1010 0110 in 2’s complement equals in base 10 → **-90**

A microprocessor with a 32-bit address bus could access how much memory→ **4GB**

A6 in 2’s complement equals in base 10 → **-90**

A “POP” instruction: → **Increments the SP**

A “PUSH” instruction → **decrements the SP**

A “NOP” instruction in a program will → **Perform a No Operation**

AND’ing 1FH and 02H will result in which of the following → **02**

AND’ing 10H and 2FH will result in which of the following → **0**

A “**pull down**” resistor is used in digital circuits to do what? → **To keep the signal line “tied” low until the line is active (goes high)**

A “**pull up**” resistor is used in digital circuits to do what → **To keep singal “tied” high until the line is active (goes low)**

Determine the contents of register BL after the following instructions have been executed:→ **E2H** MOV BL, E2H MOV CL, 1000b ROL BL, CL **; rotate BL by 8 to left = same value**

For the instruction sequence below, determine the contents of the registers AL after this program → **51H** MOV AL, 73h ; 0111 0011 ADD AL, 78h ; 0111 1000 DAA if low nibble of AL > 9 or AF = 1 then: AL = **AL + 6** AF = 1 if AL > 9Fh or CF = 1 then: AL = **AL + 60h** CF = 1

For the instruction sequence below, determine the contents of the register AL after this program is executed → **51H**

MOV AL, 83h ADD, AL, 68h DAA

Given the short code, what is the value in AX after the program is run → **0100**

Mov BX, 0100 PUSH BX MOV AX, 0500 POP AX

Given the short code, what is the value in AX after the program is run →**0001**

MOV BX, 0001 PUSH BX MOV AX, 0500 POP AX

GIVEN: IP = 0106 Flags: NV UP EI NG NZ NA PE NC Instruction: JMP 011F What will the IP value be after “t” command is executed in DOS Debug? → **011FH** (Unconditional Jump)

GIVEN: IP = 0109 Flags: OV UP EI PL NZ NA PO CY Instruction: JGE 0118 What will the IP value be after a “t” command is executed in DOS Debug → **010B** (0109 + 0010 add two bytes)

GIVEN: IP=FFE0 Flags: OV UP EI PL NZ NA PO NC Instruction: JGE 0116: ID72:010D 7D**09** How many bytes will the processor jump if the condition for a jump were met? → **9**

GIVEN: AX= FFF0 IP = 0109 FALGS: OV UP EI PL NZ NA PO CY ID72: 010F **7D18** Instruction: JGE 0118. What is the signed decimal value of the number in the AX register? → **-16** Covert the number 7D18 into decimal.

GIVEN: IP= 010F Flags: NV UP EI NG NZ NA PO NC Instruction: JNL 0115. How many bytes in decimal will the processor jump if the conditions for a jump were met → **24**

GIVEN: 57 65 6C 63 6F 6D 65 20-74 6F 20 41 73 73 65 6D

62 6C 79 20 4C 61 6E 67-75 61 67 65 00 00 00 00 An ASCII message begins at memory location 0200, what is the message? → **Welcome to Assembly Language**

Here is a short sequence of code: 7413 EBA3 CD16 7D21 3C04 EBF0 EB15. All of the instructions are a word long. The third instruction operator is → **INT**

Here is a short sequence of code: 7413 A3EB CD16 7D21 3C04 EBF0 EB15. All of the instructions are a word long. The fourth instruction operator is →**JGE**

Here is a short sequence of code: B400 CD16 3C4A 7404 BC6A 7513. All of the instructions are two bytes long. The sixth instruction operator is →**JNZ**

How many cores does the propeller microcontroller have → **8**

How many bits(s) is/are required to represent a range of decimal numbers from **0** to **15** → **4**

How many bits(s) is/are required to represent a range of decimal numbers from **0** to **63** → **6**

How many bits(s) is/are required to represent a range of decimal numbers from **0** to **127** →**7**

How many bits(s) is/are required to represent a range of decimal numbers from **0** to **255** →**8**

How many bytes are there in this short sequence of code B4 00 CD 16 4C CD 20 → **7**

How many nibbles are there in this short sequence of code B4 00 CD 16 3C 4A 74 04 3C 6A 75 13 →**24**

How many bytes are in double precision IEEE floating point format numbers → **8**

How many nibbles are in double precision IEEE floating point format numbers → **16**

How many address lines would be required to address 128 MB directly → **27** (128 x 1048576 = 134217728 and 2^27 = 134217728)

How many address lines would be required to address 64 MB directly → **26** (64 x 1048576 = 67108864 and 2^26 = 67108864)

If CX is 0000, what will CX be after a “LOOP” instruction → **FFFF**

If CX is 0003, what will CX be after a “LOOPNZ” instruction →**0002**

If the SP is **F00F**, what is the SP value after a “**PUSH CX**” instruction → **F00D**

If the SP is **F00F**, what is the SP value after a “**POP CX**” instruction → **F011**

If the SP is **F00F**, what is the SP value after a “**POP SP**” instruction → **F011**

In adding 5+5 through a 4 bit integer unit. The state of the OF and CF flags after the add instruction would be → **OF = 1, CF = 0**

In x86 architecture, BIU stands for which of the following → **Bus Interface Unit**

In x86 architecture, ALU stands for which of the following → **Arithmetic Logic Unit**

In the x86 lab part 3 Hello MASM program in the original code, what is the address of the byte used to start the number in the sequence “Hello World 0”? → **020E**

In MASM, with a “MOV CX, **24h**” instruction, and a “LOOP” instruction, how many times will the program loop in decimal → **36**

In MASM, with a “MOV CX, **24**” instruction, and a “LOOP” instruction, how many times will the program loop in decimal → **24**

In MASM, with a “MOV CX, 12h” instruction, and a “LOOP” instruction, how many times will the program loop in decimal → **18**

In the Hello MASM lab in the original code, what is the address of the string to start the message “Hello World 0” → **0200**

In the PIC18 with TRISD = 0b10000000, what is the configuration of the Port D → **Bit 7 of port D is set to input**

In the PIC18 with TRISD = 0b01111111 and LATD = 0xAA, what value will be on Port D and shown on the LEDS → **Bit 7 of port D is set to output** (because the first bit is zero = output)

In the PIC18 with TRISD = 0b00001111, what is the configuration of the Port D → **A0 (First 4 are outputs and last four are inputs)**

In the PIC18 with TRISD = 0b11110000 and LATD = 0xAA, what value will be on Port D and shown on the LEDS → **0A**

In the Propeller microcontroller, the command “dira[9..4] := %000000” would cause the processor to do which of the following → **Sets the propeller pin P4 through P9 as output pins**

In the Propeller microcontroller, the command “dira[9..4] := %111111” would cause the processor to do which of the following → **Sets the propeller pin P4 through P9 as output pins**

In the propeller microcontroller, the command “waitcnt(clkfreq\*3 + cnt)” would cause the processor to do which of the following → **A 3 second delay**

In the propeller microcontroller, the command “waitcnt(clkfreq\*2 + cnt)” would cause the processor to do which of the following → **A 2 second delay**

In the Propeller microcontroller, the term “Method” is (are) which of the following → **A block of executable commands that has variables, can receive parameters, and returns a value.**

Int 10h uses what function code to write a character to the screen and advance the cursor by one character position → **0Eh**

Int 21h, Function 09h requires three things set up before calling in order to correctly print a string: **DS=SEG Hello\_msg, DX=OFFSET Hello\_msg, Hello\_msg terminated with 24h**.

Ladder Logic is used in? → **PLCs**

**Moore’s law** has accurately predicted the growth rate in the number of transistors per die for the last 40 years. What is the rate? → **Doubling every 18-24 months**

On the Ardino platform what is the program language used → **C**

On the **PPE board**, what numbers(s) on the key pad is(are) pressed for an output port value of 08h and an input port value of 2Fh → **0**

On the **PPE board**, what numbers(s) on the key pad is(are) pressed for an output port value of 04h and an input port value of 2Fh → **8**

The “LOOPNZ” instruction is equivalent to which of the following instructions → **DEC CX, JNE**

The acronym PWM used for motor control, is defined as which of the following → **Pulse Width Modulation**

The acronym PLC, is defined as which of the following? → **Programmable Logic Controller**

The ASCII codes for space, space, carriage return, line feed, end of string in **decimal** are → **32, 32, 13,10, 36**

The ASCII codes for space, space, carriage return, line feed, end of string in **hexadecimal** are:→ **20,20,0D,0A,24**

The binary number, 1011 0101, represents what values as a unsigned binary, 8 bit signed binary, odd parity ASCII, and BCD number (in that order) → **181, -76, 5, invlaid5**

The instruction MOV CX, DADD is what addressing mode → **Immediate**

The instruction MOV CX, [DADD] is what addressing mode → **Direct**

The number of bits in single precision IEEE floating pint format are → **32**

This section of memory represents a stack. What type of program is this → **EXE PROGRAM**

**BEEF:00D0** 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00 **BEEF:00E0** 00 01 02 03 04 05 06 07-08 09 0A 0B 0C 0D 0E 0F **BEEF:00F0** 11 22 33 44 55 66 77 88-99 AA BB CC DD EE FF

**BEEF:0FD0** 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00 **BEEF:0FE0** 00 01 02 03 04 05 06 07-08 09 0A 0B 0C 0D 0E 0F **BEEF:0FF0** 11 22 33 44 55 66 77 88-99 AA BB CC DD EE FF

This section of memory represents a stack. What type of program is this → **COM PROGRAM**

**BEEF:FFD0** 00 00 00 00 00 00 00 00-00 00 00 00 00 00 00 00 **BEEF:FFE0** 00 01 02 03 04 05 06 07-08 09 0A 0B 0C 0D 0E 0F **BEEF:FFF0** 11 22 33 44 55 66 77 88-99 AA BB CC DD EE FF

Using MASM, which of the following will cause a program with a LOOP instruction to loop 48 times in decimal → **MOV CX, 48**

Which command would you use to execute another core in the propeller microcontroller→ **Cognew**

What command in DEBUG would be used to change the code segment → **RCS**

What command in DEBUG would be used to change the IP value → **RIP**

What command in DEBUG would be used to execute interrupts → **P**

What command in MASM-CodeView would be used to step through a program line by line → **T(F8)**

What flag(s) does the “LOOPNZ” instruction look at to determine whether to loop or not → **ZF**

What flag(s) does the “LOOPNE” instruction look at to determine whether to loop or not → **ZF**

What Hex values must be sent to address the key pad rows on the PPE board → **1,2,4,8**

What is the advantage of C Language over Assembly Language → **C is transportable to other microprocessor architectures**

What is the hexadecimal encoding for “JGE” for a jump back 10 bytes → **7DF4 (10 byes + 2 )**

What is the hexadecimal encoding for adding AX with BX and storing the result in AX → **01D8** ADD AX, BX 000 00W 11 reg1 reg2

What is the hexadecimal encoding for adding BX with CX and storing the result in BX → **01CB**

What is the hexadecimal encoding for adding BX with DX and storing the result in BX → **01D3**

What is -130 decimal in 2’s complement (8bits) → **01111110**

What is -32.75 in a base two number system → **-100000.110000**

What is 14.4375 in binary → **001110.0110**

What is 16.4375 in binary → **010000.01110**

What is the binary value of decimal 12.875 → **1100.1110**

What is 16.4375 in binary → **010000.01110**

What is number, 1011.0101 (2) in decimal? → **11.31**

What is the **numeric sequence** of the key pad columns on the PPE board → **37,2F,1F**

What is the decimal value of C5 5A 57 00 in IEEE single precision FP format → **-3493.4375**

What of the following instruction would be used to set the LED to light on the Arudino platform → **digitalWrite(ledPin, HIGH);**

What type of program is this → **EXE**

IP = **0115**, 1376:0115 0100 ADD [BX+SI], AL DS:0000=CD

What type of program is this → **COM**

IP = 0100, 1376:0100 0100 ADD [BX+SI], AL DS:0000=CD

Which of the following DOS Debug instructions would set a break point at memory location 010C → **G = 100 10C**

Which of the following would be used to set the **TRISA** register to control the direction of **PIC18** port to **input** → **1** and for **output** its → **0**

Which of the following DOS Debug instructions would be used to change the IP register to 110 →**RAX = 0110**

Which of the following will cause a program with a LOOP instruction to loop 48 times (decimal)→ **CX=30h**

Which of the following is a valid x86 command for multiplying a number → **MUL BX**

Which of the following is **not a valid** command for a number into a register in MASM → **MOV AX, BADH**

With a POP BX instruction, what will be order off the accumulator, base, count, and data registers restored from the stack → **BX**

With a POPA instruction, what will be the order of the accumulator, base, count, and data registers restored from the stack → **BDCA**

You are trying to rebuild a HELLO program project in MASM and you get the following error: "ERROR 4 line 1". What is the cause of the error? → **Not known—this error by itself isn’t a problem, press the enter key to clear the error.**

You are typing to rebuild a HELLO project program in MASM and you get the following error: “LINK : warring L4021: no stack segment”. What would be the reason for the such an error → **No project template for COM was selected.**

You are typing to rebuild a HELLO project program in MASM and you get the following error: “LINK : fatal error L1089: HELLO.lrf: cannot open response file”. What would be the reason for the such an error → **No source file is identified(no .asm file)**

**PPE Row Column Scan decoding** D7 D6 D5 D4 D3 D2 D1 D0 S7 S6 S5 S4 S3 S2 ^ ^ ^ 3 2 1 0 0 0 0 1 0 0 0 = 08h 0 0 0 1 0 0 0 0 = 10h 0 0 1 0 0 0 0 0 = 20h

0 0 1 1 1 1 1 1 = 3Fh -> Nothing pressed 0 0 1 1 0 1 1 1 = 37h -> Number 1 pressed 0 0 1 0 1 1 1 1 = 2Fh -> Number 2 pressed 0 0 0 1 1 1 1 1 = 1Fh -> Number 3 pressed