Addition & Subtraction

	2-input Not Gate	2-input And Gate	2-input OR Gate	2-input XOR Gate
Half Adder	**-**	**1**	**-**	**1**
Full Adder	**-**	**2**	**1**	**2**
2'sComplement	**1**	**8**	**10**	**4**
Sign Checker	**1**	**3**	**2**	**2**
Addition	**4**	**29**	**31**	**25**

Total Number of Addition & Subtraction = 89

Integer division

	Not Gate	2-input And Gate	2-input OR Gate	2-input XOR Gate	2-input NOR Gate
Half Adder	**-**	**1**	**-**	**1**	**0**
Full Adder	**-**	**2**	**1**	**2**	**0**
Subtractor	**4**	**8**	**4**	**8**	**0**
Multibier 4*1	**0**	**4**	**0**	**0**	**0**
Comparator	**8**	**23**	**6**	**0**	**4**
Others	**2**	**0**	**10**	**1**	**0**

For the whole Integer division Circiut:

128- And Gate, 46- OR Gate , 25-XOR Gate, 46-Not Gate, 16-NOR Gate

Total Number of Integer division= 261

BCD to 7 Segment

Not Gate	2-input And Gate	2-input OR Gate
3	**9**	**18**

Total Number of BCD to 7 Segment=30

Multiplication

	2-input Not Gate	2-input And Gate	2-input OR Gate	2-input XOR Gate
Half Adder	**-**	**1**	**-**	**1**
Full Adder	**-**	**2**	**1**	**2**
Multiplicator	**-**	**36**	**8**	**21**
Multiplicator with flag	**2**	**37**	**15**	**21**

For the whole Multiplicator Circiut:

37- And Gate, 15- OR Gate , 21-XOR Gate, 2-Not Gate.

Total Number of Multiplication: 75

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Binary To BCD

	2-input Not Gate	2-input And Gate	2-input OR Gate
Shifter	**8**	**18**	**7**
Binary To BCD	**56**	**126**	**49**

For the whole Binary To BCD

126- And Gate, 49- OR Gate , 56-Not Gate.

Total Number of Binary To BCD: 231

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ALU

	2-input Not Gate	2-input And Gate	2-input OR Gate	2-input XOR Gate	2-input NOR Gate
MUX	**2**	**8**	**3**		
11 MUX	**22**	**88**	**33**	**-**	**-**
Addition & Subtraction	**4**	**29**	**31**	**25**	**-**
Multiplicator	**2**	**37**	**15**	**21**	**-**
dividor	**46**	**128**	**46**	**25**	**16**

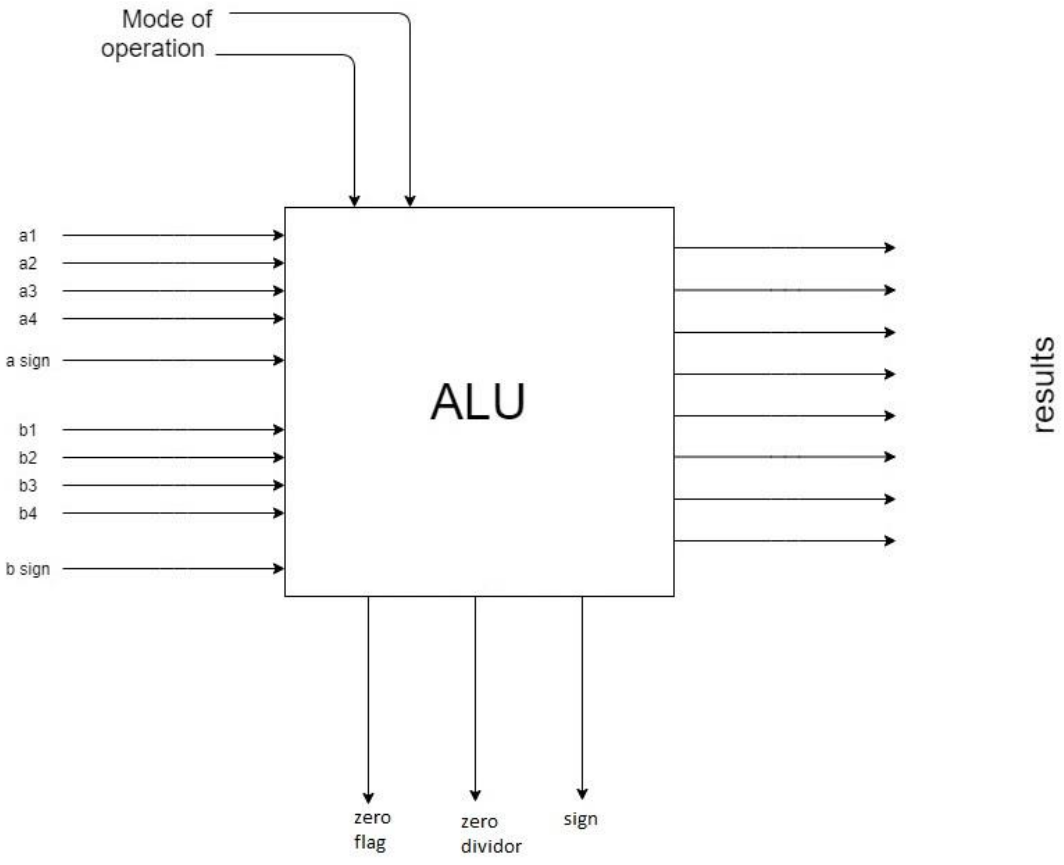
For the whole Multiplicator Circiut:

290- And Gate, 128- OR Gate , 71-XOR Gate, 76-Not Gate, 16-NOR Gate

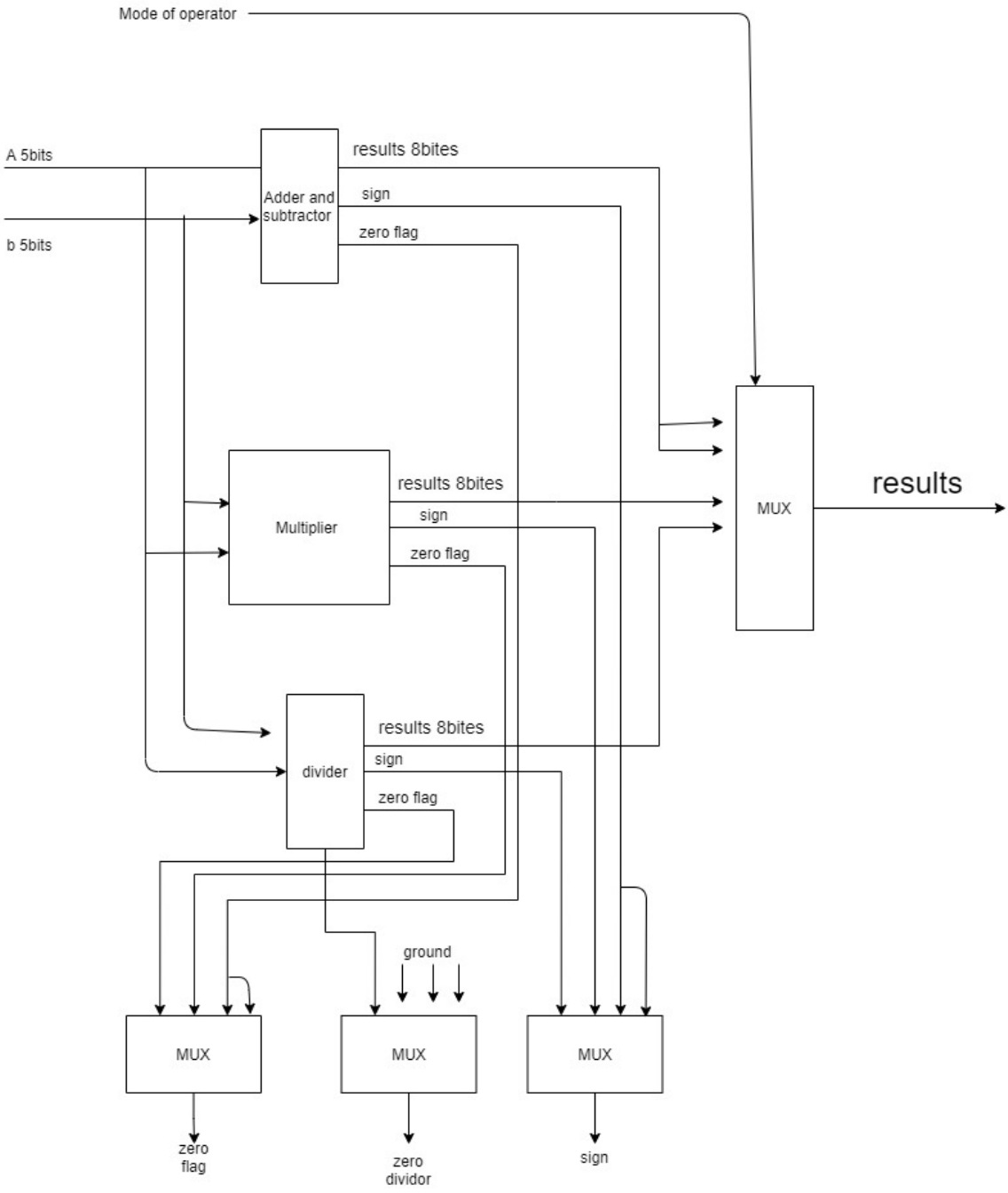
Total Number of ALU = 568

ALU block

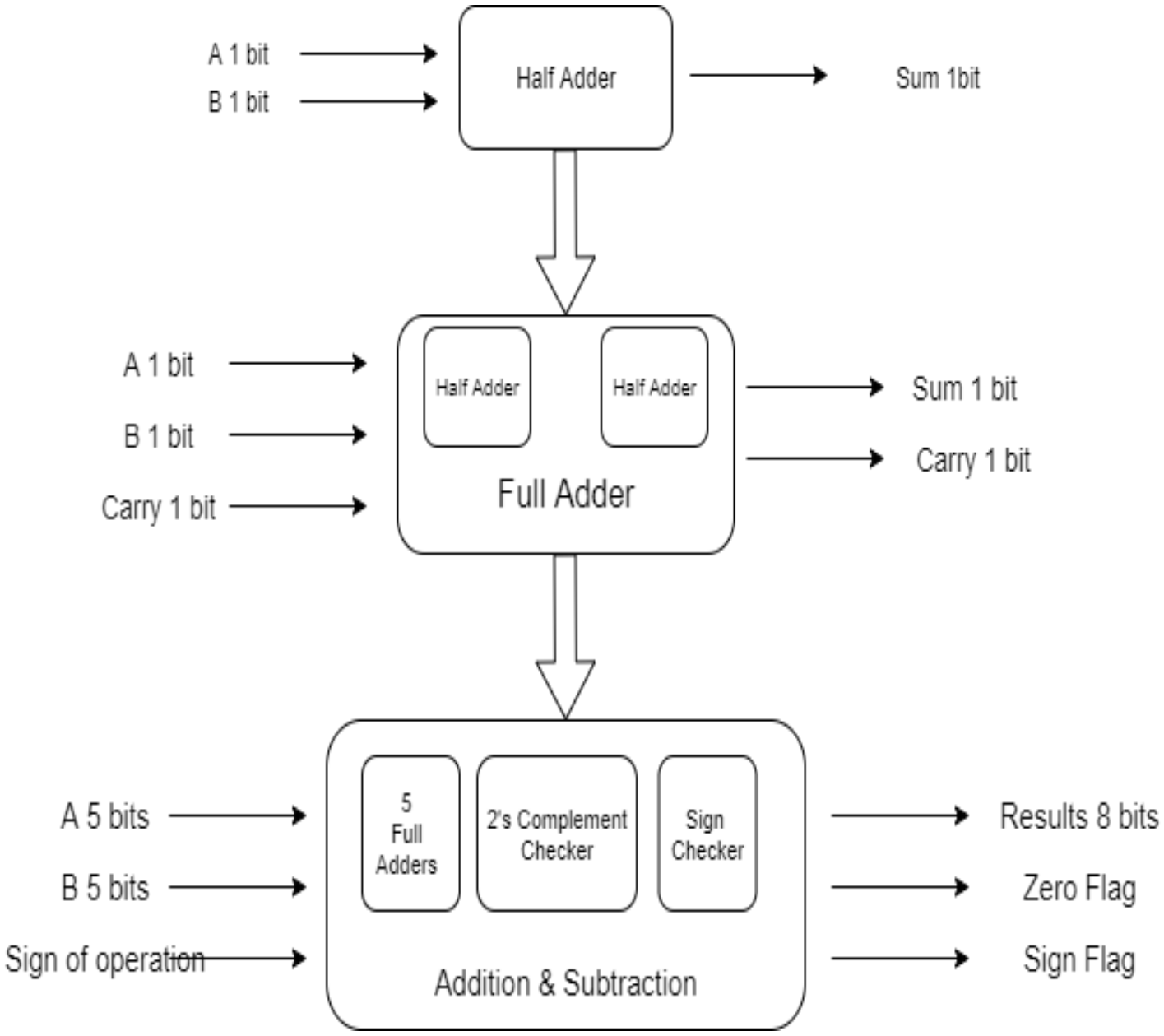
This block take 2 numbers as an inbuts (each number in 5 bits) ,and take mode of opeation that use 2 bits to determine wich operation will be done



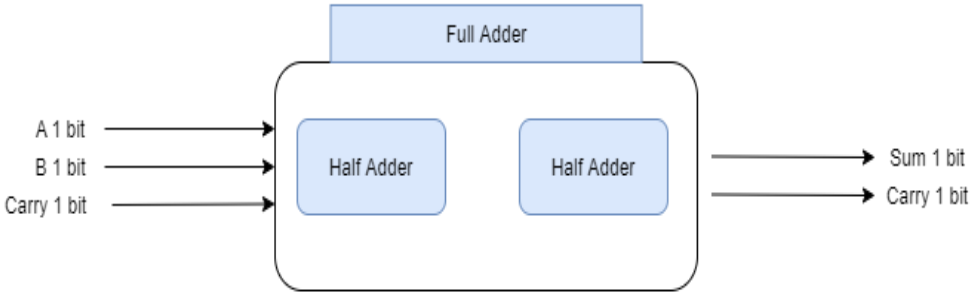
ALU Diagram

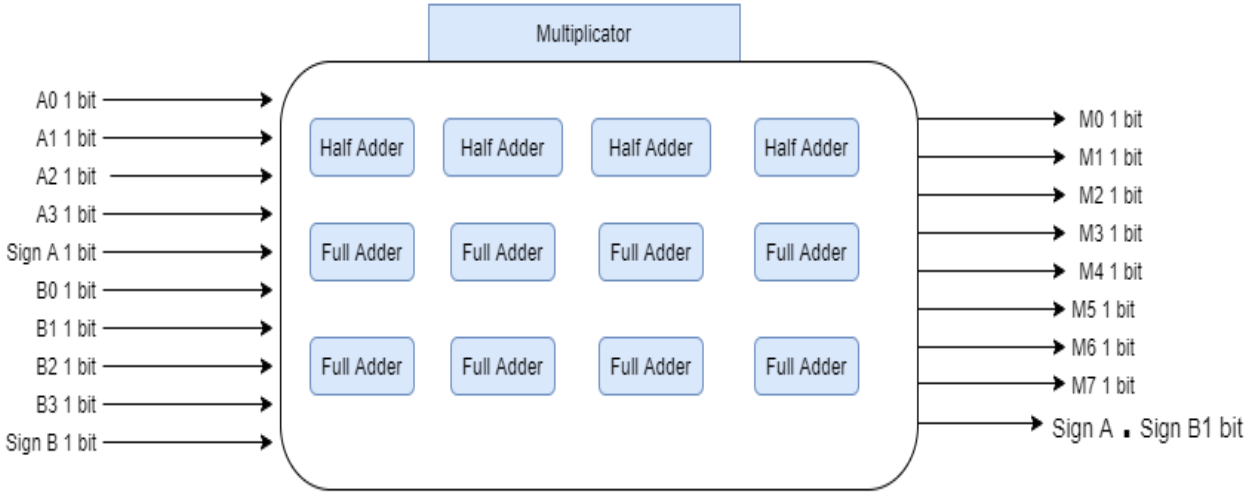

Mode of operator
A 5bits
b 5bits
Adder and subtractor
results 8bites
sign
zero flag
Multiplier
results 8bites
sign
zero flag
divider
results 8bites
sign
zero flag
MUX
results
ground
MUX
MUX
MUX
zero flag
zero dividor
sign

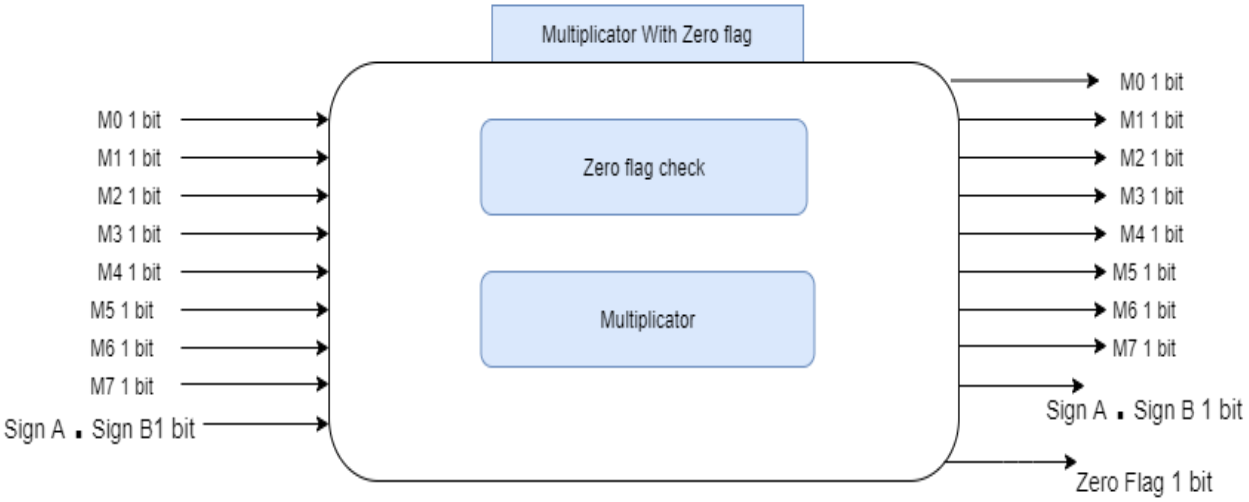
Addition & Subtraction Diagram



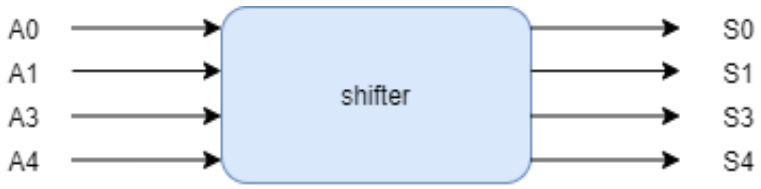
Multiplication

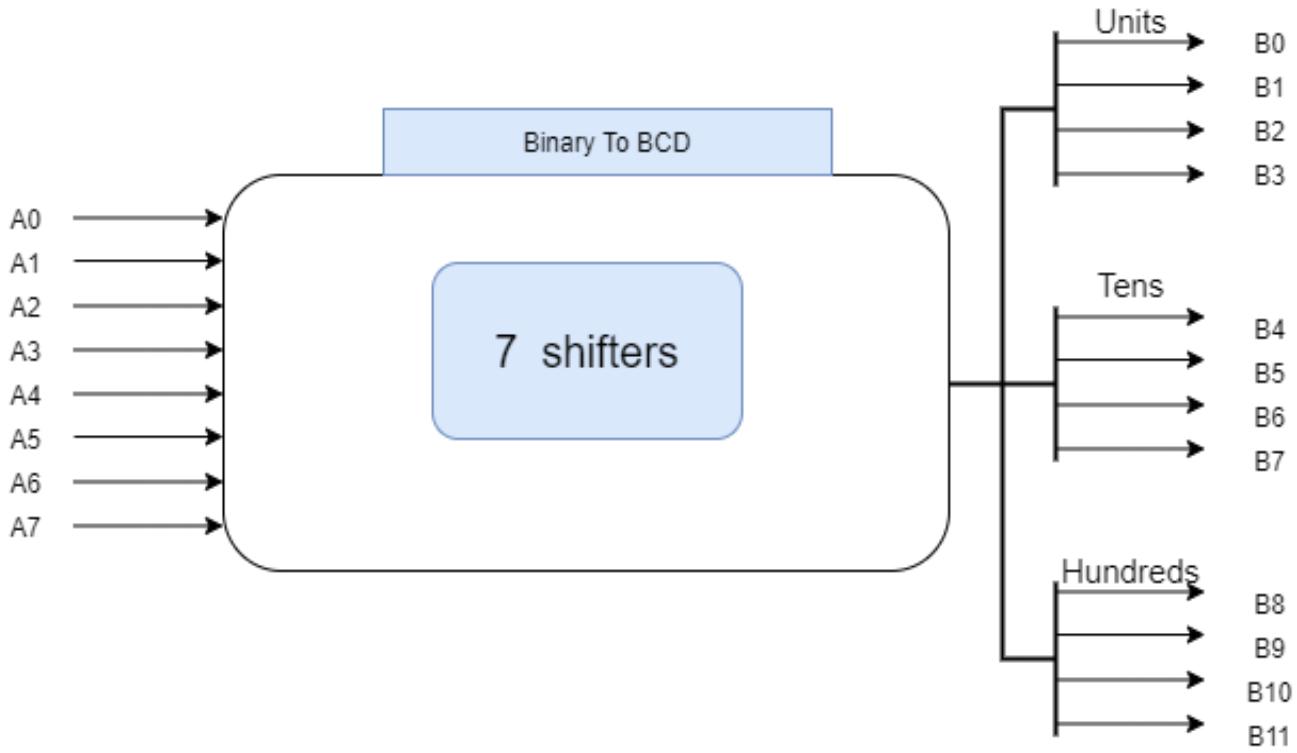






Binary To BCD





Integer division