

ASSIGNMENT 2

GROUP - 50

18CS10069 - SIBA SMARAK PANIGRAHI

18CS30051 - DEBAJYOTI DASGUPTA

September 17, 2020

BOARD SPECIFICATIONS

Board: Nexys 4 DDR; **FPGA:** Artix-7 (XC7A100TCSG324-1)

1. RIPPLE CARRY BINARY ADDER

1. **HARDWARE REQUIREMENTS:**

Resource	Utilization	Available	Utilization %
LUT	8	63400	0.01
IO	26	210	12.38

2. **CRITICAL PATH DELAY:** 10.997 ns

2. HYBRID BINARY ADDER

1. **HARDWARE REQUIREMENTS:**

Resource	Utilization	Available	Utilization %
LUT	8	63400	0.01
IO	26	210	12.38

2. **CRITICAL PATH DELAY:** 10.986 ns

3. BIT-SERIAL BINARY ADDER

1. **HARDWARE REQUIREMENTS:**

Resource	Utilization	Available	Utilization %
LUT	24	63400	0.04
FF	34	126800	0.03
IO	28	210	13.33

2. **CRITICAL PATH DELAY:** 4.090 ns

Speed of operation is inversely proportional to the critical path delay. Bit-serial Binary Adder, Hybrid Binary Adder and finally Ripple Carry Adder, is the order on the basis of operation speed.