R200 INSTRUCTION SET v1.1

№	Mnemonics	Operands	Description	Operation
	DATA TRANSFER INSTRUCTIONS			
1	movc	Rd, a	Load from CONST	Rd ← CONST(a)
2	mov	RB, k	Load immediate	Rd ← k
3	movm	Rd, a	Load from RAM	Rd ← RAM(a)
4	movm	a, Rs	Store to RAM	RAM(a) ← Rd
5	lim		Load indirect from RAM	RA ← RAM(RB)
6	sim		Store indirect to RAM	RAM(RA) ← RB
7	lic		Load indirect from CONST	RA ← CONST(RB)
8	clrz		Clear zero flag	z ← 0
9	clrc		Clear carry flag	c ← 0
10	setc		Set carry flag	c ← 1
11	buc		Buffer carry flag	bc ← c
12	rec		Recall carry flag	c ← bc
	ARITHMETIC AND LOGIC INSTRUCTIONS			
13	add	Rd	Add two GPRs	c:Rd ← Rd+Rs; z ← (Rd == 0)
14	adc	Rd	Add with carry two GPRs	c:Rd ← Rd+Rs+c; z ← (Rd == 0) ∧ z
15	sub	Rd	Subtract two GPRs	c:Rd ← Rd-Rs; z ← (Rd == 0)
16	sbc	Rd	Subtract with carry two GPRs	c:Rd ← Rd-Rs-(¬c); z ← (Rd == 0) ∧ z
17	inc	Rd	Increment GPR	c:Rd ← Rd+1; z ← (Rd == 0)
18	dec	Rd	Decrement GPR	c:Rd ← Rd-1; z ← (Rd == 0)
19	shcr	Rd	Shift circular right through carry	c ← Rd_0; Rd ← c:(Rd>>1); z ← (Rd == 0) ∧ z
20	shr	Rd	Shift circular right	Rd ← Rd_0:(Rd>>1)
21	shcl	Rd	Shift circular left through carry	c ← Rd_{N-1}; Rd ← (Rd<<1):c; z ← (Rd == 0) ∧ z
22	shl	Rd	Shift circular left	Rd ← (Rd<<1):Rd_{N-1}
23	not	Rd	Bitwise NOT	c ← Rd_{N-1}; Rd ← ¬Rd; z ← (Rd == 0)
24	and	Rd	Bitwise AND of two GPRs	c ← 1; Rd ← Rd ∧ Rs; z ← (Rd == 0)
25	or	Rd	Bitwise OR of two GPRs	c ← (Rs→Rd); Rd ← Rd ∨ Rs; z ← (Rd == 0)
26	xor	Rd	Bitwise XOR of two GPRs	c ← (Rd→Rs); Rd ← Rd ⊕ Rs; z ← (Rd == 0)
27	ide	Rd	Identity (check GPR for zero)	Rd ← Rd; z ← (Rd == 0) ∧ z
	BRANCH INSTRUCTIONS			
28	jmp	a	Jump	PC ← CONST(a)
29	jc	a	Jump if carry	if (c = 1) then PC ← CONST(a)
30	jz	a	Jump if zero	if (z = 1) then PC ← CONST(a)
31	jnc	a	Jump if if not carry	if (c = 0) then PC ← CONST(a)
32	jnz	a	Jump if not zero	if (z = 0) then PC ← CONST(a)
33	leaf		Store PC+1 to LEAF	LEAF ← PC+1
34	ret		Return	PC ← LEAF; skip next instruction
35	sc		Skip next instruction if carry	if (c = 1) then skip next instruction
36	sz		Skip next instruction if zero	if (z = 1) then skip next instruction
37	snc		Skip next instruction if not carry	if (c = 0) then skip next instruction
38	snz		Skip next instruction if not zero	if (z = 0) then skip next instruction
39	mov	RC, Rs	Jump indirect	PC ← Rs
	CONTROL INSTRUCTIONS			
40	nop		No operation	
41	halt		Stop machine clock	

Symbol	Description
Rs	source GPR (RA or RB)
Rd	destination GPR (RA or RB)
a	address
k	constant 0..15
c	carry flag
z	zero flag
X_n	n-th bit of X
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