

**ECE571: Advanced Microprocessor Design – Homework 10**  
Fall 2024

**Due: Friday 22 November 2024, 12:00pm**

Create a document that contains the answers to the questions below. A .pdf or .txt file is preferred but I can accept MS Office or Libreoffice format if necessary.

**1. AMD Zen Reading**

- (a) Read the following website article “The AMD Zen 5 Microarchitecture: Powering Ryzen AI 300 Series For Mobile and Ryzen 9000 for Desktop” by Gavin Bonshor:

<https://www.anandtech.com/show/21469/amd-details-ryzen-ai-300-series-for-mobile-strix-point-with-rdna-35-igpu-xdna-2-npu>

- (b) Answer the following Questions

- i. What is an NPU?
- ii. What is the curve shaper feature?
- iii. What is block floating point?

**2. ARM Processor Readings**

- (a) Read the article “Arm Unveils 2024 CPU Core Designs, Cortex X925, A725 and A520: Arm v9.2 Redefined For 3nm” by Gavin Bonshor:

<https://www.anandtech.com/show/21399/arm-unveils-2024-cpu-core-designs-cortex-x925-a725-and-a520-arm-v9-2-redefined-for-3nm>

- (b) Answer the following questions

- i. What is KleidiCV?
- ii. How much more power efficient is the Cortex-A725 than the Cortex-A720?

- (c) I wanted to have us read something on the new Apple M4 chips but it’s hard to find anything that’s not just essentially a marketing brochure from Apple, but let’s read it anyway

<https://www.apple.com/newsroom/2024/10/apple-introduces-m4-pro-and-m4-max/>

- (d) Answer the following questions

- i. How much memory does the M4 Max support?
- ii. What is the max memory bandwidth of the M4 Max? For comparison, DDR5 maxes out at 64Gbits/s (8GB/s)

**3. Submitting your work.**

- Create the document containing the answers to the questions asked.
- Please make sure your name appears in the document.
- e-mail the file to me by the homework deadline.