Integrated Circuit Systems, Inc.

ICS1531

ICS1531 RGB Response when Input Is Disconnected

1. Questions

After the ICS1531 is powered up, initialized, and is actively driving ADC output, if the VGA input cable is disconnected, what is the RGB response? Are the RGB outputs low, high, or floating?

2. Answer

After the ICS1531 has been properly powered up, initialized, and it is actively driving ADC output data, if the VGA input cable is disconnected, then the state of the RGB outputs is driven to approximately code 00. (That is, the screen displays only black data.)

While the ICS1531 is operating, if the VGA input cable is disconnected, the ADC continues to convert analog data. However, the reason the screen displays only black data is because (1) you disconnected the VGA input cable and (2) the analog lines on the board in question have 75Ω pull-down resistors by design.

2.1 Using Hardware to Detect VGA Input Cable Disconnection

To use hardware to detect a VGA input cable disconnection:

1. Configure Reg 2C:1-0 to '00' so that the active-low STATUS pin is driven by a loss of PLL lock. (When the VGA input cable has been disconnected, loss of PLL lock occurs.)

2. Connect the STATUS pin to a microprocessor interrupt input and observe its state. When the VGA input cable has been disconnected, the STATUS pin state goes high, indicating that PLL lock is lost.

3. After you detect the disconnection of a VGA input cable, there should be enough time to take an appropriate action, such as using Reg 00:5 to switch from the HSYNC input to the OSC input.

2.2 Using Software to Detect VGA Input Cable Disconnection

To use software to detect a VGA input cable disconnection:

1. Poll Reg 12:1. Loss of PLL lock occurs when the VGA input cable has been disconnected. As a result, when this bit goes from 1 to 0, it indicates that PLL lock is lost.

2. After you detect the disconnection of a VGA input cable, there should be enough time to take an appropriate reaction, such as using Reg 00:5 to switch from the HSYNC input to the OSC input.