

3D Printing with DLP® Technology



DLP Offers Unparalleled Advantages for 3D Printing Applications



3D Printing is Revolutionizing Manufacturing

3D Printing, also called Additive Manufacturing, is the 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 complex and customizable parts. It is used in a wide array of applications, including rapid prototyping, jewelry casting, custom medical implant production, and manufacturing of complex automotive and aerospace components.

The digital micromirror device (DMD) found at the core of DLP technology enables companies to develop uniquely fast and accurate 3D printers. These printers make use of liquid photopolymer resins to build objects. For each cross-sectional slice of the object, the DMD 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 3D printing systems.

Example Applications

- Rapid prototyping
- Fit and function models
- Molds for tooling and metal casting
- Hearing aids and medical implants
- Dental restorations
- Jewelry casting
- Automotive components
- Aerospace components

Key Features and Benefits

- **Micromirror array exposes an entire layer in one shot**
 - Faster build speeds than point-by-point technologies
 - Achieve consistent build times independent of layer complexity or number of parts
- **Easily program high resolution patterns**
 - Enable sub-50 μm resolution on the image plane
 - Easily adjust layer thickness
- **Proven and reliable MEMS technology**
 - No expensive equipment to replace means lower cost of ownership
- **Optically efficient from 365 to 2500 nm**
 - Compatible with a wide range of polymers and resins

Visit www.ti.com/mems to learn more about the advantages of DLP® technology and broad range of development tools available to kickoff your 3D printing development.

Example Products

ASIGA



www.asiga.com

envisionTEC



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