



Augmented reality (AR) glasses and headsets use display modules that blend the digital and physical worlds. These display modules have demanding requirements for performance, size, and power. TI DLP® Pico technology enables small, high-performance, low power AR display modules.

Features and Benefits

- High optical efficiency / low power
 - A brighter display on a limited power budget
 - Lower LED power consumption required to reach target brightness levels
- High contrast
 - On/off contrast ratios of >1000:1 are possible, dependent on optical design tradeoffs, which enable highly transparent backgrounds.
- High speed
 - Digital micromirrors that switch in microseconds enable frame rates of up to 240 Hz, high color-sequential refresh rates and low display latency.

Recommended DLP Pico Chipsets for AR Glasses

The DLP Pico chipset portfolio offers several solutions for AR glasses. The best fit will depend on the target size, power, and field of view, and resolution of the display system.

For smaller, lower power display systems, DLP Pico chipsets that include a 0.2"-class micromirror array diagonal (DLP2xxx) are recommended. These solutions enable extremely compact optical systems and the lowest possible power consumption.

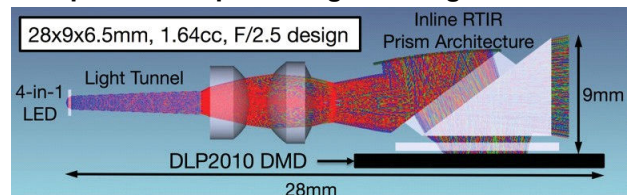
For higher-performance display systems, the 0.3" and 0.47"-class of devices enable larger field of view (FOV) and higher resolution.

	DMD	Controller	Resolution
Low Power / Small Size	DLP2000	DLPC2607	640x360
	DLP2010	DLPC3430	854x480
	DLP230GP	DLPC3432	960x540
Higher Performance	DLP3010	DLPC3433	1280x720
	DLP4710	DLPC3439	1920x1080



DLP Pico controllers and PMIC/LED driver chips enable compact, low power PCBs that can fit in virtually any AR glasses form factor.

Example Small Optical Engine Design



Side-illuminated DLP2010, DLP230GP and DLP3010 DMDs can enable slim, in-line designed optical engines that are good fits for compact AR glasses with either near-temple or near-eyebrow display system locations.

Additional Technical Resources

- [DLP Technology for Near Eye Display](#)
- [DLP2010 DMD Optical engine reference design](#)
- Watch the [Wearable displays with TI DLP Pico technology](#) training video
- Contact [Optical engine suppliers](#)
- Order [DLP Pico evaluation modules \(EVMs\)](#)
- Download [DLP Pico reference designs](#)

Trademarks

DLP® is a registered trademark of Texas Instruments. All trademarks are the property of their respective owners.

IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements. These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you will fully indemnify TI and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI's products are provided subject to TI's Terms of Sale (<https://www.ti.com/legal/termsofsale.html>) or other applicable terms available either on [ti.com](https://www.ti.com) or provided in conjunction with such TI products. TI's provision of these resources does not expand or otherwise alter TI's applicable warranties or warranty disclaimers for TI products.

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2021, Texas Instruments Incorporated