

TI DLPC900 Two Controller - Port Configuration Issue

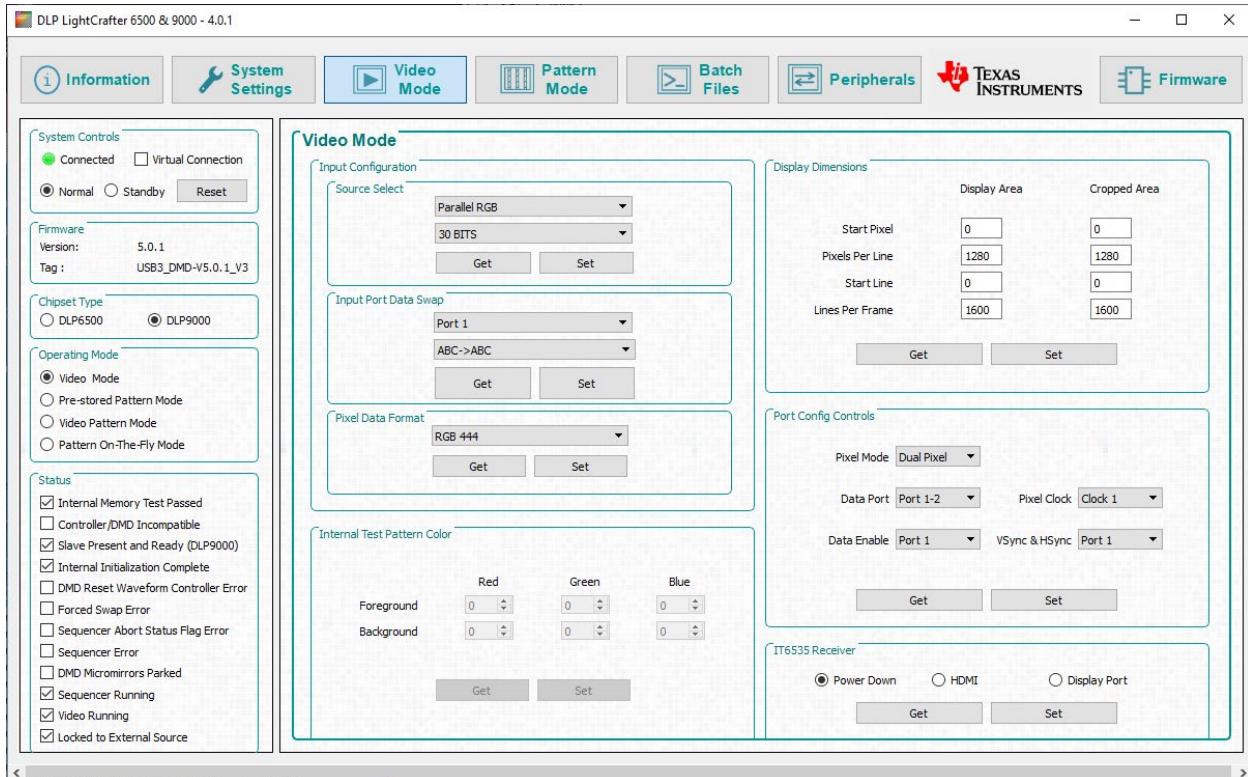
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Hardware: BLI designed DLPC900 Two Controller PCA. Display Port and HDMI removed and USB3 is used as the imaging interface to the DLPC900s.

Background:

We can project images but occasionally (about once every three days) the image gets squeezed into the top or bottom half of the DMD as shown:

Normal Operation:



Once every three days:



There is no way to detect this state:

A screenshot of the DLP LightCrafter 6500 & 9000 software interface. The window title is "DLP LightCrafter 6500 & 9000 - 4.0.1". The top navigation bar includes tabs for "Information", "System Settings", "Video Mode" (which is selected and highlighted in blue), "Pattern Mode", "Batch Files", "Peripherals", and "Firmware". The "Texas Instruments" logo is also present in the top right. The main content area is divided into several sections: "System Controls" (status: Connected, Normal mode selected), "Firmware" (Version: 5.0.1, Tag: USB3_DMD-V5.0.1_V3), "Chipset Type" (DLP9000 selected), "Operating Mode" (Video Mode selected), and "Status" (checkboxes for various internal test patterns and errors). The "Video Mode" tab contains sections for "Input Configuration" (Source Select: Parallel RGB, 30 BITS), "Input Port Data Swap" (Port 1, ABC->ABC), "Pixel Data Format" (RGB 444), "Display Dimensions" (Start Pixel: 0, Pixels Per Line: 1280, Start Line: 0, Lines Per Frame: 1600), "Port Config Controls" (Pixel Mode: Dual Pixel, Data Port: Port 1-2, Pixel Clock: Clock 1, Data Enable: Port 1, VSync & HSync: Port 1), and "IT6535 Receiver" (Power Down selected, HDMI and Display Port options). Each section includes "Get" and "Set" buttons.

We have stumbled onto a way to re-create the problem:

- 1) While imaging, send the following two commands:
2) Send a CLK_SEL : 0xD0 (We know this is an invalid command)
3) Send a CLK_SEL : 0x02

<- DMD goes blank
<- DMD goes into weird state

We have been able to recover by sending the following:

- 1) Sending one additional CLK_SEL : 0x02

<- DMD returns to normal

Questions for TI:

- 1) How can we detect that the DLPC900 is in this weird state?
- 2) What causes this, and is there a way to prevent this state?