

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 signal "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 7D09  
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 ( $64 \times 1048576 = 67108864$  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 Arduino 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 bytes + 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

Dec	Hex	Char	Dec	Hex	Char	Dec	Hex	Char	Dec	Hex	Char
0	00	Null	32	20	Space	64	40	@	96	60	`
1	01	Start of heading	33	21	!	65	41	A	97	61	a
2	02	Start of text	34	22	"	66	42	B	98	62	b
3	03	End of text	35	23	#	67	43	C	99	63	c
4	04	End of transmit	36	24	\$	68	44	D	100	64	d
5	05	Enquiry	37	25	%	69	45	E	101	65	e
6	06	Acknowledge	38	26	&	70	46	F	102	66	f
7	07	Audible bell	39	27	'	71	47	G	103	67	g
8	08	Backspace	40	28	(	72	48	H	104	68	h
9	09	Horizontal tab	41	29	)	73	49	I	105	69	i
10	0A	Line feed	42	2A	*	74	4A	J	106	6A	j
11	0B	Vertical tab	43	2B	+	75	4B	K	107	6B	k
12	0C	Form feed	44	2C	,	76	4C	L	108	6C	l
13	0D	Carriage return	45	2D	-	77	4D	M	109	6D	m
14	0E	Shift out	46	2E	.	78	4E	N	110	6E	n
15	0F	Shift in	47	2F	/	79	4F	O	111	6F	o
16	10	Data link escape	48	30	0	80	50	P	112	70	p
17	11	Device control 1	49	31	1	81	51	Q	113	71	q
18	12	Device control 2	50	32	2	82	52	R	114	72	r
19	13	Device control 3	51	33	3	83	53	S	115	73	s
20	14	Device control 4	52	34	4	84	54	T	116	74	t
21	15	Neg. acknowledge	53	35	5	85	55	U	117	75	u
22	16	Synchronous idle	54	36	6	86	56	V	118	76	v
23	17	End trans. block	55	37	7	87	57	W	119	77	w
24	18	Cancel	56	38	8	88	58	X	120	78	x
25	19	End of medium	57	39	9	89	59	Y	121	79	y
26	1A	Substitution	58	3A	:	90	5A	Z	122	7A	z
27	1B	Escape	59	3B	;	91	5B	[	123	7B	{
28	1C	File separator	60	3C	<	92	5C	\	124	7C	
29	1D	Group separator	61	3D	=	93	5D	]	125	7D	}
30	1E	Record separator	62	3E	>	94	5E	^	126	7E	~
31	1F	Unit separator	63	3F	?	95	5F	_	127	7F	□