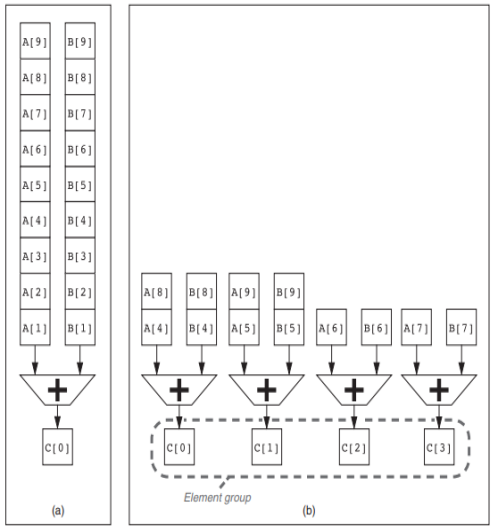
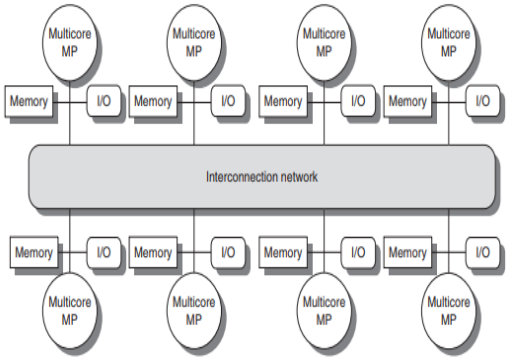
CSE 490/590 Spring 2025 Homework 5

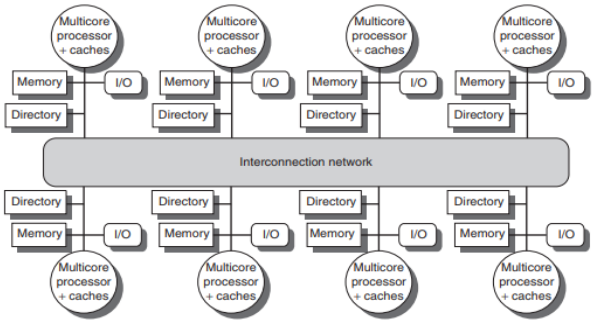
1. Discuss the applications in these two categories and explain how they architecturally differ from each other. Vector processors, GPUs
2. Explain Convoy and Chime
3. In the figure given below, which architecture is better in terms of performance? Explain the reason for your answer. (Hint: Figures link for Chapter 4)



4.
   a. What is cache coherence? Explain the term briefly.
   b. Considering the figures below (a) and (b), which is better in terms of cache coherence? Explain the reason for your answer.



(a)



(b)

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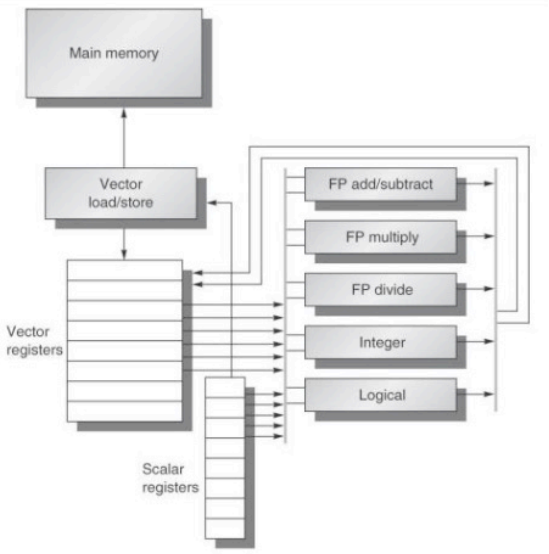
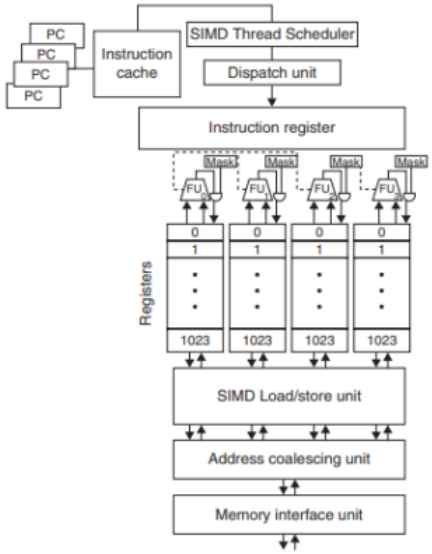
5. Considering the VMIPS structure below, explain why there are multiple read and write ports connected to the vector registers.



6. Consider a multithreaded SIMD Processor of a GPU with four SIMD Lanes. Explain why there are multiple Program Counters.



7. Explain the concept of scatter-gather operations