

1a) The Raspberry Pi 2 has the lowest under-load power draw (3.4W).

1b) The Macbook Air consumes the least amount of energy (407J).

1c) The Macbook Air computes the result the fastest (14s).

2) Considering a case of taking a picture once every 60 seconds, then performing a matrix-multiply similar to the one in the benchmark, only the Jetson-TX1 and Macbook Air could meet this deadline as the time for them to compute a matrix multiply is 47s and 14s respectively.

3a) Over an hour, the total energy usage of the Jetson TX-1 is calculated to be:

$$(\text{total energy})/\text{minute} = (47\text{s} \cdot 13.4\text{W}) + (13\text{s} \cdot 2.1\text{W}) = 657\text{J}$$

$$(\text{total energy})/\text{hour} = 60\text{s} \cdot 657\text{J} = 39426\text{J}$$

3b) Over an hour, the total energy usage of the Macbook Air is calculated to be:

$$(\text{total energy})/\text{minute} = (46\text{s} \cdot 10\text{W}) + (14\text{s} \cdot 29.1\text{W}) = 867\text{J}$$

$$(\text{total energy})/\text{hour} = 60\text{s} \cdot 867\text{J} = 52044\text{J}$$

4) I would choose the Jetson-TX1 to run off a battery, as it consumes the least amount of energy per hour.