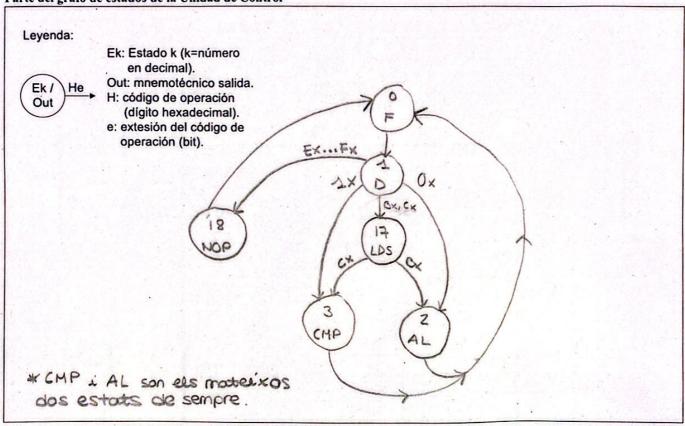
## PLANTILLAS Práctica 6

Este documento contiene plantillas en pdf que os pueden ayudar a preparar la práctica 6. Podéis imprimirlas y escribir/dibujar sobre ellas y luego escanear o fotografiar para incluirlas en el documento-memoria que entregaréis como informe previo y del cual tendréis que tener una copia para realizar la práctica en el laboratorio.

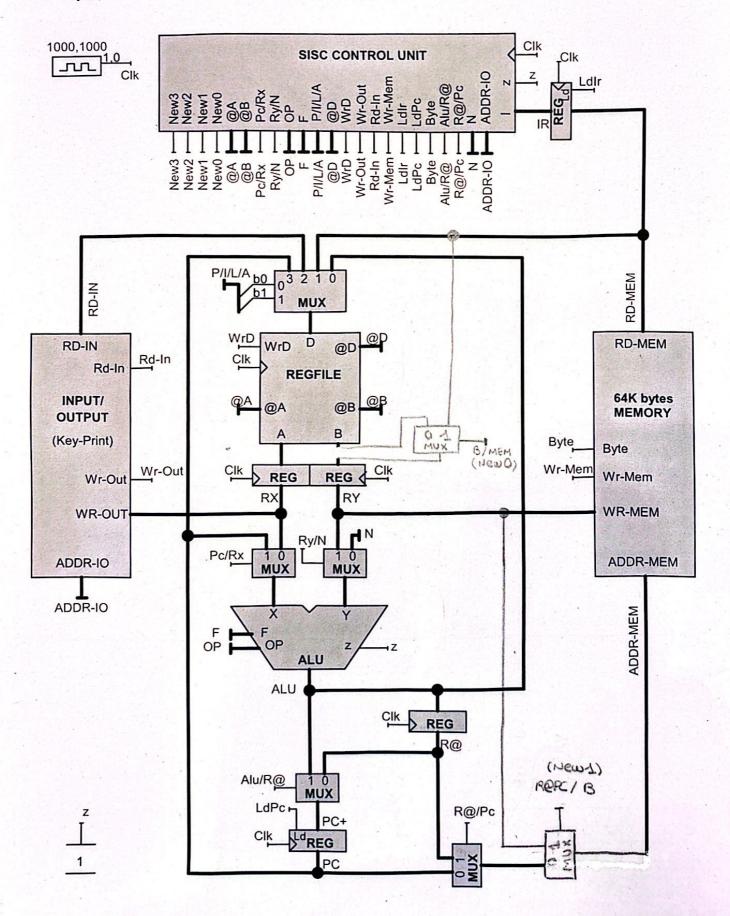
Parte del grafo de estados de la Unidad de Control



## Acciones en cada nuevo estado de la Unidad de Control

| Nodo<br>Número | /Estado<br>Mnem. | Acciones (en lenguaje de transferencia de registros) |
|----------------|------------------|--|
| EO             | F                | IR - MEMWEPC] //PC -PC+2                             |
| E1             | D                | R@ - PC + SE(N8) * 2 // Rx + Ra // Ry + Rb           |
| E17            | LDS              | RX-Ra // RY - MEMWERY]                               |
| E2             | AL               | Rx OPRY  |
| E3             | CMP              | RX CMP Ry  |
|                |                  |  |
|                |                  |  |

## SISC vN plus



Copyright © 2014, Facultad de Informática de Barcelona. UPC

Nuevo contenido de la ROM\_OUT:

| @ROM     | NEW (POR/ B) | New O (B/HEH) | Bnz | Bz | WrMem | RdIn | Wrout | WrD | Ldlr | Byte |      | Alu/R@ | Pc/Rx | P/I/LA1 | P/I/L/A0 | 0P1 | OPO       | MxN1 | MxN0 | MxF | F2         | E | 6 | Mx@D1 | Node            |
|----------|--------------|---------------|-----|----|-------|------|-------|-----|------|------|------|--------|-------|---------|----------|-----|-----------|------|------|-----|------------|---|---|-------|-----------------|
| 0        | 0            | X             |     |    |       |      |       | 1   |      |      | Ti.  |        | 6 6   |         |          |     |           |      |      |     |            |   |   |       | F               |
| 1        | ×            | 0             |     |    |       |      |       |     |      |      | 事情   |        |       |         |          |     | 10 Mg     |      |      |     |            |   |   |       | D               |
| 2 3      | ××           | ××            |     |    |       |      |       |     | 100  |      | 死 废  |        |       |         |          |     |           |      |      |     |            |   |   |       | Al<br>Cmp       |
| 4        | ×            | X             |     |    |       |      |       |     |      |      |      |        |       |         |          |     |           |      |      |     |            |   |   |       | Addi            |
| 5        | 0            | 0             |     |    |       |      |       |     |      |      |      |        |       |         |          |     |           |      |      |     | 244        |   |   |       | Addr            |
| 6 7 8    | 000          | XXX           |     |    |       |      |       |     |      |      |      |        |       |         |          |     |           |      |      |     |            |   |   |       | Ld<br>St<br>Ldb |
| 9        | 0            | ×             |     |    |       |      |       |     |      |      |      |        |       |         |          | N.  |           |      |      |     |            |   |   |       | Stb             |
| 10       | ×            | ×             |     |    |       |      |       |     |      |      |      |        |       |         |          |     | <u> </u>  |      |      |     |            |   |   |       | Bz              |
| 11<br>12 | XX           | XX            |     |    |       |      |       |     |      |      |      |        |       |         |          |     |           |      |      |     |            |   |   |       | Bnz             |
| 13<br>14 | XX           | ××            |     |    |       |      |       |     |      |      |      |        |       |         |          |     | 0         |      |      |     |            |   |   |       | Movi<br>Movhi   |
| 15<br>16 | ××           | ××            |     |    |       |      |       |     |      |      |      |        |       |         | 3/       |     | Section 1 |      |      |     | The second |   |   |       | In<br>Out       |
| 17       | 1            | 1             | 0   | 0  | 0     | 0    | 0     | 0   | 0    | 0    | X    | XX     | ×     | ×       | ×        | ×   | ×         | ××   | <    | ×   | ×          | × | × | ××    | LDS             |
|          |              |               |     |    |       |      |       |     |      |      |      |        |       |         | ***      |     |           |      |      |     |            |   |   |       |                 |
|          |              |               |     |    |       |      |       |     |      |      |      |        |       |         |          |     |           |      |      |     |            |   |   |       |                 |
|          |              |               |     |    | 1/6   |      |       |     |      | 120  |      |        |       |         |          |     |           | 100  | -1   |     |            |   |   |       |                 |
| 31       | X            | X             |     |    |       | X #  |       | 48  |      |      | X 20 |        | 1     |         |          |     | 25.7      |      |      |     |            |   |   |       | Nop             |

Tabla ROM\_Q+ (RQ+ori) del SISC vN plus sobre la que marcar los cambios

| Q             | 1  | Q <sup>+</sup>   | 9493929190   | 11511411311218   | Q <sup>+</sup><br>(Hexa)   | veces  | Q <sup>+</sup><br>(Hexa |
|---------------|--|--|--|--|--|--|-------------------------|
| Fig. 1        | ×  | D  | 00000  | xxxxx  | 01   | 32   | 01                      |
| D             | AL   | Al   | 00001  | 0000x  | 02   | 2  | 02                      |
| 0             | CMP  | Cmp  | 00001  | 0001x  | 03   | 2  | 03                      |
| 0             | ADDI   | Addi   | 00001  | 0010x  | 04   | 2  | 04                      |
| 0             | LD   | Addr   | 00001  | 0011x  | 05   | 2  | 05                      |
| 0             | ST   | Addr   | 00001  | 0100x  | 05   | 2  | 05                      |
| 0             |  |  |  | THE RESERVE OF THE PARTY OF THE | Application of the second of t |  |                         |
|               | LDB  | Addr   | 00001  | 0101x  | 05   | 2  | 05                      |
| 0             | STB  | Addr   | 00001  | 0110x  | 05   | 2  | 05                      |
| D             | JALR   | Jalr   | 00001  | 0111x  | 0A   | 2  | 0A                      |
| D             | BZ   | Bz   | 00001  | 10000  | 0B   | 1  | 0B                      |
| D             | BNZ  | Bnz  | 00001  | 10001  | 0C   | 1  | OC                      |
| D             | MOVI   | Movi   | 00001  | 10010  | 0D   | 1  | 0D                      |
| D             | MOVHI  | Movhi  | 00001  | 10011  | OE   | 1  | 0E                      |
| D             | IN   | In   | 00001  | 10100  | 0F   | 1  | OF                      |
| D             | OUT  | Out  | 00001  | 10101  | 10   | 1  | 10                      |
| *             | -  | Out  | 00001  | 1011x  | 11-12  | 2  | 11                      |
| D '           | ilegal   | Nop  |  | A STATE OF THE PARTY OF THE PAR | The state of the s |  |                         |
| Al            | A STATE OF THE REAL PROPERTY.  |  | 00001  | 11xxx  | 11 12  | 8.   | 11                      |
| Al            | X  | F  | 00010  | XXXXX  | 00   | 32   | 00                      |
| Cmp           | X  | F  | 00011  | xxxxx  | 00   | 32   | 00                      |
| Addi          | X  | F  | 00100  | xxxxx  | 00   | 32   | 00                      |
|               | LIDION   |  | 00101  | 0000x  | XX   | 2  | 00                      |
| Addr          | ! (LD+ST+  | ×  | 00101  | 0001x  | XX ·   |  | 00                      |
|               | LDB+STB)   |  | 00101  | 0010x  | xx   | . 2  | 00                      |
| Addr          | LD   | Ld   | 00101  | 0011x  | 06   | 2  | 06                      |
| Addr          | ST   | St   | 00101  | 0100x  | 07   | 2  | 07                      |
| Addr          | The second secon | The state of the s | THE RESIDENCE OF THE PARTY OF T | 0100x  | 08   | 2  |                         |
|               | LDB  | Ldb  | 00101  |  | A CONTRACTOR OF THE PARTY OF TH |  | 08                      |
| Addr          | STB  | Stb  | 00101  | 0110x  | 09   | 2  | 09                      |
| Addr          | ! (LD+ST+  | x  | 00101  | 0111x  | xx   | 2  | 00                      |
|               | LDB+STB)   |  | 00101  | 1xxxx  | XX   | 16   | 00                      |
| Ld            | x  | F  | 00110  | xxxxx  | 00   | 32   | 00                      |
| St            | x  | F  | 00111  | xxxxx  | 00   | 32   | 00                      |
| Ldb           | X  | F  | 01000  | xxxxx  | 00   | 32   | 00                      |
| Stb           | X  | F  | 01001  | XXXXX  | 00   | 32   | 00                      |
| VOP-31 (1980) | Principal Control  | F  | 01010  | The second secon | THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER.   | The same of the sa | A STATE OF              |
| Jalr          | X  | The same of the state of the same of the s |  | XXXXX  | 00   | 32   | 00                      |
| Bz            | X  | F  | 01011  | *xxxx  | 00 .   | 32   | 00                      |
| Bnz           | X  | F  | 01100  | xxxxx  | 00   | 32   | 00                      |
| Movi          | X  | F  | 01101  | XXXXX  | 00   | 32   | 00                      |
| Movhi         | x  | F  | 01110  | xxxxx  | 00   | 32   | 00                      |
| ln ·          | ×  | F  | 01111  | xxxxx  | 00   | 32   | 00                      |
| Out           | x  | F  | 10000  | XXXXX  | 00   | 32   | 00                      |
| **            |  | 3  | 10001  | XXXXX  | 00   | 32   | 00                      |
|               | The second second second   |  |  | National Contraction of  | 17.71.000.000  | 2000   |                         |
| Nop           | ×  | F  | 1001x  | XXXXX  | 00   | 64   | 00                      |
|               |  |  | 101xx  | xxxxx  | 00   | 128  | 00                      |
|               |  | LILED FRANCE   | 11xxx  | xxxxx  | 00   | 256  | 00                      |
| Tabla 1.      | 1 Contenido de   | la ROM_Q+ en t   | res tablas con   | formatos difere  | ntes pero la mis   | ma informac  | ón                      |
| 0             | AL(M)  | LDS  | 1,0000   | MITOI  | 11   |  |                         |
| D             | CMP(M)   | LOS  | 10000  | TOOK   |  |  | 11                      |
|               |  |  | 1 000 1  | HOIX   |  | 3.7  | -                       |
| 0             | ilegal   | NOP  |  | MILE   | 12   | 64   | 12                      |
| DS            | AL(M)  | AL   | Troo.  | 15 EL 8  | 02   | 2  | CL                      |
| DS            | CHP(M)   | CMP  |  | 1100×  |  | . 2  | 0                       |
| 05            | I(ALLM)+<br>+CMPCM))   | ×  |  | Y CHAX   |  | 32   | 00                      |

Solución Práctica 6

Cambios en la ROM Q+ para crear la nueva ROM\_Q+ (RQ+new)

(solo para la zona marcada en la tabla anterior)

| Q I  | Q <sup>+</sup>   | 9493929190   151141311218  | Q <sup>+</sup><br>(Hexa) | #<br>veces   | Q <sup>+</sup><br>(Hexa) |
|--|--|--|--------------------------|--|--------------------------|
| D ALIM)  | LDS  | X1101 10000  | 11                       | 2  | 11                       |
| D CMP(M)   | LDS  | 00001 1100 x   | 11                       | 2  | 21                       |
| D ilegal   | NOP  | CCCC 1101 x  | 12                       | 2  | 12                       |
| A CONTRACT OF THE PARTY OF THE  |  | 00001 111XX  | 22                       | ч  | 75                       |
| LIDS ! (ALLM) + CMPCM  | ·××  | 10001 0xxxx  | 00                       | 16   | 00                       |
| LDS ALICM)   | AL   | 10001 100××  | 00                       | - 4  | 00                       |
| LDS CMPCM)   | CMP  | 10001 1010 x   | 00                       | 2  | 00                       |
| LOS KALINI +CMP(N)   | XX   | 10001 1011 X   | 02                       | 2  | 02                       |
|  | Barrier Control  | 10001 1100X  | 03                       | 2  | 03                       |
|  | A CONTRACTOR OF THE CONTRACTOR | 10001 1101X  | 00                       | 2  | 00                       |
| - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1  |  | 10001 111××  | 00                       | 4  | 00                       |
| NOP X  | F  | 100 IX XXXXX   | 00                       | 64   | 00                       |
|  | C 272  | 101 XX XXXXX   | 00                       | 128  | 00                       |
| The second secon |  | HXXXXXXXX  | 00                       | 256  | 00                       |
|  | The state of the s |  |                          | 4 1 700000000000000000000000000000000000   | 1000000                  |
| Commence of the Commence of th | Edit of the Control  |  | N. Carlo                 | A Company  | 90 7777 Carl             |
| A place framework or   | (90.37 7 (8 to 18  |  | Transfer 1               | -  |                          |
| And the Control of th | Designation of the second  | A STATE OF THE PROPERTY OF THE | 7. UBO-6                 |  | -                        |
| TILL 12 Contonido a  | sambian anta i   | POM O+ on two tables and   | 115                      | Dela de Texas de La companya della companya de la companya della c |                          |

Tabla 1.2 Contenido a cambiar enla ROM Q+ en tres tablas con formatos diferentes pero la misma información

no pot passor