**UNIVERSIDAD TECNOLÓGICA DE PEREIRA**

**ARQUITECTURA DE COMPUTADORES**

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**2. ESCRIBA LOS 4 PRINCIPIOS DE DISEÑO DE HARDWARE APRENDIDOS EN CLASE**.

* La simplicidad favorece la regularidad.
* Entre más pequeño más rápido.
* Hacer el caso común más rápido.
* Buenos diseños demandan grandes compromisos.

**3. CONVERTIR A INSTRUCCIONES DE BAJO NIVEL**

**Int x = 0**

x: %L1

Add %G0 0 %L1

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**Int y = 8**

**y: %**L2

add %Go 8 %L2

**Int z = 1**

**z:** %L3

add %G0 1 %L3

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**Y= x+3**

**x:** %L1

add %L1 3 %L2

**Z= z+3**

**Z:** %L1

Add %L1 3 %L2

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

**X:** %L1

**Z:** %L2

**Y:** %L3

Sub %L1 %L2 %L4

Add 3 %L3 %L5

Add %L4 %L5 %L6

**4. USAR EL LD Y ST**

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

**A:** %L1

**X:** %L2

ld %L1 (8) %L3

add %L3 %L2 %L4

St %L4 %L1 16

**Y[0]= Y[40]+13**

**Y:** %L1

ld %L1 80 %L2

add %L2 13 %L3

St %L3 %L1 0

**5. CONVERTIR A LENGUAJE DE MAQUINA**

**Int**

**Main () {**

**Int i=3; 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** | **I** | **ZERO** | **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 |

**Int main () {**

**Int p=3, x=1, z=4**

**Int w=0**

**w=(p+40)+(x-z)**

**Return 0;**

**}**

add %g0, 3, %l1

add %g0, 1, %l2

add %g0, 4, %l3

add %g0, 0, %l4

add %l1, 40, %l5

sub %l2, %l4, %l6

add %l5, %l6, %l4

add g0, 0, O0

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **OP** | **RD** | **OP3** | **RS1** | **I** | **ZERO** | **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 | 00000 | 1 | 00000000 | 01000 |
| 10 | 10110 | 000000 | 10101 | 0 | 00000000 | 10100 |
| 10 | 10100 | 000000 | 10111 | 0 | 00000000 | 10110 |
| 10 | 01000 | 000000 | 00000 | 1 | 00000000 | 00000 |

**6. INICIALIZAR LAS SIGUIENTES VARIABLES NEGATIVAS USANDO OR.**

**n= -12**

**a= -11**

**b= -14**

OR g0, -12, %l0

OR g0, -11, %l1

OR g0, -14, %l2