Report on Multipliers
-- Chelsi Raheja 16CS10013
-- Mehul Nirala 16CS10034

Unsigned Array Multiplier:

    Speed of Operation: Maximum combinational path delay: 42.267ns

    Hardware Requirement:

1-bit adder carry out	: 64
2-bit adder	: 64

Combinational Multiplier:

    Speed of Operation: Maximum combinational path delay: 46.918ns

    Hardware Requirement:

1-bit adder carry out	: 64
16-bit adder	: 1
2-bit adder	: 64
8-bit adder	: 2
1-bit xor2	: 1

** Additional delay and hardware is because of using multiplexers and complements for signed numbers**

Booth Multiplier:

    Speed of Operation:
      Minimum input arrival time before clock: 4.311ns
      Maximum output required time after clock: 7.773ns

    Hardware Requirement:

1-bit adder carry out	: 12
2-bit adder	: 12
4-bit up counter	: 1
1-bit register	: 7
6-bit register	: 2
1-bit 4-to-1 multiplexer	: 1
6-bit 4-to-1 multiplexer	: 1

Conclusion: Booth Multiplier requires way less hardware than combinational multiplier and computation power required is very less compared to combinational but output depends on the clock speed.