Wintech®

A Texas Instruments Authorized DLP® Design House

# PRO6500

## High Resolution Production Ready Optical Engine

**System Highlights**

- Modular all in one DLP®-based production ready industrial projector
- DLP6500 1080p (1920x1080) square pixel DMD
- All glass 0% offset optics, optimized for 381-650nm transmission
- Compatible with AVNET MicroZed System on Module
- Compatible with Type A and S600 DMDs
- Various Luminus LED (CBT/CBM/PT) compatibility
- Less than 3 month turn around on modifications
- Up to 9,253 binary FPS and 247 8-bit fps
- Includes DLP® LightCrafter 6500 USB-based API and host GUI

Continuing with the highly successful idea of modular DLP® platforms that are found on the PRO4500, Wintech has developed a higher resolution and higher brightness Production Ready Optical Engine, called the PRO6500. The PRO6500 utilizes Texas Instrument's 0.65" 1080p DMD (including both the Type A and S600 versions). This DMD is ideal for 3D Printing and 3D Measurement/Machine Vision applications requiring maximum optical intensity and DLP® array resolution.

The PRO6500's modular architecture allows for quick, low cost modifications to the base PRO6500 engine that minimize both expense and time to get to series production. The PRO6500 will accept various Luminus Devices LEDs including the CBT-90 and PT-54 LEDs. An all glass optical architecture (including the prism and flys eye lens) was chosen and optical coatings are optimized for 381-650nm. Optics configurations are similar to the PRO4500 and are 0% offset. The available lenses for the PRO6500 include both a 3D Printing and 3D Measurement optimized option. Custom lenses, if needed, can be fabricated in about 3 months. Thermal management is provided by copper heat piping and fan; however liquid cooling adaptations are available. The system size is 312x185x145mm including the projection lens and weighs 3.6kg.

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The PRO6500 multi-PCB stack was also designed for modularity and is functionally equivalent to the LightCrafter 6500 control electronics. All system critical components are located on the DMD driver PCB, allowing for low cost electronics modifications to the LED driver PCB. The PRO6500 can operate in both RGB and monochrome modes using an LED driver with up to three channels available. The multi-PCB stack provides a HDMI connection for data transfer, a USB connection for system control, and an $I^2C$ interface for LED control. Two configurable I/O triggers are available for camera and sensor synchronization. The PRO6500 is also designed to work with the AVNET MicroZed System on Module which provides 10/100/1000 Ethernet, 1GB of DDR3 SDRAM, and a Micro SD card interface. Wintech offers a complete software package to utilize these features.

Since the PRO6500 is based on the LightCrafter 6500's DLPC900 chipset, performance and control are identical. The PRO6500 utilizes the user friendly DLP® LightCrafter 6500 USB-based API and host GUI. The PRO6500 will support up to 9,523 Hz binary patterns and up to 247 Hz 8-bit grayscale rate.

| | **PRO6500 LED Dominant Wavelength (nm)** | | | | | |
|---|---|---|---|---|---|---|
| | **385** | **405** | **460** | **525** | **613** | **RGB** |
| **Application(s)** | 3D Printing | 3D Printing | 3D Printing/3D Measurement | 3D Measurement | 3D Measurement | 3D Measurement/ Display |
| **Minimum System Output Power** | 1100mW | 2800mW | 2000mW | 600lm | 240lm | 380lm |
| **Available Lens Working Distances (mm)** | 150 | 150 | 150<br>900 | 900 | 900 | 900 |
| **Corresponding Field of View (mm)** | 96x54 | 96x54 | 96x54<br>562x316 | 562x316 | 562x316 | 562x316 |
| **Projected Pixel Size (um)** | 50 | 50 | 50<br>293 | 293 | 293 | 293 |
| **Distortion (%)** | <0.1 | < 0.1 | 0.1-1 | <0.6-1 | <0.6-1 | <0.6-1 |

Wintech Digital Systems Technology Corporation is a Texas Instrument's DLP® Authorized Design House with locations in both China and the US. We are a full service engineering company that can design and manufacture all aspects of DLP® systems including electronics, optics, thermal management, light sources, firmware, and software.

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