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)** |
| *[TODO: Type your answer here]*  To help understand and address these issues, Mr. Vishwas wants a system to monitor the number of people in the factory line. The factory has a vision camera installed at every belt. Each camera records video at 30-35 FPS (Frames Per Second) and this video stream can be used to monitor the number of people in the factory line. Mr. Vishwas would like the image processing task to be completed five times per second.  To be able to detect chip flaws without slowing down the packaging process, the system would need to be able to run inference on the video stream very quickly. Additionally, because there are multiple chip designs—and new designs are created regularly—the system would also need to be flexible so that it can be reprogrammed and optimized to quickly detect flaws in different chip designs.  While Naomi Semiconductors has plenty of revenue to install a quality system, this is still a significant investment and they would ideally like it to last for at least 5-10 years. |

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| **Requirement Observed**  **(Include at least two.)** | **How does the chosen hardware meet this requirement?** |
| *Example requirement:*  The client requires a tiny device to be connected to their CPU—and their budget is only about $100 for each device. | *Example explanation:*  VPU or NCS2 is only about 27.40 mm in size and would fit in the price range. |
| *[TODO: Type your answer here]* | *[TODO: Type your answer here]* |
| *[TODO: Type your answer here]* | *[TODO: Type your answer here]* |
| *[TODO: Type your answer here]* | *[TODO: Type your answer here]* |

## Queue Monitoring Requirements

|  |  |
| --- | --- |
| **Maximum number of people in the queue** | *[TODO: Type your answer here]* |
| **Model precision chosen (FP32, FP16, or Int8)** | *[TODO: Type your answer here—choose from ]* |

## 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).

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| **Write-up: Final Hardware Recommendation** |
| *[TODO: Type your answer here]* |

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# 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.

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| **Which hardware might be most appropriate for this scenario?**  **(CPU / IGPU / VPU / FPGA)** |
| *[TODO: Type your answer here]* |

|  |  |
| --- | --- |
| **Requirement Observed**  **(Include at least two.)** | **How does the chosen hardware meet this requirement?** |
| *Example requirement:*  The client requires a tiny device to be connected to their CPU—and their budget is only about $100 for each device. | *Example explanation:*  VPU or NCS2 is only about 27.40 mm in size and would fit in the price range. |
| *[TODO: Type your answer here]* | *[TODO: Type your answer here]* |
| *[TODO: Type your answer here]* | *[TODO: Type your answer here]* |
| *[TODO: Type your answer here]* | *[TODO: Type your answer here]* |

## Queue Monitoring Requirements

|  |  |
| --- | --- |
| **Maximum number of people in the queue** | *[TODO: Type your answer here]* |
| **Model precision chosen (FP32, FP16, or Int8)** | *[TODO: Type your answer here—choose from ]* |

## 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).

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| --- |
| **Write-up: Final Hardware Recommendation** |
| *[TODO: Type your answer here]* |

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# 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.

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| **Which hardware might be most appropriate for this scenario?**  **(CPU / IGPU / VPU / FPGA)** |
| *[TODO: Type your answer here]* |

|  |  |
| --- | --- |
| **Requirement Observed**  **(Include at least two.)** | **How does the chosen hardware meet this requirement?** |
| *Example requirement:*  The client requires a tiny device to be connected to their CPU—and their budget is only about $100 for each device. | *Example explanation:*  VPU or NCS2 is only about 27.40 mm in size and would fit in the price range. |
| *[TODO: Type your answer here]* | *[TODO: Type your answer here]* |
| *[TODO: Type your answer here]* | *[TODO: Type your answer here]* |
| *[TODO: Type your answer here]* | *[TODO: Type your answer here]* |

## Queue Monitoring Requirements

|  |  |
| --- | --- |
| **Maximum number of people in the queue** | *[TODO: Type your answer here]* |
| **Model precision chosen (FP32, FP16, or Int8)** | *[TODO: Type your answer here—choose from ]* |

## 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).

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| **Write-up: Final Hardware Recommendation** |
| *[TODO: Type your answer here]* |

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