Lecture 3: ttk-91 programming

- Discussion topics
- New ideas welcome!

Discuss

Slide 7: Fetch-execute cycle

- What changes in system does an ordinary instr cause?
  In what parts of the cycle do those changes happen?
  What about error situations?

  ADD R1, Tbl(R5)

- What changes in system does a conditional jump (branch) cause? Where do you write the result? In what parts of the cycle do those changes happen?
  What about error situations?

  JZER R1, Loop

- What changes in system does arriving data packet cause?
  In what parts of the cycle do those changes happen?

Slide 17: While-do

- Do you need to store Y-value at the end?
- How will the code change if compiler decides to keep value of X in R3 during the loop?
- Where else could value of X be kept during the loop?

```
        LOAD   R1, =14325
        STORE  R1, X
        LOAD   R1, =1
        LOAD   R2, =10
While   COMP   R2, X
        JNLES  Done
        ADD    R1, =1
        MUL    R2, =10
        JUMP   While
Done    STORE  R1, Xlog
        STORE  R2, Y
```

Slide 20: Multi-dim arrays

- Assume 3d-array Count[i, j, k]
  - i has values 0-3 - 4 levels
  - j values 0-4 - each level has 5 rows
  - k values 0-5 - each row has 6 columns
  - The array is stored ”row-wise”, So Count[i, j, 0] and Count[i, j, 1] are in adjacent mem locations
- What is the address of Count[2, 3, 4]?

- How do you implement statement

  X = Count[x, y, z]

  with ttk-91 symbolic assembly language?