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