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Synthesis report

- **Speed of operation:**

  1) ripple carry adder:
  Maximum combinational path delay: 2.662ns

  2) hybrid adder:
  Maximum combinational path delay: 2.571ns

  3) bit serial adder:
  Minimum period: 1.326ns (Maximum Frequency: 754.262MHz)
  Minimum input arrival time before clock: 1.217ns
  Maximum output required time after clock: 0.650ns
  Maximum combinational path delay: No path found

- **Hardware Requirements:**

  1) ripple carry adder:
  No. of Adders/Subtractors : 16
  --> 2-bit adder : 16

  2) hybrid adder:
  No. of Xors : 24
  --> 1-bit xor2 : 24

  3) bit serial adder:
  No. of Adders/Subtractors : 2
  -->2-bit adder : 2
  No. of Registers : 18
  --> 1-bit register : 17
  -->8-bit register : 1
  No. of Multiplexers : 3
  -->1-bit 2-to-1 multiplexer : 1
  -->8-bit 2-to-1 multiplexer : 2

Summary: Based on speed of operation hybrid adder is more faster than ripple carry adder as it uses constant time to propagate carry whereas ripple carry adder takes O(n) time to give result. -Also the hardware requirements for ripple carry adder is very large. Bit serial adder is sequential and therefore in terms of hardware it is much optimized than the other two.