

The Logic Bench 6502 — Opcode Matrix

All 256 byte values · 151 defined opcodes · 56 mnemonics · rows = high nibble, columns = low nibble

Hi\Lo	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	BRK 00	ORA (zp,X) 01	02	03	04	ORA zp 05	ASL zp 06	07	PHP 08	ORA # 09	ASL A 0A	0B	0C	ORA abs 0D	ASL abs 0E	0F
1	BPL reL 10	ORA (zp),Y 11	12	13	14	ORA zp,X 15	ASL zp,X 16	17	CLC 18	ORA abs,Y 19	1A	1B	1C	ORA abs,X 1D	ASL abs,X 1E	1F
2	JSR abs 20	AND (zp,X) 21	22	23	BIT zp 24	AND zp 25	ROL zp 26	27	PLP 28	AND # 29	ROL A 2A	2B	BIT abs 2C	AND abs 2D	ROL abs 2E	2F
3	BMI reL 30	AND (zp),Y 31	32	33	34	AND zp,X 35	ROL zp,X 36	37	SEC 38	AND abs,Y 39	3A	3B	3C	AND abs,X 3D	ROL abs,X 3E	3F
4	RTI 40	EOR (zp,X) 41	42	43	44	EOR zp 45	LSR zp 46	47	PHA 48	EOR # 49	LSR A 4A	4B	JMP abs 4C	EOR abs 4D	LSR abs 4E	4F
5	BVC reL 50	EOR (zp),Y 51	52	53	54	EOR zp,X 55	LSR zp,X 56	57	CLI 58	EOR abs,Y 59	5A	5B	5C	EOR abs,X 5D	LSR abs,X 5E	5F
6	RTS 60	ADC (zp,X) 61	62	63	64	ADC zp 65	ROR zp 66	67	PLA 68	ADC # 69	ROR A 6A	6B	JMP (abs) 6C	ADC abs 6D	ROR abs 6E	6F
7	BVS reL 70	ADC (zp),Y 71	72	73	74	ADC zp,X 75	ROR zp,X 76	77	SEI 78	ADC abs,Y 79	7A	7B	7C	ADC abs,X 7D	ROR abs,X 7E	7F
8	80	STA (zp,X) 81	82	83	STY zp 84	STA zp 85	STX zp 86	87	DEY 88	89	TXA 8A	8B	STY abs 8C	STA abs 8D	STX abs 8E	8F
9	BCC reL 90	STA (zp),Y 91	92	93	STY zp,X 94	STA zp,X 95	STX zp,Y 96	97	TYA 98	STA abs,Y 99	TXS 9A	9B	9C	STA abs,X 9D	9E	9F
A	LDY # A0	LDA (zp,X) A1	LDX # A2	A3	LDY zp A4	LDA zp A5	LDX zp A6	A7	TAY A8	LDA # A9	TAX AA	AB	LDY abs AC	LDA abs AD	LDX abs AE	AF
B	BCS reL B0	LDA (zp),Y B1	B2	B3	LDY zp,X B4	LDA zp,X B5	LDX zp,Y B6	B7	CLV B8	LDA abs,Y B9	TSX BA	BB	LDY abs,X BC	LDA abs,X BD	LDX abs,Y BE	BF
C	CPY # C0	CMP (zp,X) C1	C2	C3	CPY zp C4	CMP zp C5	DEC zp C6	C7	INY C8	CMP # C9	DEX CA	CB	CPY abs CC	CMP abs CD	DEC abs CE	CF
D	BNE reL D0	CMP (zp),Y D1	D2	D3	D4	CMP zp,X D5	DEC zp,X D6	D7	CLD D8	CMP abs,Y D9	DA	DB	DC	CMP abs,X DD	DEC abs,X DE	DF
E	CPX # E0	SBC (zp,X) E1	E2	E3	CPX zp E4	SBC zp E5	INC zp E6	E7	INX E8	SBC # E9	NOP EA	EB	CPX abs EC	SBC abs ED	INC abs EE	EF
F	BEQ reL F0	SBC (zp),Y F1	F2	F3	F4	SBC zp,X F5	INC zp,X F6	F7	SED F8	SBC abs,Y F9	FA	FB	FC	SBC abs,X FD	INC abs,X FE	FF

■ Load / Store
 ■ Register Transfers
 ■ Stack
 ■ Arithmetic
 ■ Logic
 ■ Shift / Rotate
 ■ Compare
 ■ Branches
 ■ Jump / Subroutine
 ■ Interrupt
 ■ Flags

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