

EXECUTE RAM													
Value	ALUA	ALUB	ALUC	ADL	ADH	ADX	PC+1	DOR	FLG	WB	WE	END	ALUOP*
0	0	DB	0	1	1	None	1	0	None	None	0	END	ADD
1	A	!DB	1	None	None	DBR	0	A	OPCODE	A	WE	NEXT	OR
2	X	0	C	DB	DB	PBR		X	SEI/CLD	X		EXIT.CC	XOR
3	Y	FF	Cout	PC	PC	0		Y	Z	Y		REPEAT	BIT
4	SP	SE		Rout	Rout	Rout		DH	NZ	SP			AND
5	P	DBR		CGL	SH	Rout.CS		P	NZC	PBR			ADC.D
6	ADL+1	R		SP	DH	DB		Rout	NZCV	DBR			SHL
7	Rout	Z16		R	FF	INT.CLR		Rout	NZV	SH			SHR
8	ADL			T	T			PCL		DH			
9	PCH			PC.CC	PC.CC			PCH		B			
A	FF			1.CC	1.CC			DBR		XH			
B	B				1.ROUT			B		YH			
C	XH				PC.ROUT			XH					
D	YH				XCE			YH		AD.T			
E	DH				WAI			PBR		P.VAL			
F	SH				STP			ADH+1		PBAC			
# of Bits	4	3	2	4	4	3	1	4	3	4	1	2	0
Total	35	RAM OK											

DECODE RAM													
Bit	ALUA	ALUB	ALUC	ADL	ADH	ADX	PC+1	DOR	FLG	WB	MEM	END	ALUOP*
0	/0	/DB	0/1	/1	/1	/0	/1	/0			WE	EXIT.BTF	MX0
1	/A	//DB	C	/SP	/SH	WE		/A					MX1
2	/X	/0		/DB	/DH			/X					MX2
3	/Y	/FF		WE	WE			/Y					
4	/SP							/PCH					
5	/ADL+1							/P					
6	/B							/PBR					
7													
8													
9													
A													
B													
C													
D													
E													
F													
# of Bits	7	4	2	4	4	2	1	7	0	0	1	1	3
Total	36	RAM OK											

Notes:

ADL/ADH = "1" --> ADL/AD := ADL/ADH + 1

PC = "1" --> PC := ADL/ADH + 1

"Z16" = Calculate Z flag using 16-bit ALU result

AD := PC includes ADX := PBR

"Rout" = ALU result ouput, "R" = ALU output pipeline register

ALUC = "C" --> C Flag in P register

ALUC = "Cout" --> ALU Carry output

"PC.CC" = PC if Carry is clear, otherwise no change

"1.CC" = +1 if Carry is clear, otherwise no change

"1.Rout" = +1 if Carry is clear, Rout if set

"PC.Rout" = PC if Carry is clear, Rout if set

"Rout.CS" = Rout if Carry is set, otherwise no change

"AD.T" = saves ADL and ADH to TL and TH respectively

"P.VAL" = writes the value emitted by the ALU to the P register

"PBAC" = Previous Bus Address if carry is clear

"END" = End of opcode, reset Q counter, FetchOpcode

"EXIT.CC" = Generate a FetchOpcode in the next cycle if Carry is clear

"REPEAT" = repeats the current microinstruction (if the Carry is Set)

"ADC.D" = Decimal Mode add if the D flag is set

"INT.CLR" = Clear the "interrupt in progress" bit

*ALUOP is stored in DECODE RAM