

Calculators can be used

1. Explain shortly (max 2 lines of text):

- a) stride (1p)
- b) EPIC (1p)
- c) ROB (1p)
- d) SMT (1p)
- e) strip mining (1p)
- f) IPC (1p)

SIMD-ext , vector arch.-pääntö
 - peite tekisit
 - simd-innakamen , vector syvä linkkihmat
 - scalon ~~kontrolet~~ tekisit
 - scatter-gather

- vector arch
 - tekisit

2. Tumasulo algorithm. What is the main principle? Why it is used? (3p)

- simd ext
 - IPC:ää norm
 pros hinc
 multimedie

3. Explain the differences between SIMD extensions and vector architectures? (4p)

4. VLIW Processor. Why VLIW processors were introduced? How they are different than dynamically scheduled multi-issue machines? Why they have not been popular nowadays, i.e., what kind of features make modern single-core processors more attracting than VLIWs? (6p)

5. Interleaved memory system. What is the difference between non-interleaved and interleaved memory system? Describe two principal organizations for interleaved memory system. Discuss the advantages and shortcomings of interleaved memory systems compared to non-interleaved. (6p)

6. Assume a 64-byte cache memory, which uses 8-byte blocks. The cache is 2-way set associative and uses LRU mechanism to replace blocks in the cache. Processor uses 16-bit virtual addresses to access 16kbyte main memory. How many bits are needed for the tag fields in the cache? Draw principal cache organization and explain your solution. (6p)

interleaved

non-interleaved

- hepeampi jos viittäsi osuu
 eni blockeihin

