Wintech Digital Systems Corp.

PRO4500 DLC Board Functional Structure

2014-06-10

PRO4500 Connections

Figure 1-1 and Figure 1-2 depict the switches and connectors with their respective locations. Note that no cables, nor power supply are included with the unit.

1. Reset button
2. Power connector: Use a power supply with a 12-V DC output with 5 to 7-A current rating and a plug of 2.5 mm inner diameter × 5.5 mm outer diameter and 9.5-mm female center positive shaft. The current output of the power supply determines how much current the LED driver can supply
3. External trigger output connector: Supports two trigger output signals, each with configurable voltage of 5 V, 3.3 V, and 1.8 V through jumpers, J13 and J15 (bottom of the board)
4. Mini-USB connector: use an A to mini-B USB cable to connect to a PC
5. UART/RS232 mini-plug connector output: DLPC350 3.3-V UART output for error messages. Mini-plug tip is DLPC350 transmit (TX) and ring is DLPC350 receive (RX) signals. UART has the following serial configuration:
   - Bits per second: 115200
   - Data bits: 8
   - Parity: None
   - Stop bits: 1
   - Flow Control: None
6. External trigger Input connector: Supports two trigger input signals, each with configurable voltage of 5V, 3.3 V, and 1.8 V through jumpers, J10 and J12
7. Stand-by switch: Places the pro4500 in standby mode, powering down the LED Driver and the DLPC350
8. Flat panel display-link connector
9. Fan connector
10. LED driver connector
11. DLPC350 I2C1 bus
12. DLPC350 I2C0 bus
13. NULL
14. NULL
15. External LED driver connector: Insert a jumper in J30 to disable the pro4500 LED drivers and set jumper J28 for 3.3-V or 1.8-V supply. Then use this connector to control an external LED driver board to power the LEDs of the pro4500 light engine or external light engine.
16. System board connector: This interface routes USB, I2C, GPIO, and triggers from DLPC350 to a system board to control the pro4500.
17. Light engine connector
18. JTAG connector for DLPC350
19. JTAG Boundary Scan for DLPC350 (bottom of the board)
20. DVI input through mini-HDMI connector (bottom of the board). This input supports resolutions of 1280 × 800, 1024 × 768, 1024 × 640, 912 × 1140, 800 × 600, 800 × 500, and 640 × 480 at 60 Hz. InVideo Mode, the DLPC350 scales the input resolution to the native resolution of the DLP4500 DMD. In Pattern Sequencemode, this input supports 912 × 1140 resolution.

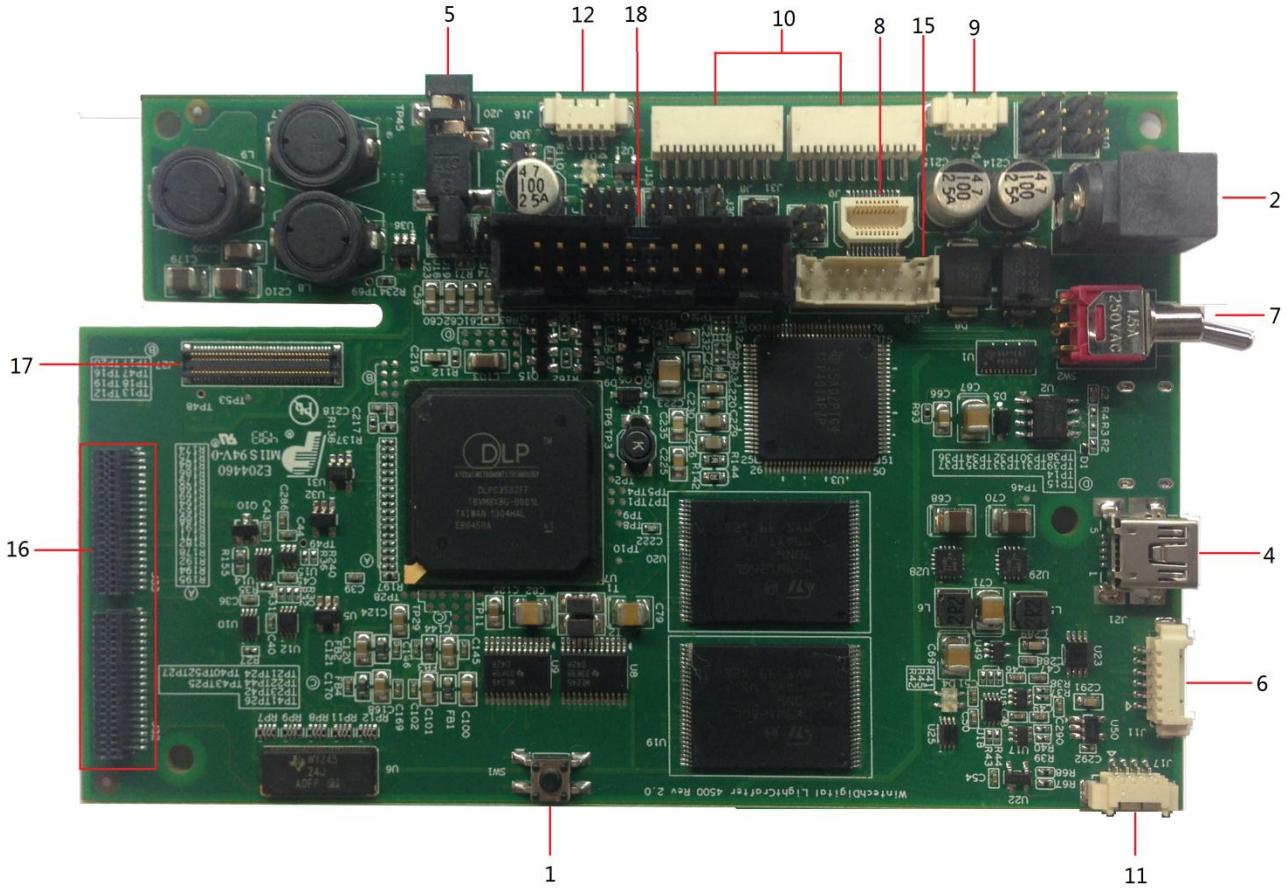

Figure 1-1. Pro4500 Connectors (Top View)

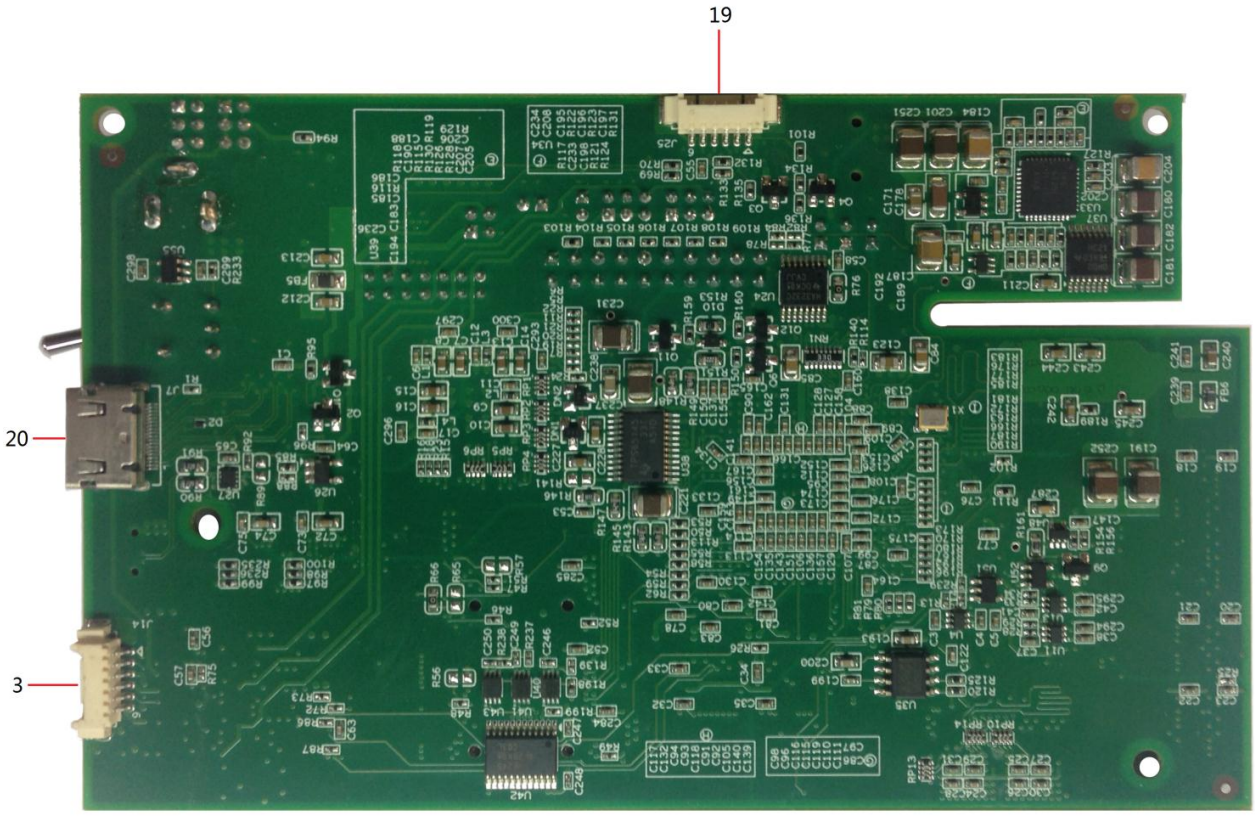

Figure 1-2. Pro4500 Connectors (Bottom View)

PRO4500 Jumpers

The pro4500 has jumper options to disable the on-board LED driver, control voltages of the LED signals to an external board, and control the trigger input and output voltages. This section lists all the jumpers on the pro4500 driver board. Figure 1-3 depicts the locations of these jumpers. These jumpers require a 2-mm jumper, like Sullins Connector Solutions ® SPN02SYBN-RC, Digi-Key part number S3404-ND.

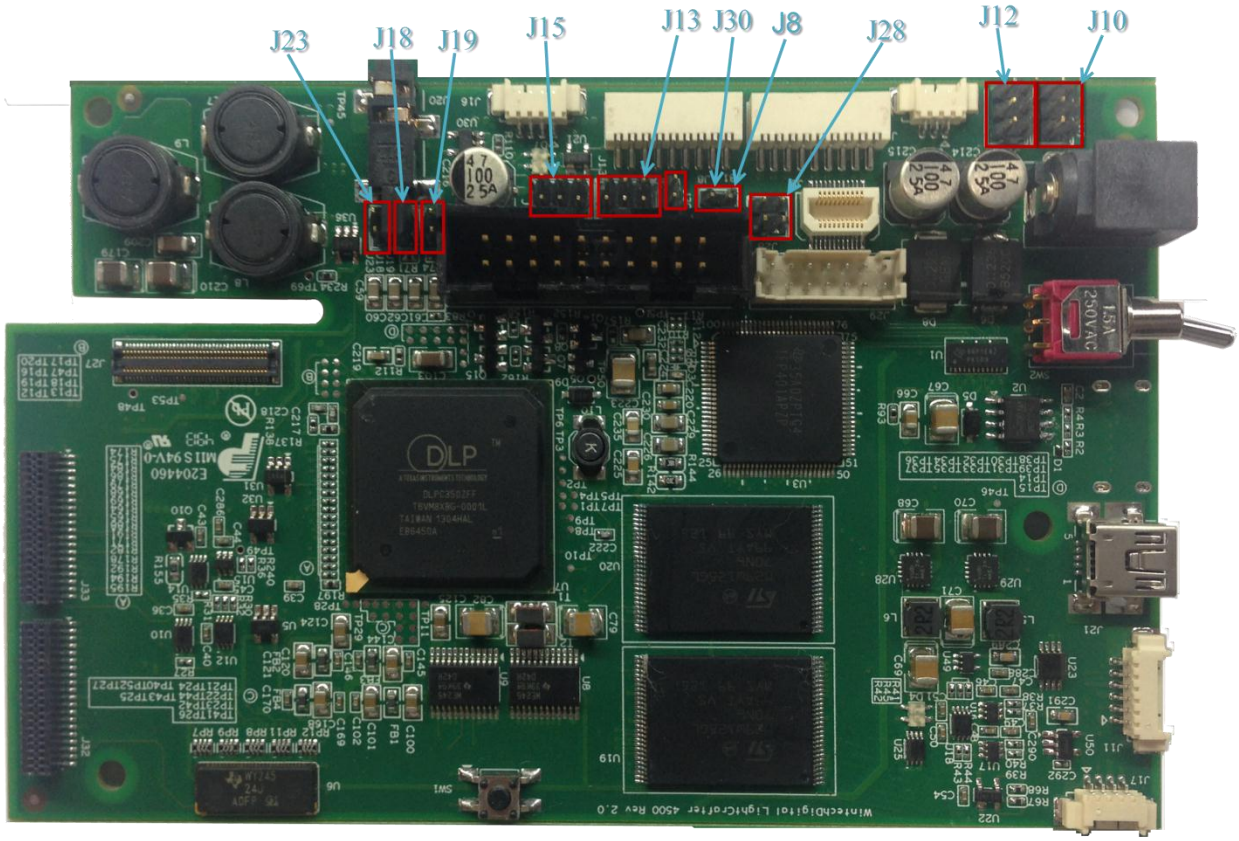

Figure 1-3. Pro4500 Jumper Locations

J8: EDID write protect disable jumper. Place this jumper to reprogram the EDID EEPROM (U2) using I2C commands through the mini-HDMI connector. Remove the jumper when programming of the EDID is complete. The EDID is programmed at the factory with resolutions of 1280 x 800, 1024 x 768, 1024 x 640, 912 x 1140, 800 x 600, 800 x 500, 640 x 480.

J10: DLPC350 TRIG1_IN voltage selection. Refer to Figure 1-4.

- Jump across pins 1 to 2 for 5 V
- Jump across pins 3 to 4 for 3.3 V
- Jump across pins 5 to 6 for 1.8 V

J12: DLPC350 TRIG2_IN voltage selection. Refer to Figure 1-4.

- Jump across pins 1 to 2 for 5 V
- Jump across pins 3 to 4 for 3.3 V
- Jump across pins 5 to 6 for 1.8 V

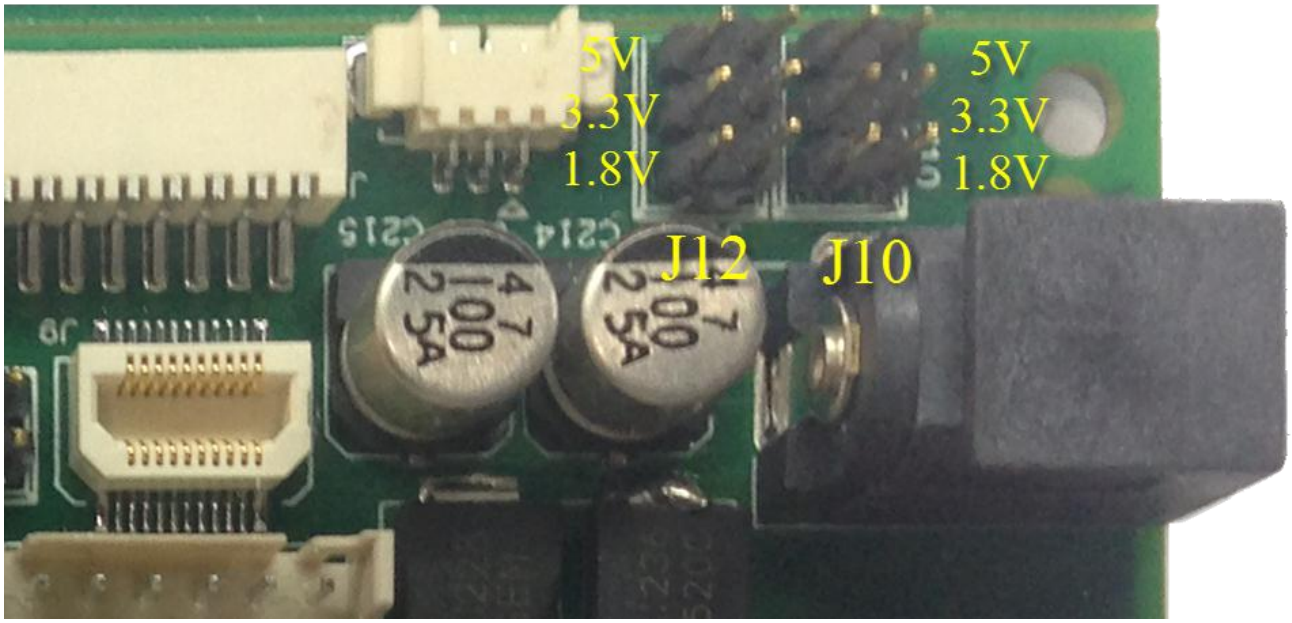

Figure 1-4. Pro4500 J10 and J12 Voltage Jumpers

J13: DLPC350 TRIG1_OUT voltage selection. Refer to Figure 1-5.

- Jump across pins 1 to 2 for 5 V
- Jump across pins 3 to 4 for 3.3 V
- Jump across pins 5 to 6 for 1.8 V

J15: DLPC350 TRIG2_OUT voltage selection. Refer to Figure 1-5.

- Jump across pins 1 to 2 for 5 V
- Jump across pins 3 to 4 for 3.3 V
- Jump across pins 5 to 6 for 1.8 V

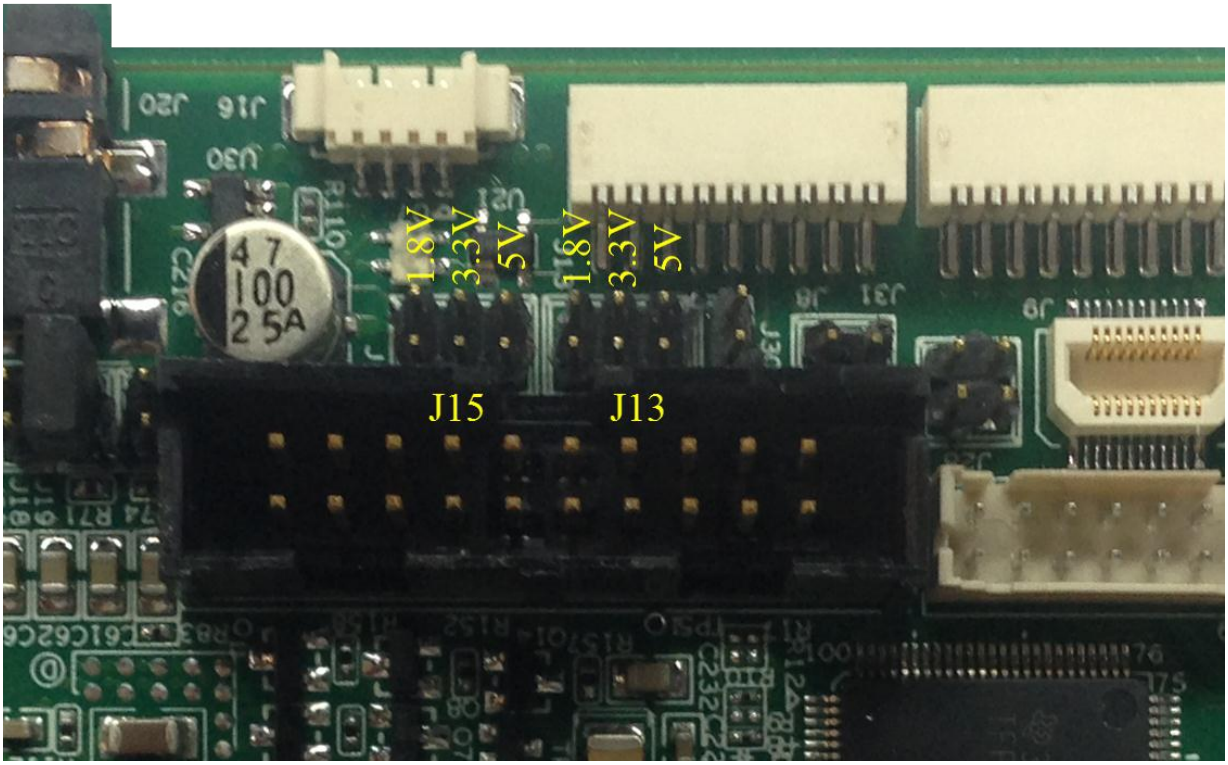

Figure 1-5. Pro4500 J13 and J15 Voltage Jumpers

J18: DLPC350 HOLD_IN_BOOT. Jump across this header to hold the DLPC350 in bootloader mode. This is only needed if the pro4500 firmware becomes corrupted and needs to be reprogrammed through the JTAG boundary scan or USB. The graphical user interface (GUI) firmware upgrade process places the DLPC350 in bootloader mode through software commands and does not need the jumper.

J19: device address select

- Jump across header to set I2C address to 0x3A and USB device serial number to LCR3
- Do not populate jumper to set I2C address to 0x34 and USB device serial number to LCR2

J23: Hold in reset. Jump across header to drive and hold reset line low. Jumping across this header is equivalent to pressing and holding the reset switch.

J28: DLPC350 LED signals voltage selection. This jumper needs to be populated when bypassing the on-board LED driver and using an external LED driver.

- Jump across pins 1 to 2 to set the DLPC350 LED enables and PWM signals to 3.3 V
- Jump across pins 3 to 4 to set the DLPC350 LED enables and PWM signals to 1.8 V

J30: DLPC350 LED driver disable. This jumper needs to be populated when bypassing the on-board LED driver and using an external LED driver.

- Jump across header to disable the on-board LED driver and turn off all LEDs, regardless of the Pro4500 video mode
- Do not populate this header for normal operation using the on-board LED driver