

GRI-909 INSTRUCTION SUMMARY



GRI Computer CORPORATION
 320 NEEDHAM STREET
 NEWTON, MASS. 02164

CLASS	DEVICES		MOD BITS				EFFECT
	SDA	DDA	9	8	7	6	

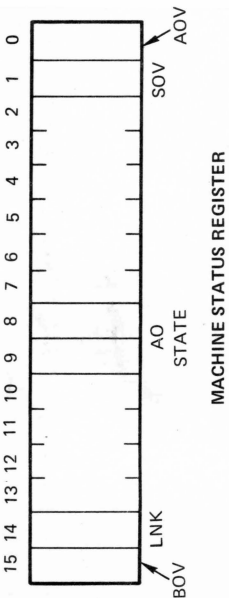
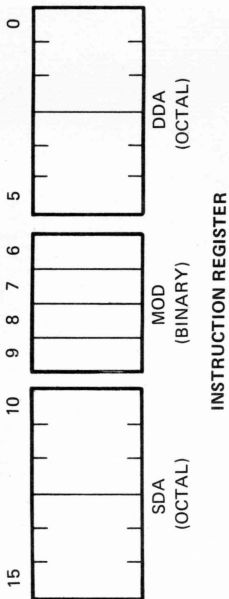
I. REGISTER TRANSFERS	ANY EXCEPT 06	ANY EXCEPT 03, 06	0	0	0	0	NONE
			0	1	-	0	INCREMENT
			1	0	-	0	LEFT ONE BIT
			1	1	-	0	RIGHT ONE BIT
			-	-	1	0	1's COMPL. BEFORE BITS 8,9

II. MEMORY TRANSFERS	06 TO ANY, ANY TO 06, 06 TO 06	SAME AS CLASS I	0	0	DIRECT
			1	0	IMMEDIATE
			0	1	DEFERRED
			1	1	IMMEDIATE - DEFERRED

III. JUMPS (DATA TESTS)	ANY EXCEPT 06	03	0	0	1	-	ALWAYS JUMP
			0	1	0	-	ETZ
			0	1	1	-	NEZ
			1	0	0	-	LTZ
			1	0	1	-	GEZ
			1	1	0	-	LEZ
			1	1	1	-	GTZ
			-	-	-	1	DEFERRED

IV. SKIPS (FUNCTION TESTS)	00	02	0	0	1	-	BOV (BUS OVERFLOW)
			0	1	0	-	LNK
			1	0	0	-	POK (POWER OK)
			0	0	1	-	AOV (ARITH. OVERFLOW)
	13		0	1	0	-	SOV (SUM OVERFLOW)
			1	0	0	-	IRDY
	76 OR 77		0	0	1	-	ORDY
			-	-	-	-	DEPENDS ON DEVICE
	ANY		-	-	-	0	SKIP IF ANY TESTS TRUE
			-	-	-	1	SKIP IF NO TESTS TRUE

V. CONTROL SIGNALS (FUNCTION GENERATION)	02	00	0	0	0	1	CLL (CLEAR LINK)
			0	0	1	0	STL (SET LINK)
			0	1	0	0	HLT
			0	0	1	1	CML (COMPLEMENT LINK)
		13	0	0	0	0	ADD
			0	1	0	0	AND
			1	0	0	0	XOR
			1	1	0	0	OR
		14	0	0	0	1	MULTIPLY
			0	0	1	0	DIVIDE
			0	0	1	1	ARITH. RT. SHIFT
			0	1	0	0	NORMALIZE
	04	0	0	0	1	ICF (INT. CONTROL OFF)	
		0	0	1	0	ICO (INT. CONTROL ON)	
		0	0	0	1	STRT	
		1	0	0	0	CLIF (CLEAR IRDY)	
	76 OR 77	0	0	1	0	CLOF (CLEAR ORDY)	
		-	-	-	-	ANY CONTROL FUNCTIONS	



ASSIGNED DEVICE ADDRESSES

DEVICE ADDRESS	DEVICE	DEVICE ADDRESS	DEVICE
00	MACHINE - NULL	13	ARITHMETIC OPERATOR
01	INSTRUCTION REGISTER	14	EXT. ARITH. OP.
02	FUNCTION GENERATOR	17	MACHINE STATUS REG.
03	TRAP REG. - DATA TEST	24	BYTE SWAP
04	INTERRUPT STATUS REG.	25	BYTE PACK
05	MEMORY ADDRESS	30 - 35	GENERAL REGISTERS
06	MEMORY BUFFER	57	GRI-SETTE
07	SEQUENCE COUNTER	62	INTERVAL TIMER
10	CONSOLE SWITCH REG.	75	REAL TIME CLOCK
11	AX REGISTER	76	HIGH SPEED READER/PUNCH
12	AY REGISTER	77	TELETYPE I/O

%SAS—SYSTEMS ASSEMBLER (FAST)**LANGUAGE SUMMARY****%BAS—BASIC ASSEMBLER (BASE)****I DATA TRANSFERS, REGISTERS**

[C] device [Mod] TO device
 [C] ZERO [Mod] TO device
 [C] device [Mod]

— register to register
 — zero to register
 — register to self

RR[C] device [,Mod], device
 ZR[C] [,Mod], device
 RS[C] device [,Mod]

II DATA TRANSFERS, MEMORY

device [Mod] TO [I] [D] location
 ZERO [Mod] TO [I] [D] location
 [I] [D] location [Mod] device
 [I] [D] location [Mod]

— register to memory
 — zero to memory
 — memory to register
 — memory to self

RM[I] [D] device [,Mod], location
 ZM[I] [D] [,Mod], location
 MR[I] [D] location [,Mod], device
 MS[I] [D] location [,Mod]

III DATA TEST (JUMPS)

IF device test GO TO [D] location
 GO TO [D] location

— general
 — unconditional jump

JC[D] device, test, location
 JU[D] location

IV FUNCTION TEST (SKIPS)

SKIP [IF] device [NOT] status [status. . .]
 SKIP [IF] [NOT] status [status. . .]
 SKIP [IF] [NOT] status [status. . .]

— general
 — machine
 — arithmetic operator

SF device, [NOT] status [status. . .]
 SFM [NOT] status [status. . .]
 SFA [NOT] status [status. . .]

V FUNCTION GENERATE (CONTROLS)

pulse [pulse. . .] TO device
 pulse [pulse. . .]
 pulse [pulse. . .]

— general
 — machine
 — arithmetic operator

FO pulse [pulse. . .], device
 FOM pulse [pulse. . .]
 FOA pulse [pulse. . .]

ASSEMBLER INSTRUCTIONS

symbol = e
 symbol # n, value
 'dc₁c₂c₃. . .d
 e[,e. . .]
 —
 *OCT
 *DEC
 *e
 *.+n
 *EOT
 *END

— define parameter
 — define special symbol
 — define text
 — define word values
 — define packed bytes
 — octal radix
 — decimal radix
 — set location
 — reserve n words
 — end tape segment
 — end program

symbol = e
 —
 ASC dc₁c₂c₃. . .d
 WRD e[,e. . .]
 PKB e₁,e₂
 OCTAL
 DECIM
 LOC e
 LOC .+n
 EOT
 END