

# DLP 0.55 XGA Chipset

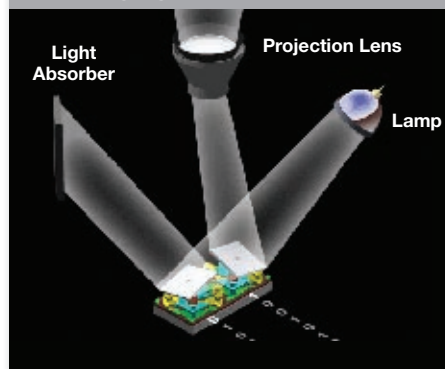
## DLP5500, DLPC200 and DLPA200

Harness the power of DLP Technology from Texas Instruments. At the heart of every DLP Chipset is the Digital Micromirror Device (DMD): a digitally controlled spatial light modulator (SLM). When integrated with an illumination source and optics, DLP Chipsets enable users to control binary light patterns with speed, precision, and efficiency.

### DLP Benefits

DLP technology offers developers the ability to spatially and sequentially steer discrete points of light with speed and precision. Fast micromirror switching speeds support high bit depth applications with fast, synchronized light patterns. System optical architectures are simplified because the DMD is inherently polarization independent. In commercial production since 1995, DLP technology provides developers with a reliable and robust technology for integration into a multitude of light processing solutions.

### Illustration of DLP micromirror steering light



The chipset can accept input frame rates of 8-bits per color (RGB) at 60 Hz XGA resolution for video imaging. The DLP5500 has a robust ceramic package and 0.55-inch diagonal micromirror array to allow higher optical wattage and throughput for solutions needing higher brightness. Dual 24-bit data interfaces in addition to USB and SPI communication interfaces offer design flexibility for easier and faster development of light processing applications.

### DLPC200 Key Features

- Pattern rates up to 5000Hz binary, 500Hz grayscale
- Dual 24-bit data interface
- USB and SPI interfaces
- User configurable Sync (output) and Trigger (input)

### DLP5500 Key Features

- 0.55-inch diagonal micromirror array
- XGA resolution [1024 x 768]
- 10.8µm micromirror pitch
- Two fixed (digital) micromirror positions (+/- 12° tilt angle)

### DLP 0.55 XGA Chipset

The 0.55 XGA Chipset is in the family of DLP Technology offered from TI and includes:

- DLP5500 – 0.55 XGA DMD
- DLPC200 – DLP5500 Controller
- DLPA200 – DMD Micromirror Driver

This chipset supports up to 5000 Hz binary or 500 Hz grayscale pattern rates. DLPC200 includes user configurable sync (output) and trigger (input) interfaces for synchronizing the chipset with external sources (e.g. camera), making this chipset well suited for structured light applications such as machine vision, 3D scanning and 3D optical measurement.

Look for the DLP LightCommander™ to quickly learn and develop with the 0.55 XGA chipset!

Search TI.com: DLPLIGHTCOMMANDER



For questions please visit <http://e2e.ti.com>

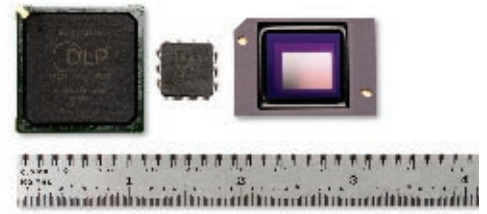
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## How the 0.55 XGA Chipset Works

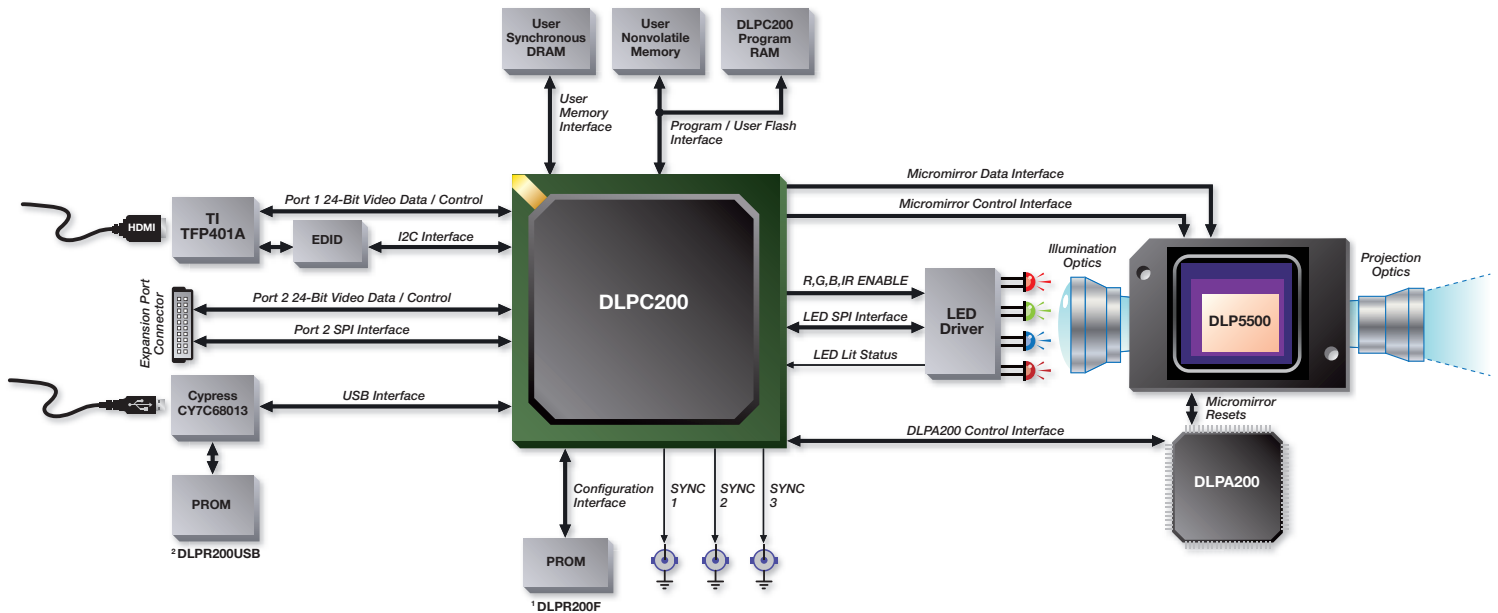
TI offers a dedicated DLP 0.55 XGA Chipset which consists of a DMD, DMD Controller and DMD Micromirror Driver. The complete chipset is designed to give engineers fast, easy and reliable control of the DMD to expedite product development.

The DMD is an electrical input, optical output memory device. Each micromirror of the DMD can be individually deflected about a hinged axis. The deflection angle (plus or minus) of each micromirror is controlled by changing the binary state of the underlying CMOS memory cell followed by application of a Mirror Reset

pulse. Convenient and reliable operation of the DMD is orchestrated by the DMD Controller and DMD Micromirror Driver. In addition, TI offers firmware code for the Digital Controller to enable advanced control of the DMD for video and structured light applications.



### Block Diagram of System using 0.55 XGA Chipset



	Description	Function	Benefit
<b>DLP5500</b>	<b>0.55 XGA DMD</b> Digital Micromirror Device	MEMS component containing an array of aluminum micromirrors, with a reflectivity of 88%, that digitally switch up to 5000 Hz binary patterns per second.	Fast, efficient and reliable spatial light modulator with a robust ceramic package enabling higher lumen light processing applications
<b>DLPC200<sup>1</sup></b>	<b>DLP5500 Controller</b>	Conveniently interfaces user electronics to the DMD	Provides developers the flexibility to time and control the micromirrors: up to 5000 Hz binary and 500 Hz 8-bit grayscale
<b>DLPA200</b>	<b>DMD Micromirror Driver</b>	Conveniently and compactly integrates analog control required to clock the DMD micromirrors into a single chip	Compatible with DLPC200 to enable reliable high speed DMD performance

<sup>1</sup> DLPR200F available from TI is DLPC200 Firmware Code for Video and Structured Light Applications

<sup>2</sup> DLPR200USB available from TI is Cypress CY7C68013 USB Controller Firmware Code



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Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265  
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