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

	NA	
	NM	
ir[0:8] → Lshifter_7 → rf_d3 ir[9:11] → rf_a3	S7	
	NA	
	NM	
ir[0:5] → SE6 → aluy_b tb → aluy_a aluy_c → ta	S8	
	DR	
	NM	
ta → mem_addr mem_do → ta	S9	
	NA	
	NM	
ta → rf_d3 ir[9:11] → rf_a3	S10	
	DW	
	NM	
ta → mem_di tb → mem_addr PC → R7	S11	
	NA	
	NM	
ir[0:8] → SE9 → tb	S12	

tb → PE_in PE_out → tb PE_enc → td ta → mem_addr mem_do → tc	DR NM S13	
td → rf_a3 tc → rf_d3 ta → aluy_a +1 → aluy_b aluy_c → ta	NA NM S14	
tb → PE_in PE_enc → td PE_out → tb	NA NM S15	
td → rf_a1 rf_d1 → tc	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	

	NA	
ta → aluy_a ir[0:8] → SE9 → aluy_b aluy_c → PC, R7	NM	
	S19	
	NA	
111 → rf_a1 rf_d1 → tc	NM	
	S20	
	NA	
ir[0:8] → SE9 → aluy_a tc → aluy_b, rf_d3 aluy_c → PC,R7 ir[9:11] → rf_a3	NM	
	S21	
	NA	
tc → rf_d3 tb → PC,R7 ir[9:11] → rf_a3	NM	
	S22	
	NA	
ir[9:11] → rf_a1 rf_d1 → ta Ir[0:8] → SE9 → tb	NM	
	S23	
	NA	
	NM	
ta -> PC	S24	

	NA	
	NM	
	S25	
PC -> R7		
	NA	
	NM	
	S26	
ir[0:8] → Lshifter_7 → PC		