ECE362 HW5

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1. Write a program that sends a high to bit 5 of output port 3000 when bit 1 of input port 2000 is changed to high but iterating while bit 1 is low. It is assumed that you can read output port 3000 to know its current value. You must not change the value of any other bits in these ports.

Variables: Section

Var1: ds.b 1

Constants: Section

Port3k equ $3000

Port2k equ $2000

Repeat:

Movb #$FF,Port3k

Movb #$FF,Port2k

Ldaa port3k

Cmpa #%00010000

Beq Loop

Bne Repeat

Loop: ldab #%00000001

Stab port2k

2. Write a program that sends a high to bit 3 of output port 4000 when bit 4 of input port 1000 is changed to low but iterating while bit 4 is high. It is assumed that you can read output port 4000 to know is current value. You must not change the value of any other bits in these ports.

Variables: Section

Var1: ds.b 1

Constants: Section

Port4k equ $4000

Port1k equ $1000

Repeat:

Movb #$FF,Port4k

Movb #$FF,Port1k

Ldaa port4k

Cmpa #%00000100

Beq Loop

Bne Repeat

Loop: ldab #%00001000

Stab port1k

3. Write a program that can add all elements of an array. You may define a 100 element array of 16-bit integers. The end of valid elements is denoted by a terminator, which is $AAAA (e.q., if (N+1)th element is $AAAA, element 1 to N should be added together). The sum should be stored in array element N+2. Ignore carry out of 16-bit. (10 pts)

Variables: Section

array: ds.w 100

sumarray: dc.b #0

Constants: Section

Terminator equ $AAAA

Repeat:

Ldx #0

Ldaa array,x

Adda

Inx

ldy #100

dey

beq done

bne repeat

done:

staa #Terminator

nop

4. Write a program that cumulatively XNORs all elements (bytes) of an array, whose label is ARRAY. Assume that the array contains tens of bytes. But, the first element of the array indicates the number of valid elements in the array (i.e., if the first element is N, it means there are N values from second element to last that are valid). The cumulative XNOR result should be stored right after the last valid element of the array. (10 pts)

Variables: Section

Array: ds.b 10