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Macintosh II High-Resolution Video Card: Monitor Sensing

TOPIC -----

This article lists the pin configurations to use with the Macintosh II High-Resolution Video Card, so that its monitor-sensing function will work properly.

DISCUSSION -----

The Macintosh II High-Resolution Video card is the replacement card for Macintosh II Video card. One new feature with this card which may present a problem is the automatic monitor sensing.

This feature, which has been incorporated into the video card for the Portrait and Two-Page display, allows the video card to determine if a monitor is attached to the card at boot time. This is accomplished by sensing either a low (ground) or high (no connect) signal on the connector.

For DB-15 connectors, these sense lines are on pin 4, 7 and 10. The Macintosh II High-Resolution Video card is a special case and only senses pin 4 of the DB-15 connector.

In order for the card to work correctly with the monitors listed below, the following is the minimum configuration of pins that must be connected:

Pin	Video Card Signal	Mac		A II
		Hi-Res Mono Pins	Hi-Res RGB Pins	RGB Pins
1	Red video ground	->	1	1
2	Analog red video	->	2	2
3	TTL composite sync	-> 3	3	3
4	Sense 0	-> 4	4	
5	Analog grn video w/composite sync	-> 5	5	5
6	Green video ground	-> 6	6	6
7	Sense 1 (not used)			
8	NC			
9	Analog blue video	->	9	9
10	Sense 2 (not used)			

11	Ground				
12	Analog grn video w/composite sync				
13	Blue video ground	->		13	13
14	Ground				
15	NC				
Shell	Earth ground	->	Shell	Shell	Shell

When Sense 0 (pin 4) is grounded, the card will generate a RS-343 video signal compatible with the Macintosh High-Resolution Monochrome and High-Resolution RGB monitor:

Horizontal Scanning = 35.000 KHz
 Dot Clock = 30.24 MHz
 Vertical Scanning = 66.67 Hz

When Sense 0 (pin 4) is not connected, the card will generate a RS-170 video signal compatible with the Apple II AppleColor RGB monitor:

Horizontal Scanning = 15.734 Khz
 Dot Clock = 12.27 Mhz
 Vertical Scanning = 60.0 Hz

In addition, the frame buffer size is reduced to fit the display area of the AppleColor RGB monitor.

(NOTE: This automatic sensing mechanism of the Apple High-Resolution Video card is similar to the Apple Portrait and Two-Page display cards, but does not have a shutdown mode -- that is, it does not show up in Control Panel -- when a monitor is not attached.

This feature is useful when you have two video cards installed, but only use one at a time. With the shutdown capability, the system software will recognize only the card with a monitor attached. Thus if a card is assigned the bootup monitor and the monitor is removed, the system will not send the startup video to a non-existent monitor.)

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