RIOWIO Instruction Card

The LEX file RIOWIO allows you to directly read and write to the HP-IL IC in the HP-75. By directly reading and writing to the registers in the HP-IL IC, you can have greater control of the HP-IL operations, you can simulate an arbitrary device, or you can practice writing the assembler code to the HP-IL IC without worrying about all the details of driving a processor. This card provides the two commands described below. The first command allows you to read an arbitrary register, and the second allows you to write to an arbitrary register.

For information on the structure of the IC's registers and the effect of writing to the IC's registers, refer to the "The HP-IL Integrated Circuit User's Manual" (part number 82166-90016). For information on HP-IL protocol, refer to "The HP-IL Interface Specification" (part number 82166-90017).

The RIO function allows you to read one of the eight registers on the HP-IL IC. This function's syntax is as follows:

Keyboard Execution: RIO(n)
Program Step: 10 A=RIO(n)

The n stands for an integer from 0 to 7 and specifies the register to be read. This function returns a numeric value between 0 and 255.

The WIO statement allows you to write data to one of the eight registers in the HP-IL IC. This statement's syntax is as follows:

Keyboard Execution: WIO n,x Program Step: 10 WIO n,x

The n stands for an integer from 0 to 7 and specifies the register to write to. The x stands for an integer from 0 to 255 and specifies the value to write into the register. If x is larger than 255, then MOD(x,255) is used as the value for x.

The STANDBY ON command is useful when doing direct IC register reads and writes. STANDBY ON turns on the HP-IL IC oscillator and keeps it on. You should be aware of the limitations that STANDBY ON sets on the HP-75 system's HP-IL operations. These limitations are described in section 9 of the HP-75 owner's manual. STANDBY ON is a global command and remains in effect until the STANDBY OFF command is executed. If STANDBY ON is in effect when the HP-75 is turned off, then it will still be in effect when the HP-75 is turned on again.

If STANDBY OFF is in effect then the HP-IL IC oscillator may not be on. Additionally, if the HP-75 is waiting for an HP-IL message and the oscillator is off, then the IC will not be able to receive it—the message will be lost.

HP-IL Integrated Circuit Register Map

Status Register (R0)	Read SC Write	CA	TA	LA	SSRQ	RFCR SLRDY	CLIFCR	MCL	
	CA — TA —	SC — system controller CA — controller active TA — talker active LA — listener active				SSRQ — send service request RFCR — RFC received SLRDY — set local ready CLIFCR — clear IFCR MCL — master clear			
Interrupt Register	Read C2in	C1in	C0in	IFCR	SRQR	FRAV	FRNS	ORAV	
(R1)	Write C2ou	C1out	C0out		Interrupt Enable Bits				
		C2in—C0in — control bits of received frame FRAV — frame available c2out—C0out — control bits for transmission as sent FRAV — output register available c7							
Data Register	Read D7in	D6in	D5in	D4in	D3in	D2in	D1in	D0in	
(R2)	Write D7ou	D6out	D5out	D4out	D3out	D2out	D1out	D0out	
D7in-D0in - data bits of D7out-D0out - data bits for received frame transmission									
Parallel Poll Register (R3)	Read ORE Write —	RERR —	PPST	PPEN	PPPOL	P2	P1	P0	
	RERR	ORE — output register empty RERR — receiver error PPST — parallel poll status				PPEN — parallel poll enable PPPOL — parallel poll polarity P2—P0 — parallel poll bit designation			
Loop Address	R/W S	cratchpad	Bits	ADDR4	ADDR3	ADDR2	ADDR1	ADDR0	
Register (R4)	ADDR4-ADDR0 - loop address								
Scratchpad Register	R/W	/W Scratch			ad Bits				
(R5)									
Scratchpad Register	R/W	N Scratch				pad Bits			
(R6)	.^	, , , , , , , , , , , , , , , , , , , ,							
Auxiliary Input	<u> </u>	1 44 11/25	T .		T		T		
Register	Read AUX7	AUX6	1	1	1	1	1	1 OSCDIS	
(R7)	L	AUX6 - 2	L uxiliany in	inute	OSCDIS	_ oscilla	tor disab		
AUX7-AUX6 — auxiliary inputs OSCDIS — oscillator disable									



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