**Informe final Práctica-5**

Apellidos y nombre: Sergio Shmyhelskyy Yaskevych Grupo: 61

**Pregunta 1** (1.5 puntos)

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Estado de los registros, en el ciclo en que se hace el** | | | | | | | | | | |
| **Ciclo** | **Instrucción en** |  | **Fetch de la instrucción** | | | | | **(en hexadecimal)** | | | |  |
| **Fetch** | **ensamblador que se va** |  |  |  | |  |  |  |  |  | |  |
|  | **a ejecutar** | **PC** |  | **R0** | | **R1** |  | **R2** | **R3** |  | | **R4** |
| 0 | IN R1, KEY-STATUS | 0000 |  | 0000 | | 0000 |  | 0000 | 0000 |  | | 0000 |
|  |  |  |  |  | |  |  |  |  |  | |  |
| 3 | BZ R1, POLLING-1 | 0002 | | 0000 | | 0001 | 0000 | | 0000 | 0000 | | |
|  |  |
| 6 | IN R1, KEY-DATA | 0004 | | 0000 | 0002 | | 0000 | | 0000 | | 0000 | |
|  |  |
| 9 | MOVI R0, 0 | 0006 | | 0000 | 0002 | | 0000 | | 0000 | | 0000 | |
|  |  |
| 12 | CMPLTU R2, R0, R1 | 0008 | | 0000 | 0002 | | 0000 | | 0000 | | 0000 | |
|  |  |
| 15 | BZ R2, FI-WHILE-1 (6) | 000A | | 0000 | 0002 | | 0001 | | 0000 | | 0000 | |
|  |  |
| 18 | IN R3 KEY-STATUS | 000C | | 0000 | 0002 | | 0001 | | 0000 | | 0000 | |
|  |  |
| 21 | BZ R3 POLLING-2(-2) | 000E | | 0000 | 0002 | | 0001 | | 0001 | | 0000 | |
|  |  |
| 24 | IN R3-KEY-DATA | 0010 |  | 0000 | 0002 | | 0001 | | 0001 | | 0000 | |
|  |  |  |  |
| 27 | STB 32(R0), R3 | 0012 |  | 0000 | 0002 | | 0001 | | 000F | | 0000 | |
|  |  |  |  |

**Pregunta 2** (2 puntos)

Programa **KEY\_MEM\_PRINT**

Comentario del profesor: Firma del profesor:

**Pregunta 3** (2.5 puntos)

(Tabla de respuesta en la siguiente página)

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|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Ciclo** | **Instrucción en** | **Estado de los registros, en el ciclo en que se hace el Fetch de la** | | | | | | | | | |
| **Fetch** | **ensamblador que** |  |  | **instrucción (en hexadecimal)** | | | | |  |  |  |
|  | **se va a ejecutar** | **PC** | **R0** | **R1** | **R2** | **R3** | **R4** |  | **R5** | **R6** | **R7** |
| 0 | IN R6, KEY-STATUS | 0000 |  |  |  |  |  |  | |  |  |
| 3 | BZ R6, Begin | 0002 |  |  |  |  |  |  | | 0001 |  |
| 6 | IN R6, KEY-DATA | 0004 |  |  |  |  |  |  | |  |  |
| 9 | IN R7, KEY-STATUS | 0006 |  |  |  |  |  |  | | 0081 |  |
| 12 | BZ R7, Poll | 0008 |  |  |  |  |  |  | |  |  |
| 15 | IN R7, KEY-DATA | 000A |  |  |  |  |  |  | |  | 0001 |
| 18 | MOVI R1, 0 | 000C |  |  |  |  |  |  | |  | 0005 |
| 21 | MOVI R5, 1 | 000E |  |  |  |  |  | 0000 | |  |  |
| 24 | MOVI R3, -1 | 0010 |  | 0001 |  |  |  |  | |  |  |
| 27 | AND R4, R7, R5 | 0012 |  |  |  | FFFF |  |  | |  |  |
| 30 | BZ R4, endif | 0014 |  |  |  |  | 0001 |  | |  |  |
| 33 | ADD R1, R1, R6 | 0016 |  |  |  |  |  |  | |  |  |
| 36 | SHL R6, R6, R5 | 0018 |  |  |  |  |  | 0081 | |  |  |
| 39 | SHL R7, R7, R3 | 001A |  |  |  |  |  |  | | 0102 |  |
| 42 | BNZ R7, for | 001C |  |  |  |  |  |  | |  | 0002 |
| 45 | AND R4, R7, R5 | 0012 |  |  |  |  |  |  | |  |  |
| 48 | BZ R4, endif | 0014 |  |  |  |  | 0000 |  | |  |  |
| 51 | SHL R6, R6, R5 | 0018 |  |  |  |  |  |  | |  |  |
| 54 | SHL R7, R7, R3 | 001A |  |  |  |  |  |  | | 0204 |  |
| 57 | BNZ R7, for | 001B |  |  |  |  |  |  | |  | 0001 |

Pregunta: ¿En qué ciclo …? (0.5 puntos)

Analizando el código del programa, tenemos 9 instrucciones en el prólogo, 6 del primer bucle (dos iteraciones), 5 del segundo bucle(una iteración), más 4 instrucciones en el epílogo: 30\*3 = 90 ciclos

**Pregunta 4** (3 puntos)

Programa **KeyPrintMUL**.

Comentario del profesor: Firma del profesor:

**Pregunta 5** (1 punto si pregunta 3 del informe final es correcta)