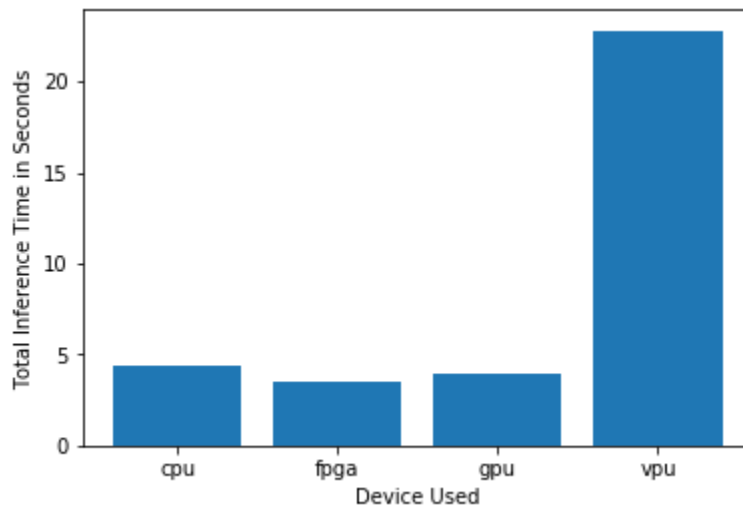
Maximum number of people in the queue	6
Model precision chosen (FP32, FP16, or Int8)	FP16

Test Results

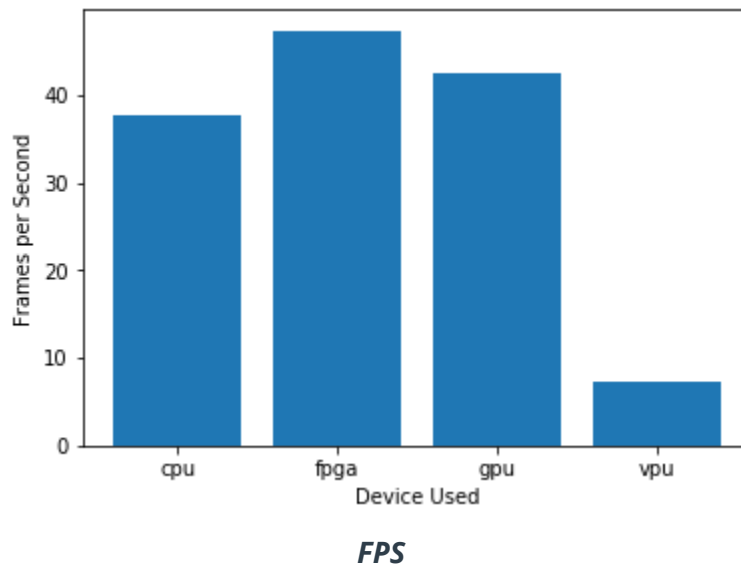
After you've tested your application on all four hardware types (CPU, IGPU, VPU, and FPGA), copy the matplotlib output showing the comparison into the spaces below. You should have three graphs (for model load time, inference time, and FPS).



Model Load Time



Inference Time



Final Hardware Recommendation

Now synthesize your points from above and provide a brief write-up describing why the chosen hardware is the best choice for this scenario. Be sure to discuss the client's requirements, the test results, and how these relate to one another (e.g., perhaps one of the devices performed better than the rest, but does not meet one of the client's requirements).

Write-up: Final Hardware Recommendation

CPU + IGPU combination is best for this scenario

Scenario 3: Transportation

Client Requirements and Potential Hardware Solution

Look through the scenario and find any relevant client requirements. Then, suggest a potential hardware type and explain how this hardware would satisfy each of the requirements.

Which hardware might be most appropriate for this scenario? (CPU / IGPU / VPU / FPGA)

CPU + VPU

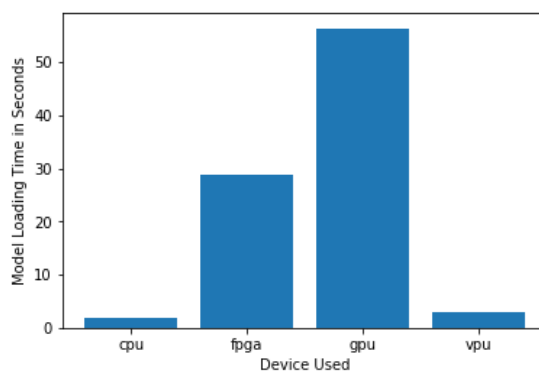
Requirement Observed (Include at least two.)	How does the chosen hardware meet this requirement?
Clients budget allows for a maximum of \$300 per machine,	Intel NCS2 is more affordable solution for this scenario.
Client would like to save as much as possible on future power requirements.	VPU consumes less power.

Queue Monitoring Requirements

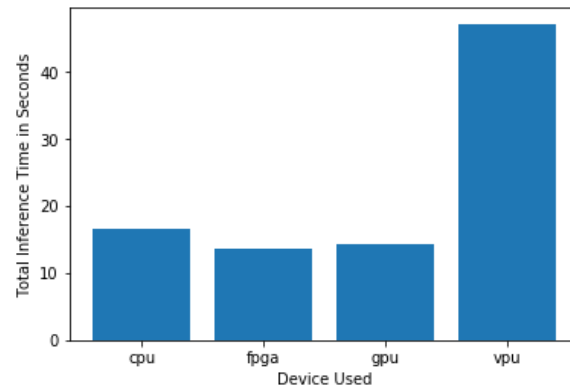
Maximum number of people in the queue	11
Model precision chosen (FP32, FP16, or Int8)	FP16

Test Results

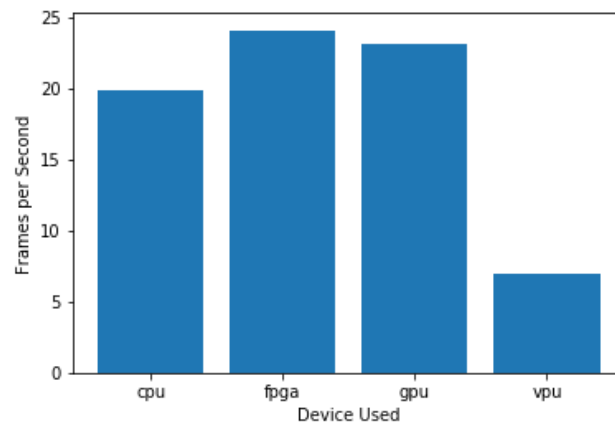
After you've tested your application on all four hardware types (CPU, IGPU, VPU, and FPGA), copy the matplotlib output showing the comparison into the spaces below. You should have three graphs (for model load time, inference time, and FPS).



Model Load Time



Inference Time



FPS

Final Hardware Recommendation

Now synthesize your points from above and provide a brief write-up describing why the chosen hardware is the best choice for this scenario. Be sure to discuss the client's requirements, the test results, and how these relate to one another (e.g., perhaps one of the devices performed better than the rest, but does not meet one of the client's requirements).

Write-up: Final Hardware Recommendation

FPGA is the best solution for this usecase. However, VPU is more appropriate solution for this scenario because of cost and power constraint.