

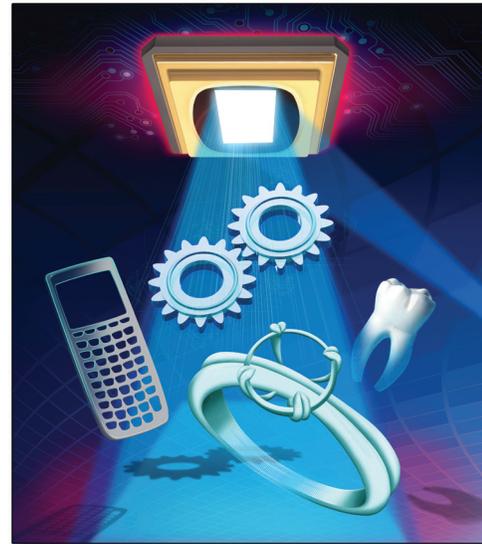
TI DLP® Technology for 3D Printing

Design scalable high-speed stereolithography systems using TI DLP® technology



3D Printing is the additive manufacturing process of building a three-dimensional object by laying down successive layers of material. A 3D Computer Aided Design (CAD) model of the object is converted into a series of cross-sectional slices that are sent to the 3D printer. The process allows manufacturers to speed up development cycles, make quick adjustments to molds and prototypes, and create highly detailed and customizable parts.

These printers make use of liquid photopolymer resins to build objects. For each cross-sectional slice of the object, the TI DLP® DMD (Digital Micromirror Device) projects patterned light that selectively exposes and hardens the resin. Because an entire layer is exposed with a single pattern, fast build speeds are achieved independent of layer complexity. Projection optics can also be used to control the resolution on the image plane and adjust the layer thickness, leading to smooth and accurate finished parts. These benefits, combined with its proven reliability, make DLP technology the ideal solution for stereolithography 3D printing systems



Features and benefits

- **Programmable micromirrors expose entire layer in one shot**
 - Faster build speed than point-by-point technologies
 - Improved throughput
 - Eliminate need for print heads
 - Print speed is independent of design complexity or number of parts
- **High-resolution patterns with micromirror size (7, 10, 13 μm)**
 - Achieve micron-level features for high accuracy
 - Easily adjust layer thickness
- **Optically efficient from 363 nm to 700 nm**
 - Cure a wide range of photo-polymers and resins

Example applications

- Rapid prototyping
- Molds for tooling and casting
- Direct part manufacturing

DLP solutions for 3D printing

DLP chipsets are available with different DMD sizes, pixel pitches, resolutions, and other specifications. DLP products also offer devices targeted for use with UV exposure. The best choice for a DLP chipset may depend on the desired object feature size, patterning speed and necessary wavelengths to cure the resin.



Recommended Parts

Small Form Factor	High Resolution	High Speed
DLP3000	DLP6500FYE	DLP7000
DLP4500	DLP6500FLQ	DLP7000UV
	DLP9000	DLP9000X
	DLP9000X	DLP9500
		DLP9500UV

Evaluation modules

Accelerate your design cycle by evaluating DLP technology with any of the evaluation modules (EVMs). The development modules provide flexible light steering solutions with high brightness and resolution for industrial, medical and scientific applications. Our portfolio of EVMs offer a compelling combination of resolution, brightness, pattern speed, and programmability of DLP technology.

TI provides free software and firmware downloads allowing developers to easily create, store, and display high-speed pattern sequences through USB-based application programming interface (API) and easy-to-use graphical user interface (GUI).

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