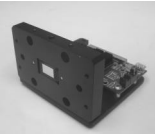
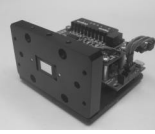
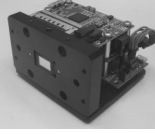




Ajile System - Hardware User's Guide

Draft Version 1.0 – March 23rd, 2018

Models Covered:

	<i>AJD-4500</i> <i>DMD Controller</i>
	<i>AJD-4500-T</i> <i>DMD Controller + Trigger Board</i>
	<i>AJD-4500-U</i> <i>DMD Controller + USB3.0 Board</i>
	<i>AJD-4500-UT</i> <i>DMD Controller + USB3.0 Board + Trigger Board</i>
	<i>AJP-4500</i> <i>DMD Projector</i>
	<i>AJP-4500-U</i> <i>DMD Projector + USB3.0 Board</i>

Revision History

March 23 rd , 2018	DSO	Initial Release

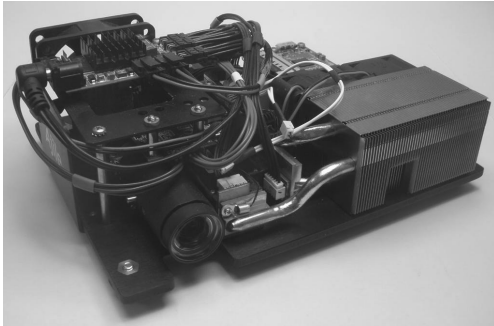
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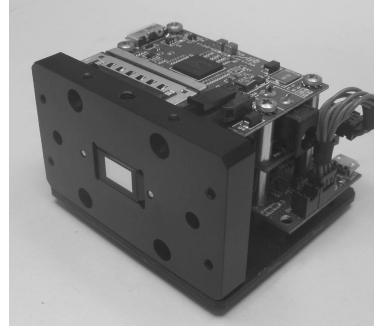
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1.0 – Introduction to the Ajile System



AJP-4500-U Projector



AJD-4500-UT DMD Controller

1.1 - System Hardware Overview

The Ajile System consists of two structured-light appliances and a software suite designed for extreme performance as part of any structured-light application. The AJP-4500 is a structured-light projector capable of projecting full DMD frames at 4000 frames-per-second, with fully-integrated light source control. With up to 4A-per-channel programmable LED currents driving an RGB light source and an LED PWM time accurate to 1 microsecond, true high-performance, DMD-speed limited pattern projection is now possible. If a light source is not required, the Ajile AJD-4500 DMD controller provides the same features as the AJP-4500 without the light source or projector optics, allowing full exposure of a raw DMD for external applications.

Ajile System Main Features - Hardware

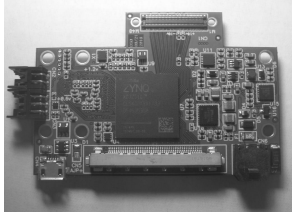
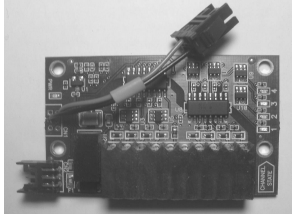
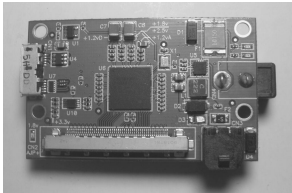
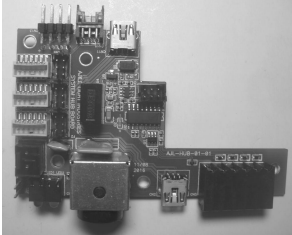
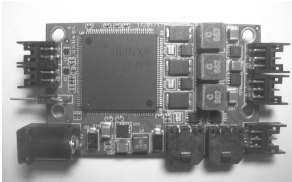
- *System hardware consists of a projector with light-source (AJP-4500) or bare DMD controller (AJD-4500) available with no difference in DMD performance between versions*
- *DMD frame rates up to 4000 frames-per-second*
- *Projector light output up to <td> lumens, with fast synchronization between light source and DMD state and 1 microsecond PWM timing accuracy (projector)*
- *Programmable RGB currents up to 4A/ch in addition to PWM drive on light source (projector)*
- *USB2.0 interface standard on both projector and controller*
- *USB3.0 available as an option for both projector and controller, 2.2 GB/s nominal speed*
- *Optically-isolated triggers on AJP-4500 (standard), or AJD-4500 (optional version)*
- *Single-supply power operation for simplified usage*

Both the Ajile AJP-4500 projector and the Ajile AJD-4500 DMD controller unit are designed to integrate with Ajile System software for easy and convenient, but notably powerful integration into any high-performance structured-light application. This document is an overview of the hardware portion of this system, and a guide to be used by those integrating it into their own work.

1.2 - Boards Used in the Ajile System

The following boards comprise the building blocks that make up the heart of the Ajile System. All models covered by this document use at least one of the following boards in their configuration:

Identification of Boards Used in the Ajile System:

	AJL-ADB-03-02 Ajile High-Speed DMD Controller
	AJL-TRG-01-01 Ajile Optically-Isolated Trigger Board
	AJL-FX3-01-02 Ajile USB3.0 Controller Board
	AJL-HUB-01-01 Ajile Projector Hub Board
	AJL-LED-04-02 Ajile 3-Channel LED Controller Board

1.2.1 - Matrix of Board Usage Across Models

For each of the models covered by this document, the following matrix summarizes board usage as part of each individual model:

Board Usage Matrix - Ajile System Models:

Model	AJL-ADB-03-02	AJL-TRG-01-01	AJL-FX3-01-02	AJL-HUB-01-01	AJL-LED-04-02
AJD-4500	X				
AJD-4500-T	X	X			
AJD-4500-U	X		X		
AJD-4500-UT	X	X	X		
AJP-4500	X			X	X
AJP-4500-U	X		X	X	X

As an example, an *Ajile AJD-4500-UT DMD Controller* would use as it's base hardware an *AJL-ADB-03-02* DMD board, an *AJL-TRG-01-01* trigger board, and an *AJL-FX3-01-02* USB3.0 controller board. Likewise, an *Ajile AJP-4500-U DMD Projector* would use an *AJL-ADB-03-02* DMD board, an *AJL-FX3-01-02* USB3.0 board, an *AJL-HUB-01-01* projector hub board, and an *AJL-LED-04-02* LED controller.

1.3 - Organization of Sections In This Manual

The sections of this guide are organized into the following main categories. For specific information on on usage of either a DMD controller or projector device, please refer to the relevant section noted below.

Section 1.0	This section, Ajile System introduction and general information
Section 2.0	Hardware Guide: AJD-4500 and all variants: - AJD-4500-T - AJD-4500-U - AJD-4500-UT
Section 3.0	Hardware Guide: AJP-4500 and all variants: AJP-4500-U
Section 4.0	DLP4500FQD DMD Information
Section 5.0	Settings and Indicator States – Normal Operation

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