**TALLER 1**

**ARQUITECTURA DE COMPUTADORES**

**PRESENTADO POR:**

**GERALDINE GARCIA LOAIZA**

**1088324951**

**PRESENTADO A:**

**YENSY GOMEZ**

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**UNIVERSIDAD TECNOLOGICA DE PEREIRA**

**RISARALDA**

**SOLUCIÓN TALLER**

**2. Principios de diseño**

1. La simplicidad favorece la regularidad.

2. Entre más pequeño más rápido.

3. Hacer el caso común más rápido.

4. Buenos diseños demandan grandes compromisos.

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

**a. Int x=0**

**Int x=8**

**Int x=1**

**b. y= x+3**

**z= z+3**

**x+ (3-z)+(3+y)**

Add %g0, 0, %L1 inicializamos las variables

Add %g0, 8, %L2

Add %g0, 3, %L3

Add %L1 , 3, %L2 pasamos a instrucciones de bajo nivel

Add %L3, 3, %L3

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Sub %L1, %L3, %L4

Add %L2, 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[0]=y [40]+3**

Ld %L1, 160, %L2

Add %L2, 13, %L3

St %L3,%L2,%L1

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

**a. int main(){**

**int i=3**

**int p=2**

**return i+3**

add g0, 3, %L1

add g0,2 , %L2

Add %L1,3, %L3

Add %g0, %L3,%O0

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **OP** | **RD** | **OP3** | **RS1** | **INMEDIATO** | **13 BITS 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

Add %L5, %L6, %L4

Add go, 0, O0

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **OP** | **RD** | **OP3** | **RS1** | **IMMEDIATO** | **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