ClrHome

☐ normal instructions   ☐ more bytes   ☐ undocumented   ☐ Z180 only

Main Instructions

filter by mnemonic or keywords… (/)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	nop	ld bc,*n n*	ld (b c),a	inc b								inc c	dec c	ld c,*n*	rrca
1	djnz *d*	ld de,*n n*	ld (d e),a	inc de	inc d	dec d	ld d,*n*	rla	jr *d*	add hl, de	ld a,(d e)	dec de	inc e	dec e	ld e,*n*	rra
2	jr nz,*d*	ld hl,*n n*	ld (*n n*),hl	inc hl	inc h	dec h	ld h,*n*	daa	jr z,*d*	add hl, hl	ld hl, (*nn*)	dec hl	inc l	dec l	ld l,*n*	cpl
3	jr nc,*d*	ld sp,*n n*	ld (*n n*),a	inc sp	inc (h l)	dec (h l)	ld (h l),*n*	scf	jr c,*d*	add hl, sp	ld a,(*n n*)	dec sp	inc a	dec a	ld a,*n*	ccf
4	ld b,b	ld b,c	ld b,d	ld b,e	ld b,h	ld b,l	ld b,(h l)	ld b,a	ld c,b	ld c,c	ld c,d	ld c,e	ld c,h	ld c,l	ld c,(h l)	ld c,a
5	ld d,b	ld d,c	ld d,d	ld d,e	ld d,h	ld d,l	ld d,(h l)	ld d,a	ld e,b	ld e,c	ld e,d	ld e,e	ld e,h	ld e,l	ld e,(h l)	ld e,a

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
6	ld h,b	ld h,c	ld h,d	ld h,e	ld h,h	ld h,l	ld h,(hl)	ld h,a	ld l,b	ld l,c	ld l,d	ld l,e	ld l,h	ld l,l	ld l,(hl)	ld l,a
7	ld (hl),b	ld (hl),c	ld (hl),d	ld (hl),e	ld (hl),h	ld (hl),l	halt	ld (hl),a	ld a,b	ld a,c	ld a,d	ld a,e	ld a,h	ld a,l	ld a,(hl)	ld a,a
8	add a,b	add a,c	add a,d	add a,e	add a,h	add a,l	add a,(hl)	add a,a	adc a,b	adc a,c	adc a,d	adc a,e	adc a,h	adc a,l	adc a,(hl)	adc a,a
9	sub b	sub c	sub d	sub e	sub h	sub l	sub (hl)	sub a	sbc a,b	sbc a,c	sbc a,d	sbc a,e	sbc a,h	sbc a,l	sbc a,(hl)	sbc a,a
A	and b	and c	and d	and e	and h	and l	and (hl)	and a	xor b	xor c	xor d	xor e	xor h	xor l	xor (hl)	xor a
B	or b	or c	or d	or e	or h	or l	or (hl)	or a	cp b	cp c	cp d	cp e	cp h	cp l	cp (hl)	cp a
C	ret nz	pop bc	jp nz,nn	jp nn	call nz,nn	push bc	add a,n	rst 00h	ret z	ret	jp z,nn	Bit	call z,nn	call nn	adc a,n	rst 08h
D	ret nc	pop de	jp nc,nn	out (n),a	call nc,nn	push de	sub n	rst 10h	ret c	exx	jp c,nn	in a,(n)	call c,nn	IX	sbc a,n	rst 18h
E	ret po	pop hl	jp po,nn	ex (sp),hl	call po,nn	push hl	and n	rst 20h	ret pe	jp (hl)	jp pe,nn	ex de,hl	call pe,nn	Misc.	xor n	rst 28h
F	ret p	pop af	jp p,nn	di	call p,nn	push af	or n	rst 30h	ret m	ld sp,hl	jp m,nn	ei	call m,nn	IY	cp n	rst 38h

Misc. Instructions (ED)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	in0 b,(n)	out0 (n),b			tst b				in0 c,(n)	out0 (n),c			tst c			
1	in0 d,(n)	out0 (n),d			tst d				in0 e,(n)	out0 (n),e			tst e			
2	in0 h,(n)	out0 (n),h			tst h				in0 l,(n)	out0 (n),l			tst l			

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
3					tst (hl)				in0 a, (n)	out0 (n),a			tst a			
4	in b, (c)	out (c),b	sbc hl, bc	ld (nn),bc	neg	retn	im 0	ld i,a	in c, (c)	out (c),c	adc hl, bc	ld bc, (nn)	mlt bc	reti		ld r,a
5	in d, (c)	out (c),d	sbc hl, de	ld (nn),de			im 1	ld a,i	in e, (c)	out (c),e	adc hl, de	ld de, (nn)	mlt de		im 2	ld a,r
6	in h, (c)	out (c),h	sbc hl, hl	ld (nn),hl	tst n			rrd	in l, (c)	out (c),l	adc hl, hl	ld hl, (nn)	mlt hl			rld
7	in (c)	out (c),0	sbc hl, sp	ld (nn),sp	tstio n		slp		in a, (c)	out (c),a	adc hl, sp	ld sp, (nn)	mlt sp			
8				otim								otdm				
9				otimr								otdmr				
A	ldi	cpi	ini	outi					ldd	cpd	ind	outd				
B	ldir	cpir	inir	otir					lddr	cpdr	indr	otdr				

Bit Instructions (CB)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	rlc b	rlc c	rlc d	rlc e	rlc h	rlc l	rlc (hl)	rlc a	rrc b	rrc c	rrc d	rrc e	rrc h	rrc l	rrc (hl)	rrc a
1	rl b	rl c	rl d	rl e	rl h	rl l	rl (hl)	rl a	rr b	rr c	rr d	rr e	rr h	rr l	rr (hl)	rr a
2	sla b	sla c	sla d	sla e	sla h	sla l	sla (hl)	sla a	sra b	sra c	sra d	sra e	sra h	sra l	sra (hl)	sra a
3	sll b	sll c	sll d	sll e	sll h	sll l	sll (hl)	sll a	srl b	srl c	srl d	srl e	srl h	srl l	srl (hl)	srl a

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
4	bit 0,b	bit 0,c	bit 0,d	bit 0,e	bit 0,h	bit 0,l	bit 0,(hl)	bit 0,a	bit 1,b	bit 1,c	bit 1,d	bit 1,e	bit 1,h	bit 1,l	bit 1,(hl)	bit 1,a
5	bit 2,b	bit 2,c	bit 2,d	bit 2,e	bit 2,h	bit 2,l	bit 2,(hl)	bit 2,a	bit 3,b	bit 3,c	bit 3,d	bit 3,e	bit 3,h	bit 3,l	bit 3,(hl)	bit 3,a
6	bit 4,b	bit 4,c	bit 4,d	bit 4,e	bit 4,h	bit 4,l	bit 4,(hl)	bit 4,a	bit 5,b	bit 5,c	bit 5,d	bit 5,e	bit 5,h	bit 5,l	bit 5,(hl)	bit 5,a
7	bit 6,b	bit 6,c	bit 6,d	bit 6,e	bit 6,h	bit 6,l	bit 6,(hl)	bit 6,a	bit 7,b	bit 7,c	bit 7,d	bit 7,e	bit 7,h	bit 7,l	bit 7,(hl)	bit 7,a
8	res 0,b	res 0,c	res 0,d	res 0,e	res 0,h	res 0,l	res 0,(hl)	res 0,a	res 1,b	res 1,c	res 1,d	res 1,e	res 1,h	res 1,l	res 1,(hl)	res 1,a
9	res 2,b	res 2,c	res 2,d	res 2,e	res 2,h	res 2,l	res 2,(hl)	res 2,a	res 3,b	res 3,c	res 3,d	res 3,e	res 3,h	res 3,l	res 3,(hl)	res 3,a
A	res 4,b	res 4,c	res 4,d	res 4,e	res 4,h	res 4,l	res 4,(hl)	res 4,a	res 5,b	res 5,c	res 5,d	res 5,e	res 5,h	res 5,l	res 5,(hl)	res 5,a
B	res 6,b	res 6,c	res 6,d	res 6,e	res 6,h	res 6,l	res 6,(hl)	res 6,a	res 7,b	res 7,c	res 7,d	res 7,e	res 7,h	res 7,l	res 7,(hl)	res 7,a
C	set 0,b	set 0,c	set 0,d	set 0,e	set 0,h	set 0,l	set 0,(hl)	set 0,a	set 1,b	set 1,c	set 1,d	set 1,e	set 1,h	set 1,l	set 1,(hl)	set 1,a
D	set 2,b	set 2,c	set 2,d	set 2,e	set 2,h	set 2,l	set 2,(hl)	set 2,a	set 3,b	set 3,c	set 3,d	set 3,e	set 3,h	set 3,l	set 3,(hl)	set 3,a
E	set 4,b	set 4,c	set 4,d	set 4,e	set 4,h	set 4,l	set 4,(hl)	set 4,a	set 5,b	set 5,c	set 5,d	set 5,e	set 5,h	set 5,l	set 5,(hl)	set 5,a
F	set 6,b	set 6,c	set 6,d	set 6,e	set 6,h	set 6,l	set 6,(hl)	set 6,a	set 7,b	set 7,c	set 7,d	set 7,e	set 7,h	set 7,l	set 7,(hl)	set 7,a

IX Instructions (DD)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0					inc b	dec b	ld b,*n*			add ix, bc			inc c	dec c	ld c,*n*	

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
1					inc d	dec d	ld d,*n*			add ix, de				inc e	dec e	ld e,*n*	
2		ld ix,*n n*	ld (*n n*),ix	inc ix	inc ixh	dec ixh	ld ixh,*n*			add ix, ix	ld ix, (*nn*)	dec ix	inc ixl	dec ixl	ld ixl,*n*	
3					inc (ix+*d*)	dec (ix+*d*)	ld (ix+*d*),*n*			add ix, sp			inc a	dec a	ld a,*n*	
4	ld b,b	ld b,c	ld b,d	ld b,e	ld b,ixh	ld b,ixl	ld b,(ix+*d*)	ld b,a	ld c,b	ld c,c	ld c,d	ld c,e	ld c,ixh	ld c,ixl	ld c,(ix+*d*)	ld c,a
5	ld d,b	ld d,c	ld d,d	ld d,e	ld d,ixh	ld d,ixl	ld d,(ix+*d*)	ld d,a	ld e,b	ld e,c	ld e,d	ld e,e	ld e,ixh	ld e,ixl	ld e,(ix+*d*)	ld e,a
6	ld ixh, b	ld ixh, c	ld ixh, d	ld ixh, e	ld ixh, ixh	ld ixh, ixl	ld h,(ix+*d*)	ld ixh, a	ld ixl, b	ld ixl, c	ld ixl, d	ld ixl, e	ld ixl, ixh	ld ixl, ixl	ld l,(ix+*d*)	ld ixl, a
7	ld (ix+*d*),b	ld (ix+*d*),c	ld (ix+*d*),d	ld (ix+*d*),e	ld (ix+*d*),h	ld (ix+*d*),l		ld (ix+*d*),a	ld a,b	ld a,c	ld a,d	ld a,e	ld a,ixh	ld a,ixl	ld a,(ix+*d*)	ld a,a
8	add a,b	add a,c	add a,d	add a,e	add a,ixh	add a,ixl	add a, (ix+*d*)	add a,a	adc a,b	adc a,c	adc a,d	adc a,e	adc a,ixh	adc a,ixl	adc a, (ix+*d*)	adc a,a
9	sub b	sub c	sub d	sub e	sub ixh	sub ixl	sub (ix+*d*)	sub a	sbc a,b	sbc a,c	sbc a,d	sbc a,e	sbc a,ixh	sbc a,ixl	sbc a, (ix+*d*)	sbc a,a
A	and b	and c	and d	and e	and ixh	and ixl	and (ix+*d*)	and a	xor b	xor c	xor d	xor e	xor ixh	xor ixl	xor (ix+*d*)	xor a
B	or b	or c	or d	or e	or ixh	or ixl	or (ix+*d*)	or a	cp b	cp c	cp d	cp e	cp ixh	cp ixl	cp (ix+*d*)	cp a
C														IX Bit		
E		pop ix		ex (sp),ix		push ix				jp (ix)						
F										ld sp,ix						

IX Bit Instructions (DDCB)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	rlc (ix+d),b	rlc (ix+d),c	rlc (ix+d),d	rlc (ix+d),e	rlc (ix+d),h	rlc (ix+d),l	rlc (ix+d)	rlc (ix+d),a	rrc (ix+d),b	rrc (ix+d),c	rrc (ix+d),d	rrc (ix+d),e	rrc (ix+d),h	rrc (ix+d),l	rrc (ix+d)	rrc (ix+d),a
1	rl (ix+d),b	rl (ix+d),c	rl (ix+d),d	rl (ix+d),e	rl (ix+d),h	rl (ix+d),l	rl (ix+d)	rl (ix+d),a	rr (ix+d),b	rr (ix+d),c	rr (ix+d),d	rr (ix+d),e	rr (ix+d),h	rr (ix+d),l	rr (ix+d)	rr (ix+d),a
2	sla (ix+d),b	sla (ix+d),c	sla (ix+d),d	sla (ix+d),e	sla (ix+d),h	sla (ix+d),l	sla (ix+d)	sla (ix+d),a	sra (ix+d),b	sra (ix+d),c	sra (ix+d),d	sra (ix+d),e	sra (ix+d),h	sra (ix+d),l	sra (ix+d)	sra (ix+d),a
3	sll (ix+d),b	sll (ix+d),c	sll (ix+d),d	sll (ix+d),e	sll (ix+d),h	sll (ix+d),l	sll (ix+d)	sll (ix+d),a	srl (ix+d),b	srl (ix+d),c	srl (ix+d),d	srl (ix+d),e	srl (ix+d),h	srl (ix+d),l	srl (ix+d)	srl (ix+d),a
4	bit 0, (ix+d)	bit 0, (ix+d)	bit 0, (ix+d)	bit 0, (ix+d)	bit 0, (ix+d)	bit 0, (ix+d)	bit 0, (ix+d)	bit 0, (ix+d)	bit 1, (ix+d)	bit 1, (ix+d)	bit 1, (ix+d)	bit 1, (ix+d)	bit 1, (ix+d)	bit 1, (ix+d)	bit 1, (ix+d)	bit 1, (ix+d)
5	bit 2, (ix+d)	bit 2, (ix+d)	bit 2, (ix+d)	bit 2, (ix+d)	bit 2, (ix+d)	bit 2, (ix+d)	bit 2, (ix+d)	bit 2, (ix+d)	bit 3, (ix+d)	bit 3, (ix+d)	bit 3, (ix+d)	bit 3, (ix+d)	bit 3, (ix+d)	bit 3, (ix+d)	bit 3, (ix+d)	bit 3, (ix+d)
6	bit 4, (ix+d)	bit 4, (ix+d)	bit 4, (ix+d)	bit 4, (ix+d)	bit 4, (ix+d)	bit 4, (ix+d)	bit 4, (ix+d)	bit 4, (ix+d)	bit 5, (ix+d)	bit 5, (ix+d)	bit 5, (ix+d)	bit 5, (ix+d)	bit 5, (ix+d)	bit 5, (ix+d)	bit 5, (ix+d)	bit 5, (ix+d)
7	bit 6, (ix+d)	bit 6, (ix+d)	bit 6, (ix+d)	bit 6, (ix+d)	bit 6, (ix+d)	bit 6, (ix+d)	bit 6, (ix+d)	bit 6, (ix+d)	bit 7, (ix+d)	bit 7, (ix+d)	bit 7, (ix+d)	bit 7, (ix+d)	bit 7, (ix+d)	bit 7, (ix+d)	bit 7, (ix+d)	bit 7, (ix+d)
8	res 0, (ix+d), b	res 0, (ix+d), c	res 0, (ix+d), d	res 0, (ix+d), e	res 0, (ix+d), h	res 0, (ix+d), l	res 0, (ix+d)	res 0, (ix+d), a	res 1, (ix+d), b	res 1, (ix+d), c	res 1, (ix+d), d	res 1, (ix+d), e	res 1, (ix+d), h	res 1, (ix+d), l	res 1, (ix+d)	res 1, (ix+d), a
9	res 2, (ix+d), b	res 2, (ix+d), c	res 2, (ix+d), d	res 2, (ix+d), e	res 2, (ix+d), h	res 2, (ix+d), l	res 2, (ix+d)	res 2, (ix+d), a	res 3, (ix+d), b	res 3, (ix+d), c	res 3, (ix+d), d	res 3, (ix+d), e	res 3, (ix+d), h	res 3, (ix+d), l	res 3, (ix+d)	res 3, (ix+d), a
A	res 4, (ix+d), b	res 4, (ix+d), c	res 4, (ix+d), d	res 4, (ix+d), e	res 4, (ix+d), h	res 4, (ix+d), l	res 4, (ix+d)	res 4, (ix+d), a	res 5, (ix+d), b	res 5, (ix+d), c	res 5, (ix+d), d	res 5, (ix+d), e	res 5, (ix+d), h	res 5, (ix+d), l	res 5, (ix+d)	res 5, (ix+d), a
B	res 6, (ix+d), b	res 6, (ix+d), c	res 6, (ix+d), d	res 6, (ix+d), e	res 6, (ix+d), h	res 6, (ix+d), l	res 6, (ix+d)	res 6, (ix+d), a	res 7, (ix+d), b	res 7, (ix+d), c	res 7, (ix+d), d	res 7, (ix+d), e	res 7, (ix+d), h	res 7, (ix+d), l	res 7, (ix+d)	res 7, (ix+d), a
C	set 0, (ix+d), b	set 0, (ix+d), c	set 0, (ix+d), d	set 0, (ix+d), e	set 0, (ix+d), h	set 0, (ix+d), l	set 0, (ix+d)	set 0, (ix+d), a	set 1, (ix+d), b	set 1, (ix+d), c	set 1, (ix+d), d	set 1, (ix+d), e	set 1, (ix+d), h	set 1, (ix+d), l	set 1, (ix+d)	set 1, (ix+d), a
D	set 2, (ix+d), b	set 2, (ix+d), c	set 2, (ix+d), d	set 2, (ix+d), e	set 2, (ix+d), h	set 2, (ix+d), l	set 2, (ix+d)	set 2, (ix+d), a	set 3, (ix+d), b	set 3, (ix+d), c	set 3, (ix+d), d	set 3, (ix+d), e	set 3, (ix+d), h	set 3, (ix+d), l	set 3, (ix+d)	set 3, (ix+d), a
E	set 4, (ix+d), b	set 4, (ix+d), c	set 4, (ix+d), d	set 4, (ix+d), e	set 4, (ix+d), h	set 4, (ix+d), l	set 4, (ix+d)	set 4, (ix+d), a	set 5, (ix+d), b	set 5, (ix+d), c	set 5, (ix+d), d	set 5, (ix+d), e	set 5, (ix+d), h	set 5, (ix+d), l	set 5, (ix+d)	set 5, (ix+d), a

IY Instructions (FD)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0					inc b	dec b	ld b,*n*			add iy,bc			inc c	dec c	ld c,*n*	
1					inc d	dec d	ld d,*n*			add iy,de			inc e	dec e	ld e,*n*	
2		ld iy,*nn*	ld (*nn*),iy	inc iy	inc iyh	dec iyh	ld iyh,*n*			add iy,iy	ld iy,(*nn*)	dec iy	inc iyl	dec iyl	ld iyl,*n*	
3				inc (iy+*d*)	dec (iy+*d*)	ld (iy+*d*),*n*				add iy,sp			inc a	dec a	ld a,*n*	
4	ld b,b	ld b,c	ld b,d	ld b,e	ld b,iyh	ld b,iyl	ld b,(iy+*d*)	ld b,a	ld c,b	ld c,c	ld c,d	ld c,e	ld c,iyh	ld c,iyl	ld c,(iy+*d*)	ld c,a
5	ld d,b	ld d,c	ld d,d	ld d,e	ld d,iyh	ld d,iyl	ld d,(iy+*d*)	ld d,a	ld e,b	ld e,c	ld e,d	ld e,e	ld e,iyh	ld e,iyl	ld e,(iy+*d*)	ld e,a
6	ld iyh,b	ld iyh,c	ld iyh,d	ld iyh,e	ld iyh,iyh	ld iyh,iyl	ld h,(iy+*d*)	ld iyh,a	ld iyl,b	ld iyl,c	ld iyl,d	ld iyl,e	ld iyl,iyh	ld iyl,iyl	ld l,(iy+*d*)	ld iyl,a
7	ld (iy+*d*),b	ld (iy+*d*),c	ld (iy+*d*),d	ld (iy+*d*),e	ld (iy+*d*),h	ld (iy+*d*),l		ld (iy+*d*),a	ld a,b	ld a,c	ld a,d	ld a,e	ld a,iyh	ld a,iyl	ld a,(iy+*d*)	ld a,a
8	add a,b	add a,c	add a,d	add a,e	add a,iyh	add a,iyl	add a,(iy+*d*)	add a,a	adc a,b	adc a,c	adc a,d	adc a,e	adc a,iyh	adc a,iyl	adc a,(iy+*d*)	adc a,a
9	sub b	sub c	sub d	sub e	sub iyh	sub iyl	sub (iy+*d*)	sub a	sbc a,b	sbc a,c	sbc a,d	sbc a,e	sbc a,iyh	sbc a,iyl	sbc a,(iy+*d*)	sbc a,a
A	and b	and c	and d	and e	and iyh	and iyl	and (iy+*d*)	and a	xor b	xor c	xor d	xor e	xor iyh	xor iyl	xor (iy+*d*)	xor a
B	or b	or c	or d	or e	or iyh	or iyl	or (iy+*d*)	or a	cp b	cp c	cp d	cp e	cp iyh	cp iyl	cp (iy+*d*)	cp a

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C												IY Bit				
E	pop iy		ex (sp),iy		push iy				jp (iy)							
F									ld sp,iy							

IY Bit Instructions (FDCB)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	rlc (iy+d),b	rlc (iy+d),c	rlc (iy+d),d	rlc (iy+d),e	rlc (iy+d),h	rlc (iy+d),l	rlc (iy+d)	rlc (iy+d),a	rrc (iy+d),b	rrc (iy+d),c	rrc (iy+d),d	rrc (iy+d),e	rrc (iy+d),h	rrc (iy+d),l	rrc (iy+d)	rrc (iy+d),a
1	rl (iy+d),b	rl (iy+d),c	rl (iy+d),d	rl (iy+d),e	rl (iy+d),h	rl (iy+d),l	rl (iy+d)	rl (iy+d),a	rr (iy+d),b	rr (iy+d),c	rr (iy+d),d	rr (iy+d),e	rr (iy+d),h	rr (iy+d),l	rr (iy+d)	rr (iy+d),a
2	sla (iy+d),b	sla (iy+d),c	sla (iy+d),d	sla (iy+d),e	sla (iy+d),h	sla (iy+d),l	sla (iy+d)	sla (iy+d),a	sra (iy+d),b	sra (iy+d),c	sra (iy+d),d	sra (iy+d),e	sra (iy+d),h	sra (iy+d),l	sra (iy+d)	sra (iy+d),a
3	sll (iy+d),b	sll (iy+d),c	sll (iy+d),d	sll (iy+d),e	sll (iy+d),h	sll (iy+d),l	sll (iy+d)	sll (iy+d),a	srl (iy+d),b	srl (iy+d),c	srl (iy+d),d	srl (iy+d),e	srl (iy+d),h	srl (iy+d),l	srl (iy+d)	srl (iy+d),a
4	bit 0, (iy+d)	bit 0, (iy+d)	bit 0, (iy+d)	bit 0, (iy+d)	bit 0, (iy+d)	bit 0, (iy+d)	bit 0, (iy+d)	bit 0, (iy+d)	bit 1, (iy+d)	bit 1, (iy+d)	bit 1, (iy+d)	bit 1, (iy+d)	bit 1, (iy+d)	bit 1, (iy+d)	bit 1, (iy+d)	bit 1, (iy+d)
5	bit 2, (iy+d)	bit 2, (iy+d)	bit 2, (iy+d)	bit 2, (iy+d)	bit 2, (iy+d)	bit 2, (iy+d)	bit 2, (iy+d)	bit 2, (iy+d)	bit 3, (iy+d)	bit 3, (iy+d)	bit 3, (iy+d)	bit 3, (iy+d)	bit 3, (iy+d)	bit 3, (iy+d)	bit 3, (iy+d)	bit 3, (iy+d)
6	bit 4, (iy+d)	bit 4, (iy+d)	bit 4, (iy+d)	bit 4, (iy+d)	bit 4, (iy+d)	bit 4, (iy+d)	bit 4, (iy+d)	bit 4, (iy+d)	bit 5, (iy+d)	bit 5, (iy+d)	bit 5, (iy+d)	bit 5, (iy+d)	bit 5, (iy+d)	bit 5, (iy+d)	bit 5, (iy+d)	bit 5, (iy+d)
7	bit 6, (iy+d)	bit 6, (iy+d)	bit 6, (iy+d)	bit 6, (iy+d)	bit 6, (iy+d)	bit 6, (iy+d)	bit 6, (iy+d)	bit 6, (iy+d)	bit 7, (iy+d)	bit 7, (iy+d)	bit 7, (iy+d)	bit 7, (iy+d)	bit 7, (iy+d)	bit 7, (iy+d)	bit 7, (iy+d)	bit 7, (iy+d)
8	res 0, (iy+d), b	res 0, (iy+d), c	res 0, (iy+d), d	res 0, (iy+d), e	res 0, (iy+d), h	res 0, (iy+d), l	res 0, (iy+d)	res 0, (iy+d), a	res 1, (iy+d), b	res 1, (iy+d), c	res 1, (iy+d), d	res 1, (iy+d), e	res 1, (iy+d), h	res 1, (iy+d), l	res 1, (iy+d)	res 1, (iy+d), a
9	res 2, (iy+d), b	res 2, (iy+d), c	res 2, (iy+d), d	res 2, (iy+d), e	res 2, (iy+d), h	res 2, (iy+d), l	res 2, (iy+d)	res 2, (iy+d), a	res 3, (iy+d), b	res 3, (iy+d), c	res 3, (iy+d), d	res 3, (iy+d), e	res 3, (iy+d), h	res 3, (iy+d), l	res 3, (iy+d)	res 3, (iy+d), a

A	res 4, (iy+d), b	res 4, (iy+d), c	res 4, (iy+d), d	res 4, (iy+d), e	res 4, (iy+d), h	res 4, (iy+d), l	res 4, (iy+d)	res 4, (iy+d), a	res 5, (iy+d), b	res 5, (iy+d), c	res 5, (iy+d), d	res 5, (iy+d), e	res 5, (iy+d), h	res 5, (iy+d), l	res 5, (iy+d)	res 5, (iy+d), a
B	res 6, (iy+d), b	res 6, (iy+d), c	res 6, (iy+d), d	res 6, (iy+d), e	res 6, (iy+d), h	res 6, (iy+d), l	res 6, (iy+d)	res 6, (iy+d), a	res 7, (iy+d), b	res 7, (iy+d), c	res 7, (iy+d), d	res 7, (iy+d), e	res 7, (iy+d), h	res 7, (iy+d), l	res 7, (iy+d)	res 7, (iy+d), a
C	set 0, (iy+d), b	set 0, (iy+d), c	set 0, (iy+d), d	set 0, (iy+d), e	set 0, (iy+d), h	set 0, (iy+d), l	set 0, (iy+d)	set 0, (iy+d), a	set 1, (iy+d), b	set 1, (iy+d), c	set 1, (iy+d), d	set 1, (iy+d), e	set 1, (iy+d), h	set 1, (iy+d), l	set 1, (iy+d)	set 1, (iy+d), a
D	set 2, (iy+d), b	set 2, (iy+d), c	set 2, (iy+d), d	set 2, (iy+d), e	set 2, (iy+d), h	set 2, (iy+d), l	set 2, (iy+d)	set 2, (iy+d), a	set 3, (iy+d), b	set 3, (iy+d), c	set 3, (iy+d), d	set 3, (iy+d), e	set 3, (iy+d), h	set 3, (iy+d), l	set 3, (iy+d)	set 3, (iy+d), a
E	set 4, (iy+d), b	set 4, (iy+d), c	set 4, (iy+d), d	set 4, (iy+d), e	set 4, (iy+d), h	set 4, (iy+d), l	set 4, (iy+d)	set 4, (iy+d), a	set 5, (iy+d), b	set 5, (iy+d), c	set 5, (iy+d), d	set 5, (iy+d), e	set 5, (iy+d), h	set 5, (iy+d), l	set 5, (iy+d)	set 5, (iy+d), a
F	set 6, (iy+d), b	set 6, (iy+d), c	set 6, (iy+d), d	set 6, (iy+d), e	set 6, (iy+d), h	set 6, (iy+d), l	set 6, (iy+d)	set 6, (iy+d), a	set 7, (iy+d), b	set 7, (iy+d), c	set 7, (iy+d), d	set 7, (iy+d), e	set 7, (iy+d), h	set 7, (iy+d), l	set 7, (iy+d)	set 7, (iy+d), a