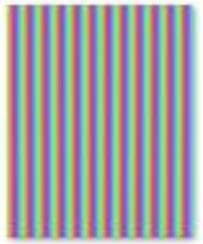
Uploading Patterns onto Lightcrafter 4500

Version 1.0, Revised 22/04/2021

By: Lam Teng Foong

1) Power up projector
2) Launch LightCrafter 4500 GUI, make sure projector is connected
3) Merge 8-bit monochrome patterns into a single RGB image
   - All required patterns are shown in slides 3 and 4
   - Merging instructions on slide 5
4) Append patterned images to firmware (slide 6)
5) Upload firmware (slide 7)

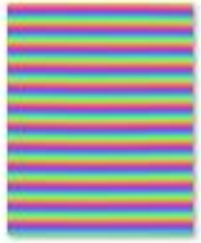
PSP+TPU RGB Images



PSP_1

G R B

psp_tpu_h_0 psp_tpu_h_1 psp_tpu_h_2



PSP_3

G R B

psp_tpu_v_0 psp_tpu_v_1 psp_tpu_v_2

PSP_2

G R B

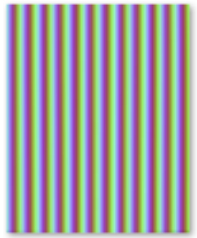
psp_tpu_h_3 psp_tpu_h_4 psp_tpu_h_5

PSP_4

G R B

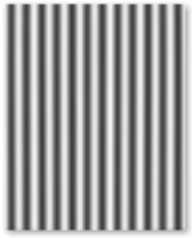
psp_tpu_v_3 psp_tpu_v_4 psp_tpu_v_5

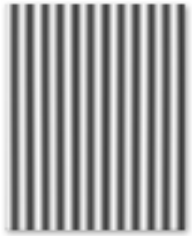
2P1+TPU RGB Images



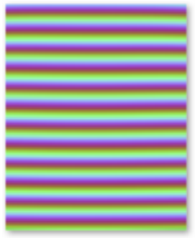
2P1_1

G R B





2p1_tpu_h_0 2p1_tpu_h_1 2p1_tpu_h_2



2P1_3

G R B

2p1_tpu_v_0 2p1_tpu_v_1 2p1_tpu_v_2

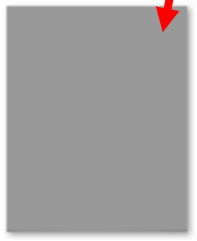
2P1_2

G R B

2p1_tpu_h_3 2p1_tpu_h_4 2p1_tpu_h_1

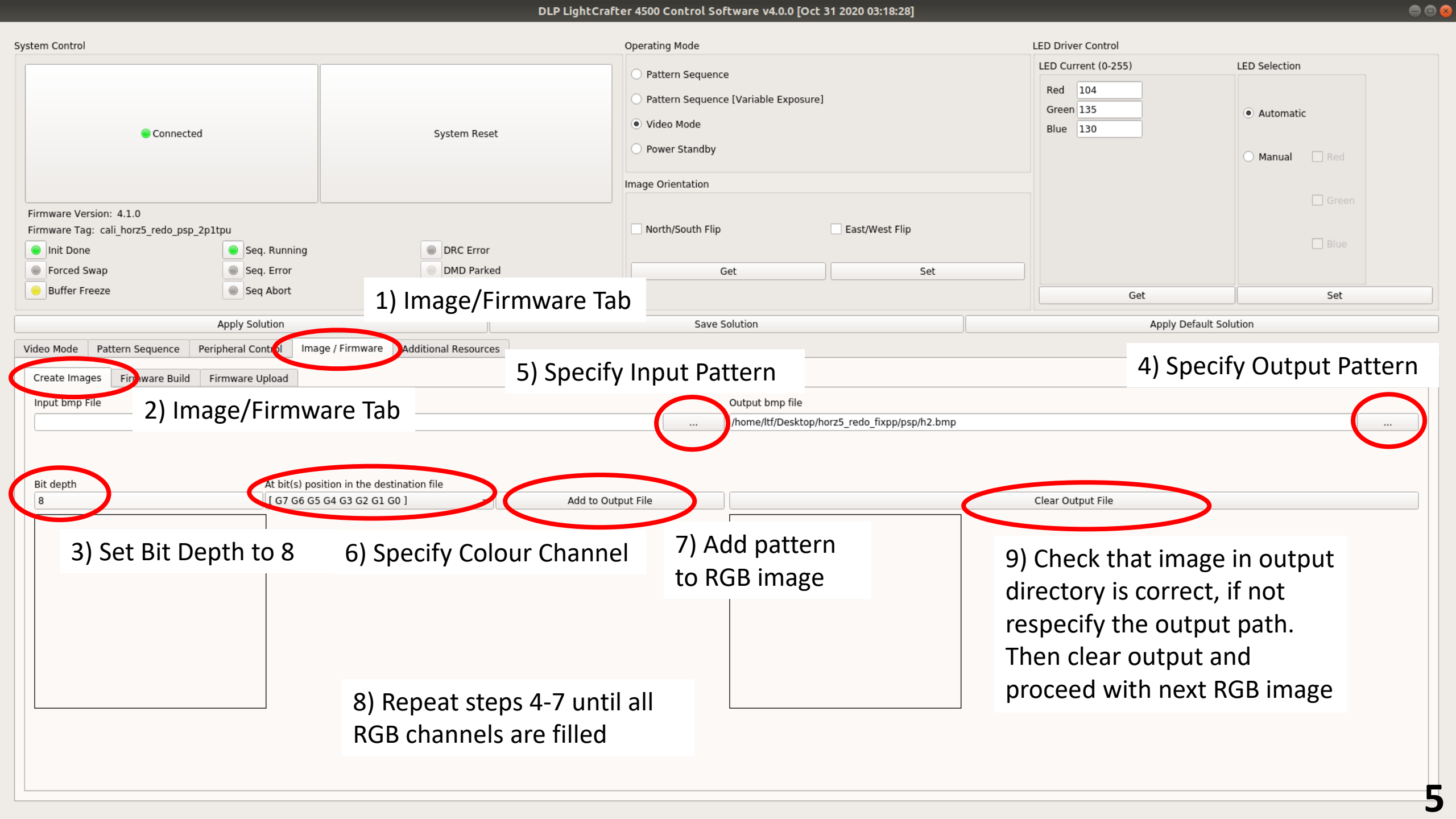
2P1_4

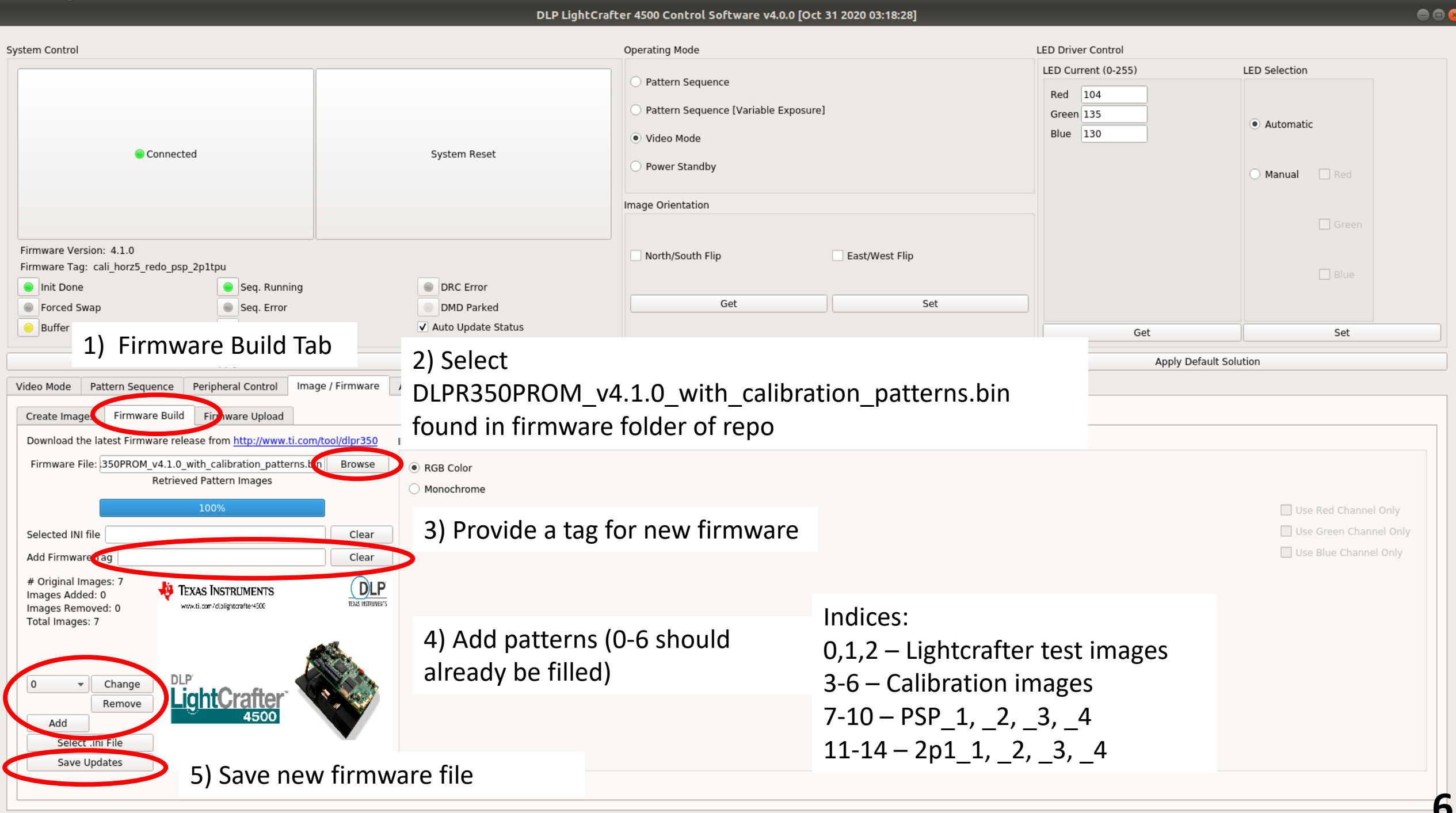
G R B



2p1_tpu_v_3 2p1_tpu_v_4 2p1_tpu_v_1

Unused during operation


DLP LightCrafter 4500 Control Software v4.0.0 [Oct 31 2020 03:18:28]
System Control
Connected
System Reset
Firmware Version: 4.1.0
Firmware Tag: cali_horz5_redo_psp_2p1tpu
Init Done
Seq. Running
DRC Error
Forced Swap
Seq. Error
DMD Parked
Buffer Freeze
Seq Abort
Operating Mode
Pattern Sequence
Pattern Sequence [Variable Exposure]
Video Mode
Power Standby
Image Orientation
North/South Flip
East/West Flip
Get
Set
LED Driver Control
LED Current (0-255)
Red 104
Green 135
Blue 130
LED Selection
Automatic
Manual
Red
Green
Blue
Get
Set
Apply Solution
Save Solution
Apply Default Solution
Video Mode
Pattern Sequence
Peripheral Control
Image / Firmware
Additional Resources
Create Images
Firmware Build
Firmware Upload
Input bmp File
...
Output bmp file
/home/ltf/Desktop/horz5_redo_fixpp/psp/h2.bmp
...
Bit depth
8
At bit(s) position in the destination file
[G7 G6 G5 G4 G3 G2 G1 G0]
Add to Output File
Clear Output File
1) Image/Firmware Tab
2) Image/Firmware Tab
3) Set Bit Depth to 8
4) Specify Output Pattern
5) Specify Input Pattern
6) Specify Colour Channel
7) Add pattern to RGB image
8) Repeat steps 4-7 until all RGB channels are filled
9) Check that image in output directory is correct, if not respecify the output path. Then clear output and proceed with next RGB image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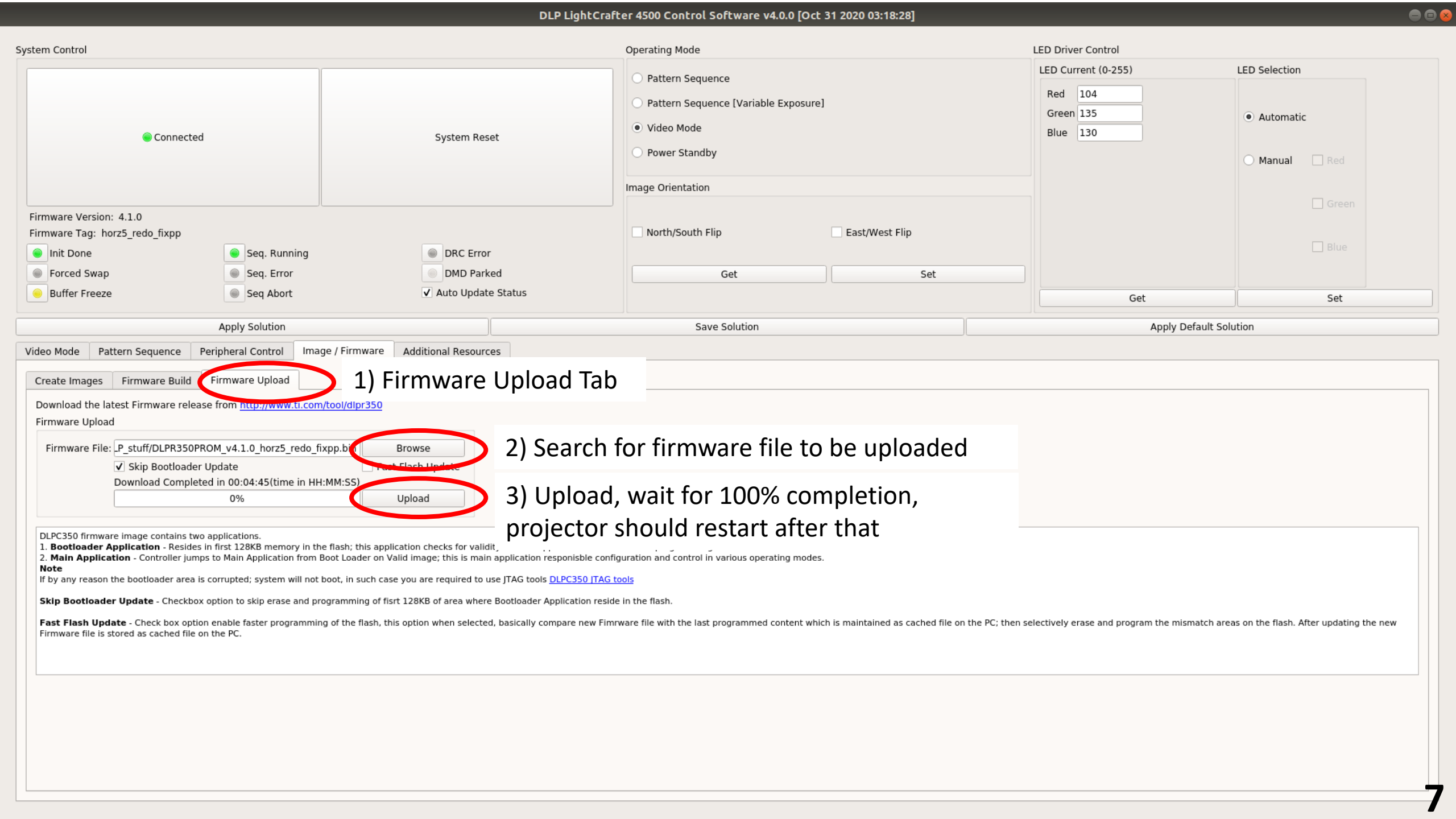
Firmware Tag: cali_horz5_redo_psp_2p1tpu
Init Done
Seq. Running
DRC Error
Forced Swap
Seq. Error
DMD Parked
Buffer
Auto Update Status
Operating Mode
Pattern Sequence
Pattern Sequence [Variable Exposure]
Video Mode
Power Standby
Image Orientation
North/South Flip
East/West Flip
Get
Set
LED Driver Control
LED Current (0-255)
Red 104
Green 135
Blue 130
LED Selection
Automatic
Manual
Red
Green
Blue
Get
Set
Apply Default Solution
Video Mode
Pattern Sequence
Peripheral Control
Image / Firmware
Create Image
Firmware Build
Firmware Upload
Download the latest Firmware release from http://www.ti.com/tool/dlpr350
Firmware File: 350PROM_v4.1.0_with_calibration_patterns.bin
Browse
Retrieved Pattern Images
100%
Selected INI file
Clear
Add Firmware Tag
Clear
Original Images: 7
Images Added: 0
Images Removed: 0
Total Images: 7
RGB Color
Monochrome
Use Red Channel Only
Use Green Channel Only
Use Blue Channel Only
0
Change
Remove
Add
Select .ini File
Save Updates
1) Firmware Build Tab
2) Select DLPR350PROM_v4.1.0_with_calibration_patterns.bin found in firmware folder of repo
3) Provide a tag for new firmware
4) Add patterns (0-6 should already be filled)
Indices:
0,1,2 – Lightcrafter test images
3-6 – Calibration images
7-10 – PSP_1, _2, _3, _4
11-14 – 2p1_1, _2, _3, _4
5) Save new firmware file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Blue
Get
Set
Apply Solution
Save Solution
Apply Default Solution
Video Mode
Pattern Sequence
Peripheral Control
Image / Firmware
Additional Resources
Create Images
Firmware Build
Firmware Upload
1) Firmware Upload Tab
Download the latest Firmware release from http://www.ti.com/tool/dlpr350
Firmware Upload
Firmware File: _P_stuff/DLPR350PROM_v4.1.0_horz5_redo_fixpp.bi
Browse
2) Search for firmware file to be uploaded
Skip Bootloader Update
Download Completed in 00:04:45(time in HH:MM:SS)
0%
Upload
3) Upload, wait for 100% completion, projector should restart after that
DLPC350 firmware image contains two applications.
1. Bootloader Application - Resides in first 128KB memory in the flash; this application checks for validit
2. Main Application - Controller jumps to Main Application from Boot Loader on Valid image; this is main application responisble configuration and control in various operating modes.
Note
If by any reason the bootloader area is corrupted; system will not boot, in such case you are required to use JTAG tools DLPC350 JTAG tools
Skip Bootloader Update - Checkbox option to skip erase and programming of fisrt 128KB of area where Bootloader Application reside in the flash.
Fast Flash Update - Check box option enable faster programming of the flash, this option when selected, basically compare new Fimrware file with the last programmed content which is maintained as cached file on the PC; then selectively erase and program the mismatch areas on the flash. After updating the new Firmware file is stored as cached file on the PC.