Timing Report:
Hybrid Adder:
Maximum combinational path delay: 15.700ns

Ripple Carry Adder:
Maximum combinational path delay: 13.077ns

Bit Serial Adder:
Minimum input arrival time before clock: 2.716ns
Maximum output required time after clock: 7.800ns

Hardware Requirements:
Hybrid Adder:
- 2 * (4-bit Carry look ahead adder)

Ripple Carry Adder:
- 8 * (1-bit Full Adder)

Bit Serial Adder:
- 1 * (1-bit Full Adder)
- 1 * (8-bit Serial In Parallel Out Register)
- 1 * (D flip flop)
- 2 * (8-bit shift register with parallel loading)

Conclusion:

Through this experiment, we found that although the ripple carry adder and the hybrid adder have the same worst case delay, the hybrid adder is faster in practice because the adder module need not wait for the carry bit (as it is computed directly).

In the case of the bit serial adder, the synthesis report does not show any maximum combinational path delay since it is a sequential circuit and not a combinational one and the delays are attributed to gate circuit which leads to some constant delay value and does not depend on the operands or the size of operands.