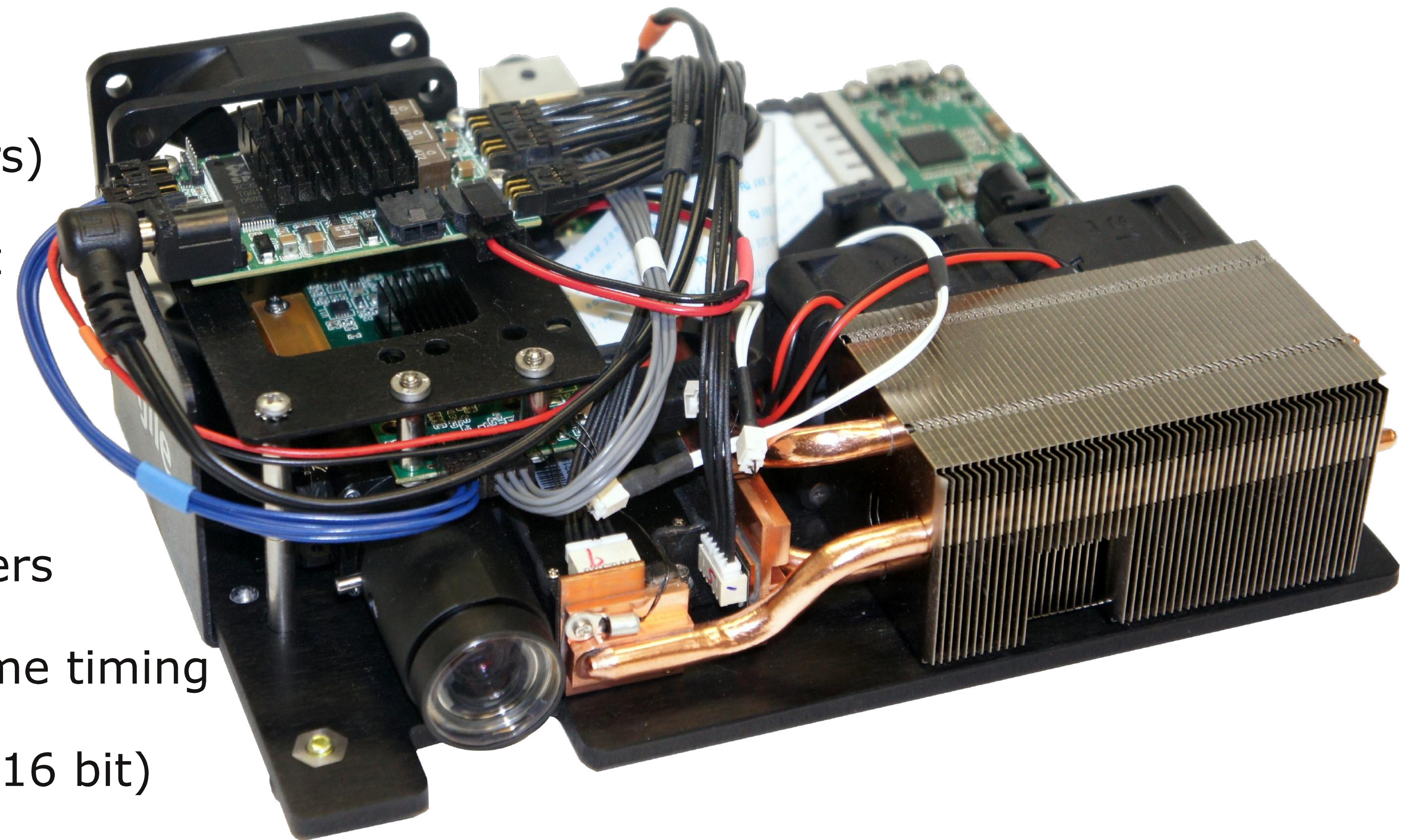


Scientific DMD Control

Ajile DMD controllers simplify the precise control of digital micromirror devices to achieve their full potential. The AJP-4500 allows for frame-by-frame high-speed control of RGB lighting, triggering and structured light patterns with the accuracy required for scientific, medical and industrial applications.

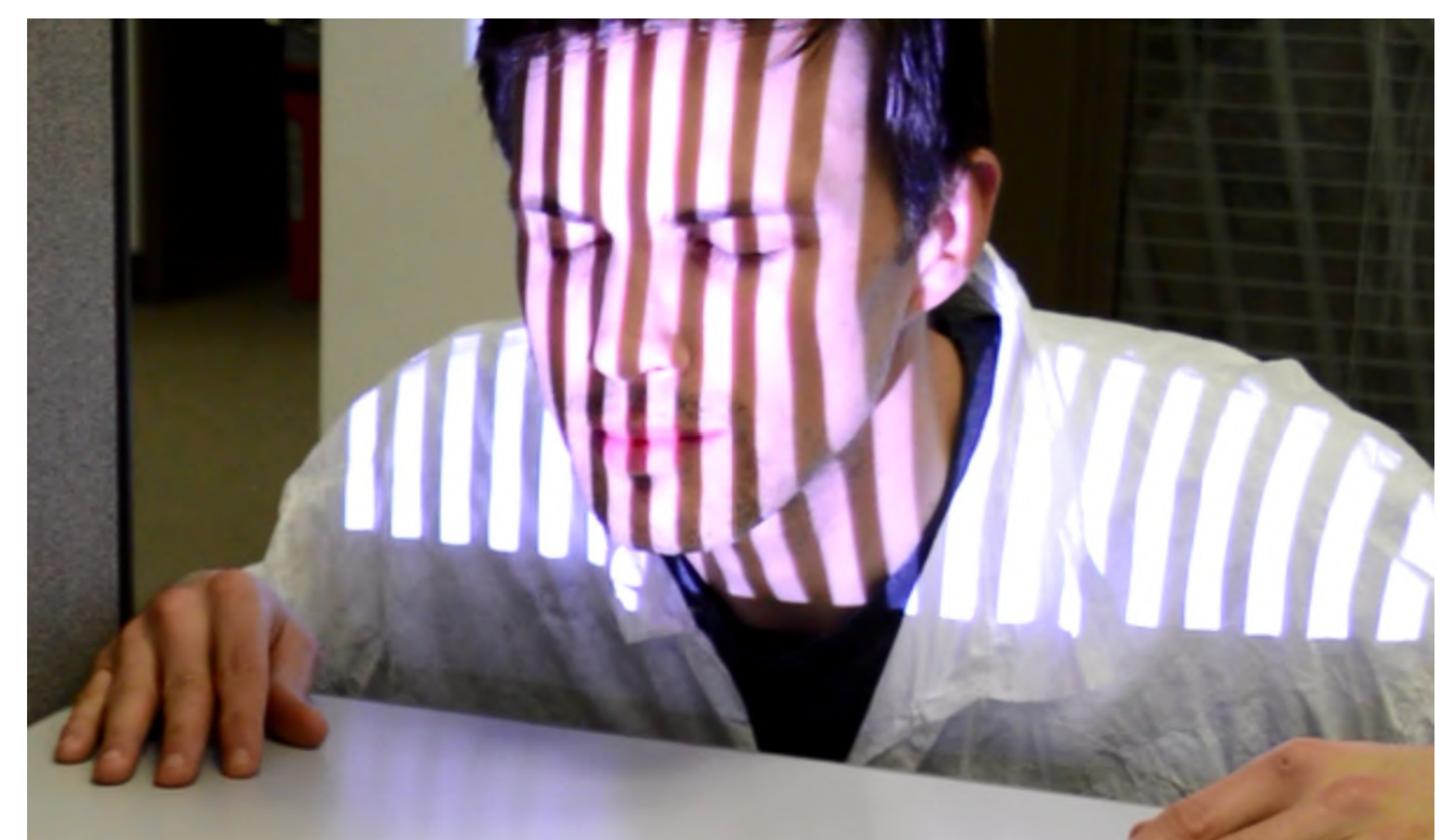
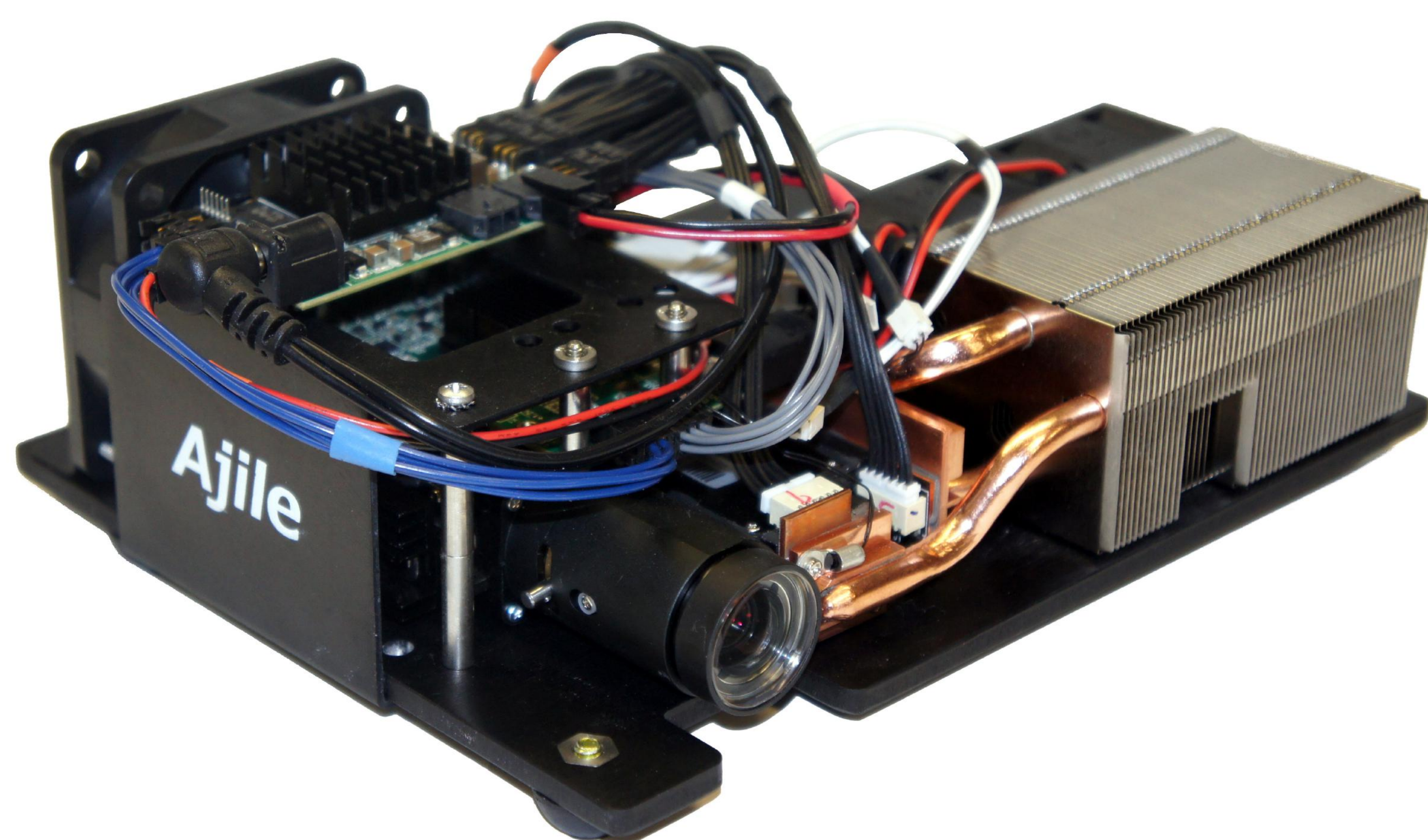
Key Features

- Scientific controller for 0.45" DMD (912 x 1140 micromirrors)
- Ajile GUI and full SDK with Python/C++/C#/Matlab support
- Controller can drive the DMD at 6,600 fps
- 1 GB of memory (7000 images), accessible at full speed
- Independent, per frame control of timing, lighting parameters
- Stream images continuously at 2,500 fps with accurate frame timing
- Arbitrary bit-depth for grayscale and color (e.g. 4, 8, 10 or 16 bit)
- Take direct control of the DMD and each individual micromirror
- On-board Linux processor and FPGA for embedded smart control
- LED Controller manages 3 LEDs with frame-by-frame control of brightness and timing
- Low-latency synchronization core for the DMD and external devices via programmable input and output triggers



Structured Light DMD Projector Details

DMD	0.45" DMD (912 x 1140 micromirrors) FQD package with enhanced thermal interface
Controller Chip	Xilinx Zynq 7010 SoC with dual-core ARM and FPGA
Interfaces	USB 2 (native) USB 3.0 (optional add-on board)
On-Board Memory	1 GB RAM
Frame Rates	0.02 Hz – 6,660 Hz (full resolution) 100,000 Hz (16 x 1140 resolution)
Frame Times	150 microseconds - 43 seconds
Projector LEDs	- Red Osram LE A Q7WP - Green Osram LE CG Q7WP - Blue Osram LE B Q7WP
Maximum LED Output	80W with all 3 channels driven simultaneously: Red @ 3.5A Green @ 5A Blue @ 5A
Lighting Control (can be specified for each LED)	Specify PWM Percentage Specify pulse time (microseconds) Specify drive current Specify delay (ms from frame start)
Projector Cooling	Heat-pipe cooling and dual fans for LEDs Fan for LED controller and DMD
Throw Ratio	1.2
External Triggers In	Two opto-isolated triggers, configurable to: - Start Frame - Start Lighting - End Lighting
External Triggers Out	Two opto-isolated triggers, selectable from: - Next Frame Ready - Frame Started - Frame Ended - Lighting Started - Lighting Ended
Region of Interest	From 16 x 1140 to 912 x 1140
Image Store	7,000 912 x 1140 binary images (can be randomly displayed at 6,600 fps)
Non-Volatile Storage	Micro SD card - up to 32 GB for project storage
Optional Add-ons	USB 3.0 Communications Board
Power Supply	Mean Well GST160A15 or equivalent (15V, ~144W)



Structured Light 3D Imaging