Nanoprocessor Design

Group 48

Read Me

Apart from the given basic nanoprocessor design we have decided to implement 3 new units hence increasing the width of the instruction bus up to 13-bits.

- **4-bit Comparator**
- **Bit Shifter**
- **Logical Unit (AND, OR, XOR , ODD/EVEN check)**

Even though the output of the above operations does not send through to the register bank, we've decided to show the output of them through LEDs on the Basys3 board. The output of the Bit Shifter and Logical Unit is signaled through same 4 LEDs using a select pin.

Given below is the order of LEDs showing the output of the nanoprocessor instructions.

- 4 LEDs **U16, E19, U19, V19 - Add/Sub Unit Output**
- LED **W18 – Comparator Equal Indicator**
- LED **U15 – Comparator Greater Indicator**
- LED **U14 – Comparator Lesser Indicator**
- 4 LEDs **V14,V13,V3,W3 – Bit Shifter / Logical Unit Output**
- LED **P1 – Zero Flag**
- LED **L1 – Overflow Flag**
- Button **U18 – Reset Button**