PCB #3: ALU Design Optimization and PCB Layout with OrCAD PCB Editor

COVER SHEET

unauthorized aid.	
Name:Jon Bayert	Signature: fonathan Bayert
Honor Code: I have neither g unauthorized aid.	iven or received nor have I tolerated others use

A complete assignment will contain:

- 1) A bill of materials for your original ALU design, with chip-count noted
- 2) A bill of materials for your optimized ALU design, with chip-count noted (make sure to re-annotate just before generating the bill of materials)
- 3) Output waveforms from PSpice for your optimized ALU, verifying correct operation. You MUST have outputs (not necessarily inputs) in HEX form... combine outputs into busses. Use ALL four 8-bit input combinations. Make 4 pages, one for each input combination, each page containing the 5 operations.
- 4) Printout of your routed PCB artwork for the small design.

Label each of these at the top of the 1st page of each part.

Note: You MUST have outputs (not necessarily inputs) in HEX form... combine outputs into busses. You do not need to add busses in OrCad Capture, just in the Pspice simulation window. Use "Add Trace" and put your signals in braces for a bus: { r7 r6 r5 ... }.

C:\USERS\JBAYERT\DOCUMENTS\GITHUB\ECE424_PCBS\pcb_assign2.bom

```
Revised: Tuesday, September 08, 2020
 1:
 2:
             Revision:
 3:
 4:
 5:
 6:
 7:
 8:
 9:
10: Bill Of Materials
                         September 8,2020
                                             16:00:45 Page1
11:
           Quantity
12: Item
                     Reference Part
13:
14:
15: 1 6 U1, U3, U7, U14, U21, U26
                                 7432
16: 2 1
          U2 7404
17: 3 6 U4,U11,U19,U22,U24,U27 7408
18: 4 8 U5, U8, U9, U10, U12, U15, U16, 74153
19:
           U17
20: 5 7 U6,U13,U18,U20,U23,U25, 7486
21:
           U28
22:
```

C:\USERS\JBAYERT\DOCUMENTS\GITHUB\ECE424_PCBS\pcb_assign2.bom

1: 2: 3: 4: 5: 6: 7: 8:	R€	evise	ed: Tuesday, Revision:	September (08 , 2020				
	Bil'	l Of	Materials	Sentembe	er 8,2020	18:05:46	Page1		
11:			Haccitato	Береспас	0,2020	10.00.10	rager		
	Iter	n	Quantity	Reference	Part				
13:			-						
14:									
15:	1	6	U1,U3,U6,U1	1,U17,U22	7432				
16:	2	1	U2 7404						
17:	3	7	U4,U7,U9,U12,U16,U19,U24 7486						
18:	4	6	U5, U8, U10, U13, U14, U20 7408						
19:	5	4	U15, U18, U21,	,U23 74153					
20:									

** Profile: "newALU-newALUtestInit" [c:\users\jbayert\documents\github\ece424_pcbs\pcb_assign2-PSpiceF... Temperature: 27.0 Date/Time run: 09/08/20 18:09:10 (A) newALUtestInit (active) 1,aInt0} 1,bInt0} FF op0Dist} s1, res0} carry zero over

Time

6ms

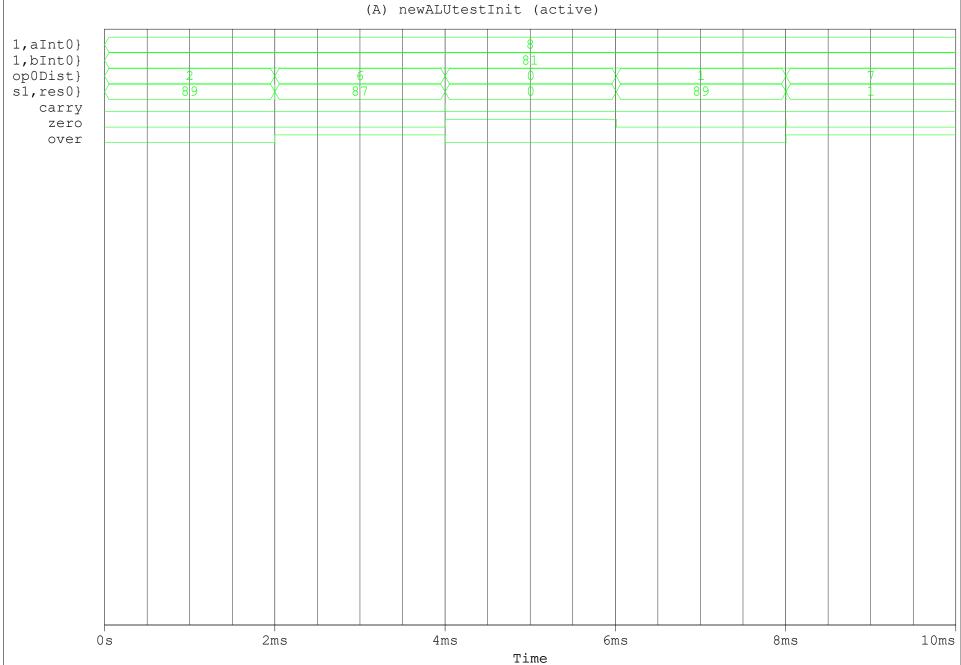
4ms

8ms

10ms

2ms

0s



** Profile: "newALU-newALUtestInit" [c:\users\jbayert\documents\github\ece424_pcbs\pcb_assign2-PSpiceF... Date/Time run: 09/08/20 18:17:31 Temperature: 27.0 (A) newALUtestInit (active) 1,aInt0} F0 1,bInt0} op0Dist} s1, res0} E1 carry zero over

Time

6ms

8ms

10ms

4ms

2ms

0s

** Profile: "newALU-newALUtestInit" [c:\users\jbayert\documents\github\ece424_pcbs\pcb_assign2-PSpiceF... Date/Time run: 09/08/20 17:59:41 Temperature: 27.0 (A) newALUtestInit (active) 1,aInt0} 1,bInt0} A1 op0Dist} carry zero over s1, res0} 5F A1 A1

Time

6ms

8ms

10ms

4ms

2ms

0s

