**Arquitectura de Computadores**

**TALLER # 1**

**2. Escriba los 4 principios de diseño de hardware aprendidos en clase.**

* Primer Principio: La simplicidad favorece la regularidad.
* Segundo Principio: Entre más pequeño, más rápido.
* Tercer Principio: Hacer el caso común más rápido.
* Cuarto Principio: Buenos diseños demandan grandes compromisos.

**3. convertir a instrucciones de bajo nivel.**

* **A: Int X=0**

**Int X=8**

**Int X=1**

**Y= X+3**

**Z= Z+3**

**X+ (3-Z)+(3+Y)**

Add g0, 0, %L1

Add g0, 8, %L2

Add g0, 3, %L3

Add %L1, 3, %L2

Add %L3, 3, %L3

Sub %L1, %L3, %L4

Add %L3, 3, %L5

Add %L4, %L5, %L1

**4. Usar el Ld y St.**

* **A[4]= A [2]+X**

Ld %L1, 8, %L2

Add %L2, x, %L0

St %L0, %L1, 16

* **Y=Y [40]+13**

Ld %L1, 160, %l2

Add %L2, 13, %L3

St %L3, %L2, %L1

**5. Convertir a lenguaje de máquina.**

* **int main(){**

**int I=3**

**int P=2**

**Return i+3**

Add g0, 3, %L1

Add g0, 2, %L2

Add %L1, 3, %L3

13 BITS

Add %g0, %L3, %O0

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **OP** | **RD** | **OP3** | **RS1** | **INMEDIATO** | **Unuzed (cero)** | **RS2** |
| 10 | 10001 | 000000 | 00000 | 1 | 00000000 | 00011 |
| 10 | 10010 | 000000 | 00000 | 1 | 00000000 | 00010 |
| 10 | 11000 | 000000 | 10001 | 1 | 00000000 | 00011 |
| 10 | 00000 | 000000 | 00000 | 0 | 00000000 | 10011 |

* **B. int main (){**

**int p=3, x=1, z=4, w=0**

**W= (P+40) + (X+Z)**

**Return 0**

Add go, 3, %L1

Add go, 1, %L2

Add go, 4, %L3

Add go, 0, %L4

Add %L1, 40, %L5

Add %L2, %L3, %L6

13 BITS

Add %L5, %L6, %L4

Add go, 0, O0

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **OP** | **RD** | **OP3** | **RS1** | **IMMEDIATO** | **Unuzed (cero)** | **RS2** |
| 10 | 10001 | 000000 | 00000 | 1 | 00000000 | 00011 |
| 10 | 10010 | 000000 | 00000 | 1 | 00000000 | 00001 |
| 10 | 10011 | 000000 | 00000 | 1 | 00000000 | 00100 |
| 10 | 10100 | 000000 | 00000 | 1 | 00000000 | 00000 |
| 10 | 10101 | 000000 | 10001 | 1 | 00000000 | 01000 |
| 10 | 10110 | 000000 | 10010 | 0 | 00000000 | 10110 |
| 10 | 10100 | 000000 | 10100 | 0 | 00000000 | 10110 |
| 10 | 01000 | 000000 | 00000 | 1 | 00000000 | 00000 |

**6. Inicializar las siguientes variables utilizando OR.**

* **N= -12**
* **A= -11**
* **B= -14**

OR %g0, -12, %L1

OR %g0, -11, %L2

OR %g0, -14, %L3

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