

	2	2	2	2	2	3	3	3
	IMM	ZPAG	Z,X	(I,X)	(I),Y	ABS	A,X	A,Y
ORA	09	05	15	01	11	0D	1D	19
AND	29	25	35	21	31	2D	3D	39
EOR	49	45	55	41	51	4D	5D	59
ADC	69	65	75	61	71	6D	7D	79
STA		85	95	81	91	8D	9D	99
LDA	A9	A5	B5	A1	B1	AD	BD	B9
CMP	C9	C5	D5	C1	D1	CD	DD	D9
SBC	E9	E5	F5	E1	F1	ED	FD	F9

Op Code ends in -1, -5, -9, or -D

	2	2	2	2	3	3	3
	IMM	ZPAG	Z,X	Z,Y	ABS	A,X	A,Y
ASL		06	16		0E	1E	
ROL		26	36		2E	3E	
LSR		46	56		4E	5E	
ROR		66	76		6E	7E	
STX		86		96	8E		
LDX	A2	A6		B6	AE		BE
DEC		C6	D6		CE	DE	
INC		E6	F6		EE	FE	

Op Code ends in -2, -6, or -E

BPL	10
BVC	50
BCC	90
BNE	D0

Branches -0

ABS	(IND)
JSR	20
JMP	4C 6C

Jumps -0, -C

	2	2	2	3	3
	IMM	ZPAG	Z,X	ABS	A,X
BIT		24		2C	
STY		84	94	8C	
LDY	A0	A4	B4	AC	BC
CPY	C0	C4		CC	
CPX	E0	E4		EC	

Op Code -0, -4, -C

	0-	1-	2-	3-	4-	5-	6-	7-	8-	9-	A-	B-	C-	D-	E-	F-
-0	BRK				RTI		RTS									
-8	PHP	CLC	PLP	SEC	PHA	CLI	PLA	SEI	DEY	TYA	TAY	CLV	INY	CLD	INX	SED
-A	ASLA		ROLA		LSRA		RORA		TXA	TXS	TAX	TSX	DEX		NOP	

Single-Byte Op Codes

-0, -8, -A

Important KIM Memory Locations

00EF,00F0 - Program Counter Image
 00F1 - Status Reg image (format NV-BDIZC)
 00F2 - Stack Pointer image
 00F3 - Accumulator (A) image
 00F4 - Y Register image
 00F5 - X Register image

00F9-00Fb - Display image data

User	KIM
External	Internal
1700	1740 I/O register A
1701	1741 Directnl reg A
1702	1742 I/O register B
1703	1743 Directnl reg B
-Timers: no interrupt-	
1704	1744 1 usec
1705	1745 4 usec
1706	1746 64 usec//read time
1707	1747 1024 ysec//timeout
-Timers: interrupt-	
170C	174C 1 usec
170D	174D 8 usec
170E	174E 64 usec//read time
170F	174F 1024 usec//timeout

0000-00EE, 1780-17E6: available

17F5-6 Audio tape start address
 17F7-8 Audio tape end address
 17F9 Audio tape ID

17FA-C NMI Vector (for SST and ST)
 17FE-F INT Vector (for BRK)
 Above vectors should be set to
 1C00 (00 1C) for normal operation

Important KIM programs or *subroutines

1800 - Write (Dump) audio tape
 1873 - Read (Load) audio tape

*199E - send 3700 Hz tone or beep
 *19C4 - send 2400 Hz tone or beep

1C00 - "normal" interrupt entry point

1C4F - START - return to Monitor entry
 1C22 - RST - reset return to Monitor

TELETYPE SUBROUTINES:

1C2A - set teletype baud rate
 *1E1E - print PC address
 *1E2F - print new line
 *1E3B - print A as two hex characters
 *1E9E - print a space
 *1EA0 - output A as 8-bit character
 *1E5A - input 8-bit character in A
 *1F9D - input 2 hex characters to A

DISPLAY/KEYBOARD SUBROUTINES:

*1F19 - display address and contents
 *1F1F - display 6 hex digits
 *1F40 - test keyboard for any key
 *1F6A - test which key pressed

*1F63 - increment display address

1FE7 - table of 7-segment patterns