

Instruction	Timing	Opcode	Size
ADC A,(HL)	7	8E	1
ADC A,(IX+o)	19	DD 8E oo	3
ADC A,(IY+o)	19	FD 8E oo	3
ADC A,n	7	CE nn	2
ADC A,r	4	88+r	1
ADC A,IXp	8	DD 88+p	2
ADC A,IYq	8	FD 88+q	2
ADC HL,BC	15	ED 4A	2
ADC HL,DE	15	ED 5A	2
ADC HL,HL	15	ED 6A	2
ADC HL,SP	15	ED 7A	2
ADD A,(HL)	7	86	1
ADD A,(IX+o)	19	DD 86 oo	3
ADD A,(IY+o)	19	FD 86 oo	3
ADD A,n	7	C6 nn	2
ADD A,r	4	80+r	1
ADD A,IXp	8	DD 80+p	2
ADD A,IYq	8	FD 80+q	2
ADD HL,BC	11	09	1
ADD HL,DE	11	19	1
ADD HL,HL	11	29	1
ADD HL,SP	11	39	1
ADD IX,BC	15	DD 09	2
ADD IX,DE	15	DD 19	2
ADD IX,IX	15	DD 29	2
ADD IX,SP	15	DD 39	2
ADD IY,BC	15	FD 09	2
ADD IY,DE	15	FD 19	2
ADD IY,IY	15	FD 29	2
ADD IY,SP	15	FD 39	2
AND (HL)	7	A6	1
AND (IX+o)	19	DD A6 oo	3
AND (IY+o)	19	FD A6 oo	3
AND n	7	E6 nn	2
AND r	4	A0+r	1
AND IXp	8	DD A0+p	2
AND IYq	8	FD A0+q	2
BIT b,(HL)	12	CB 46+8*b	2
BIT b,(IX+o)	20	DD CB oo 46+8*b	4
BIT b,(IY+o)	20	FD CB oo 46+8*b	4
BIT b,r	8	CB 40+8*b+r	2
CALL nn	17	CD nn nn	3
CALL C,nn	17/10	DC nn nn	3
CALL M,nn	17/10	FC nn nn	3

Instruction	Timing	Opcode	Size
CALL NC,nn	17/10	D4 nn nn	3
CALL NZ,nn	17/10	C4 nn nn	3
CALL P,nn	17/10	F4 nn nn	3
CALL PE,nn	17/10	EC nn nn	3
CALL PO,nn	17/10	E4 nn nn	3
CALL Z,nn	17/10	CC nn nn	3
CCF	4	3F	1
CP (HL)	7	BE	1
CP (IX+o)	19	DD BE oo	3
CP (IY+o)	19	FD BE oo	3
CP n	7	FE nn	2
CP r	4	B8+r	1
CP IXp	8	DD B8+p	2
CP IYq	8	FD B8+q	2
CPD	16	ED A9	2
CPDR	21/16	ED B9	2
CPI	16	ED A1	2
CPIR	21/16	ED B1	2
CPL	4	2F	1
DAA	4	27	1
DEC (HL)	11	35	1
DEC (IX+o)	23	DD 35 oo	3
DEC (IY+o)	23	FD 35 oo	3
DEC A	4	3D	1
DEC B	4	05	1
DEC BC	6	0B	1
DEC C	4	0D	1
DEC D	4	15	1
DEC DE	6	1B	1
DEC E	4	1D	1
DEC H	4	25	1
DEC HL	6	2B	1
DEC IX	10	DD 2B	2
DEC IY	10	FD 2B	2
DEC IXp	8	DD 05+8*p	2
DEC IYq	8	FD 05+8*q	2
DEC L	4	2D	2
DEC SP	6	3B	1
DI	4	F3	1
DJNZ o	13/8	10 oo	2
EI	4	FB	1
EX (SP),HL	19	E3	1
EX (SP),IX	23	DD E3	2
EX (SP),IY	23	FD E3	2

Instruction	Timing	Opcode	Size
EX AF,AF'	4	08	1
EX DE,HL	4	EB	1
EXX	4	D9	1
HALT	4	76	1
IM 0	8	ED 46	2
IM 1	8	ED 56	2
IM 2	8	ED 5E	2
IN A,(C)	12	ED 78	2
IN A,(n)	11	DB nn	2
IN B,(C)	12	ED 40	2
IN C,(C)	12	ED 48	2
IN D,(C)	12	ED 50	2
IN E,(C)	12	ED 58	2
IN H,(C)	12	ED 60	2
IN L,(C)	12	ED 68	2
IN F,(C)	12	ED 70	3
INC (HL)	11	34	1
INC (IX+o)	23	DD 34 oo	3
INC (IY+o)	23	FD 34 oo	3
INC A	4	3C	1
INC B	4	04	1
INC BC	6	03	1
INC C	4	0C	1
INC D	4	14	1
INC DE	6	13	1
INC E	4	1C	1
INC H	4	24	1
INC HL	6	23	1
INC IX	10	DD 23	2
INC IY	10	FD 23	2
INC IXp	8	DD 04+8*p	2
INC IYq	8	FD 04+8*q	2
INC L	4	2C	1
INC SP	6	33	1
IND	16	ED AA	2
INDR	21/16	ED BA	2
INI	16	ED A2	2
INIR	21/16	ED B2	2
JP nn	10	C3 nn nn	3
JP (HL)	4	E9	1
JP (IX)	8	DD E9	2
JP (IY)	8	FD E9	2
JP C,nn	10	DA nn nn	3
JP M,nn	10	FA nn nn	3

Instruction	Timing	Opcode	Size
JP NC,nn	10	D2 nn nn	3
JP NZ,nn	10	C2 nn nn	3
JP P,nn	10	F2 nn nn	3
JP PE,nn	10	EA nn nn	3
JP PO,nn	10	E2 nn nn	3
JP Z,nn	10	CA nn nn	3
JR o	12	18 oo	2
JR C,o	12/7	38 oo	2
JR NC,o	12/7	30 oo	2
JR NZ,o	12/7	20 oo	2
JR Z,o	12/7	28 oo	2
LD (BC),A	7	02	1
LD (DE),A	7	12	1
LD (HL),n	10	36 nn	2
LD (HL),r	7	70+r	1
LD (IX+o),n	19	DD 36 oo nn	4
LD (IX+o),r	19	DD 70+r oo	3
LD (IY+o),n	19	FD 36 oo nn	4
LD (IY+o),r	19	FD 70+r oo	3
LD (nn),A	13	32 nn nn	3
LD (nn),BC	20	ED 43 nn nn	4
LD (nn),DE	20	ED 53 nn nn	4
LD (nn),HL	16	22 nn nn	3
LD (nn),IX	20	DD 22 nn nn	4
LD (nn),IY	20	FD 22 nn nn	4
LD (nn),SP	20	ED 73 nn nn	4
LD A,(BC)	7	0A	1
LD A,(DE)	7	1A	1
LD A,(HL)	7	7E	1
LD A,(IX+o)	19	DD 7E oo	3
LD A,(IY+o)	19	FD 7E oo	3
LD A,(nn)	13	3A nn nn	3
LD A,n	7	3E nn	2
LD A,r	4	78+r	1
LD A,IXp	8	DD 78+p	2
LD A,IYq	8	FD 78+q	2
LD A,l	9	ED 57	2
LD A,R	9	ED 5F	2
LD B,(HL)	7	46	1
LD B,(IX+o)	19	DD 46 oo	3
LD B,(IY+o)	19	FD 46 oo	3
LD B,n	7	06 nn	2
LD B,r	4	40+r	1
LD B,IXp	8	DD 40+p	2

Instruction	Timing	Opcode	Size
LD B,IYq	8	FD 40+q	2
LD BC,(nn)	20	ED 4B nn nn	4
LD BC,nn	10	01 nn nn	3
LD C,(HL)	7	4E	1
LD C,(IX+o)	19	DD 4E oo	3
LD C,(IY+o)	19	FD 4E oo	3
LD C,n	7	0E nn	2
LD C,r	4	48+r	1
LD C,IXp	8	DD 48+p	2
LD C,IYq	8	FD 48+q	2
LD D,(HL)	7	56	1
LD D,(IX+o)	19	DD 56 oo	3
LD D,(IY+o)	19	FD 56 oo	3
LD D,n	7	16 nn	2
LD D,r	4	50+r	1
LD D,IXp	8	DD 50+p	2
LD D,IYq	8	FD 50+q	2
LD DE,(nn)	20	ED 5B nn nn	4
LD DE,nn	10	11 nn nn	3
LD E,(HL)	7	5E	1
LD E,(IX+o)	19	DD 5E oo	3
LD E,(IY+o)	19	FD 5E oo	3
LD E,n	7	1E nn	2
LD E,r	4	58+r	1
LD E,IXp	8	DD 58+p	2
LD E,IYq	8	FD 58+q	2
LD H,(HL)	7	66	1
LD H,(IX+o)	19	DD 66 oo	3
LD H,(IY+o)	19	FD 66 oo	3
LD H,n	7	26 nn	2
LD H,r	4	60+r	1
LD HL,(nn)	16	2A nn nn	5
LD HL,nn	10	21 nn nn	3
LD I,A	9	ED 47	2
LD IX,(nn)	20	DD 2A nn nn	4
LD IX,nn	14	DD 21 nn nn	4
LD IXh,n	11	DD 26 nn	2
LD IXh,p	8	DD 60+p	2
LD IXl,n	11	DD 2E nn	2
LD IXl,p	8	DD 68+p	2
LD IY,(nn)	20	FD 2A nn nn	4
LD IY,nn	14	FD 21 nn nn	4
LD IYh,n	11	FD 26 nn	2
LD IYh,q	8	FD 60+q	2

Instruction	Timing	Opcode	Size
LD IYI,n	11	FD 2E nn	2
LD IYI,q	8	FD 68+q	2
LD L,(HL)	7	6E	1
LD L,(IX+o)	19	DD 6E oo	3
LD L,(IY+o)	19	FD 6E oo	3
LD L,n	7	2E nn	2
LD L,r	4	68+r	1
LD R,A	9	ED 4F	2
LD SP,(nn)	20	ED 7B nn nn	4
LD SP,HL	6	F9	1
LD SP,IX	10	DD F9	2
LD SP,IY	10	FD F9	2
LD SP,nn	10	31 nn nn	3
LDD	16	ED A8	2
LDDR	21/16	ED B8	2
LDI	16	ED A0	2
LDIR	21/16	ED B0	2
MULUB A,r		ED C1+8*r	2
MULUW HL,BC		ED C3	2
MULUW HL,SP		ED F3	2
NEG	8	ED 44	2
NOP	4	00	1
OR (HL)	7	B6	1
OR (IX+o)	19	DD B6 oo	3
OR (IY+o)	19	FD B6 oo	3
OR n	7	F6 nn	2
OR r	4	B0+r	1
OR IXp	8	DD B0+p	2
OR IYq	8	FD B0+q	2
OTDR	21/16	ED BB	2
OTIR	21/16	ED B3	2
OUT (C),A	12	ED 79	2
OUT (C),B	12	ED 41	2
OUT (C),C	12	ED 49	2
OUT (C),D	12	ED 51	2
OUT (C),E	12	ED 59	2
OUT (C),H	12	ED 61	2
OUT (C),L	12	ED 69	2
OUT (n),A	11	D3 nn	2
OUTD	16	ED AB	2
OUTI	16	ED A3	2
POP AF	10	F1	1
POP BC	10	C1	1
POP DE	10	D1	1

Instruction	Timing	Opcode	Size
POP HL	10	E1	1
POP IX	14	DD E1	2
POP IY	14	FD E1	2
PUSH AF	11	F5	1
PUSH BC	11	C5	1
PUSH DE	11	D5	1
PUSH HL	11	E5	1
PUSH IX	15	DD E5	2
PUSH IY	15	FD E5	2
RES b,(HL)	15	CB 86+8*b	2
RES b,(IX+o)	23	DD CB oo 86+8*b	4
RES b,(IY+o)	23	FD CB oo 86+8*b	4
RES b,r	8	CB 80+8*b+r	2
RET	10	C9	1
RET C	11/5	D8	1
RET M	11/5	F8	1
RET NC	11/5	D0	1
RET NZ	11/5	C0	1
RET P	11/5	F0	1
RET PE	11/5	E8	1
RET PO	11/5	E0	1
RET Z	11/5	C8	1
RETI	14	ED 4D	2
RETN	14	ED 45	2
RL (HL)	15	CB 16	2
RL (IX+o)	23	DD CB oo 16	4
RL (IY+o)	23	FD CB oo 16	4
RL r	8	CB 10+r	2
RLA	4	17	1
RLC (HL)	15	CB 06	2
RLC (IX+o)	23	DD CB oo 06	4
RLC (IY+o)	23	FD CB oo 06	4
RLC r	8	CB 00+r	2
RLCA	4	07	1
RLD	18	ED 6F	2
RR (HL)	15	CB 1E	2
RR (IX+o)	23	DD CB oo 1E	4
RR (IY+o)	23	FD CB oo 1E	4
RR r	8	CB 18+r	2
RRA	4	1F	1
RRC (HL)	15	CB 0E	2
RRC (IX+o)	23	DD CB oo 0E	4
RRC (IY+o)	23	FD CB oo 0E	4
RRC r	8	CB 08+r	2

Instruction	Timing	Opcode	Size
RRCA	4	0F	1
RRD	18	ED 67	2
RST 0	11	C7	1
RST 8H	11	CF	1
RST 10H	11	D7	1
RST 18H	11	DF	1
RST 20H	11	E7	1
RST 28H	11	EF	1
RST 30H	11	F7	1
RST 38H	11	FF	1
SBC A,(HL)	7	9E	1
SBC A,(IX+o)	19	DD 9E oo	3
SBC A,(IY+o)	19	FD 9E oo	3
SBC A,n	7	DE nn	2
SBC A,r	4	98+r	1
SBC A,IXp	8	DD 98+p	2
SBC A,IYq	8	FD 98+q	2
SBC HL,BC	15	ED 42	2
SBC HL,DE	15	ED 52	2
SBC HL,HL	15	ED 62	2
SBC HL,SP	15	ED 72	2
SCF	4	37	1
SET b,(HL)	15	CB C6+8*b	2
SET b,(IX+o)	23	DD CB oo C6+8*b	4
SET b,(IY+o)	23	FD CB oo C6+8*b	4
SET b,r	8	CB C0+8*b+r	2
SLA (HL)	15	CB 26	2
SLA (IX+o)	23	DD CB oo 26	4
SLA (IY+o)	23	FD CB oo 26	4
SLA r	8	CB 20+r	2
SRA (HL)	15	CB 2E	2
SRA (IX+o)	23	DD CB oo 2E	4
SRA (IY+o)	23	FD CB oo 2E	4
SRA r	8	CB 28+r	2
SRL (HL)	15	CB 3E	2
SRL (IX+o)	23	DD CB oo 3E	4
SRL (IY+o)	23	FD CB oo 3E	4
SRL r	8	CB 38+r	2
SUB (HL)	7	96	1
SUB (IX+o)	19	DD 96 oo	3
SUB (IY+o)	19	FD 96 oo	3
SUB n	7	D6 nn	2
SUB r	4	90+r	1
SUB IXp	8	DD 90+p	2

Instruction	Timing	Opcode	Size
SUB IYq	8	FD 90+q	2
XOR (HL)	7	AE	1
XOR (IX+o)	19	DD AE oo	3
XOR (IY+o)	19	FD AE oo	3
XOR n	7	EE nn	2
XOR r	4	A8+r	1
XOR IXp	8	DD A8+p	2
XOR IYq	8	FD A8+q	2

In this overview, the following variables were used:

b 3-bit value

n 8-bit value

nn 16-bit value

o 8-bit offset (2-complement)

r Register. This can be A, B, C, D, E, H, L or (HL).

Add the following value to the last byte of the opcode:

Register	Register bits value
A	7
B	0
C	1
D	2
E	3
H	4
L	5
(HL)	6

p, IXp denotes the high or low part of the IX register, IX_h or IX_l. Add the following value to the last byte of the opcode:

Register	Register bits value
A	7
B	0
C	1
D	2
E	3
IXh	4
IXl	5

q, IYq denotes the high or low part of the IY register, IY_h or IY_l. Add the following value to the last byte of the opcode:

Register	Register bits value
A	7
B	0
C	1
D	2
E	3
IYh	4
IYl	5