DP_Datapath_22336157 Documentation

🕐 Created	@November 8, 2024 4:45 PM
☰ Tags	
✳ Status	Not started

Register File Writing (Test cases 0 - 46):

Test Case	RW	DR	D	SA	SB	TD
0	0	00000	0000000101010100110100101 0011101	00001	00001	0000
1	0	00001	0000000101010100110100101 0011110	00001	00001	0000
2	0	00010	0000000101010100110100101 0011111	00010	00010	0000
3	0	00011	0000000101010100110100101 0100000	00011	00011	0000
4	0	00100	0000000101010100110100101 0100001	00100	00100	0000
...	..	..	..	..	..	..
31	0	11111	0000000101010100110100101 0111100	11111	11111	0000
32	0	00000	0000000101010100110100101 0111110	00000	00000	0001
33	0	00000	0000000101010100110100101 0111111	00000	00000	0010
...	..	..	..	..	..	..

Functional Unit Operations (Test cases 50+)**:**

FS(4)	FS(3)	FS(2)	FS(1)	FS(0)	Micro-operation
0	1	0	1	0	F=A OR B
0	1	1	0	0	F=A XOR B
0	1	0	0	0	F=A AND B
1	0	0	0	0	F=B
0	0	1	1	0	F=A−1
1	1	0	0	0	F=slB
0	0	1	0	1	F=A+NOT(B)+1
0	0	1	1	1	F=A
0	0	1	0	0	F=A+NOT(B)
1	0	1	0	0	F=srB
0	0	0	1	1	F=A+B+1
0	1	1	1	0	F=NOT(A)
0	0	0	1	0	F=A+B
0	0	0	0	0	F=A
0	0	0	0	1	F=A+1

Here, A = sa / register 12, B = sb /register 22 when MB = 0, destination register = 7, and B = IR_IN when MB = 1.