ALU PROJECT TEST PLAN

		INPUT									OUTPUT							
FEATURE ID	**FEATURE**	**CLK**	**RST**	**CE**	**MODE**	**INP_VALID**	**CMD**	**OPA**	**OPB**	**CIN**	**RES**	**COUT**	**OFLOW**	**E**	**G**	**L**	**ERR**	**STATUS**
8'h00	When Reset is asserted all outputs are **ZERO**	CLK = ~CLK	1	X	X	X	X	X	X	X	0	0	0	0	0	0	0	PASS
8'h01	When Reset is 0 and CE is 0 all outputs are **ZERO**	CLK = ~CLK	0	0	X	X	X	X	X	X	0	0	0	0	0	0	0	PASS
		Arithmetic Operations																
8'h02	When INP_VALID is [0,0], **ERROR** flag will be high, **ERR = 1**	CLK = ~CLK	0	1	1	2'h0	X	X	X	0	0	0	0	0	0	0	1	PASS
8'h03	When INP_VALID is [0,1] - **Increment** OPA	CLK = ~CLK	0	1	1	2'h1	4'h4	8'h0A	X	0	16'h000B	0	0	0	0	0	0	PASS
8'h04	When INP_VALID is [0,1] - **Decrement** OPA	CLK = ~CLK	0	1	1	2'h1	4'h5	8'h0A	X	0	16'h0009	0	0	0	0	0	0	PASS
8'h05	When INP_VALID is [0,1] - **Increment** OPA	CLK = ~CLK	0	1	1	2'h1	4'h4	8'hFF	X	0	16'h0100	1	0	0	0	0	0	PASS
8'h06	When INP_VALID is [0,1] - **Decrement** OPA	CLK = ~CLK	0	1	1	2'h1	4'h5	8'h00	X	0	16'h01FF	0	1	0	0	0	0	PASS
8'h07	When INP_VALID is [0,1] and **CMD** is **INVALID**, **ERR = 1**	CLK = ~CLK	0	1	1	2'h1	DEFAULT	X	X	0	16'h0000	0	0	0	0	0	1	PASS
8'h08	When INP_VALID is [1,0] - **Increment** OPB	CLK = ~CLK	0	1	1	2'h2	4'h6	X	8'h0A	0	16'h000B	0	0	0	0	0	0	PASS
8'h09	When INP_VALID is [1,0] - **Decrement** OPB	CLK = ~CLK	0	1	1	2'h2	4'h7	X	8'h0A	0	16'h0009	0	0	0	0	0	0	PASS
8'h0A	When INP_VALID is [1,0] - **Increment** OPB	CLK = ~CLK	0	1	1	2'h2	4'h6	X	8'hFF	0	16'h0100	1	0	0	0	0	0	PASS
8'h0B	When INP_VALID is [1,0] - **Decrement** OPB	CLK = ~CLK	0	1	1	2'h2	4'h7	X	8'h00	0	16'h01FF	0	1	0	0	0	0	PASS
8'h0C	When INP_VALID is [1,0] and **CMD** is **INVALID, ERR = 1**	CLK = ~CLK	0	1	1	2'h2	DEFAULT	X	X	0	16'h0000	0	0	0	0	0	1	PASS
8'h0D	When INP_VALID is [1,1] - **ADDITION**	CLK = ~CLK	0	1	1	2'h3	4'h0	8'h08	8'h04	0	16'h000C	0	0	0	0	0	0	PASS
8'h0E	When INP_VALID is [1,1] - **ADDITION**	CLK = ~CLK	0	1	1	2'h3	4'h0	8'hFF	8'h01	0	16'h0100	1	0	0	0	0	0	PASS
8'h0F	When INP_VALID is [1,1] - **SUBTRACTION**	CLK = ~CLK	0	1	1	2'h3	4'h1	8'h08	8'h04	0	16'h0004	0	0	0	0	0	0	PASS
8'h10	When INP_VALID is [1,1] - **SUBTRACTION**	CLK = ~CLK	0	1	1	2'h3	4'h1	8'h04	8'h08	0	16'h01FC	0	1	0	0	0	0	PASS
8'h11	When INP_VALID is [1,1] - **ADDITION with C_IN**	CLK = ~CLK	0	1	1	2'h3	4'h2	8'h08	8'h04	1	16'h000D	0	0	0	0	0	0	PASS
8'h12	When INP_VALID is [1,1] - **ADDITION with C_IN**	CLK = ~CLK	0	1	1	2'h3	4'h2	8'h08	8'h04	0	16'h000C	0	0	0	0	0	0	PASS
8'h13	When INP_VALID is [1,1] - **ADDITION with C_IN**	CLK = ~CLK	0	1	1	2'h3	4'h2	8'hFF	8'h00	1	16'h0100	1	0	0	0	0	0	PASS
8'h14	When INP_VALID is [1,1] - **ADDITION with C_IN**	CLK = ~CLK	0	1	1	2'h3	4'h2	8'hFF	8'h00	0	16'h00FF	0	0	0	0	0	0	PASS
8'h15	When INP_VALID is [1,1] - **SUBTRACTION with B_IN**	CLK = ~CLK	0	1	1	2'h3	4'h3	8'h08	8'h04	1	16'h0003	0	0	0	0	0	0	PASS
8'h16	When INP_VALID is [1,1] - **SUBTRACTION with B_IN**	CLK = ~CLK	0	1	1	2'h3	4'h3	8'h08	8'h04	0	16'h0004	0	0	0	0	0	0	PASS
8'h17	When INP_VALID is [1,1] - **SUBTRACTION with B_IN**	CLK = ~CLK	0	1	1	2'h3	4'h3	8'h04	8'h08	1	16'h01FB	0	1	0	0	0	0	PASS
8'h18	When INP_VALID is [1,1] - **SUBTRACTION with B_IN**	CLK = ~CLK	0	1	1	2'h3	4'h3	8'h04	8'h08	0	16'h01FC	0	1	0	0	0	0	PASS
8'h19	When INP_VALID is [1,1] - **SUBTRACTION with B_IN**	CLK = ~CLK	0	1	1	2'h3	4'h3	8'h04	8'h04	1	16'h01FF	0	1	0	0	0	0	PASS
8'h1A	When INP_VALID is [1,1] - **SUBTRACTION with B_IN**	CLK = ~CLK	0	1	1	2'h3	4'h3	8'h04	8'h04	0	16'h0000	0	0	0	0	0	0	PASS
8'h1B	When INP_VALID is [1,1] - **Increment** OPA	CLK = ~CLK	0	1	1	2'h3	4'h4	8'h0A	X	0	16'h000B	0	0	0	0	0	0	PASS
8'h1C	When INP_VALID is [1,1] - **Increment** OPA	CLK = ~CLK	0	1	1	2'h3	4'h4	8'hFF	X	0	16'h0100	1	0	0	0	0	0	PASS
8'h1D	When INP_VALID is [1,1] - **Decrement** OPA	CLK = ~CLK	0	1	1	2'h3	4'h5	8'h0A	X	0	16'h0009	0	0	0	0	0	0	PASS
8'h1E	When INP_VALID is [1,1] - **Decrement** OPA	CLK = ~CLK	0	1	1	2'h3	4'h5	8'h00	X	0	16'h01FF	0	1	0	0	0	0	PASS
8'h1F	When INP_VALID is [1,1] - **Increment** OPB	CLK = ~CLK	0	1	1	2'h3	4'h6	X	8'h0A	0	16'h000B	0	0	0	0	0	0	PASS
8'h20	When INP_VALID is [1,1] - **Increment** OPB	CLK = ~CLK	0	1	1	2'h3	4'h6	X	8'hFF	0	16'h0100	1	0	0	0	0	0	PASS
8'h21	When INP_VALID is [1,1] - **Decrement** OPB	CLK = ~CLK	0	1	1	2'h3	4'h7	X	8'h0A	0	16'h0009	0	0	0	0	0	0	PASS
8'h22	When INP_VALID is [1,1] - **Decrement** OPB	CLK = ~CLK	0	1	1	2'h3	4'h7	X	8'h00	0	16'h01FF	0	1	0	0	0	0	PASS
8'h23	When INP_VALID is [1,1] - **Unsigned Comparison (OPA=OPB)**	CLK = ~CLK	0	1	1	2'h3	4'h8	8'h09	8'h09	0	16'h0000	0	0	1	0	0	0	PASS
8'h24	When INP_VALID is [1,1] - **Unsigned Comparison (OPA>OPB)**	CLK = ~CLK	0	1	1	2'h3	4'h8	8'h09	8'h02	0	16'h0000	0	0	0	1	0	0	PASS
8'h25	When INP_VALID is [1,1] - **Unsigned Comparison (OPA<OPB)**	CLK = ~CLK	0	1	1	2'h3	4'h8	8'h02	8'h09	0	16'h0000	0	0	0	0	1	0	PASS
8'h26	When INP_VALID is [1,1] - **Multiplication - (OPA+1) x (OPB+1)**	CLK = ~CLK	0	1	1	2'h3	4'h9	8'h04	8'h08	0	16'h001E	0	0	0	0	0	0	PASS
8'h27	When INP_VALID is [1,1] - **Multiplication - (OPA+1) x (OPB+1)**	CLK = ~CLK	0	1	1	2'h3	4'h9	8'hFE	8'hFE	0	16'hFE01	0	0	0	0	0	0	PASS
8'h28	When INP_VALID is [1,1] - **Multiplication - (OPA+1) x (OPB+1)**	CLK = ~CLK	0	1	1	2'h3	4'h9	8'h01	8'h00	0	16'h0002	0	0	0	0	0	0	PASS
8'h29	When INP_VALID is [1,1] - **Multiplication - (OPA+1) x (OPB+1)**	CLK = ~CLK	0	1	1	2'h3	4'h9	8'h03	8'h00	0	16'h0004	0	0	0	0	0	0	PASS

ALU PROJECT TEST PLAN

		INPUT									OUTPUT							
FEATURE ID	**FEATURE**	**CLK**	**RST**	**CE**	**MODE**	**INP_VALID**	**CMD**	**OPA**	**OPB**	**CIN**	**RES**	**COUT**	**OFLOW**	**E**	**G**	**L**	**ERR**	**STATUS**
8'h2A	When INP_VALID is [1,1] - **Multiplication - (OPA+1) x (OPB+1)**	CLK = ~CLK	0	1	1	2'h3	4'h9	8'hFF	8'h00	0	16'h0100	0	0	0	0	0	0	PASS
8'h2B	When INP_VALID is [1,1] - **Multiplication - (OPA+1) x (OPB+1)**	CLK = ~CLK	0	1	1	2'h3	4'h9	8'hFF	8'hFF	0	16'h0000	0	0	0	0	0	0	PASS
8'h2C	When INP_VALID is [1,1] - **Multiplication - (OPA+1) x (OPB+1)**	CLK = ~CLK	0	1	1	2'h3	4'h9	8'h03	8'h04	0	16'h0014	0	0	0	0	0	0	PASS
8'h2D	When INP_VALID is [1,1] - **Multiplication - (OPA << 1) x (OPB)**	CLK = ~CLK	0	1	1	2'h3	4'hA	8'h04	8'h08	0	16'h0040	0	0	0	0	0	0	PASS
8'h2E	When INP_VALID is [1,1] - **Multiplication - (OPA << 1) x (OPB)**	CLK = ~CLK	0	1	1	2'h3	4'hA	8'FF	8'hFE	0	16'hFC04	0	0	0	0	0	0	PASS
8'h2F	When INP_VALID is [1,1] - **Multiplication - (OPA << 1) x (OPB)**	CLK = ~CLK	0	1	1	2'h3	4'hA	8'h23	8'h00	0	16'h0000	0	0	0	0	0	0	PASS
8'h30	When INP_VALID is [1,1] - **Multiplication - (OPA << 1) x (OPB)**	CLK = ~CLK	0	1	1	2'h3	4'hA	8'h0A	8'hFF	0	16'h13EC	0	0	0	0	0	0	PASS
8'h31	When INP_VALID is [1,1] - **Multiplication - (OPA << 1) x (OPB)**	CLK = ~CLK	0	1	1	2'h3	4'hA	8'h43	8'h04	0	16'h0218	0	0	0	0	0	0	PASS
8'h32	When INP_VALID is [1,1] - **Increment** OPB	CLK = ~CLK	0	1	1	2'h2	4'h6	8'hFF	8'hFF	0	16'h0100	1	0	0	0	0	0	PASS
8'h33	When INP_VALID is [1,1] - **Signed Addition and Comparison**	CLK = ~CLK	0	1	1	2'h3	4'hB	8'h02	8'h08	0	16'h000A	0	0	0	0	1	0	PASS
8'h34	When INP_VALID is [1,1] - **Signed Addition and Comparison**	CLK = ~CLK	0	1	1	2'h3	4'hB	8'h7F	8'h01	0	16'h0080	0	1	0	1	0	0	PASS
8'h35	When INP_VALID is [1,1] - **Signed Addition and Comparison**	CLK = ~CLK	0	1	1	2'h3	4'hB	8'h01	8'hFF	0	16'h0000	0	0	0	1	0	0	PASS
8'h36	When INP_VALID is [1,1] - **Signed Addition and Comparison**	CLK = ~CLK	0	1	1	2'h3	4'hB	8'h01	8'h80	0	16'h0181	1	0	0	1	0	0	PASS
8'h37	When INP_VALID is [1,1] - **Signed Addition and Comparison**	CLK = ~CLK	0	1	1	2'h3	4'hB	8'hFF	8'h02	0	16'h0001	0	0	0	0	1	0	PASS
8'h38	When INP_VALID is [1,1] - **Signed Addition and Comparison**	CLK = ~CLK	0	1	1	2'h3	4'hB	8'h7F	8'h81	0	16'h0000	0	0	0	1	0	0	PASS
8'h39	When INP_VALID is [1,1] - **Signed Addition and Comparison**	CLK = ~CLK	0	1	1	2'h3	4'hB	8'h80	8'hFF	0	16'h017F	1	1	0	0	1	0	PASS
8'h3A	When INP_VALID is [1,1] - **Signed Addition and Comparison**	CLK = ~CLK	0	1	1	2'h3	4'hB	8'h7F	8'h7F	0	16'h00FE	0	1	1	0	0	0	PASS
8'h3B	When INP_VALID is [1,1] - **Signed Subtraction and Comparison**	CLK = ~CLK	0	1	1	2'h3	4'hC	8'h09	8'h02	0	16'h0007	0	0	0	1	0	0	PASS
8'h3C	When INP_VALID is [1,1] - **Signed Subtraction and Comparison**	CLK = ~CLK	0	1	1	2'h3	4'hC	8'h02	8'h09	0	16'h01F9	0	0	0	0	1	0	PASS
8'h3D	When INP_VALID is [1,1] - **Signed Subtraction and Comparison**	CLK = ~CLK	0	1	1	2'h3	4'hC	8'h80	8'h01	0	16'h017F	0	1	0	0	1	0	PASS
8'h3E	When INP_VALID is [1,1] - **Signed Subtraction and Comparison**	CLK = ~CLK	0	1	1	2'h3	4'hC	8'h7F	8'hFF	0	16'h0080	0	1	0	1	0	0	PASS
8'h3F	When INP_VALID is [1,1] - **Signed Subtraction and Comparison**	CLK = ~CLK	0	1	1	2'h3	4'hC	8'h04	8'h04	0	16'h0000	0	0	1	0	0	0	PASS
8'h40	When INP_VALID is [1,1] - **Signed Subtraction and Comparison**	CLK = ~CLK	0	1	1	2'h3	4'hC	8'h81	8'h05	0	16'h017C	0	1	0	0	1	0	PASS
8'h41	When INP_VALID is [1,1] - **Signed Subtraction and Comparison**	CLK = ~CLK	0	1	1	2'h3	4'hC	8'h0A	8'h88	0	16'h0082	0	1	0	1	0	0	PASS
8'h42	When INP_VALID is [1,1] - **Signed Subtraction and Comparison**	CLK = ~CLK	0	1	1	2'h3	4'hC	8'h01	8'h01	0	16'h0000	0	0	1	0	0	0	PASS
8'h43	When INP_VALID is [1,1] - **Signed Subtraction and Comparison**	CLK = ~CLK	0	1	1	2'h3	4'hC	8'h01	8'h7F	0	16'h0182	0	0	0	0	1	0	PASS
8'h44	When INP_VALID is [1,1] - **Signed Subtraction and Comparison**	CLK = ~CLK	0	1	1	2'h3	4'hC	8'h01	8'hFF	0	16'h0002	0	0	0	1	0	0	PASS
8'h45	When INP_VALID is [1,1] - **Signed Subtraction and Comparison**	CLK = ~CLK	0	1	1	2'h3	4'hC	8'h01	8'h80	0	16'h0081	0	1	0	1	0	0	PASS
8'h46	When INP_VALID is [1,1] - **Signed Subtraction and Comparison**	CLK = ~CLK	0	1	1	2'h3	4'hC	8'h7F	8'h7F	0	16'h0000	0	0	1	0	0	0	PASS
8'h47	When INP_VALID is [1,1] - **Signed Subtraction and Comparison**	CLK = ~CLK	0	1	1	2'h3	4'hC	8'h7F	8'h80	0	16'h00FF	0	1	0	1	0	0	PASS
8'h48	When INP_VALID is [1,1] - **Signed Subtraction and Comparison**	CLK = ~CLK	0	1	1	2'h3	4'hC	8'h00	8'h00	0	16'h0000	0	0	1	0	0	0	PASS
8'h49	When INP_VALID is [1,1] and **CMD** is **INVALID, ERR = 1**	CLK = ~CLK	0	1	1	2'h3	DEFAULT	X	X	0	16'h0000	0	0	0	0	0	1	PASS
	Logical Operations																	
8'h4A	When INP_VALID is [0,0], **ERROR** flag will be high, **ERR = 1**	CLK = ~CLK	0	1	0	2'h0	X	X	X	0	16'h0000	0	0	0	0	0	1	PASS
8'h4B	When INP_VALID is [0,1] - **Bitwise NOT** - OPA	CLK = ~CLK	0	1	0	2'h1	4'h6	8'hF0	X	0	16'h000F	0	0	0	0	0	0	PASS
8'h4C	When INP_VALID is [0,1] - **Shift Right** - OPA	CLK = ~CLK	0	1	0	2'h1	4'h8	8'hF0	X	0	16'h0078	0	0	0	0	0	0	PASS
8'h4D	When INP_VALID is [0,1] - **Shift Left** - OPA	CLK = ~CLK	0	1	0	2'h1	4'h9	8'hF0	X	0	16'h00E0	0	0	0	0	0	0	PASS
8'h4E	When INP_VALID is [0,1] and **CMD** is **INVALID, ERR = 1**	CLK = ~CLK	0	1	0	2'h1	DEFAULT	X	X	0	16'h0000	0	0	0	0	0	1	PASS
8'h4F	When INP_VALID is [1,0] - **Bitwise NOT** - OPB	CLK = ~CLK	0	1	0	2'h2	4'h7	X	8'hAA	0	16'h0055	0	0	0	0	0	0	PASS
8'h50	When INP_VALID is [1,0] - **Shift Right** - OPB	CLK = ~CLK	0	1	0	2'h2	4'hA	X	8'hAF	0	16'h0057	0	0	0	0	0	0	PASS
8'h51	When INP_VALID is [1,0] - **Shift Left** - OPB	CLK = ~CLK	0	1	0	2'h2	4'hB	X	8'h3E	0	16'h007C	0	0	0	0	0	0	PASS
8'h52	When INP_VALID is [1,0] and **CMD** is **INVALID, ERR = 1**	CLK = ~CLK	0	1	0	2'h2	DEFAULT	X	X	0	16'h0000	0	0	0	0	0	1	PASS
8'h53	When INP_VALID is [1,1] - **Bitwise AND**	CLK = ~CLK	0	1	0	2'h3	4'h0	8'hA4	8'hC3	0	16'h0080	0	0	0	0	0	0	PASS
8'h54	When INP_VALID is [1,1] - **Bitwise NAND**	CLK = ~CLK	0	1	0	2'h3	4'h1	8'hA4	8'hC3	0	16'h007F	0	0	0	0	0	0	PASS
8'h55	When INP_VALID is [1,1] - **Bitwise OR**	CLK = ~CLK	0	1	0	2'h3	4'h2	8'hA4	8'hC3	0	16'h00E7	0	0	0	0	0	0	PASS
8'h56	When INP_VALID is [1,1] - **Bitwise NOR**	CLK = ~CLK	0	1	0	2'h3	4'h3	8'hA4	8'hC3	0	16'h0018	0	0	0	0	0	0	PASS
8'h57	When INP_VALID is [1,1] - **Bitwise XOR**	CLK = ~CLK	0	1	0	2'h3	4'h4	8'hA4	8'hC3	0	16'h0067	0	0	0	0	0	0	PASS

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	INPUT									OUTPUT							
FEATURE ID	**FEATURE**	**CLK**	**RST**	**CE**	**MODE**	**INP_VALID**	**CMD**	**OPA**	**OPB**	**CIN**	**RES**	**COUT**	**OFLOW**	**E**	**G**	**L**	**ERR**	**STATUS**
8'h58	When INP_VALID is [1,1] - **Bitwise XNOR**	CLK = ~CLK	0	1	0	2'h3	4'h5	8'hA4	8'hC3	0	16'h0098	0	0	0	0	0	0	PASS
8'h59	When INP_VALID is [1,1] - **Bitwise NOT** - OPA	CLK = ~CLK	0	1	0	2'h3	4'h6	8'h05	8'h08	0	16'h00FA	0	0	0	0	0	0	PASS
8'h5A	When INP_VALID is [1,1] - **Bitwise NOT** - OPB	CLK = ~CLK	0	1	0	2'h3	4'h7	8'h05	8'h08	0	16'h00F7	0	0	0	0	0	0	PASS
8'h5B	When INP_VALID is [1,1] - **Shift Right** - OPA	CLK = ~CLK	0	1	0	2'h3	4'h8	8'h05	8'h08	0	16'h0002	0	0	0	0	0	0	PASS
8'h5C	When INP_VALID is [1,1] - **Shift Left** - OPA	CLK = ~CLK	0	1	0	2'h3	4'h9	8'h05	8'h08	0	16'h000A	0	0	0	0	0	0	PASS
8'h5D	When INP_VALID is [1,1] - **Shift Right** - OPB	CLK = ~CLK	0	1	0	2'h3	4'hA	8'h05	8'h08	0	16'h0004	0	0	0	0	0	0	PASS
8'h5E	When INP_VALID is [1,1] - **Shift Left** - OPB	CLK = ~CLK	0	1	0	2'h3	4'hB	8'h05	8'h08	0	16'h0010	0	0	0	0	0	0	PASS
8'h5F	When INP_VALID is [1,1] - **Rotate Left** - OPA by OPB(0)	CLK = ~CLK	0	1	0	2'h3	4'hC	8'h86	8'h00	0	16'h0086	0	0	0	0	0	0	PASS
8'h60	When INP_VALID is [1,1] - **Rotate Left** - OPA by OPB(1)	CLK = ~CLK	0	1	0	2'h3	4'hC	8'h86	8'h01	0	16'h000D	0	0	0	0	0	0	PASS
8'h61	When INP_VALID is [1,1] - **Rotate Left** - OPA by OPB(2)	CLK = ~CLK	0	1	0	2'h3	4'hC	8'h86	8'h02	0	16'h001A	0	0	0	0	0	0	PASS
8'h62	When INP_VALID is [1,1] - **Rotate Left** - OPA by OPB(3)	CLK = ~CLK	0	1	0	2'h3	4'hC	8'h86	8'h03	0	16'h0034	0	0	0	0	0	0	PASS
8'h63	When INP_VALID is [1,1] - **Rotate Left** - OPA by OPB(4)	CLK = ~CLK	0	1	0	2'h3	4'hC	8'h86	8'h04	0	16'h0068	0	0	0	0	0	0	PASS
8'h64	When INP_VALID is [1,1] - **Rotate Left** - OPA by OPB(5)	CLK = ~CLK	0	1	0	2'h3	4'hC	8'h86	8'h05	0	16'h00D0	0	0	0	0	0	0	PASS
8'h65	When INP_VALID is [1,1] - **Rotate Left** - OPA by OPB(6)	CLK = ~CLK	0	1	0	2'h3	4'hC	8'h86	8'h06	0	16'h00A1	0	0	0	0	0	0	PASS
8'h66	When INP_VALID is [1,1] - **Rotate Left** - OPA by OPB(7)	CLK = ~CLK	0	1	0	2'h3	4'hC	8'h86	8'h07	0	16'h0043	0	0	0	0	0	0	PASS
8'h67	When INP_VALID is [1,1] - **Rotate Left** - OPA by OPB(8)	CLK = ~CLK	0	1	0	2'h3	4'hC	8'h86	8'h08	0	16'h0086	0	0	0	0	0	0	PASS
8'h68	When INP_VALID is [1,1] - **Rotate Left - ERROR = 1**	CLK = ~CLK	0	1	0	2'h3	4'hC	8'h86	8'h23	0	16'h0034	0	0	0	0	0	1	PASS
8'h69	When INP_VALID is [1,1] - **Rotate Right** - OPA by OPB(0)	CLK = ~CLK	0	1	0	2'h3	4'hD	8'hAB	8'h00	0	16'h00AB	0	0	0	0	0	0	PASS
8'h6A	When INP_VALID is [1,1] - **Rotate Right** - OPA by OPB(1)	CLK = ~CLK	0	1	0	2'h3	4'hD	8'hAB	8'h01	0	16'h00D5	0	0	0	0	0	0	PASS
8'h6B	When INP_VALID is [1,1] - **Rotate Right** - OPA by OPB(2)	CLK = ~CLK	0	1	0	2'h3	4'hD	8'hAB	8'h02	0	16'h00EA	0	0	0	0	0	0	PASS
8'h6C	When INP_VALID is [1,1] - **Rotate Right** - OPA by OPB(3)	CLK = ~CLK	0	1	0	2'h3	4'hD	8'hAB	8'h03	0	16'h0075	0	0	0	0	0	0	PASS
8'h6D	When INP_VALID is [1,1] - **Rotate Right** - OPA by OPB(4)	CLK = ~CLK	0	1	0	2'h3	4'hD	8'hAB	8'h04	0	16'h00BA	0	0	0	0	0	0	PASS
8'h6E	When INP_VALID is [1,1] - **Rotate Right** - OPA by OPB(5)	CLK = ~CLK	0	1	0	2'h3	4'hD	8'hAB	8'h05	0	16'h005D	0	0	0	0	0	0	PASS
8'h6F	When INP_VALID is [1,1] - **Rotate Right** - OPA by OPB(6)	CLK = ~CLK	0	1	0	2'h3	4'hD	8'hAB	8'h06	0	16'h00AE	0	0	0	0	0	0	PASS
8'h70	When INP_VALID is [1,1] - **Rotate Right** - OPA by OPB(7)	CLK = ~CLK	0	1	0	2'h3	4'hD	8'hAB	8'h07	0	16'h0057	0	0	0	0	0	0	PASS
8'h71	When INP_VALID is [1,1] - **Rotate Right** - OPA by OPB(8)	CLK = ~CLK	0	1	0	2'h3	4'hD	8'hAB	8'h08	0	16'h00AB	0	0	0	0	0	0	PASS
8'h72	When INP_VALID is [1,1] - **Rotate Right - ERROR = 1**	CLK = ~CLK	0	1	0	2'h3	4'hD	8'hAB	8'h24	0	16'h00BA	0	0	0	0	0	1	PASS
8'h73	When INP_VALID is [1,1] and **CMD** is **INVALID, ERR = 1**	CLK = ~CLK	0	1	0	2'h3	DEFAULT	X	X	0	16'h0000	0	0	0	0	0	1	PASS
8'h74	When INP_VALID is [1,1] - **ADDITION**	CLK = ~CLK	0	1	1	3	0	8'h08	8'h04	0	8'h000C	0	0	0	0	0	0	PASS
8'h75	When INP_VALID is [1,1] - **ADDITION**	CLK = ~CLK	0	1	1	3	0	8'h09	8'h04	0	8'h000D	0	0	0	0	0	0	PASS
8'h76	When Reset is 0 and CE is 0 all outputs are **ZERO**	CLK = ~CLK	0	0	0	3	D	AB	24	0	8'h0000	0	0	0	0	0	0	PASS