**Booth Encoding Multiplication Between 24 and 15**

Haocong Wang

**Multiplicand:**

Decimal: 24

Binary form: 000011000

**Multiplier:**

Decimal: 15

Binary form: 00001111

2’s compliment: 11110001

1. The starting output will be a 16-bit output of multiplicand

0000000000011000

2. Then right shift the output

0000000000001100

3. Right shift again

0000000000000110

4. Right shift again

0000000000000011

5. Then subtract the multiplier with the multiplicand

11110001-0000000000000011

The output will be

1111000100000011

6. Right shift the output

1111100010000001

7. Right shift again

1111110001000000

8. Add the output with the multiplier

11110001+1111110001000000

The output is

0000101101000000

9. Right shift the output

0000010110100000

10. Right shift again

0000001011010000

11. Right shift again

0000000101101000

The final product:

Binary: 0000000101101000

Decimal: 360