Instructions	State Information	
PC → mem_addr/alux_a mem_do → ir +1 → alux_b alux_c → PC	IF	
	IR	NM: Non Modify Flag
	NM	NA: No Read/Write Operations
	S1(HKT)	DR: Data Read
		DW: Data Write
ir[9:11] → rf_a1 ir[6:8] → rf_a2 rf_d1 → ta rf_d2 → tb	ID	IR: Instruction Read
	NA	
	NM	
	S2	
ta → aluy_a tb → aluy_b aluy_c →ta	EX	
	NA	
	mod c and z	
	S3	
ta → rf_d3 ir[3:5] → rf_a3	WB	
	NA	
	NM	
	S4	
ta → aluy_a ir[0:5] → SE6 → aluy_b aluy_c → ta	EX	
	mod z, c	
	NA	
	S5	
ta → aluy_a tb → Lshifter_1 → aluy_b aluy_c → ta	EX	
	mod c and z	
	NA	
	S6	
ir[0:8] → Lshifter_7 → rf_d3 ir[9:11] → rf_a3	ID	
	NA	
	NM	
	S7	
ir[0:5] → SE6 → aluy_b tb → aluy_a aluy_c → ta	EX	
	NA	
	NM	
	S8	

ta → mem_addr mem_do → tc	MA	
	DR	
	NM	
	S9	
tc → rf_d3 ir[9:11] → rf_a3	ID	
	NA	
	NM	
	S10	
ta → mem_di tb → mem_addr PC → R7	WB	
	DW	
	NM	
	S11	
ir[0:8] → SE9 → tb	ID	
	NA	
	NM	
	S12	
tb → PE_in PE_out → tb PE_enc → td ta → mem_addr mem_do → tc	MA	
	DR	
	NM	
	S13	
td → rf_a3 tc → rf_d3 ta → aluy_a +1 → aluy_b aluy_c → ta	EX	
	NA	
	NM	
	S14	
tb → PE_in PE_enc → td PE_out → tb	RR	
	NA	
	NM	
	S15	
td → rf_a1 rf_d1 → tc	EX	
	NA	
	NM	
	S16	

ta → mem_addr tc → mem_di ta → alux_a +1 → alux_b alux_c → ta PC → R7		
	DW	
	NM	
	S17	
ta → aluy_a tb → aluy_b 111 → rf_a1 rf_d1 → ta		
	NA	
	mod tz	
	S18	
ta → aluy_a ir[0:5] → SE6 → aluy_b aluy_c → PC, R7		
	NA	
	NM	
	S19	
111 → rf_a1 rf_d1 → tc		
	NA	
	NM	
	S20	
ir[0:8] → SE9 → aluy_a tc → aluy_b, rf_d3 aluy_c → PC,R7 ir[9:11] → rf_a3		
	NA	
	NM	
	S21	
tc → rf_d3 tb → PC,R7 ir[9:11] → rf_a3		
	NA	
	NM	
	S22	
ir[9:11] → rf_a1 rf_d1 → ta Ir[0:8] → SE9 → tb		
	NA	
	NM	
	S23	
ta -> PC		
	NA	
	NM	
	S24	

	NA	
	NM	
	S25	
PC -> R7		
	NA	
	NM	
	S26	
ir[0:8] → Lshifter_7 → PC		
	EX	
	NA	
	NM	
ir[0:5] → SE6 → aluy_b tb → aluy_a	S27	
aluy_c → tb		