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Apple Token Ring NB/c Card: Card Registers (3/95)

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TOPIC -----

This article describes these Registers:

- Interrupt and Slot ID Register
- MCP Status Register
- Control Register (Pass/Fail LED, and Ring Speed Select)
- NuBus Hardware Configuration Register
- Non-Optional Registers

DISCUSSION -----

Interrupt and Slot ID Register

The IBM Token-Ring module can interrupt the host processor by externally asserting its /INT interrupt that directly drives the /NMRQ NuBus interrupt line. Refer to the Token-Ring data sheet for setting and resetting the interrupt line.

MCP Status Register

Do not use the MCP Status register, it resides at word location C200A. It is provided here for completeness. Its contents are:

Bit	Function	Notes
7	Last TM1 returned from NuBus	
6	Last TM0 returned from NuBus	
5	Status of /RESET from NuBus	Delayed 4 10MHz clocks
4	Status of "latched reset" signal	
3	Not Used, always 0	
2	Status of XBACK signal	BIAEN* select signal
1	Status of XBG signal	
0	Status of XBR signal	

Control Register (Pass/Fail LED, and Ring Speed Select)

Read:

4-7	3	2	1	0
Not Implemented	IBM chipset hard reset	4/16 Mbps Speed Jumper	Yellow-Green LED readback	Not Implemented

Write:

4-7	3	2	1	0
Not Implemented	IBM chipset hard reset	Yellow LED	Green LED	Not Implemented

One green LED and one yellow LED are provided on the Token Ring NBH/c Card. Upon power-up or any type of reset, both LEDs will clear, indicating that the card is off-line. Once the initialization code has run and determined that the board is operating normally, the green LED will be illuminated by the software writing to the register and reading a speed of 16 Mbps in the speed jumper. If 4 Mbps operation is selected, the Yellow LED should be illuminated. Bit 1 controls the green. A "0" indicates the LED is lit. Bit 2 controls the yellow. A "0" indicates the LED is lit. For diagnostic purposes a logical AND of the LED enables is feedback to bit 1 so that if either LED is on, bit 1 will be active low. To correctly set the LED register, the software should write a 0 to the appropriate bit. For example, to power up the IBM module and turn on the LED for 4Mbps operation, write a byte of \$0A at \$60001. To power up the IBM module and turn on the LED for 16 Mbps operation, write a byte of \$0C.

Also included in this register is the 4/16 Mbps Ring Speed Jumper bit, which passes on the speed selected by the RING SPEED jumper on the card and determines whether the adapter will operate at 4 or 16 Mbps. If bit 2 is set to a 1, 4 Mbps is selected, while a zero means 16 Mbps. This bit is read by the IBM chipset only upon coming out of hard reset.

Bit 3 is connected to the hardware reset line of the IBM chipset. The default is "0", which holds the chipset in the reset state. Upon coming out of reset, the state of the "speed select" bit will be loaded into the chipset. Write a 1 to remove the reset condition.

NuBus Hardware Configuration Register

The NuBus Hardware Configuration Register is not used. Note that this register must be accessed as a word entity.

Non-Optional Registers

The following registers control features of the ACT2441-based NuBus interface which are not used on the Token Ring NBH/c Card. For this reason, only the desired value of each register is listed. The power-up default of all of these registers is 0. These registers must be written with the indicated values to ensure proper functioning of the card:

Address	Size	Register	Value (Hex)
-----	----	-----	-----
C8008	Word	External DMA Control	000A
C800D	Byte	DTACK Control 0	00
C800F	Byte	DTACK Control 1	07

These locations are the only initialization necessary for correct operation of the Token Ring NBH/c Card.

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