

When You See It In Memory, What Is It?

This chart is a cross-reference of all Color Computer codes from \$00 to \$FF. The codes are presented in binary, hexadecimal and decimal, followed by their ASCII equivalents. Both the 6809 processor command mnemonic and BASIC "tokens" are given. The 10+ and 11+ commands are 6809 processor commands which use the value \$10 or \$11 as a prefix to other commands. For example, \$10 21 is the opcode for long branch never (LBRN). Likewise, there are BASIC commands which take the prefix \$FF. For example, token \$82 is REM, whereas \$FF 82 represents ABS.

BINARY	HEX	DECIMAL	ASCII	COMMAND	10+COMMAND	11+COMMAND	BASIC COMMAND	FF+COMMAND	
0000	0000	00	0	NUL	NEG	---	---	---	SGN
0000	0001	01	1	SOH	---	---	---	---	INT
0000	0010	02	2	STX	---	---	---	---	ABS
0000	0011	03	3	ETX	COM	---	---	---	USR
0000	0100	04	4	EOT	LSR	---	---	---	RND
0000	0101	05	5	ENO	---	---	---	---	SIN
0000	0110	06	6	ACK	ROR	---	---	---	PEEK
0000	0111	07	7	BEL	ASR	---	---	---	LEN
0000	1000	08	8	BS	ASL,LSL	---	---	---	STR\$
0000	1001	09	9	HT	ROL	---	---	---	VAL
0000	1010	0A	10	LF	DEC	---	---	---	ASC
0000	1011	0B	11	VT	---	---	---	---	CHR\$
0000	1100	0C	12	FF	INC	---	---	---	EOF
0000	1101	0D	13	CR	TST	---	---	---	JOYSTK
0000	1110	0E	14	SO	JMP	---	---	---	LEFT\$
0000	1111	0F	15	SI	CLR	---	---	---	RIGHT\$
0001	0000	10	16	DLE	(SEE 10+)	---	---	---	MID\$
0001	0001	11	17	DC1	(SEE 11+)	---	---	---	POINT
0001	0010	12	18	DC2	NOP	---	---	---	INKEY\$
0001	0011	13	19	DC3	SYNC	---	---	---	MEM
0001	0100	14	20	DC4	---	---	---	---	ATN
0001	0101	15	21	NAK	---	---	---	---	CDS
0001	0110	16	22	SYN	LBRA	---	---	---	TAN
0001	0111	17	23	ETB	LBSR	---	---	---	EXP
0001	1000	18	24	CAN	---	---	---	---	FIX
0001	1001	19	25	EM	DAA	---	---	---	LOG
0001	1010	1A	26	SUB	ORCC	---	---	---	POS
0001	1011	1B	27	ESC	---	---	---	---	SQR
0001	1100	1C	28	FS	ANDCC	---	---	---	HEX\$
0001	1101	1D	29	GS	SEX	---	---	---	VARPTR
0001	1110	1E	30	RS	EXG	---	---	---	INSTR
0001	1111	1F	31	US	TFR	---	---	---	TIMER

Appendix

0010	0000	20	32	SPACE	BRA	---	---	---	PPPOINT
0010	0001	21	33	!	BRN	LBRN	---	---	STRING*
0010	0010	22	34	"	BHI	LBHI	---	---	---
0010	0011	23	35	#	BLS	LBLS	---	---	---
0010	0100	24	36	\$	BHS, BCC	LBHS, LBCC	---	---	---
0010	0101	25	37	%	BLD, BCS	LBLD, BLCS	---	---	---
0010	0110	26	38	&	BNE	LBNE	---	---	---
0010	0111	27	39	'	BEQ	LBED	---	---	---
0010	1000	28	40	(BVC	LBVC	---	---	---
0010	1001	29	41)	BVS	LBVS	---	---	---
0010	1010	2A	42	*	BPL	LBPL	---	---	---
0010	1011	2B	43	+	BMI	LBMI	---	---	---
0010	1100	2C	44	,	BGE	LBGE	---	---	---
0010	1101	2D	45	-	BLT	LBLT	---	---	---
0010	1110	2E	46	.	BGT	LBGT	---	---	---
0010	1111	2F	47	/	BLE	LBLE	---	---	---
0011	0000	30	48	0	LEAX	---	---	---	---
0011	0001	31	49	1	LEAY	---	---	---	---
0011	0010	32	50	2	LEAS	---	---	---	---
0011	0011	33	51	3	LEAU	---	---	---	---
0011	0100	34	52	4	PSHS	---	---	---	---
0011	0101	35	53	5	PULS	---	---	---	---
0011	0110	36	54	6	PSHU	---	---	---	---
0011	0111	37	55	7	PULU	---	---	---	---
0011	1000	38	56	8	---	---	---	---	---
0011	1001	39	57	9	RTS	---	---	---	---
0011	1010	3A	58	:	ABX	---	---	---	---
0011	1011	3B	59	;	RTI	---	---	---	---
0011	1100	3C	60	(CMAI	---	---	---	---
0011	1101	3D	61	=	MUL	---	---	---	---
0011	1110	3E	62)	---	---	---	---	---
0011	1111	3F	63	?	SWI	SWI2	SWI3	---	---
0100	0000	40	64	e	NEGA	---	---	---	---
0100	0001	41	65	A	---	---	---	---	---
0100	0010	42	66	B	---	---	---	---	---
0100	0011	43	67	C	COMA	---	---	---	---
0100	0100	44	68	D	LSRA	---	---	---	---
0100	0101	45	69	E	---	---	---	---	---
0100	0110	46	70	F	RORA	---	---	---	---
0100	0111	47	71	G	ASRA	---	---	---	---
0100	1000	48	72	H	ALSA, LSLA	---	---	---	---
0100	1001	49	73	I	ROLA	---	---	---	---
0100	1010	4A	74	J	DECA	---	---	---	---
0100	1011	4B	75	K	---	---	---	---	---
0100	1100	4C	76	L	INCA	---	---	---	---
0100	1101	4D	77	M	TSTA	---	---	---	---
0100	1110	4E	78	N	---	---	---	---	---
0100	1111	4F	79	O	CLRA	---	---	---	---

0101 0000	50	80	P	NEGB	---	---	---	---
0101 0001	51	81	Q	---	---	---	---	---
0101 0010	52	82	R	---	---	---	---	---
0101 0011	53	83	S	COMB	---	---	---	---
0101 0100	54	84	T	LSRB	---	---	---	---
0101 0101	55	85	U	---	---	---	---	---
0101 0110	56	86	V	RORB	---	---	---	---
0101 0111	57	87	W	ASRB	---	---	---	---
0101 1000	58	88	X	ASLB,LSLB	---	---	---	---
0101 1001	59	89	Y	ROLB	---	---	---	---
0101 1010	5A	90	Z	DECB	---	---	---	---
0101 1011	5B	91	L.BKT.	---	---	---	---	---
0101 1100	5C	92	SLANT	INCB	---	---	---	---
0101 1101	5D	93	R.BKT.	TSTB	---	---	---	---
0101 1110	5E	94	CARAT	---	---	---	---	---
0101 1111	5F	95	L.ARR.	CLRB	---	---	---	---
0110 0000	60	96	@	NEG	---	---	---	---
0110 0001	61	97	a	---	---	---	---	---
0110 0010	62	98	b	---	---	---	---	---
0110 0011	63	99	c	COM	---	---	---	---
0110 0100	64	100	d	LSR	---	---	---	---
0110 0101	65	101	e	---	---	---	---	---
0110 0110	66	102	f	ROR	---	---	---	---
0110 0111	67	103	g	ASR	---	---	---	---
0110 1000	68	104	h	ASL,LSL	---	---	---	---
0110 1001	69	105	i	ROL	---	---	---	---
0110 1010	6A	106	j	DEC	---	---	---	---
0110 1011	6B	107	k	---	---	---	---	---
0110 1100	6C	108	l	INC	---	---	---	---
0110 1101	6D	109	m	TST	---	---	---	---
0110 1110	6E	110	n	JMP	---	---	---	---
0110 1111	6F	111	o	CLR	---	---	---	---
0111 0000	70	112	p	NEG	---	---	---	---
0111 0001	71	113	q	---	---	---	---	---
0111 0010	72	114	r	---	---	---	---	---
0111 0011	73	115	s	COM	---	---	---	---
0111 0100	74	116	t	LSR	---	---	---	---
0111 0101	75	117	u	---	---	---	---	---
0111 0110	76	118	v	ROR	---	---	---	---
0111 0111	77	119	w	ASR	---	---	---	---
0111 1000	78	120	x	ASL,LSL	---	---	---	---
0111 1001	79	121	y	ROL	---	---	---	---
0111 1010	7A	122	z	DEC	---	---	---	---
0111 1011	7B	123	L.BRCE.	---	---	---	---	---
0111 1100	7C	124	SEP.	INC	---	---	---	---
0111 1101	7D	125	R.BRCE.	TST	---	---	---	---
0111 1110	7E	126	WAVE	JMP	---	---	---	---
0111 1111	7F	127	DELETE	CLR	---	---	---	---

Appendix

1000 0000	80	128	.	SUBA	---	---	FOR	SGN
1000 0001	81	129	.	CMPA	---	---	GO	INT
1000 0010	82	130	.	SBCA	---	---	REM	ABS
1000 0011	83	131	.	SUBD	CMPD	CMPU	'	USR
1000 0100	84	132	.	ANDA	---	---	ELSE	RND
1000 0101	85	133	.	BITA	---	---	IF	SIN
1000 0110	86	134	.	LDA	---	---	DATA	PEEK
1000 0111	87	135	.	---	---	---	PRINT	LEN
1000 1000	88	136	.	EORA	---	---	ON	STR%
1000 1001	89	137	.	ADCA	---	---	INPUT	VAL
1000 1010	8A	138	.	ORA	---	---	END	ASC
1000 1011	8B	139	.	ADDA	---	---	NEXT	CHR%
1000 1100	8C	140	.	CMPX	CMPY	CMPZ	DIM	EOF
1000 1101	8D	141	.	BSR	---	---	READ	JOYSTK
1000 1110	8E	142	.	LDX	LDY	---	RUN	LEFT%
1000 1111	8F	143	.	---	---	---	RESTORE	RIGHT%
1001 0000	90	144	.	SUBA	---	---	RETURN	MID%
1001 0001	91	145	.	CMPA	---	---	STOP	POINT
1001 0010	92	146	.	SBCA	---	---	POKE	INKEY%
1001 0011	93	147	.	SUBD	CMPD	CMPU	CONT	MEM
1001 0100	94	148	.	ANDA	---	---	LIST	ATN
1001 0101	95	149	.	BITA	---	---	CLEAR	COS
1001 0110	96	150	.	LDA	---	---	NEW	TAN
1001 0111	97	151	.	STA	---	---	CLOAD	EXP
1001 1000	98	152	.	EORA	---	---	CSAVE	FIX
1001 1001	99	153	.	ADCA	---	---	OPEN	LOG
1001 1010	9A	154	.	ORA	---	---	CLOSE	POS
1001 1011	9B	155	.	ADDA	---	---	LLIST	SOR
1001 1100	9C	156	.	CMPX	CMPY	CMPZ	SET	HEX%
1001 1101	9D	157	.	JSR	---	---	RESET	VARPTR
1001 1110	9E	158	.	LDX	LDY	---	CLS	INSTR
1001 1111	9F	159	.	STX	STY	---	MOTOR	TIMER
1010 0000	A0	160	.	SUBA	---	---	SOUND	PPPOINT
1010 0001	A1	161	.	CMPA	---	---	AUDID	STRING%
1010 0010	A2	162	.	SBCA	---	---	EXEC	---
1010 0011	A3	163	.	SUBD	CMPD	CMPU	SKIPF	---
1010 0100	A4	164	.	ANDA	---	---	TAB(---
1010 0101	A5	165	.	BITA	---	---	TO	---
1010 0110	A6	166	.	LDA	---	---	SUB	---
1010 0111	A7	167	.	STA	---	---	THEN	---
1010 1000	A8	168	.	EORA	---	---	NOT	---
1010 1001	A9	169	.	ADCA	---	---	STEP	---
1010 1010	AA	170	.	ORA	---	---	OFF	---
1010 1011	AB	171	.	ADDA	---	---	+	---
1010 1100	AC	172	.	CMPX	CMPY	CMPZ	-	---
1010 1101	AD	173	.	JSR	---	---	*	---
1010 1110	AE	174	.	LDX	LDY	---	/	---
1010 1111	AF	175	.	STX	STY	---	---	---

1011 0000	B0	176	.	SUBA	---	---	AND	---
1011 0001	B1	177	.	CMPA	---	---	OR	---
1011 0010	B2	178	.	SBCA	---	---)	---
1011 0011	B3	179	■	SUBD	CMPD	CMPU	=	---
1011 0100	B4	180	.	ANDA	---	---	(---
1011 0101	B5	181		BITA	---	---	DEL	---
1011 0110	B6	182		LDA	---	---	EDIT	---
1011 0111	B7	183		STA	---	---	TRON	---
1011 1000	B8	184	.	EORA	---	---	TROFF	---
1011 1001	B9	185	~	ADCA	---	---	DEF	---
1011 1010	BA	186		ORA	---	---	LET	---
1011 1011	BB	187	~	ADDA	---	---	LINE	---
1011 1100	BC	188	■	CMPX	CMPY	CMPZ	PCLS	---
1011 1101	BD	189	■	JSR	---	---	PSET	---
1011 1110	BE	190	■	LDX	LDY	---	PRESET	---
1011 1111	BF	191	■	STX	STY	---	SCREEN	---
1100 0000	C0	192	.	SUBB	---	---	PCLEAR	---
1100 0001	C1	193	.	CMPB	---	---	COLOR	---
1100 0010	C2	194	.	SBCB	---	---	CIRCLE	---
1100 0011	C3	195	■	ADDD	---	---	PAINT	---
1100 0100	C4	196	.	ANDB	---	---	GET	---
1100 0101	C5	197		BITB	---	---	PUT	---
1100 0110	C6	198		LDB	---	---	DRAW	---
1100 0111	C7	199		---	---	---	PCOPY	---
1100 1000	C8	200	.	EORB	---	---	PHODE	---
1100 1001	C9	201	~	ADCB	---	---	PLAY	---
1100 1010	CA	202		ORB	---	---	DLOAD	---
1100 1011	CB	203	~	ADDB	---	---	RENUM	---
1100 1100	CC	204	■	LDD	---	---	FN	---
1100 1101	CD	205	■	---	---	---	USING	---
1100 1110	CE	206	■	LDU	LDS	---	---	---
1100 1111	CF	207	■	---	---	---	---	---
1101 0000	D0	208	.	SUBB	---	---	---	---
1101 0001	D1	209	.	CMPB	---	---	---	---
1101 0010	D2	210	.	SBCB	---	---	---	---
1101 0011	D3	211	■	ADDD	---	---	---	---
1101 0100	D4	212	.	ANDB	---	---	---	---
1101 0101	D5	213		BITB	---	---	---	---
1101 0110	D6	214		LDB	---	---	---	---
1101 0111	D7	215		STB	---	---	---	---
1101 1000	D8	216	.	EORB	---	---	---	---
1101 1001	D9	217	~	ADCB	---	---	---	---
1101 1010	DA	218		ORB	---	---	---	---
1101 1011	DB	219	~	ADDB	---	---	---	---
1101 1100	DC	220	■	LDD	---	---	---	---
1101 1101	DD	221	■	STD	---	---	---	---
1101 1110	DE	222	■	LDU	LDS	---	---	---
1101 1111	DF	223	■	STU	STS	---	---	---

1110 0000	E0	224	.	SUBB	---	---	---	---
1110 0001	E1	225	.	CMPB	---	---	---	---
1110 0010	E2	226	.	SBCB	---	---	---	---
1110 0011	E3	227	.	ADDD	---	---	---	---
1110 0100	E4	228	.	ANDB	---	---	---	---
1110 0101	E5	229		BITB	---	---	---	---
1110 0110	E6	230		LDB	---	---	---	---
1110 0111	E7	231	F	STB	---	---	---	---
1110 1000	E8	232	.	EORB	---	---	---	---
1110 1001	E9	233		ADCB	---	---	---	---
1110 1010	EA	234		ORB	---	---	---	---
1110 1011	EB	235		ADDB	---	---	---	---
1110 1100	EC	236	.	LDD	---	---	---	---
1110 1101	ED	237		STD	---	---	---	---
1110 1110	EE	238		LDU	LDS	---	---	---
1110 1111	EF	239		STU	STS	---	---	---
1111 0000	F0	240	.	SUBB	---	---	---	---
1111 0001	F1	241	.	CMPB	---	---	---	---
1111 0010	F2	242	.	SBCB	---	---	---	---
1111 0011	F3	243	.	ADDD	---	---	---	---
1111 0100	F4	244	.	ANDB	---	---	---	---
1111 0101	F5	245		BITB	---	---	---	---
1111 0110	F6	246		LDB	---	---	---	---
1111 0111	F7	247	F	STB	---	---	---	---
1111 1000	F8	248	.	EORB	---	---	---	---
1111 1001	F9	249		ADCB	---	---	---	---
1111 1010	FA	250		ORB	---	---	---	---
1111 1011	FB	251		ADDB	---	---	---	---
1111 1100	FC	252	.	LDD	---	---	---	---
1111 1101	FD	253		STD	---	---	---	---
1111 1110	FE	254		LDU	LDS	---	---	---
1111 1111	FF	255		STU	STS	---	(SEE FF+)	---

Cassette Loading Problems

The Micro Language Lab tapes contain both audio and programs. Until you get accustomed to the voice-data sequence, you may experience some loading problems.

1. Be sure to have the volume adjusted properly for program loading. Our cassettes load very well with the CTR-80A volume set between 6 and 7, although this may be too loud for listening to the audio.
2. These are 60-minute cassettes and should be treated as good music tapes. Your tape recorder must be clean and demagnetized. Obtain cleaning solution and demagnetizers from a Radio Shack or other hi-fi store.
3. Don't miss the beginning of the program. When you hear "turn the tape off now", that means now! The program begins within 5 seconds.
4. Should you have continued loading problems with one program or one tape, you may exchange the defective tape at no charge. Should you have loading problems with several tapes, suspect your tape player. We use good tape and excellent mastering and duplication equipment to assure quality.
5. If you find the audio-data combination cumbersome, Green Mountain Micro can offer you a separate tape containing all the Micro Language Lab programs. Call or write for price and availability.