



Z80®

MICROPROCESSOR

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TIMING (ASSUMING 4MHZ)

MACHINE CYCLES	CLOCK PERIODS	MICRO SECONDS	YOUR TIME
1 A	4	1.00	_____
B	5	1.25	_____
C	6	1.50	_____
2 A	7=4+3	1.75	_____
B	8=4+4	2.00	_____
C	8=5+3	2.00	_____
D	9=4+5	2.25	_____
E	10=4+6	2.50	_____
3 A	10=4+3+3	2.50	_____
B	11=4+3+4	2.75	_____
C	11=4+4+3	2.75	_____
D	11=5+3+3	2.75	_____
E	12=4+3+5	3.00	_____
F	12=4+4+4	3.00	_____
G	13=5+3+5	3.25	_____
4 A	13=4+3+3+3	3.25	_____
B	14=4+4+3+3	3.50	_____
C	15=4+4+4+3	3.75	_____
D	15=4+5+3+3	3.75	_____
E	16=4+4+3+5	4.00	_____
F	16=4+5+3+4	4.00	_____
5 A	16=4+3+3+3+3	4.00	_____
B	17=4+3+4+3+3	4.25	_____
C	18=4+4+3+4+3	4.50	_____
D	19=4+3+4+3+5	4.75	_____
E	19=4+4+3+5+3	4.75	_____
F	20=4+4+3+5+4	5.00	_____
G	21=4+4+3+5+5	5.25	_____
H	21=4+5+3+4+5	5.25	_____
6 A	20=4+4+3+3+3+3	5.00	_____
B	23=4+4+3+4+3+5	5.75	_____
C	23=4+4+3+5+4+3	5.75	_____

To Calculate Your Own Timing:

$(4\text{MHZ}/\text{Your MHZ}) \times \text{Micro Sec.} = \text{Actual Microsec For Your Computer}$

(Make entry on right in chart above)

MATH INSTRUCTIONS

ADC—Add with Carry.

SBC—Subtract with Carry.

OPERANDS: ($r = A, B, C, D, E, H, \text{ or } L$)

A, r^{1A}	HL, BC^{4C}
A, imm^{2A}	HL, DE^{4C}
$A, (HL)^{2A}$	HL, HL^{4C}
$A, (IX+d)^{5E}$	HL, SP^{4C}
$A, (IY+d)^{5E}$	

Condition Set: **YES**

ADD—Add.

OPERANDS: ($r = A, B, C, D, E, H, \text{ or } L$)

A, r^{1A}	HL, BC^{3C}	IX, BC^{4C}	IY, BC^{4C}
A, imm^{2A}	HL, DE^{3C}	IX, DE^{4C}	IY, DE^{4C}
$A, (HL)^{2A}$	HL, HL^{3C}	IX, IX^{4C}	IY, IY^{4C}
$A, (IX+d)^{5E}$	HL, SP^{3C}	IX, SP^{4C}	IY, SP^{4C}
$A, (IY+d)^{5E}$			

Condition Set: **YES**

SUB—Subtract from Accumulator.

OPERANDS: ($r = A, B, C, D, E, H, \text{ or } L$)

r^{1A}	imm^{2A}	$(HL)^{2A}$	$(IX+d)^{5E}$	$(IY+d)^{5E}$
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Condition Set: **YES**

DEC—Decrement.

INC—Increment.

OPERANDS: ($r = A, B, C, D, E, H, \text{ or } L$)

r^{1A}	BC^{1C}
$(HL)^{3C}$	DE^{1C}
$(IX+d)^{6C}$	HL^{1C}
$(IY+d)^{6C}$	IX^{2E}
	IY^{2E}
	SP^{1C}

Condition Set: **YES**
(Not for Register Pairs)

STORE REGISTER-INTO-MEMORY INSTRUCTIONS

LD—Store Register Into Memory.

OPERANDS: ($r = A, B, C, D, E, H, \text{ or } L$)

$(HL), r^{2A}$	$(addr), A^{4A}$	$(addr), IX^{6A}$	$(BC), A^{2A}$
$(IX+d), r^{5E}$	$(addr), BC^{6A}$	$(addr), IY^{6A}$	$(DE), A^{2A}$
$(IY+d), r^{5E}$	$(addr), DE^{6A}$	$(addr), SP^{6A}$	
	$(addr), HL^{5A}$		

Condition Set: **NO**

PUSH—Store Register Into Stack.

OPERANDS:

AF^{3D}	BC^{3D}	DE^{3D}	HL^{3D}	IX^{4D}	IY^{4D}
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Condition Set: **NO**

LOAD REGISTER INSTRUCTIONS

LD—Load Register.

OPERANDS: ($r = A, B, C, D, E, H, \text{ or } L$)

r, r^{1A}	BC, imm^{3A}	$A, (addr)^{4A}$	SP, HL^{1C}	$A, (BC)^{2A}$	A, I^{2D}
r, imm^{2A}	DE, imm^{3A}	$BC, (addr)^{6A}$	SP, IX^{2E}	$A, (DE)^{2A}$	A, R^{2D}
$r, (HL)^{2A}$	HL, imm^{3A}	$DE, (addr)^{6A}$	SP, IY^{2E}		I, A^{2D}
$r, (IX+d)^{5E}$	IX, imm^{4B}	$HL, (addr)^{5A}$			R, A^{2D}
$r, (IY+d)^{5E}$	IY, imm^{4B}	$IX, (addr)^{6A}$			
	SP, imm^{3A}	$IY, (addr)^{6A}$			
		$SP, (addr)^{6A}$			

Condition Set: **Yes**
(Only for LD A,I and LD A,R)

POP—Load Register from Stack.

OPERANDS:

AF^{3A}	BC^{3A}	DE^{3A}	HL^{3A}	IX^{4B}	IY^{4B}
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Condition Set: **NO**

MOVE MEMORY-TO-MEMORY INSTRUCTIONS

LD—Move to Memory from Immediate.

OPERANDS:

(HL),imm^{3A} (IX+d),imm^{5E} (IY+d),imm^{5E} Condition Set: **NO**

LDD —Move (HL) to (DE). Decrement BC, DE, and HL.^{4E}

LDDR—Move (HL) to (DE). Decrement BC, DE, and HL.

Repeat if: BC NOT = 0.^{5G (IF BC = 0 THEN 4E)}

LDI —Move (HL) to (DE). Decrement BC. Increment DE and HL.^{4E}

LDIR—Move (HL) to (DE). Decrement BC. Increment DE and HL.

Repeat if: BC NOT = 0.^{5G (IF BC = 0 THEN 4E)}

OPERANDS: None Required.

Condition Set: **YES**

EXCHANGE INSTRUCTIONS

EX—Exchange Register Data with Register or Stack.

OPERANDS:

AF,AF^{1A} DE,HL^{1A} (SP),HL^{5D} (SP),IX^{6B} (SP),IY^{6B} Condition Set: **NO**

EXX—Exchange Multiple Registers.

BC with BC'. DE with DE'. HL with HL'.^{1A}

OPERANDS: None Required.

Condition Set: **NO**

SHIFT INSTRUCTIONS

RL —Shift Left thru Carry Flag.

Bit 7 goes to Carry Flag. Carry Flag goes to Bit 0.

RR —Shift Right thru Carry Flag.

Bit 0 goes to Carry Flag. Carry Flag goes to Bit 7.

RLC —Shift Left thru Carry Flag.

Bit 7 goes to Carry Flag and Bit 0.

RRC —Shift Right thru Carry Flag.

Bit 0 goes to Carry Flag and Bit 7.

SLA —Shift Left Arithmetic.

Zero Forced into Bit 0. Bit 7 goes to Carry Flag.

SRA —Shift Right Arithmetic.

Bit 7 not changed. Bit 0 goes to Carry Flag.

SRL —Shift Right Logical.

Zero Forced into Bit 7. Bit 0 goes to Carry Flag.

OPERANDS: (r = A, B, C, D, E, H, or L)

r^{2B} (HL)^{4C} (IX+d)^{6C} (IY+d)^{6C} Condition Set: **YES**

RLA —Shift Accumulator Left thru Carry Flag.^{1A}

Bit 7 goes to Carry Flag. Carry Flag goes to Bit 0.

RRA —Shift Accumulator Right thru Carry Flag.^{1A}

Bit 0 goes to Carry Flag. Carry Flag goes to Bit 7.

RLCA—Shift Accumulator Left thru Carry Flag.^{1A}

Bit 7 goes to Carry Flag and Bit 0.

RRCA—Shift Accumulator Right thru Carry Flag.^{1A}

Bit 0 goes to Carry Flag and Bit 7.

RLD —Shift Left Half-Byte.^{5C}

Bits 0-3 of (HL) go into Bits 4-7 of (HL).

Bits 4-7 of (HL) go into Bits 0-3 of A.

Bits 0-3 of A go into Bits 0-3 of (HL).

RRD —Shift Right Half-Byte.^{5C}

Bits 4-7 of (HL) go into Bits 0-3 of (HL).

Bits 0-3 of (HL) go into Bits 0-3 of A.

Bits 0-3 of A go into Bits 4-7 of (HL).

OPERANDS: Not Required.

Condition Set: **YES**

COMPARE INSTRUCTIONS

BIT—Test Bit.

OPERANDS: ($b = 0, 1, 2, 3, 4, 5, 6, \text{ or } 7$)
($r = A, B, C, D, E, H, \text{ or } L$)

b, r^{2B} $b, (HL)^{3F}$ $b, (IX+d)^{5F}$ $b, (IY+d)^{5F}$ Condition Set: YES

CP—Compare to Accumulator.

OPERANDS: ($r = A, B, C, D, E, H, \text{ or } L$)

r^{1A} Imm^{2A} $(HL)^{2A}$ $(IX+d)^{5E}$ $(IY+d)^{5E}$ Condition Set: YES

CPD —Compare (HL) to Accumulator. Decrement HL and BC.^{4E}

CPDR—Compare (HL) to Accumulator. Decrement HL and BC.

Repeat if: BC NOT = 0 AND ACCUMULATOR NOT = (HL).
5G IF REPEAT, ELSE 4E

CPI —Compare (HL) to Accumulator. Increment HL. Decrement BC.^{4E}

CPIR—Compare (HL) to Accumulator. Increment HL. Decrement BC.

Repeat if: BC NOT = 0 AND ACCUMULATOR NOT = (HL).
5G IF REPEAT, ELSE 4E

OPERANDS: None Required.

Condition Set: YES

BRANCH INSTRUCTIONS

CALL—Branch and Link for Return.

OPERANDS:

UNCOND^{5B}

COND^{5B IF TRUE, 3A IF NOT TRUE}

$addr$

$C, addr$ $Z, addr$ $PO, addr$ $P, addr$
 $NC, addr$ $NZ, addr$ $PE, addr$ $M, addr$

Condition Set: NO

DJNZ—Decrement B. Branch if B NOT = 0.

OPERANDS: $addr$ ^{3G IF TRUE, 2C IF NOT TRUE}

Condition Set: NO

JP—Branch.

OPERANDS:

UNCOND

COND

$addr$ ^{3A}

$C, addr$ ^{3A} $Z, addr$ ^{3A} $PO, addr$ ^{3A} $P, addr$ ^{3A}
 (HL) ^{1A} $NC, addr$ ^{3A} $NZ, addr$ ^{3A} $PE, addr$ ^{3A} $M, addr$ ^{3A}

(IX) ^{2B}

(IY) ^{2B}

Condition Set: NO

JR—Branch.

OPERANDS:

UNCOND^{3E}

COND

^{3E IF TRUE, 2A IF NOT TRUE}

$addr$

$C, addr$ $Z, addr$
 $NC, addr$ $NZ, addr$

Condition Set: NO

RET—Return from Call.

OPERANDS:

UNCOND^{3A}

COND

^{3D IF TRUE, 1B IF NOT TRUE}

None

Required

C Z PO P
 NC NZ PE M

Condition Set: NO

RST—Branch to Special Address.

OPERANDS:

00H -or- 0 20H -or- 32

08H -or- 8 28H -or- 40

10H -or- 16 30H -or- 48

18H -or- 24 38H -or- 56

3D

Condition Set: NO

DATA ALTERATION INSTRUCTIONS

AND — 'AND' the Accumulator.

OR — 'OR' the Accumulator.

XOR — Exclusive 'OR' the Accumulator.

OPERANDS: ($r = A, B, C, D, E, H, \text{ or } L$)

r^{1A} Imm^{2A} $(HL)^{2A}$ $(IX+d)^{5E}$ $(IY+d)^{5E}$ Condition Set: **YES**

RES — Reset Bit. (Set Bit off or Set Bit to 0).

SET — Set Bit. (Set Bit on or Set Bit to 1).

OPERANDS: ($b = 0, 1, 2, 3, 4, 5, 6, \text{ or } 7$)

($r = A, B, C, D, E, H, \text{ or } L$)

b, r^{2B} $b, (HL)^{4C}$ $b, (IX+d)^{5C}$ $b, (IY+d)^{5C}$ Condition Set: **NO**

CCF — Reverse the Carry Flag Bit.^{1A}

Condition Set: **YES**

CPL — Reverse the Accum Bits.^{1A}

Condition Set: **NO**

DAA — Convert Accum from Binary to BCD.^{1A}

Condition Set: **YES**

NEG — Reverse the Accum Numeric Value.^{2B}

Condition Set: **YES**

NOP — No Operation.^{1A}

Condition Set: **NO**

SCF — Turn on Carry Flag Bit (Set Bit to 1).^{1A}

Condition Set: **NO**

OPERANDS: None Required.

I/O INSTRUCTIONS

DI — Disable Maskable Interrupts.^{1A}

EI — Enable Maskable Interrupts.^{1A}

HALT — Halt CPU until Interrupt or Reset is Received.^{1A}

IM0 — Set Interrupt Mode 0.^{2B}

IM1 — Set Interrupt Mode 1.^{2B}

IM2 — Set Interrupt Mode 2.^{2B}

RETI — Return from Interrupt.^{4B}

(EI Must Be Executed First to Re-Enable Interrupts.)

RETN — Return from Non-Maskable Interrupt.^{4B}

OPERANDS: None Required.

Condition Set: **NO**

IND — Read Device (C) into (HL). Decrement B and HL.^{4F}

OUTD — Write (HL) to Device (C). Decrement B and HL.^{4F}

INI — Read Device (C) into (HL). Decrement B. Increment HL.^{4F}

OUTI — Write (HL) to Device (C). Decrement B. Increment HL.^{4F}

INDR — Read Device (C) into (HL). Decrement B and HL.

Repeat if: B NOT = 0.^{5H (IF B = 0, 4F)}

OTDR — Write (HL) to Device (C). Decrement B and HL.

Repeat if: B NOT = 0.^{5H (IF B = 0, 4F)}

INIR — Read Device (C) into (HL). Decrement B. Increment HL.

Repeat if: B NOT = 0.^{5H (IF B = 0, 4F)}

OTIR — Write (HL) to Device (C). Decrement B. Increment HL.

Repeat if: B NOT = 0.^{5H (IF B = 0, 4F)}

OPERANDS: Not Required.

Condition Set: **YES**

IN — Read Device (C) into Specified Register.

OPERANDS: ($r = A, B, C, D, E, H, \text{ or } L$)

$r, (C)^{3F}$

Condition Set: **YES**

OUT — Write to Device (C) from Specified Register.

OPERANDS: ($r = A, B, C, D, E, H, \text{ or } L$)

$(C), r^{3F}$

Condition Set: **NO**

IN — Read Device Specified into Accumulator.

OPERANDS: $A, (addr)^{3B}$

Condition Set: **NO**

OUT — Write to Specified Device from Accumulator.

OPERANDS: $(addr), A^{3B}$

Condition Set: **NO**

FLAGS

CONDITIONS

S	=	Sign Flag
Z	=	Zero Flag
H	=	Half-Carry Flag
P/V	=	Parity/Oflo Flag
N	=	Add/Subtract Flag
C	=	Carry Flag

NC	=	No Carry
C	=	Carry
PO	=	Parity Odd/No Oflo
PE	=	Parity Even/Oflo
NZ	=	Not Zero
Z	=	Zero
P	=	Positive
M	=	Negative

7	6	5	4	3	2	1	0
S	Z	*	H	*	P/V	N	C

*NOT USED

BIT = 0		BIT = 1	
COND CODE		COND CODE	
NC	010	C	011
PO	100	PE	101
NZ	000	Z	001
P	110	M	111

TYPE OF INSTRUCTION	INSTRUCTIONS WHICH SET FLAGS	CONDITIONS TO TEST							
		NC	C	PO	PE	NZ	Z	P	M
MATH	ADC, ADD, SBC, SUB	•	•	•	•	•	•	•	•
	DEC, INC [Excluding register pairs].....			•	•	•	•	•	•
COMPARE	BIT					•	•		
	CP	•	•	•	•	•	•	•	•
	CPD, CPDR, CPI, CPIR			•	•	•	•	•	•
LOAD	LD A, J			•	•	•	•	•	•
	LD A, R			•	•	•	•	•	•
MOVE	LDD, LDI			•	•				
	LDDR, LDIR			•					
DATA	AND, OR, XOR	•		•	•	•	•	•	•
	CCF, RLA, RLCA, RRA, RRCA	•	•			•	•	•	•
	DAA, NEG, RL, RLC, RR, RRC	•	•	•	•	•	•	•	•
	SLA, SRA, SRL	•	•			•	•	•	•
	RLD, RRD			•	•	•	•	•	•
I/O	IN [Except when dev. not spec. by (C)] ..			•	•	•	•	•	•
	IND, INI, OUTD, OUTI					•	•		
	INDR, INIR, OTDR, OTIR						•		

HEX/DEC CONVERSION CHART

8 4 2 1		8 4 2 1		8 4 2 1		8 4 2 1	
HEX	DEC	HEX	DEC	HEX	DEC	HEX	DEC
0	0	0	0	0	0	0	0
1	4096	1	256	1	16	1	1
2	8192	2	512	2	32	2	2
3	12288	3	768	3	48	3	3
4	16384	4	1024	4	64	4	4
5	20480	5	1280	5	80	5	5
6	24576	6	1536	6	96	6	6
7	28672	7	1792	7	112	7	7
8	32768	8	2048	8	128	8	8
9	36864	9	2304	9	144	9	9
A	40960	A	2560	A	160	A	10
B	45056	B	2816	B	176	B	11
C	49152	C	3072	C	192	C	12
D	53248	D	3328	D	208	D	13
E	57344	E	3584	E	224	E	14
F	61440	F	3840	F	240	F	15
65535		4095		255		15	

The following are what are described as undocumented and unsupported instructions which may or may not occur in various machine language chips or compilers.

They are documented here so that if you should encounter them, you will be able to identify them, and possibly find a use for them.

On this page, they are listed by MNEMONIC sequence.

On the following page, they are listed by OPCODE sequence.

IX and IY are 16-bit registers. Nowhere in the normal set is there a way to address either of the 8 bits as though it were a single 8-bit register. Some of these instructions do allow this ability.

In the MNEMONICS, the IX and IY registers are accessed as 4 individual 8-bit registers as follows:

HX is the I of IX
LX is the X of IX

HY is the I of IY
LY is the Y of IY

MNEMONIC SEQUENCE

INSTRUCTION	OP	ADDRESS	INSTRUCTION	OP	ADDRESS
ADC A,IX	DD8C	221,140	LD LX,C	DD49	221,105
ADC A,IY	FD8C	253,140	LD LX,D	DD6A	221,106
ADC A,LX	DD8D	221,141	LD LX,E	DD6B	221,107
ADC A,LY	FD8D	253,141	LD LX,HX	DD4C	221,108
ADD A,IX	DD84	221,132	LD LY,imm	FD2E11	253,046,111
ADD A,IY	FD84	253,132	LD LY,A	FD6F	253,111
ADD A,LX	DD85	221,133	LD LY,B	FD6H	253,104
ADD A,LY	FD85	253,133	LD LY,C	FD69	253,105
AND HX	DDA4	221,164	LD LY,D	FD6A	253,106
AND IY	FDA4	253,164	LD LY,E	FD6B	253,107
AND LX	DDA5	221,165	LD LY,IY	FD6C	253,108
AND LY	FDA5	253,165	NEG	ED4C	237,076
CP IX	DD8C	221,188	NEG	ED54	237,084
CP IY	FD8C	253,188	NEG	ED5C	237,092
CP LX	DD8D	221,189	NEG	ED64	237,100
CP LY	FD8D	253,189	NEG	ED6C	237,108
DEC HX	DD25	221,037	NEG	ED74	237,116
DEC IY	FD25	253,037	NEG	ED7C	237,124
DEC LX	DD2D	221,045	NOP	ED80-9F	237,128-159
DEC LY	FD2D	253,045	NOP	EDA4-A7	237,164-167
IN (HL), (C)	ED78	237,112	NOP	EDAC-AF	237,172-175
INC HX	DD24	221,036	NOP	EDB4-B7	237,180-183
INC IY	FD24	253,036	NOP	EDBC-BF	237,188-191
INC LX	DD2C	221,044	NOP	EDC0-3F	237,600-063
INC LY	FD2C	253,044	NOP	EDC0-7F	237,192-255
LD (addr), HL	ED63aaaa	237,099,aaa,aaa	NOP	ED4E	237,078
LD A,IX	DD7C	221,124	NOP	ED66	237,102
LD A,IY	FD7C	253,124	NOP	ED6E	237,110
LD A,LX	DD7D	221,125	NOP	ED76	237,118
LD A,LY	FD7D	253,125	NOP	ED77	237,119
LD B,HX	DD44	221,068	NOP	ED7E	237,126
LD B,IY	FD44	253,068	NOP	ED7F	237,127
LD B,LX	DD45	221,069	OR HX	DD84	221,180
LD B,LY	FD45	253,069	OR IY	FD84	253,180
LD C,HX	DD4C	221,076	OR LX	DD85	221,181
LD C,IY	FD4C	253,076	OR LY	FD85	253,181
LD C,LX	DD4D	221,077	OUT (C), (HL)	ED71	237,113
LD C,LY	FD4D	253,077	RETN	ED55	237,085
LD D,HX	DD54	221,084	RETN	ED5D	237,093
LD D,IY	FD54	253,084	RETN	ED65	237,101
LD D,LX	DD55	221,085	RETN	ED6D	237,109
LD D,LY	FD55	253,085	RETN	ED75	237,117
LD E,HX	DD5C	221,092	RETN	ED7D	237,125
LD E,IY	FD5C	253,092	SBC A,IX	DD9C	221,156
LD E,LX	DD5D	221,093	SBC A,IY	FD9C	253,156
LD E,LY	FD5D	253,093	SBC A,LX	DD9D	221,157
LD HL, (addr)	ED6Baaaa	237,107,aaa,aaa	SBC A,LY	FD9D	253,157
LD HX,imm	DD2611	221,038,111	SLJ (HL)	CB36	203,054
LD HX,A	DD67	221,103	SLJ (IX+d)	DDCBdd36	221,203,ddd,054
LD HX,B	DD60	221,096	SLJ (IY+d)	FDCCdd36	253,203,ddd,054
LD HX,C	DD61	221,097	SLJ A	CB37	203,055
LD HX,D	DD62	221,098	SLJ B	CB30	203,048
LD HX,E	DD63	221,099	SLJ C	CB31	203,049
LD HX,LX	DD65	221,101	SLJ D	CB32	203,050
LD IY,imm	FD2611	253,038,111	SLJ E	CB33	203,051
LD IY,A	FD67	253,103	SLJ H	CB34	203,052
LD IY,B	FD60	253,096	SLJ L	CB35	203,053
LD IY,C	FD61	253,097	SUB HX	DD94	221,148
LD IY,D	FD62	253,098	SUB IY	FD94	253,148
LD IY,E	FD63	253,099	SUB LX	DD95	221,149
LD IY,LY	FD65	253,101	SUB LY	FD95	253,149
LD LX,imm	DD2E11	221,046,111	XOR HX	DDAC	221,172
LD LX,A	DD6F	221,111	XOR IY	FDAC	253,172
LD LX,B	DD68	221,104	XOR LX	DDAD	221,173
			XOR LY	FDAD	253,173

Timing for these instructions is determined by adding 4 T-states to each one which corresponds to a normal instruction of similar structure using the H or L as an operand.

Additionally, there is a set of shift or rotate instructions added. We have given them the mnemonic "SLL" because it seems most appropriate.

SLL operates in this fashion:

The operand is shifted left 1 bit. Bit 7 goes to the carry flag and bit 0 becomes a 1. This is the same as doubling or multiplying the operand by 2 and adding 1 after the multiplication.

Other instructions shown here are duplications of functions available through the normal instruction set, shown for your knowledge.

OP-CODE SEQUENCE

INSTRUCTION	HEX	DECIMAL	INSTRUCTION	HEX	DECIMAL
SLL B	CB30	203,040	LD HL,(addr)	ED60-ED63	237,107,aaa,aaa
SLL C	CB31	203,049	NEG	ED6C	237,108
SLL D	CB32	203,050	RTN	ED6D	237,109
SLL E	CB33	203,051	NOP	ED6E	237,110
SLL H	CB34	203,052	IN (HL),(C)	ED70	237,112
SLL L	CB35	203,053	OUT (C),(HL)	ED71	237,113
SLL (HL)	CB36	203,054	NEG	ED74	237,116
SLL A	CB37	203,055	RTN	ED75	237,117
INC HL	DD24	221,036	NOP	ED76	237,118
DEC HL	DD25	221,037	NOP	ED77	237,119
LD HL,imm	DD26-11	221,038,111	NEG	ED7C	237,124
INC LE	DD2C	221,044	RTN	ED7D	237,125
DEC LE	DD2D	221,045	NOP	ED7E	237,126
LD L,imm	DD2E-11	221,046,111	NOP	ED7F	237,127
LD B,HL	DD44	221,066	NOP	ED80-9F	237,128-159
LD B,LE	DD45	221,069	NOP	ED84-A7	237,164-167
LD C,HL	DD4C	221,076	NOP	EDAC-AF	237,172-175
LD C,LE	DD4D	221,077	NOP	EDB4-B7	237,180-183
LD D,HL	DD54	221,084	NOP	EDBC-BF	237,188-191
LD D,LE	DD55	221,085	NOP	EDC0-FF	237,192-255
LD E,HL	DD5C	221,092	INC HY	FD24	253,036
LD E,LE	DD5D	221,093	DEC HY	FD25	253,037
LD HL,B	DD60	221,096	LD HY,imm	FD26-11	253,038,111
LD HL,C	DD61	221,097	INC LY	FD2C	253,044
LD HL,D	DD62	221,098	DEC LY	FD2D	253,045
LD HL,E	DD63	221,099	LD LY,imm	FD2E-11	253,046,111
LD HL,LE	DD65	221,101	LD B,LY	FD44	253,066
LD HL,A	DD67	221,103	LD B,LY	FD45	253,069
LD L,B	DD68	221,104	LD C,LY	FD4C	253,076
LD L,C	DD69	221,105	LD C,LY	FD4D	253,077
LD L,D	DD6A	221,106	LD D,LY	FD54	253,084
LD L,E	DD6B	221,107	LD D,LY	FD55	253,085
LD L,HL	DD6C	221,108	LD E,LY	FD5C	253,092
LD L,A	DD6F	221,111	LD E,LY	FD5D	253,093
LD A,HL	DD7C	221,124	LD HY,B	FD60	253,096
LD A,LE	DD7D	221,125	LD HY,C	FD61	253,097
ADD A,HL	DD84	221,132	LD HY,D	FD62	253,098
ADD A,LE	DD85	221,133	LD HY,E	FD63	253,099
ADC A,HL	DD8C	221,140	LD HY,LY	FD65	253,101
ADC A,LE	DD8D	221,141	LD HY,A	FD67	253,103
SUB HL	DD94	221,148	LD LY,B	FD68	253,104
SUB LE	DD95	221,149	LD LY,C	FD69	253,105
SBC A,HL	DD9C	221,156	LD LY,D	FD6A	253,106
SBC A,LE	DD9D	221,157	LD LY,E	FD6B	253,107
AND HL	DDA4	221,164	LD LY,LY	FD6C	253,108
AND LE	DDA5	221,165	LD LY,A	FD6F	253,111
XOR HL	DDAC	221,172	LD A,LY	FD7C	253,124
XOR LE	DDAD	221,173	LD A,LY	FD7D	253,125
OR HL	DDB4	221,180	ADD A,LY	FD84	253,132
OR LE	DDB5	221,181	ADD A,LY	FD85	253,133
CP HL	DDBC	221,188	ADC A,LY	FD8C	253,140
CP LE	DDBD	221,189	ADC A,LY	FD8D	253,141
SLL (IX+d)	DDCB-136	221,203,ddd,054	SUB HY	FD94	253,148
NOP	ED00-3F	237,000-063	SUB LY	FD95	253,149
NEG	ED4C	237,076	SBC A,LY	FD9C	253,156
NOP	ED4E	237,078	SBC A,LY	FD9D	253,157
NEG	ED54	237,084	AND HY	FDA4	253,164
RTN	ED55	237,085	AND LY	FDA5	253,165
NEG	ED5C	237,092	XOR HY	FDAC	253,172
RTN	ED5D	237,093	XOR LY	FDAD	253,173
LD (addr),HL	ED63-aaaa	237,099,aaa,aaa	OR HY	FD84	253,180
NEG	ED64	237,100	OR LY	FD85	253,181
RTN	ED65	237,101	CP HY	FD8C	253,188
NOP	ED66	237,102	CP LY	FD8D	253,189
			SLL (IX+d)	DDCB-136	253,203,ddd,054

OP-CODE SEQUENCE

INSTRUCTION	HEX	DECIMAL	INSTRUCTION	HEX	DECIMAL
NOP	00	000	LD E,B	58	088
LD BC,imm	01iiii	001,iii,iii	LD E,C	59	089
LD (BC),A	02	002	LD E,D	5A	090
INC BC	03	003	LD E,E	5B	091
INC B	04	004	LD E,H	5C	092
DEC B	05	005	LD E,L	5D	093
LD B,imm	06ii	006,iii	LD E,(HL)	5E	094
RLCA	07	007	LD E,A	5F	095
EX AF,AF'	08	008	LD H,B	60	096
ADD HL,BC	09	009	LD H,C	61	097
LD A,(BC)	0A	010	LD H,D	62	098
DEC BC	0B	011	LD H,E	63	099
INC C	0C	012	LD H,H	64	100
DEC C	0D	013	LD H,L	65	101
LD C,imm	0Eii	014,iii	LD H,(HL)	66	102
RRCA	0F	015	LD H,A	67	103
DJNZ addr	10aa	016,aaa	LD L,B	68	104
LD DE,imm	11iiii	017,iii,iii	LD L,C	69	105
LD (DE),A	12	018	LD L,D	6A	106
INC DE	13	019	LD L,E	6B	107
INC D	14	020	LD L,H	6C	108
DEC D	15	021	LD L,L	6D	109
LD D,imm	16ii	022,iii	LD L,(HL)	6E	110
RLA	17	023	LD L,A	6F	111
JR addr	18aa	024,aaa	LD (HL),B	70	112
ADD HL,DE	19	025	LD (HL),C	71	113
LD A,(DE)	1A	026	LD (HL),D	72	114
DEC DE	1B	027	LD (HL),E	73	115
INC E	1C	028	LD (HL),H	74	116
DEC E	1D	029	LD (HL),L	75	117
LD E,imm	1Eii	030,iii	HALT	76	118
RRA	1F	031	LD (HL),A	77	119
JR NZ,addr	20aa	032,aaa	LD A,B	78	120
LD HL,imm	21iiii	033,iii,iii	LD A,C	79	121
LD (addr),HL	22aaaa	034,aaa,aaa	LD A,D	7A	122
INC HL	23	035	LD A,E	7B	123
INC H	24	036	LD A,H	7C	124
DEC H	25	037	LD A,L	7D	125
LD H,imm	26ii	038,iii	LD A,(HL)	7E	126
DAA	27	039	LD A,A	7F	127
JR Z,addr	28aa	040,aaa	ADD A,B	80	128
ADD HL,HL	29	041	ADD A,C	81	129
LD HL,(addr)	2Aaaaa	042,aaa,aaa	ADD A,D	82	130
DEC HL	2B	043	ADD A,E	83	131
INC L	2C	044	ADD A,H	84	132
DEC L	2D	045	ADD A,L	85	133
LD L,imm	2Eii	046,iii	ADD A,(HL)	86	134
CPL	2F	047	ADD A,A	87	135
JR NC,addr	30aa	048,aaa	ADC A,B	88	136
LD SP,imm	31iiii	049,iii,iii	ADC A,C	89	137
LD (addr),A	32aaaa	050,aaa,aaa	ADC A,D	8A	138
INC SP	33	051	ADC A,E	8B	139
INC (HL)	34	052	ADC A,H	8C	140
DEC (HL)	35	053	ADC A,L	8D	141
LD (HL),imm	36ii	054,iii	ADC A,(HL)	8E	142
SCF	37	055	ADC A,A	8F	143
JR C,addr	38aa	056,aaa	SUB B	90	144
ADD HL,SP	39	057	SUB C	91	145
LD A,(addr)	3Aaaaa	058,aaa,aaa	SUB D	92	146
DEC SP	3B	059	SUB E	93	147
INC A	3C	060	SUB H	94	148
DEC A	3D	061	SUB L	95	149
LD A,imm	3Eii	062,iii	SUB (HL)	96	150
CCF	3F	063	SUB A	97	151
LD B,B	40	064	SBC A,B	98	152
LD B,C	41	065	SBC A,C	99	153
LD B,D	42	066	SBC A,D	9A	154
LD B,E	43	067	SBC A,E	9B	155
LD B,H	44	068	SBC A,H	9C	156
LD B,L	45	069	SBC A,L	9D	157
LD B,(HL)	46	070	SBC A,(HL)	9E	158
LD B,A	47	071	SBC A,A	9F	159
LD C,B	48	072	AND B	A0	160
LD C,C	49	073	AND C	A1	161
LD C,D	4A	074	AND D	A2	162
LD C,E	4B	075	AND E	A3	163
LD C,H	4C	076	AND H	A4	164
LD C,L	4D	077	AND L	A5	165
LD C,(HL)	4E	078	AND (HL)	A6	166
LD C,A	4F	079	AND A	A7	167
LD D,B	50	080	XOR B	A8	168
LD D,C	51	081	XOR C	A9	169
LD D,D	52	082	XOR D	AA	170
LD D,E	53	083	XOR E	AB	171
LD D,H	54	084	XOR H	AC	172
LD D,L	55	085	XOR L	AD	173
LD D,(HL)	56	086	XOR (HL)	AE	174
LD D,A	57	087	XOR A	AF	175

OP-CODE SEQUENCE

INSTRUCTION	HEX	DECIMAL
OR B	B0	176
OR C	B1	177
OR D	B2	178
OR E	B3	179
OR H	B4	180
OR L	B5	181
OR (HL)	B6	182
OR A	B7	183
CP B	B8	184
CP C	B9	185
CP D	BA	186
CP E	BB	187
CP H	BC	188
CP L	BD	189
CP (HL)	BE	190
CP A	BF	191
RET NZ	C0	192
POP BC	C1	193
JP NZ,addr	C2aaaa	194,aaa,aaa
JP addr	C3aaaa	195,aaa,aaa
CALL NZ,addr	C4aaaa	196,aaa,aaa
PUSH BC	C5	197
ADD A,imm	C6ii	198,iii
RST 00H	C7	199
RET Z	C8	200
RET	C9	201
JP Z,addr	CAaaaa	202,aaa,aaa
RLC B	CB00	203,000
RLC C	CB01	203,001
RLC D	CB02	203,002
RLC E	CB03	203,003
RLC H	CB04	203,004
RLC L	CB05	203,005
RLC (HL)	CB06	203,006
RLC A	CB07	203,007
RRC B	CB08	203,008
RRC C	CB09	203,009
RRC D	CB0A	203,010
RRC E	CB0B	203,011
RRC H	CB0C	203,012
RRC L	CB0D	203,013
RRC (HL)	CB0E	203,014
RRC A	CB0F	203,015
RL B	CB10	203,016
RL C	CB11	203,017
RL D	CB12	203,018
RL E	CB13	203,019
RL H	CB14	203,020
RL L	CB15	203,021
RL (HL)	CB16	203,022
RL A	CB17	203,023
RR B	CB18	203,024
RR C	CB19	203,025
RR D	CB1A	203,026
RR E	CB1B	203,027
RR H	CB1C	203,028
RR L	CB1D	203,029
RR (HL)	CB1E	203,030
RR A	CB1F	203,031
SLA B	CB20	203,032
SLA C	CB21	203,033
SLA D	CB22	203,034
SLA E	CB23	203,035
SLA H	CB24	203,036
SLA L	CB25	203,037
SLA (HL)	CB26	203,038
SLA A	CB27	203,039
SRA B	CB28	203,040
SRA C	CB29	203,041
SRA D	CB2A	203,042
SRA E	CB2B	203,043
SRA H	CB2C	203,044
SRA L	CB2D	203,045
SRA (HL)	CB2E	203,046
SRA A	CB2F	203,047
SRL B	CB30	203,056
SRL C	CB31	203,057
SRL D	CB3A	203,058
SRL E	CB3B	203,059
SRL H	CB3C	203,060
SRL L	CB3D	203,061
SRL (HL)	CB3E	203,062
SRL A	CB3F	203,063
BIT 0,B	CB40	203,064
BIT 0,C	CB41	203,065
BIT 0,D	CB42	203,066
BIT 0,E	CB43	203,067
BIT 0,H	CB44	203,068

BIT 0,L	CB45	203,069
BIT 0,(HL)	CB46	203,070
BIT 0,A	CB47	203,071
BIT 1,B	CB48	203,072
BIT 1,C	CB49	203,073
BIT 1,D	CB4A	203,074
BIT 1,E	CB4B	203,075
BIT 1,H	CB4C	203,076
BIT 1,L	CB4D	203,077
BIT 1,(HL)	CB4E	203,078
BIT 1,A	CB4F	203,079
BIT 2,B	CB50	203,080
BIT 2,C	CB51	203,081
BIT 2,D	CB52	203,082
BIT 2,E	CB53	203,083
BIT 2,H	CB54	203,084
BIT 2,L	CB55	203,085
BIT 2,(HL)	CB56	203,086
BIT 2,A	CB57	203,087
BIT 3,B	CB58	203,088
BIT 3,C	CB59	203,089
BIT 3,D	CB5A	203,090
BIT 3,E	CB5B	203,091
BIT 3,H	CB5C	203,092
BIT 3,L	CB5D	203,093
BIT 3,(HL)	CB5E	203,094
BIT 3,A	CB5F	203,095
BIT 4,B	CB60	203,096
BIT 4,C	CB61	203,097
BIT 4,D	CB62	203,098
BIT 4,E	CB63	203,099
BIT 4,H	CB64	203,100
BIT 4,L	CB65	203,101
BIT 4,(HL)	CB66	203,102
BIT 4,A	CB67	203,103
BIT 5,B	CB68	203,104
BIT 5,C	CB69	203,105
BIT 5,D	CB6A	203,106
BIT 5,E	CB6B	203,107
BIT 5,H	CB6C	203,108
BIT 5,L	CB6D	203,109
BIT 5,(HL)	CB6E	203,110
BIT 5,A	CB6F	203,111
BIT 6,B	CB70	203,112
BIT 6,C	CB71	203,113
BIT 6,D	CB72	203,114
BIT 6,E	CB73	203,115
BIT 6,H	CB74	203,116
BIT 6,L	CB75	203,117
BIT 6,(HL)	CB76	203,118
BIT 6,A	CB77	203,119
BIT 7,B	CB78	203,120
BIT 7,C	CB79	203,121
BIT 7,D	CB7A	203,122
BIT 7,E	CB7B	203,123
BIT 7,H	CB7C	203,124
BIT 7,L	CB7D	203,125
BIT 7,(HL)	CB7E	203,126
BIT 7,A	CB7F	203,127
RES 0,B	CB80	203,128
RES 0,C	CB81	203,129
RES 0,D	CB82	203,130
RES 0,E	CB83	203,131
RES 0,H	CB84	203,132
RES 0,L	CB85	203,133
RES 0,(HL)	CB86	203,134
RES 0,A	CB87	203,135
RES 1,B	CB88	203,136
RES 1,C	CB89	203,137
RES 1,D	CB8A	203,138
RES 1,E	CB8B	203,139
RES 1,H	CB8C	203,140
RES 1,L	CB8D	203,141
RES 1,(HL)	CB8E	203,142
RES 1,A	CB8F	203,143
RES 2,B	CB90	203,144
RES 2,C	CB91	203,145
RES 2,D	CB92	203,146
RES 2,E	CB93	203,147
RES 2,H	CB94	203,148
RES 2,L	CB95	203,149
RES 2,(HL)	CB96	203,150
RES 2,A	CB97	203,151
RES 3,B	CB98	203,152
RES 3,C	CB99	203,153
RES 3,D	CB9A	203,154
RES 3,E	CB9B	203,155
RES 3,H	CB9C	203,156

OP-CODE SEQUENCE

INSTRUCTION	HEX	DECIMAL	INSTRUCTION	HEX	DECIMAL
RES 3,L	CB90	203,157	SET 6,L	CBF5	203,245
RES 3,(HL)	CB98	203,158	SET 6,(HL)	CBF6	203,246
RES 3,A	CB9F	203,159	SET 6,A	CBF7	203,247
RES 4,B	CBA0	203,160	SET 7,B	CBF8	203,248
RES 4,C	CBA1	203,161	SET 7,C	CBF9	203,249
RES 4,D	CBA2	203,162	SET 7,D	CBFA	203,250
RES 4,E	CBA3	203,163	SET 7,E	CBFB	203,251
RES 4,H	CBA4	203,164	SET 7,H	CBFC	203,252
RES 4,L	CBA5	203,165	SET 7,L	CBFD	203,253
RES 4,(HL)	CBA6	203,166	SET 7,(HL)	CBFE	203,254
RES 4,A	CBA7	203,167	SET 7,A	CBFF	203,255
RES 5,B	CBA8	203,168	CALL Z,addr	CCaaaa	204,aaa,aaa
RES 5,C	CBA9	203,169	CALL addr	CCaaaa	205,aaa,aaa
RES 5,D	CBAA	203,170	ADC A,imm	CEii	206,iii
RES 5,E	CBAE	203,171	RST 00H	CF	207
RES 5,H	CBAE	203,172	RET NC	CE	208
RES 5,L	CBAE	203,173	POP DE	DE	209
RES 5,(HL)	CBAE	203,174	JF NC,addr	D2aaaa	210,aaa,aaa
RES 5,A	CBAF	203,175	OUT (addr),A	D3aa	211,aaa
RES 6,B	CB00	203,176	CALL NC,addr	D4aaaa	212,aaa,aaa
RES 6,C	CB01	203,177	PUSH DE	D5	213
RES 6,D	CB02	203,178	SUB imm	D6ii	214,iii
RES 6,E	CB03	203,179	RST 10H	D7	215
RES 6,H	CB04	203,180	RET C	D8	216
RES 6,L	CB05	203,181	EXX	D9	217
RES 6,(HL)	CB06	203,182	JF C,addr	DAaaaa	218,aaa,aaa
RES 6,A	CB07	203,183	IN A,addr	DBaa	219,aaa
RES 7,B	CB08	203,184	CALL C,addr	DCaaaa	220,aaa,aaa
RES 7,C	CB09	203,185	ADD IX,NC	DD05	221,009
RES 7,D	CB0A	203,186	ADD IX,DE	DD19	221,025
RES 7,E	CB0B	203,187	LD IX,imm	DD21,iii	221,033,iii,iii
RES 7,H	CB0C	203,188	LD (addr),IX	DD22aaaa	221,034,aaa,aaa
RES 7,L	CB0D	203,189	INC IX	DD23	221,035
RES 7,(HL)	CB0E	203,190	ADD IX,IX	DD29	221,041
RES 7,A	CB0F	203,191	LD IX,(addr)	DD2Aaaaa	221,042,aaa,aaa
SET 0,B	CB0C	203,192	DEC IX	DD2B	221,043
SET 0,C	CB01	203,193	INC (IX+d)	DD34dd	221,052,ddd
SET 0,D	CB02	203,194	DEC (IX+d)	DD35dd	221,053,ddd
SET 0,E	CB03	203,195	LD (IX+d),imm	DD36dd,ii	221,054,ddd,iii
SET 0,H	CB04	203,196	ADD IX,SP	DD39	221,057
SET 0,L	CB05	203,197	LD B,(IX+d)	DD40dd	221,070,ddd
SET 0,(HL)	CB06	203,198	LD C,(IX+d)	DD41dd	221,078,ddd
SET 0,A	CB07	203,199	LD D,(IX+d)	DD42dd	221,086,ddd
SET 1,B	CB08	203,200	LD E,(IX+d)	DD43dd	221,094,ddd
SET 1,C	CB09	203,201	LD H,(IX+d)	DD44dd	221,102,ddd
SET 1,D	CB0A	203,202	LD L,(IX+d)	DD45dd	221,110,ddd
SET 1,E	CB0B	203,203	LD (IX+d),B	DD70dd	221,112,ddd
SET 1,H	CB0C	203,204	LD (IX+d),C	DD71dd	221,113,ddd
SET 1,L	CB0D	203,205	LD (IX+d),D	DD72dd	221,114,ddd
SET 1,(HL)	CB0E	203,206	LD (IX+d),E	DD73dd	221,115,ddd
SET 1,A	CB0F	203,207	LD (IX+d),H	DD74dd	221,116,ddd
SET 2,B	CB00	203,208	LD (IX+d),L	DD75dd	221,117,ddd
SET 2,C	CB01	203,209	LD (IX+d),A	DD77dd	221,119,ddd
SET 2,D	CB02	203,210	LD A,(IX+d)	DD78dd	221,126,ddd
SET 2,E	CB03	203,211	ADD A,(IX+d)	DD86dd	221,134,ddd
SET 2,H	CB04	203,212	ADC A,(IX+d)	DD8Bdd	221,142,ddd
SET 2,L	CB05	203,213	SUB (IX+d)	DD96dd	221,150,ddd
SET 2,(HL)	CB06	203,214	SBC A,(IX+d)	DD9Edd	221,158,ddd
SET 2,A	CB07	203,215	AND (IX+d)	DDA6dd	221,166,ddd
SET 3,B	CB08	203,216	XOR (IX+d)	DDADdd	221,174,ddd
SET 3,C	CB09	203,217	OR (IX+d)	DEB6dd	221,182,ddd
SET 3,D	CB0A	203,218	CP (IX+d)	DEB6dd	221,190,ddd
SET 3,E	CB0B	203,219	RLC (IX+d)	DDCBdd06	221,203,ddd,006
SET 3,H	CB0C	203,220	RRC (IX+d)	DDCBdd0E	221,203,ddd,014
SET 3,L	CB0D	203,221	RL (IX+d)	DDCBdd16	221,203,ddd,022
SET 3,(HL)	CB0E	203,222	RR (IX+d)	DDCBdd1E	221,203,ddd,030
SET 3,A	CB0F	203,223	SLA (IX+d)	DDCBdd26	221,203,ddd,038
SET 4,B	CB00	203,224	SRA (IX+d)	DDCBdd2E	221,203,ddd,046
SET 4,C	CB01	203,225	SRL (IX+d)	DDCBdd3E	221,203,ddd,052
SET 4,D	CB02	203,226	BIT 0,(IX+d)	DDCBdd46	221,203,ddd,070
SET 4,E	CB03	203,227	BIT 1,(IX+d)	DDCBdd4E	221,203,ddd,078
SET 4,H	CB04	203,228	BIT 2,(IX+d)	DDCBdd56	221,203,ddd,086
SET 4,L	CB05	203,229	BIT 3,(IX+d)	DDCBdd5E	221,203,ddd,094
SET 4,(HL)	CB06	203,230	BIT 4,(IX+d)	DDCBdd66	221,203,ddd,102
SET 4,A	CB07	203,231	BIT 5,(IX+d)	DDCBdd6E	221,203,ddd,110
SET 5,B	CB08	203,232	BIT 6,(IX+d)	DDCBdd76	221,203,ddd,118
SET 5,C	CB09	203,233	BIT 7,(IX+d)	DDCBdd7E	221,203,ddd,126
SET 5,D	CB0A	203,234	RES 0,(IX+d)	DDCBdd86	221,203,ddd,134
SET 5,E	CB0B	203,235	RES 1,(IX+d)	DDCBdd8E	221,203,ddd,142
SET 5,H	CB0C	203,236	RES 2,(IX+d)	DDCBdd96	221,203,ddd,150
SET 5,L	CB0D	203,237	RES 3,(IX+d)	DDCBdd9E	221,203,ddd,158
SET 5,(HL)	CB0E	203,238	RES 4,(IX+d)	DDCBdda6	221,203,ddd,166
SET 5,A	CB0F	203,239	RES 5,(IX+d)	DDCBddaE	221,203,ddd,174
SET 6,B	CBF0	203,240	RES 6,(IX+d)	DDCBddb6	221,203,ddd,182
SET 6,C	CBF1	203,241	RES 7,(IX+d)	DDCBddbE	221,203,ddd,190
SET 6,D	CBF2	203,242	SET 0,(IX+d)	DDCBddc6	221,203,ddd,198
SET 6,E	CBF3	203,243	SET 1,(IX+d)	DDCBddcE	221,203,ddd,206
SET 6,H	CBF4	203,244	SET 2,(IX+d)	DDCBddd6	221,203,ddd,214

OP-CODE SEQUENCE

INSTRUCTION	HEX	DECIMAL	INSTRUCTION	HEX	DECIMAL
SET 3, (IX+d)	DDCBddDE	221,203,ddd,222	PUSH AF	F5	245
SET 4, (IX+d)	DDCBddDE	221,203,ddd,230	OR imm	F6ii	246,iii
SET 5, (IX+d)	DDCBddDE	221,203,ddd,238	RST 30H	F7	247
SET 6, (IX+d)	DDCBddDE	221,203,ddd,246	RET M	F8	248
SET 7, (IX+d)	DDCBddDE	221,203,ddd,254	LD SP,HL	F9	249
POP IX	DDE1	221,225	JP M,addr	FAaaaa	250,aaa,aaa
EX (SP),IX	DDE3	221,227	EI	FB	251
PUSH IX	DDE5	221,229	CALL M,addr	FCaaaa	252,aaa,aaa
JP (IX)	DDE9	221,233	ADD IY,BC	FD09	253,009
LD SP,IX	DDF9	221,249	ADD IY,DE	FD19	253,025
SBC A,imm	DE11	222,iii	LD IY,imm	FD21iiii	253,033,iii,iii
RST 18H	DF	223	LD (addr),IY	FD22aaaa	253,034,aaa,aaa
RET PO	E0	224	INC IY	FD23	253,035
POP HL	E1	225	ADD IY,IY	FD29	253,041
JP PO,addr	E2aaaa	226,aaa,aaa	LD IY,(addr)	FD2Aaaaa	253,042,aaa,aaa
EX (SP),HL	E3	227	DEC IY	FD2B	253,043
CALL PO,addr	E4aaaa	228,aaa,aaa	INC (IY+d)	FD34dd	253,052,ddd
PUSH HL	E5	229	DEC (IY+d)	FD35dd	253,053,ddd
AND imm	E611	230,iii	LD (IY+d),imm	FD36ddii	253,054,ddd,iii
RST 20H	E7	231	ADD IY,SP	FD39	253,057
RET PE	E8	232	LD B,(IY+d)	FD46dd	253,070,ddd
JP (HL)	E9	233	LD C,(IY+d)	FD4Edd	253,078,ddd
JP PE,addr	EAaaaa	234,aaa,aaa	LD D,(IY+d)	FD56dd	253,086,ddd
EX DE,HL	EB	235	LD E,(IY+d)	FD5Edd	253,094,ddd
CALL PE,addr	ECaaaa	236,aaa,aaa	LD H,(IY+d)	FD66dd	253,102,ddd
IN B,(C)	ED40	237,064	LD L,(IY+d)	FD6Edd	253,110,ddd
OUT (C),B	ED41	237,065	LD (IY+d),B	FD70dd	253,112,ddd
SBC HL,BC	ED42	237,066	LD (IY+d),C	FD71dd	253,113,ddd
LD (addr),BC	ED43aaaa	237,067,aaa,aaa	LD (IY+d),D	FD72dd	253,114,ddd
NEG	ED44	237,068	LD (IY+d),E	FD73dd	253,115,ddd
RETN	ED45	237,069	LD (IY+d),H	FD74dd	253,116,ddd
IM 0	ED46	237,070	LD (IY+d),L	FD75dd	253,117,ddd
LD I,A	ED47	237,071	LD (IY+d),A	FD77dd	253,119,ddd
IN C,(C)	ED48	237,072	LD A,(IY+d)	FD7Edd	253,126,ddd
OUT (C),C	ED49	237,073	ADD A,(IY+d)	FD86dd	253,134,ddd
ADC HL,BC	ED4A	237,074	ADC A,(IY+d)	FD8Edd	253,142,ddd
LD BC,(addr)	ED4Baaaa	237,075,aaa,aaa	SUB (IY+d)	FD96dd	253,150,ddd
RET1	ED4D	237,077	SBC A,(IY+d)	FD9Edd	253,158,ddd
LD R,A	ED4F	237,079	AND (IY+d)	FDA6dd	253,166,ddd
IN D,(C)	ED50	237,080	XOR (IY+d)	FDAEdd	253,174,ddd
OUT (C),D	ED51	237,081	OR (IY+d)	FDB6dd	253,182,ddd
SBC HL,DE	ED52	237,082	CP (IY+d)	FDBEdd	253,190,ddd
LD (addr),DE	ED53aaaa	237,083,aaa,aaa	RLC (IY+d)	FDCBdd006	253,203,ddd,006
IM 1	ED56	237,086	RRC (IY+d)	FDCBdd00E	253,203,ddd,014
LD A,1	ED57	237,087	RL (IY+d)	FDCBdd16	253,203,ddd,022
IN E,(C)	ED58	237,088	RR (IY+d)	FDCBdd1E	253,203,ddd,030
OUT (C),E	ED59	237,089	SLA (IY+d)	FDCBdd26	253,203,ddd,038
ADC HL,DE	ED5A	237,090	SRA (IY+d)	FDCBdd2E	253,203,ddd,046
LD DE,(addr)	ED5Baaaa	237,091,aaa,aaa	SRL (IY+d)	FDCBdd3E	253,203,ddd,062
IM 2	ED5E	237,094	BIT 0,(IY+d)	FDCBdd44	253,203,ddd,070
LD A,R	ED5F	237,095	BIT 1,(IY+d)	FDCBdd4E	253,203,ddd,078
IN H,(C)	ED60	237,096	BIT 2,(IY+d)	FDCBdd56	253,203,ddd,086
OUT (C),H	ED61	237,097	BIT 3,(IY+d)	FDCBdd5E	253,203,ddd,094
SBC HL,HL	ED62	237,098	BIT 4,(IY+d)	FDCBdd66	253,203,ddd,102
RHD	ED67	237,103	BIT 5,(IY+d)	FDCBdd6E	253,203,ddd,110
IN L,(C)	ED68	237,104	BIT 6,(IY+d)	FDCBdd76	253,203,ddd,118
OUT (C),L	ED69	237,105	BIT 7,(IY+d)	FDCBdd7E	253,203,ddd,126
ADC HL,HL	ED6A	237,106	RES 0,(IY+d)	FDCBdd86	253,203,ddd,134
RLD	ED6F	237,111	RES 1,(IY+d)	FDCBdd8E	253,203,ddd,142
SBC HL,SP	ED72	237,114	RES 2,(IY+d)	FDCBdd96	253,203,ddd,150
LD (addr),SP	ED73aaaa	237,115,aaa,aaa	RES 3,(IY+d)	FDCBdd9E	253,203,ddd,158
IN A,(C)	ED78	237,120	RES 4,(IY+d)	FDCBddA6	253,203,ddd,166
OUT (C),A	ED79	237,121	RES 5,(IY+d)	FDCBddAE	253,203,ddd,174
ADC HL,SP	ED7A	237,122	RES 6,(IY+d)	FDCBddB6	253,203,ddd,182
LD SP,(addr)	ED7Baaaa	237,123,aaa,aaa	RES 7,(IY+d)	FDCBddBE	253,203,ddd,190
LDI	EDA0	237,160	SET 0,(IY+d)	FDCBddC6	253,203,ddd,198
CPI	EDA1	237,161	SET 1,(IY+d)	FDCBddCE	253,203,ddd,206
INI	EDA2	237,162	SET 2,(IY+d)	FDCBddD6	253,203,ddd,214
OUTI	EDA3	237,163	SET 3,(IY+d)	FDCBddDE	253,203,ddd,222
LDD	EDAB	237,168	SET 4,(IY+d)	FDCBddE6	253,203,ddd,230
CPD	EDA9	237,169	SET 5,(IY+d)	FDCBddEE	253,203,ddd,238
IND	EDAA	237,170	SET 6,(IY+d)	FDCBddF6	253,203,ddd,246
OUTD	EDAB	237,171	SET 7,(IY+d)	FDCBddFE	253,203,ddd,254
LDIR	EDB0	237,176	POP IY	FDE1	253,225
CPIR	EDB1	237,177	EX (SP),IY	FDE3	253,227
INIR	EDB2	237,178	PUSH IY	FDE5	253,229
OTIR	EDB3	237,179	JP (IY)	FDE9	253,233
LDOR	EDB8	237,184	LD SP,IY	FDF9	253,249
CPOR	EDB9	237,185	CP imm	FE11	254,111
INDR	EDBA	237,186	RET 30H	FF	255
OTDR	EDBB	237,187			
XOR imm	EE11	238,111			
RST 28H	EF	239			
RET P	F0	240			
POP AF	F1	241			
JP P,addr	F2aaaa	242,aaa,aaa			
DI	F3	243			
CALL P,addr	F4aaaa	244,aaa,aaa			

MNEMONIC SEQUENCE

INSTRUCTION	OP	DECIMAL	INSTRUCTION	OP	DECIMAL
ADC A, (HL)	8E	142	RIT 4, (HL)	CB66	203, 102
ADC A, (IX+d)	DD8Edd	221, 142, ddd	RIT 4, (IX+d)	DDCBdd66	221, 203, ddd, 102
ADC A, (IY+d)	FD8Edd	253, 142, ddd	RIT 4, (IY+d)	FDCBdd66	253, 203, ddd, 102
ADC A, imm	CE11	206, 111	RIT 4, A	CB67	203, 103
ADC A, A	8F	143	RIT 4, B	CB60	203, 096
ADC A, B	88	136	RIT 4, C	CB61	203, 097
ADC A, C	89	137	RIT 4, D	CB62	203, 098
ADC A, D	8A	138	RIT 4, E	CB63	203, 099
ADC A, E	8B	139	RIT 4, H	CB64	203, 100
ADC A, H	8C	140	RIT 4, L	CB65	203, 101
ADC A, L	8D	141	RIT 5, (HL)	CB6E	203, 110
ADC HL, BC	ED4A	237, 074	RIT 5, (IX+d)	DDCBdd6E	221, 203, ddd, 110
ADC HL, DE	ED5A	237, 090	RIT 5, (IY+d)	FDCBdd6E	253, 203, ddd, 110
ADC HL, HL	ED6A	237, 106	RIT 5, A	CB6F	203, 111
ADC HL, SP	ED7A	237, 122	RIT 5, B	CB68	203, 104
ADD A, (HL)	86	134	RIT 5, C	CB69	203, 105
ADD A, (IX+d)	DD86dd	221, 134, ddd	RIT 5, D	CB6A	203, 106
ADD A, (IY+d)	FD86dd	253, 134, ddd	RIT 5, E	CB6B	203, 107
ADD A, imm	CE11	198, 111	RIT 5, H	CB6C	203, 108
ADD A, A	87	135	RIT 5, L	CB6D	203, 109
ADD A, B	88	128	RIT 6, (HL)	CB76	203, 118
ADD A, C	81	129	RIT 6, (IX+d)	DDCBdd76	221, 203, ddd, 118
ADD A, D	82	130	RIT 6, (IY+d)	FDCBdd76	253, 203, ddd, 118
ADD A, E	83	131	RIT 6, A	CB77	203, 119
ADD A, H	84	132	RIT 6, B	CB70	203, 112
ADD A, L	85	133	RIT 6, C	CB71	203, 113
ADD HL, BC	09	009	RIT 6, D	CB72	203, 114
ADD HL, DE	19	025	RIT 6, E	CB73	203, 115
ADD HL, HL	29	041	RIT 6, H	CB74	203, 116
ADD HL, SP	39	057	RIT 6, L	CB75	203, 117
ADD IX, BC	DD09	221, 009	RIT 7, (HL)	CB7E	203, 126
ADD IX, DE	DD19	221, 025	RIT 7, (IX+d)	DDCBdd7E	221, 203, ddd, 126
ADD IX, IX	DD29	221, 041	RIT 7, (IY+d)	FDCBdd7E	253, 203, ddd, 126
ADD IX, SP	DD39	221, 057	RIT 7, A	CB7F	203, 127
ADD IY, BC	FD09	253, 009	RIT 7, B	CB78	203, 120
ADD IY, DE	FD19	253, 025	RIT 7, C	CB79	203, 121
ADD IY, IX	FD29	253, 041	RIT 7, D	CB7A	203, 122
ADD IY, SP	FD39	253, 057	RIT 7, E	CB7B	203, 123
AND (HL)	A6	166	RIT 7, H	CB7C	203, 124
AND (IX+d)	DDA6dd	221, 166, ddd	RIT 7, L	CB7D	203, 125
AND (IY+d)	FDA6dd	253, 166, ddd	CALL addr	CDaaaa	205, aaa, aaa
AND imm	BE11	230, 111	CALL C, addr	DCaaaa	220, aaa, aaa
AND A	A7	167	CALL H, addr	FCaaaa	252, aaa, aaa
AND B	A0	160	CALL NC, addr	D4aaaa	212, aaa, aaa
AND C	A1	161	CALL NZ, addr	C4aaaa	196, aaa, aaa
AND D	A2	162	CALL P, addr	F4aaaa	244, aaa, aaa
AND E	A3	163	CALL PE, addr	ECaaaa	236, aaa, aaa
AND H	A4	164	CALL PO, addr	E4aaaa	228, aaa, aaa
AND L	A5	165	CALL Z, addr	CCaaaa	204, aaa, aaa
RIT 0, (HL)	CB46	203, 070	CCF	3F	063
RIT 0, (IX+d)	DDCBdd46	221, 203, ddd, 070	CF (HL)	8E	190
RIT 0, (IY+d)	FDCBdd46	253, 203, ddd, 070	CF (IX+d)	DD8Edd	221, 190, ddd
RIT 0, A	CB47	203, 071	CF (IY+d)	FD8Edd	253, 190, ddd
RIT 0, B	CB40	203, 064	CF imm	FE11	254, 111
RIT 0, C	CB41	203, 065	CF A	8F	191
RIT 0, D	CB42	203, 066	CF B	88	184
RIT 0, E	CB43	203, 067	CF C	89	185
RIT 0, H	CB44	203, 068	CF D	8A	186
RIT 0, L	CB45	203, 069	CF E	8B	187
RIT 1, (HL)	CB4E	203, 078	CF H	8C	188
RIT 1, (IX+d)	DDCBdd4E	221, 203, ddd, 078	CF L	8D	189
RIT 1, (IY+d)	FDCBdd4E	253, 203, ddd, 078	CPD	EDA9	237, 169
RIT 1, A	CB4F	203, 079	CPDR	EDB9	237, 185
RIT 1, B	CB48	203, 072	CP1	EDA1	237, 161
RIT 1, C	CB49	203, 073	CP1R	EDB1	237, 177
RIT 1, D	CB4A	203, 074	CPL	2F	047
RIT 1, E	CB4B	203, 075	GAA	27	039
RIT 1, H	CB4C	203, 076	DEC (HL)	35	053
RIT 1, L	CB4D	203, 077	DEC (IX+d)	DD35dd	221, 053, ddd
RIT 2, (HL)	CB56	203, 086	DEC (IY+d)	FD35dd	253, 053, ddd
RIT 2, (IX+d)	DDCBdd56	221, 203, ddd, 086	DEC A	3D	061
RIT 2, (IY+d)	FDCBdd56	253, 203, ddd, 086	DEC B	05	005
RIT 2, A	CB57	203, 087	DEC BC	0B	011
RIT 2, B	CB50	203, 080	DEC C	0D	013
RIT 2, C	CB51	203, 081	DEC D	15	021
RIT 2, D	CB52	203, 082	DEC DE	1B	027
RIT 2, E	CB53	203, 083	DEC E	1D	029
RIT 2, H	CB54	203, 084	DEC H	25	037
RIT 2, L	CB55	203, 085	DEC HL	2B	043
RIT 3, (HL)	CB5E	203, 094	DEC IX	DD2B	221, 043
RIT 3, (IX+d)	DDCBdd5E	221, 203, ddd, 094	DEC IY	FD2B	253, 043
RIT 3, (IY+d)	FDCBdd5E	253, 203, ddd, 094	DEC L	2D	045
RIT 3, A	CB5F	203, 095	DEC SP	3B	059
RIT 3, B	CB58	203, 088	DI	F3	243
RIT 3, C	CB59	203, 089	DJNZ addr	10aa	016, aaa
RIT 3, D	CB5A	203, 090	EI	FB	251
RIT 3, E	CB5B	203, 091			
RIT 3, H	CB5C	203, 092			
RIT 3, L	CB5D	203, 093			

MNEMONIC SEQUENCE

INSTRUCTION	HEX	DECIMAL
EX (SP),HL	E3	227
EX (SP),IX	DE3	221,227
EX (SP),IY	FE3	253,227
EX AF,AF'	08	008
EX DE,HL	EB	235
EXX	D9	217
HALT	76	118
IN 0	ED46	237,070
IN 1	ED56	237,086
IN 2	ED5E	237,094
IN A,(C)	ED78	237,120
IN A,addr	0Baa	219,aaa
IN B,(C)	ED40	237,064
IN C,(C)	ED48	237,072
IN D,(C)	ED50	237,080
IN E,(C)	ED58	237,088
IN H,(C)	ED60	237,096
IN L,(C)	ED68	237,104
INC (HL)	34	052
INC (IX+d)	DD34dd	221,052,ddd
INC (IY+d)	FD34dd	253,052,ddd
INC A	3C	060
INC B	04	004
INC BC	03	003
INC C	0C	012
INC D	14	020
INC DE	13	019
INC E	1C	028
INC H	24	036
INC HL	23	035
INC IX	DD23	221,035
INC IY	FD23	253,035
INC L	2C	044
INC SP	33	051
IND	EDAA	237,170
INDR	EDBA	237,186
INI	EDA2	237,162
INIR	EDB2	237,178
JP (HL)	E9	233
JP (IX)	DD09	221,233
JP (IY)	FD09	253,233
JP addr	C3aaaa	195,aaa,aaa
JP C,addr	DAaaaa	218,aaa,aaa
JP H,addr	FAaaaa	250,aaa,aaa
JP NC,addr	D2aaaa	210,aaa,aaa
JP NZ,addr	C2aaaa	194,aaa,aaa
JP P,addr	F2aaaa	242,aaa,aaa
JP PE,addr	EAaaaa	234,aaa,aaa
JP PO,addr	E2aaaa	226,aaa,aaa
JP Z,addr	CAaaaa	202,aaa,aaa
JR addr	1Baa	024,aaa
JR C,addr	3Baa	056,aaa
JR NC,addr	30aa	048,aaa
JR NZ,addr	20aa	032,aaa
JR Z,addr	28aa	040,aaa
LD (addr),A	32aaaa	050,aaa,aaa
LD (addr),BC	ED43aaaa	237,067,aaa,aaa
LD (addr),DE	ED53aaaa	237,083,aaa,aaa
LD (addr),HL	22aaaa	034,aaa,aaa
LD (addr),IX	DD22aaaa	221,034,aaa,aaa
LD (addr),IY	FD22aaaa	253,034,aaa,aaa
LD (addr),SP	ED73aaaa	237,115,aaa,aaa
LD (BC),A	02	002
LD (DE),A	12	018
LD (HL),imm	3611	054,111
LD (HL),A	77	119
LD (HL),B	70	112
LD (HL),C	71	113
LD (HL),D	72	114
LD (HL),E	73	115
LD (HL),H	74	116
LD (HL),L	75	117
LD (IX+d),imm	DD36dd11	221,054,ddd,111
LD (IX+d),A	DD77dd	221,119,ddd
LD (IX+d),B	DD70dd	221,112,ddd
LD (IX+d),C	DD71dd	221,113,ddd
LD (IX+d),D	DD72dd	221,114,ddd
LD (IX+d),E	DD73dd	221,115,ddd
LD (IX+d),H	DD74dd	221,116,ddd
LD (IX+d),L	DD75dd	221,117,ddd
LD (IY+d),imm	FD36dd11	253,054,ddd,111
LD (IY+d),A	FD77dd	253,119,ddd
LD (IY+d),B	FD70dd	253,112,ddd
LD (IY+d),C	FD71dd	253,113,ddd
LD (IY+d),D	FD72dd	253,114,ddd
LD (IY+d),E	FD73dd	253,115,ddd
LD (IY+d),H	FD74dd	253,116,ddd
LD (IY+d),L	FD75dd	253,117,ddd

INSTRUCTION	HEX	DECIMAL
LD A,(addr)	3Aaaaa	058,aaa,aaa
LD A,(BC)	0A	010
LD A,(DE)	1A	026
LD A,(HL)	76	126
LD A,(IX+d)	DD76dd	221,126,ddd
LD A,(IY+d)	FD76dd	253,126,ddd
LD A,imm	3E11	062,111
LD A,A	7F	127
LD A,B	78	120
LD A,C	79	121
LD A,D	7A	122
LD A,E	7B	123
LD A,H	7C	124
LD A,I	ED57	237,087
LD A,L	7D	125
LD A,S	ED5F	237,095
LD B,(HL)	46	070
LD B,(IX+d)	DD46dd	221,070,ddd
LD B,(IY+d)	FD46dd	253,070,ddd
LD B,imm	0611	006,111
LD B,A	47	071
LD B,B	40	064
LD B,C	41	065
LD B,D	42	066
LD B,E	43	067
LD B,H	44	068
LD B,L	45	069
LD BC,(addr)	ED48aaaa	237,075,aaa,aaa
LD BC,imm	011111	001,111,111
LD C,(HL)	4E	078
LD C,(IX+d)	DD4Edd	221,078,ddd
LD C,(IY+d)	FD4Edd	253,078,ddd
LD C,imm	0E11	014,111
LD C,A	4F	079
LD C,B	48	072
LD C,C	49	073
LD C,D	4A	074
LD C,E	4B	075
LD C,H	4C	076
LD C,L	4D	077
LD D,(HL)	56	086
LD D,(IX+d)	DD56dd	221,086,ddd
LD D,(IY+d)	FD56dd	253,086,ddd
LD D,imm	1611	022,111
LD D,A	57	087
LD D,B	50	080
LD D,C	51	081
LD D,D	52	082
LD D,E	53	083
LD D,H	54	084
LD D,L	55	085
LD DE,(addr)	ED58aaaa	237,091,aaa,aaa
LD DE,imm	111111	017,111,111
LD E,(HL)	5E	094
LD E,(IX+d)	DD5Edd	221,094,ddd
LD E,(IY+d)	FD5Edd	253,094,ddd
LD E,imm	1E11	030,111
LD E,A	5F	095
LD E,B	58	088
LD E,C	59	089
LD E,D	5A	090
LD E,E	5B	091
LD E,H	5C	092
LD E,L	5D	093
LD H,(HL)	66	102
LD H,(IX+d)	DD66dd	221,102,ddd
LD H,(IY+d)	FD66dd	253,102,ddd
LD H,imm	2611	038,111
LD H,A	67	103
LD H,B	60	096
LD H,C	61	097
LD H,D	62	098
LD H,E	63	099
LD H,H	64	100
LD H,L	65	101
LD HL,(addr)	2Aaaaa	042,aaa,aaa
LD HL,imm	211111	033,111,111
LD I,A	ED47	237,071
LD IX,(addr)	DD2Aaaaa	221,042,aaa,aaa
LD IX,imm	DD211111	221,033,111,111
LD IY,(addr)	FD2Aaaaa	253,042,aaa,aaa
LD IY,imm	FD211111	253,033,111,111
LD L,(HL)	6E	110
LD L,(IX+d)	DD6Edd	221,110,ddd
LD L,(IY+d)	FD6Edd	253,110,ddd
LD L,imm	2E11	046,111

MNEMONIC SEQUENCE

INSTRUCTION	HEX	DECIMAL
LD L,A	6F	111
LD L,B	68	104
LD L,C	69	105
LD L,D	6A	106
LD L,E	6B	107
LD L,H	6C	108
LD L,L	6D	109
LD R,A	ED4F	237,079
LD SP,(addr)	ED7Baaaa	237,123,aaa,aaa
LD SP,imm	31iiii	049,iii,iii
LD SP,HL	F9	249
LD SP,IX	DDF9	221,249
LD SP,IX	DDF9	253,249
LDD	EDAB	237,168
LDDR	EDBB	237,184
LDI	EDA0	237,160
LDIB	EDB0	237,176
NEG	ED44	237,068
NOF	00	000
OR (HL)	B6	182
OR (IX+d)	DCB6dd	221,182,ddd
OR (IY+d)	FDB6dd	253,182,ddd
OR imm	F6ii	246,iii
OR A	B7	183
OR B	B0	176
OR C	B1	177
OR D	B2	178
OR E	B3	179
OR H	B4	180
OR L	B5	181
OTDR	EDBB	237,181
OTIR	EDB3	237,179
OUT (addr),A	D3aa	211,aaa
OUT (C),A	ED79	237,121
OUT (C),B	ED41	237,065
OUT (C),C	ED49	237,073
OUT (C),D	ED51	237,081
OUT (C),E	ED59	237,089
OUT (C),H	ED61	237,097
OUT (C),L	ED69	237,105
OUTD	EDAB	237,171
OUTI	EDA3	237,163
POP AF	F1	241
POP BC	C1	193
POP DE	D1	209
POP HL	E1	225
POP IX	DDF1	221,225
POP IY	FDF1	253,225
PUSH AF	F5	245
PUSH BC	C5	197
PUSH DE	D5	213
PUSH HL	E5	229
PUSH IX	DDF5	221,229
PUSH IY	FDF5	253,229
RES 0,(HL)	CB86	203,134
RES 0,(IX+d)	DCB8dd86	221,203,ddd,134
RES 0,(IY+d)	FDCB8dd86	253,203,ddd,134
RES 0,A	CB87	203,135
RES 0,B	CB80	203,128
RES 0,C	CB81	203,129
RES 0,D	CB82	203,130
RES 0,E	CB83	203,131
RES 0,H	CB84	203,132
RES 0,L	CB85	203,133
RES 1,(HL)	CB8E	203,142
RES 1,(IX+d)	DCB8dd8E	221,203,ddd,142
RES 1,(IY+d)	FDCB8dd8E	253,203,ddd,142
RES 1,A	CB8F	203,143
RES 1,B	CB88	203,136
RES 1,C	CB89	203,137
RES 1,D	CB8A	203,138
RES 1,E	CB8B	203,139
RES 1,H	CB8C	203,140
RES 1,L	CB8D	203,141
RES 2,(HL)	CB96	203,150
RES 2,(IX+d)	DCB8dd96	221,203,ddd,150
RES 2,(IY+d)	FDCB8dd96	253,203,ddd,150
RES 2,A	CB97	203,151
RES 2,B	CB90	203,144
RES 2,C	CB91	203,145
RES 2,D	CB92	203,146
RES 2,E	CB93	203,147
RES 2,H	CB94	203,148
RES 2,L	CB95	203,149
RES 3,(HL)	CB9E	203,158
RES 3,(IX+d)	DCB8dd9E	221,203,ddd,158
RES 3,(IY+d)	FDCB8dd9E	253,203,ddd,158

INSTRUCTION	HEX	DECIMAL
RES 3,A	CB9F	203,159
RES 3,B	CB98	203,152
RES 3,C	CB99	203,153
RES 3,D	CB9A	203,154
RES 3,E	CB9B	203,155
RES 3,H	CB9C	203,156
RES 3,L	CB9D	203,157
RES 4,(HL)	CBA6	203,166
RES 4,(IX+d)	DCB8dda6	221,203,ddd,166
RES 4,(IY+d)	FDCB8dda6	253,203,ddd,166
RES 4,A	CBA7	203,167
RES 4,B	CBA0	203,160
RES 4,C	CBA1	203,161
RES 4,D	CBA2	203,162
RES 4,E	CBA3	203,163
RES 4,H	CBA4	203,164
RES 4,L	CBA5	203,165
RES 5,(HL)	CBAE	203,174
RES 5,(IX+d)	DCB8ddaE	221,203,ddd,174
RES 5,(IY+d)	FDCB8ddaE	253,203,ddd,174
RES 5,A	CBAF	203,175
RES 5,B	CBA8	203,168
RES 5,C	CBA9	203,169
RES 5,D	CBAA	203,170
RES 5,E	CBAB	203,171
RES 5,H	CBAE	203,172
RES 5,L	CBAF	203,173
RES 6,(HL)	CB86	203,182
RES 6,(IX+d)	DCB8dd86	221,203,ddd,182
RES 6,(IY+d)	FDCB8dd86	253,203,ddd,182
RES 6,A	CB87	203,183
RES 6,B	CB80	203,176
RES 6,C	CB81	203,177
RES 6,D	CB82	203,178
RES 6,E	CB83	203,179
RES 6,H	CB84	203,180
RES 6,L	CB85	203,181
RES 7,(HL)	CB8E	203,190
RES 7,(IX+d)	DCB8dd8E	221,203,ddd,190
RES 7,(IY+d)	FDCB8dd8E	253,203,ddd,190
RES 7,A	CB8F	203,191
RES 7,B	CB88	203,184
RES 7,C	CB89	203,185
RES 7,D	CB8A	203,186
RES 7,E	CB8B	203,187
RES 7,H	CB8C	203,188
RES 7,L	CB8D	203,189
RET	C9	201
RET C	D8	216
RET M	F8	248
RET NC	D0	208
RET NZ	C0	192
RET P	F0	240
RET PE	E8	232
RET PO	E0	224
RET Z	C8	200
RETI	ED4D	237,077
RETN	ED45	237,069
RL (HL)	CB16	203,022
RL (IX+d)	DCB8dd16	221,203,ddd,022
RL (IY+d)	FDCB8dd16	253,203,ddd,022
RL A	CB17	203,023
RL B	CB10	203,016
RL C	CB11	203,017
RL D	CB12	203,018
RL E	CB13	203,019
RL H	CB14	203,020
RL L	CB15	203,021
RLA	17	023
RLC (HL)	CB06	203,006
RLC (IX+d)	DCB8dd06	221,203,ddd,006
RLC (IY+d)	FDCB8dd06	253,203,ddd,006
RLC A	CB07	203,007
RLC B	CB00	203,000
RLC C	CB01	203,001
RLC D	CB02	203,002
RLC E	CB03	203,003
RLC H	CB04	203,004
RLC L	CB05	203,005
RLCA	07	007
RLD	ED6F	237,111
RR (HL)	CB1E	203,030
RR (IX+d)	DCB8dd1E	221,203,ddd,030
RR (IY+d)	FDCB8dd1E	253,203,ddd,030
RR A	CB1F	203,031
RR B	CB18	203,024
RR C	CB19	203,025

MNEMONIC SEQUENCE

INSTRUCTION	HEX	DECIMAL
RR D	CB1A	203,026
RR E	CB1B	203,027
RR H	CB1C	203,028
RR L	CB1D	203,029
RR A	1F	031
RRC (HL)	CB0E	203,014
RRC (IX+d)	DDCBdd0E	221,203,ddd,014
RRC (IY+d)	FDCBdd0E	253,203,ddd,014
RRC A	CB0F	203,015
RRC B	CB08	203,008
RRC C	CB09	203,009
RRC D	CB0A	203,010
RRC E	CB0B	203,011
RRC H	CB0C	203,012
RRC L	CB0D	203,013
RRCA	0F	015
RRD	ED67	237,103
RST 00H	C7	199
RST 08H	CF	207
RST 10H	D7	215
RST 18H	DF	223
RST 20H	E7	231
RST 28H	EF	239
RST 30H	F7	247
RST 38H	FF	255
SBC A, (HL)	9E	158
SBC A, (IX+d)	DD9Edd	221,158,ddd
SBC A, (IY+d)	FD9Edd	253,158,ddd
SBC A, imm	DE11	222,111
SBC A,A	9F	159
SBC A,B	98	152
SBC A,C	99	153
SBC A,D	9A	154
SBC A,E	9B	155
SBC A,H	9C	156
SBC A,L	9D	157
SBC HL,BC	ED42	237,066
SBC HL,DE	ED52	237,082
SBC HL,HL	ED62	237,098
SBC HL,SP	ED72	237,114
SCF	37	055
SET 0, (HL)	CB06	203,198
SET 0, (IX+d)	DDCBdd06	221,203,ddd,198
SET 0, (IY+d)	FDCBdd06	253,203,ddd,198
SET 0,A	CB07	203,199
SET 0,B	CB08	203,192
SET 0,C	CB01	203,193
SET 0,D	CB02	203,194
SET 0,E	CB03	203,195
SET 0,H	CB04	203,196
SET 0,L	CB05	203,197
SET 1, (HL)	CB0E	203,206
SET 1, (IX+d)	DDCBdd0E	221,203,ddd,206
SET 1, (IY+d)	FDCBdd0E	253,203,ddd,206
SET 1,A	CB0F	203,207
SET 1,B	CB08	203,200
SET 1,C	CB09	203,201
SET 1,D	CB0A	203,202
SET 1,E	CB0B	203,203
SET 1,H	CB0C	203,204
SET 1,L	CB0D	203,205
SET 2, (HL)	CB06	203,214
SET 2, (IX+d)	DDCBdd06	221,203,ddd,214
SET 2, (IY+d)	FDCBdd06	253,203,ddd,214
SET 2,A	CB07	203,215
SET 2,B	CB08	203,208
SET 2,C	CB01	203,209
SET 2,D	CB02	203,210
SET 2,E	CB03	203,211
SET 2,H	CB04	203,212
SET 2,L	CB05	203,213
SET 3, (HL)	CB0E	203,222
SET 3, (IX+d)	DDCBdd0E	221,203,ddd,222
SET 3, (IY+d)	FDCBdd0E	253,203,ddd,222
SET 3,A	CB0F	203,223
SET 3,B	CB08	203,216
SET 3,C	CB09	203,217
SET 3,D	CB0A	203,218
SET 3,E	CB0B	203,219
SET 3,H	CB0C	203,220
SET 3,L	CB0D	203,221
SET 4, (HL)	CB0E	203,230
SET 4, (IX+d)	DDCBdd0E	221,203,ddd,230
SET 4, (IY+d)	FDCBdd0E	253,203,ddd,230
SET 4,A	CB0F	203,231
SET 4,B	CB08	203,224
SET 4,C	CB09	203,225

SET 4,D	CB0E	203,226
SET 4,E	CB03	203,227
SET 4,H	CB04	203,228
SET 4,L	CB05	203,229
SET 5, (HL)	CB0E	203,238
SET 5, (IX+d)	DDCBdd0E	221,203,ddd,238
SET 5, (IY+d)	FDCBdd0E	253,203,ddd,238
SET 5,A	CB0F	203,239
SET 5,B	CB08	203,232
SET 5,C	CB09	203,233
SET 5,D	CB0A	203,234
SET 5,E	CB0B	203,235
SET 5,H	CB0C	203,236
SET 5,L	CB0D	203,237
SET 6, (HL)	CB0F	203,246
SET 6, (IX+d)	DDCBdd0F	221,203,ddd,246
SET 6, (IY+d)	FDCBdd0F	253,203,ddd,246
SET 6,A	CB07	203,247
SET 6,B	CB08	203,240
SET 6,C	CB01	203,241
SET 6,D	CB02	203,242
SET 6,E	CB03	203,243
SET 6,H	CB04	203,244
SET 6,L	CB05	203,245
SET 7, (HL)	CB0E	203,254
SET 7, (IX+d)	DDCBdd0E	221,203,ddd,254
SET 7, (IY+d)	FDCBdd0E	253,203,ddd,254
SET 7,A	CB0F	203,255
SET 7,B	CB08	203,248
SET 7,C	CB09	203,249
SET 7,D	CB0A	203,250
SET 7,E	CB0B	203,251
SET 7,H	CB0C	203,252
SET 7,L	CB0D	203,253
SIA (HL)	CB26	203,038
SIA (IX+d)	DDCBdd26	221,203,ddd,038
SIA (IY+d)	FDCBdd26	253,203,ddd,038
SIA A	CB27	203,039
SIA B	CB20	203,032
SIA C	CB21	203,033
SIA D	CB22	203,034
SIA E	CB23	203,035
SIA H	CB24	203,036
SIA L	CB25	203,037
SRA (HL)	CB2E	203,046
SRA (IX+d)	DDCBdd2E	221,203,ddd,046
SRA (IY+d)	FDCBdd2E	253,203,ddd,046
SRA A	CB2F	203,047
SRA B	CB28	203,040
SRA C	CB29	203,041
SRA D	CB2A	203,042
SRA E	CB2B	203,043
SRA H	CB2C	203,044
SRA L	CB2D	203,045
SRL (HL)	CB3E	203,062
SRL (IX+d)	DDCBdd3E	221,203,ddd,062
SRL (IY+d)	FDCBdd3E	253,203,ddd,062
SRL A	CB3F	203,063
SRL B	CB38	203,056
SRL C	CB39	203,057
SRL D	CB3A	203,058
SRL E	CB3B	203,059
SRL H	CB3C	203,060
SRL L	CB3D	203,061
SUB (HL)	96	150
SUB (IX+d)	DD96dd	221,150,ddd
SUB (IY+d)	FD96dd	253,150,ddd
SUB imm	D611	214,111
SUB A	97	151
SUB B	90	144
SUB C	91	145
SUB D	92	146
SUB E	93	147
SUB H	94	148
SUB L	95	149
XOR (HL)	AE	174
XOR (IX+d)	DDAEdd	221,174,ddd
XOR (IY+d)	FDAEdd	253,174,ddd
XOR imm	EE11	238,111
XOR A	AF	175
XOR B	A8	168
XOR C	A9	169
XOR D	AA	170
XOR E	AB	171
XOR H	AC	172
XOR L	AD	173