University Of Nevada Las Vegas. Department Of Electrical And Computer Engineering Laboratories.

Class:	СРІ	E-300L	Semester:	Spring 2020					
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## **Introduction / Theory of operation**

- For this lab experiment we will be using the GDP that was created in lab experiment 6, to implement the algorithm that calculates the greatest common divisor of 2 natural numbers. We will also be learning how to set up timing constraints and how to obtain timing information with the TimeQuest analyzer.

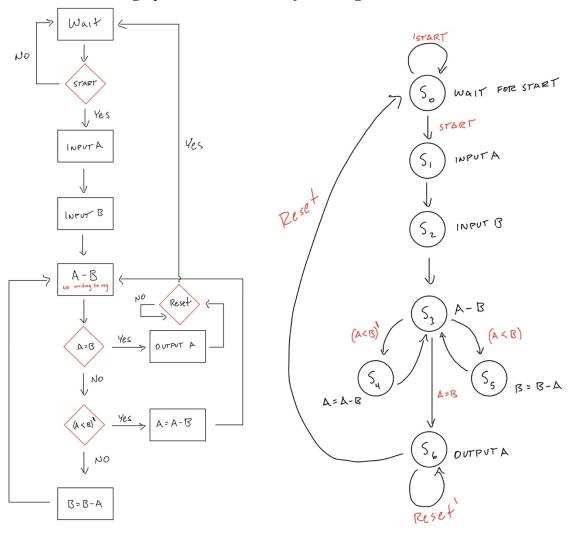
## **Prelab main content**

1. Screenshots of the timing report.

Co	ommand Info Summary of Paths								
	Slack	From Node	To Node	Launch Clock	Latch Clock	Relationship	Clock Skew	Data Delay	
1	-1.997	reg_A[1]	reg_sum[7]	dock	clock	1.000	-0.065	2.927	
2	-1.992	reg_A[1]	reg_sum[7]	clock	clock	1.000	-0.065	2.922	
3	-1.992	reg_B[1]	reg_sum[7]	clock	clock	1.000	-0.065	2.922	
4	-1.991	reg_A[1]	reg_sum[7]	clock	clock	1.000	-0.065	2.921	
5	-1.987	reg_B[1]	reg_sum[7]	clock	clock	1.000	-0.065	2.917	
6	-1.986	red B[1]	rea_sum[7]	clock	clock	1.000	-0.065	2.916	

Co	mmand Info	Summary of	Paths					
	Slack	From Node	To Node	Launch Clock	Latch Clock	Relationship	Clock Skew	Data Delay
1	0.691	reg_B[1]	reg_sum[9]~reg0	dock	dock	4.000	0.324	3.630
2	0.697	reg_B[1]	reg_sum[9]~reg0	dock	dock	4.000	0.324	3.624
3	0.698	reg_B[2]	reg_sum[8]~reg0	dock	dodk	4.000	0.324	3.623
4	0.698	reg_B[1]	reg_sum[9]~reg0	dock	dock	4.000	0.324	3.623
5	0.698	reg_B[2]	reg_sum[8]~reg0	dock	dock	4.000	0.324	3.623
6	0.701	reg_A[1]	reg_sum[9]~reg0	dock	dock	4.000	0.324	3.620
7	0.707	reg_A[1]	reg_sum[9]~reg0	dock	dock	4.000	0.324	3.614
8	0.708	rea A[1]	rea sum[9]~rea0	clock	dock	4.000	0.324	3.613

## 2. Flowchart, state graph and control words for the algorithm



state	ΙE	WE	WA(10)	RAE	RAA(10)	RBE	RBA(10)	ALU(210)	SH(10)	0E	
s0	0	1	00	1	00	1	00	101	XX	0	//Wait for start
s1	1	1	01	0	XX	0	XX	000	XX	0	//Input A
s2	1	1	10	0	XX	0	XX	XXX	XX	0	//Input B
s3	0	0	XX	1	01	1	10	101	00	0	//A—B no write to Reg
s4	0	1	01	1	01	1	10	101	00	0	//A = A-B
s5	0	1	10	1	10	1	01	101	00	0	//B = B-A
s6	X	0	XX	1	01	0	XX	000	00	1	//Output A