

Welcome!


Texas Instruments New Product Update

- This webinar will be recorded and available at www.ti.com/npu
- Phone lines will be muted
- Please post questions in the chat or contact your sales person or field applications engineer

New Product Update: Next-gen 4K from TI DLP® Pico™ technology

Amber Scheurer

May 6, 2021

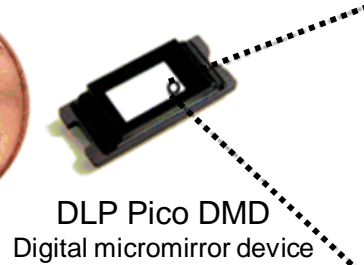
- 
- A modern lounge interior with a large screen displaying a list of topics. The room features a large window with a grid pattern, a potted plant, a floor lamp, a radiator, a dark wood console table, and a red leather armchair. The screen is mounted on a wall and displays a list of topics in a clean, sans-serif font. The overall aesthetic is industrial and contemporary.
- DLP® Technology introduction
 - Next-gen 4K chipset
 - Getting started with the 4K EVM
 - TI.com and third-party resources

DLP Technology | Millions of mirrors



An industry leader in
digital cinema, projection,
and MEMS

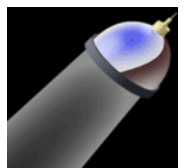
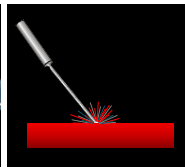
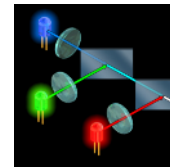
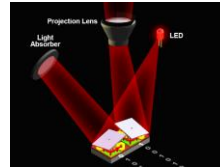
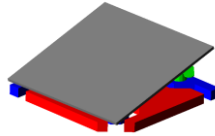
Extremely flexible and
programmable light
management



DLP Pico DMD
Digital micromirror device

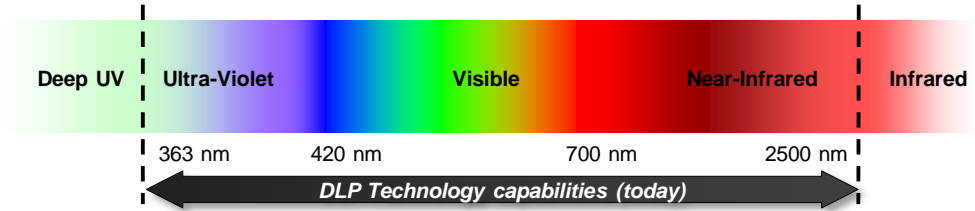


Array of mirrors (5.4 μ m TRP)



that digitally switches... ...to steer light

Works with LED, lasers and lamps



DLP products

Product tree

Advanced light-control chipsets (33)

High-speed visible chipsets (25)

Near-infrared (NIR) chipsets (6)

Ultraviolet (UV) chipsets (12)

Automotive chipsets (14)

Display & projection chipsets (43)

Pico chipsets (28)

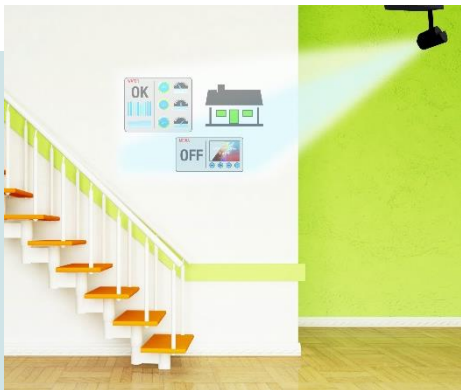
Standard chipsets (15)

Light
control

Automotive

Display

DLP Pico | Display applications



Wide range of stand-alone or embedded display applications:

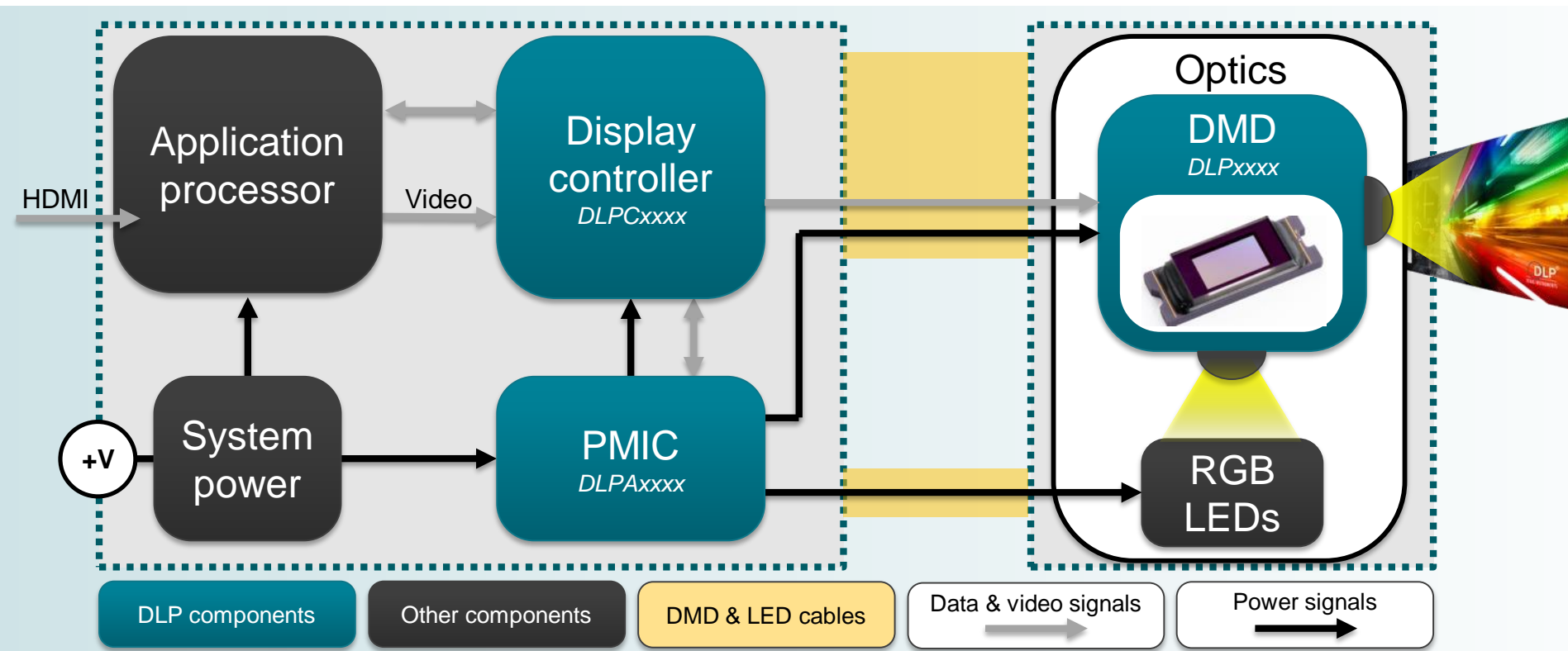
- Smartphones & tablets
- Smartphone companion
- AR glasses
- Robotics
- Appliances

Mobile smart TVs
Laser TVs

- Smart displays
- Educational toys
- Enterprise projectors
- Digital signage
- Interactive kiosks
- Commercial gaming
- And more...



DLP Display | Sub-system overview



DLP471TP chipset | Second generation 4K

Mainstream 4K with smallest form factor and lowest cost under 1,500 Im

Reduced system BOM cost (>\$35) and complexity with integrated controller functionality



DLP471TP DMD

Optically backward compatible with minor mechanical changes



DLPC6540 Controller

Most advanced Pico controller including 2D keystone and warping



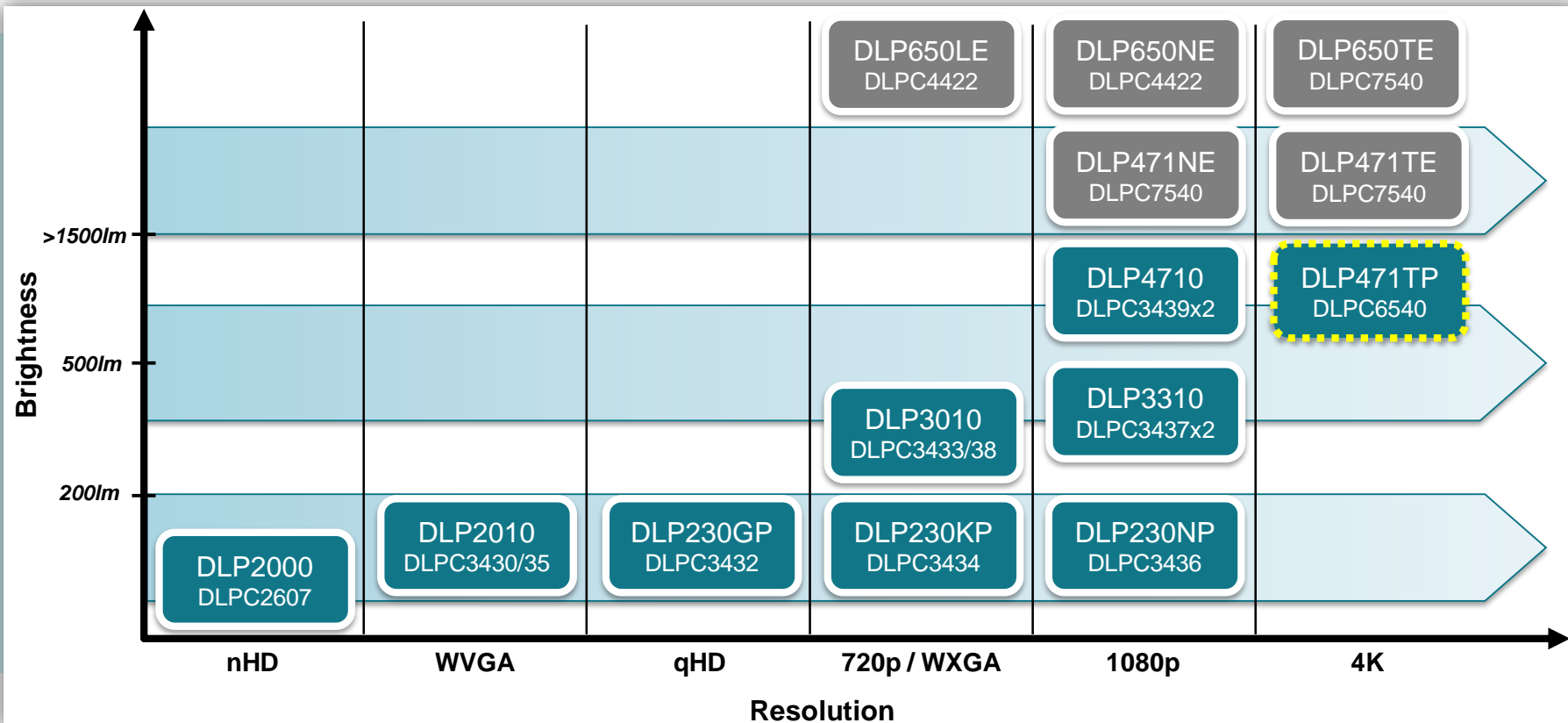
Evaluation Module

Order from TI.com and quickly start development

DLP Products | Display portfolio

Standard

Pico



DLP471TP Chipset | Introduction

Features

- **0.47 4K HSSI DMD: DLP471TP**



- Bottom illuminated, supports up to 1500 lm
- 3840 x 2160 Display Resolution

- Supports 4K UHD at 60Hz and 1080p at 240Hz

- **DLPC6540 Controller**



- Maintains closed source architecture
- High Speed Serial Interface (HSSI) to DMD
- Consolidates from two controllers to one
- More flexibility for V-by-1 input timing
- 1D, 2D, 3D keystone and manual warping
- HDR and Rec.2020 colorspace

Benefits

- **System BOM cost reduction from previous Pico 4K chipset**

- Reduce system cost and complexity with integrated controller; consolidates dual-DLP6421, FPGA, memory

- **DMD is optically backward compatible to existing DLP470TP optics with minor mechanical changes**

- Enables quicker time to market and lower development cost

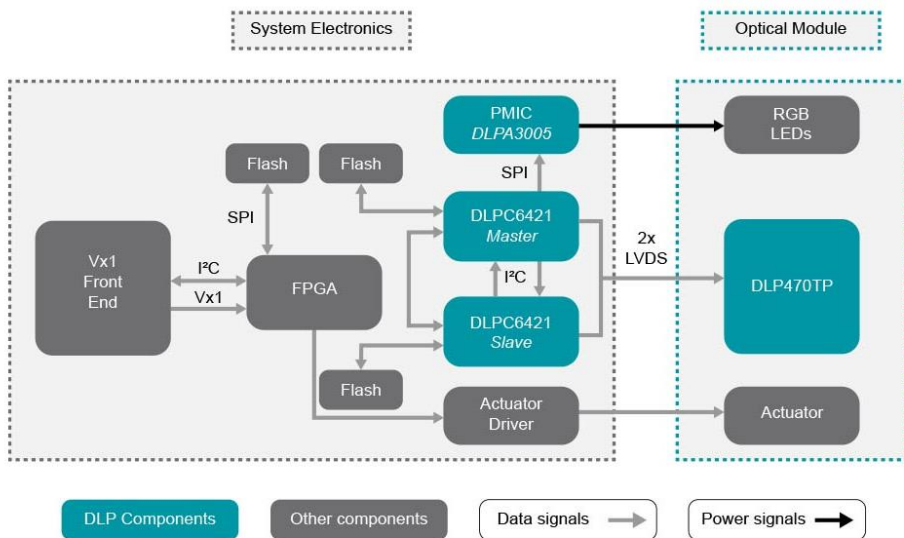
- **2D keystone and manual warping**

- Advanced features incorporated into controller, reduces external components

DLP471TP Chipset | Second generation 4K

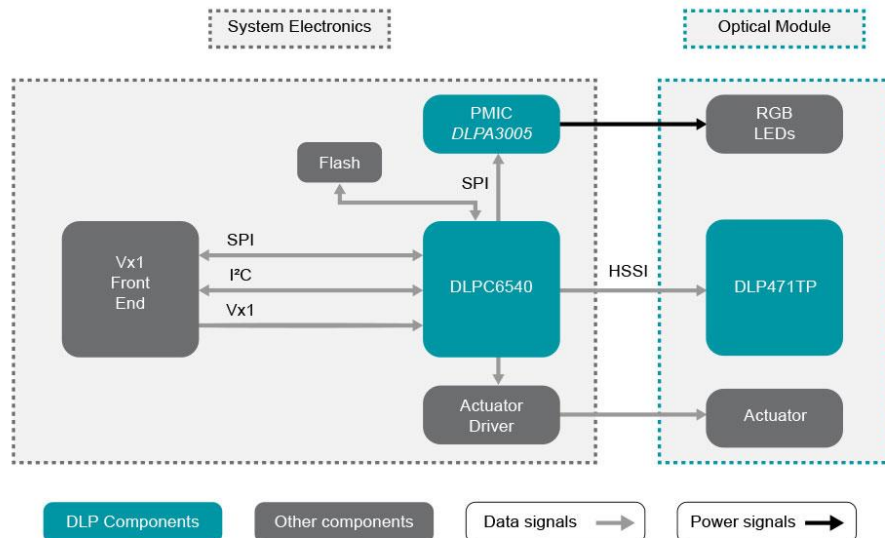
Gen1

DLP470TP/DLPC6421 4K UHD System



Gen2

DLP471TP/DLPC6540 4K UHD System



DLP471TP Chipset | Typical use-case



- Ultra-short throw (UST) or standard throw optics
- Large 4K display from small unit, easier setup
- Most have smart TV capability
- Can also be used in enterprise, commercial, or retail environments

DLP471TP Chipset | Advanced warping



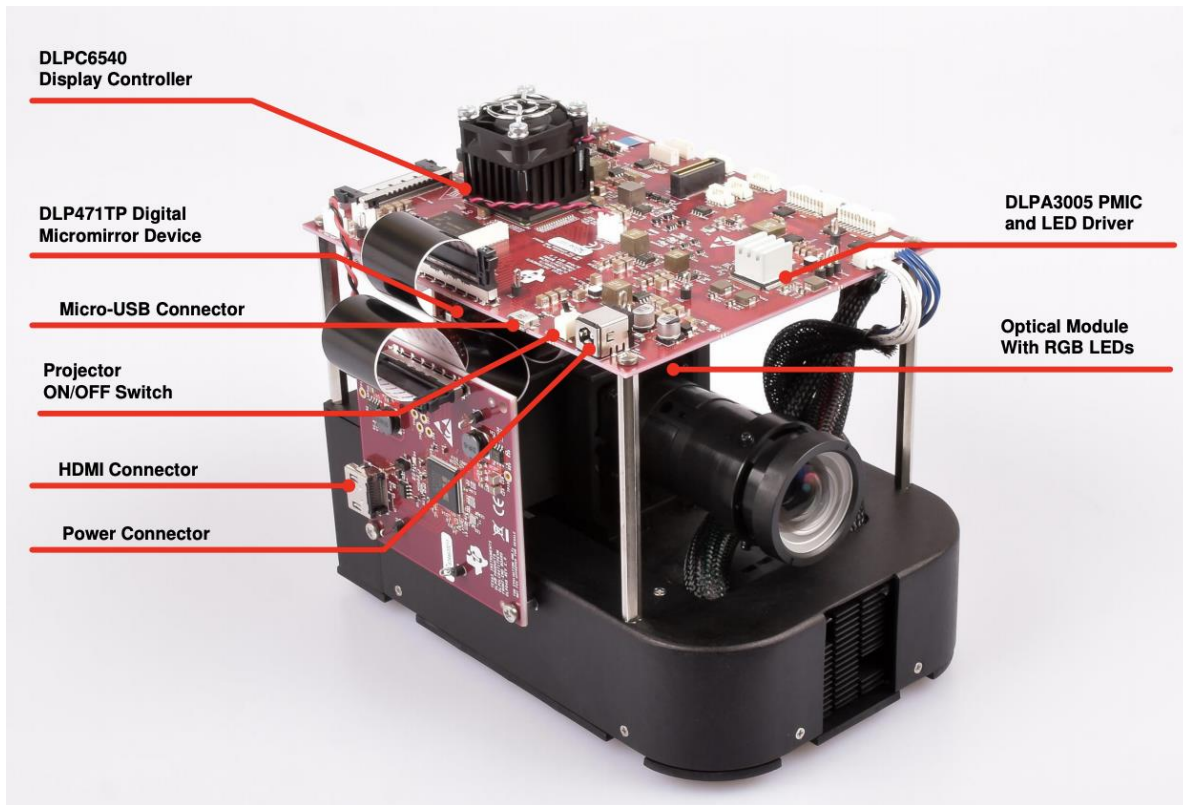
- Ultra-short throw (UST) optics are convenient but more sensitive
- Pair with low-cost camera to create automatic screen-fit features
- Enabled by DLPC6540 warping engine
- Improves ease of use for customers

DLP471TP Chipset | Advanced warping



- Project on any surface & dynamically change content
- Warping engine can adjust content to correct shape or even color

DLPDLCR471TPEVM | 4K EVM

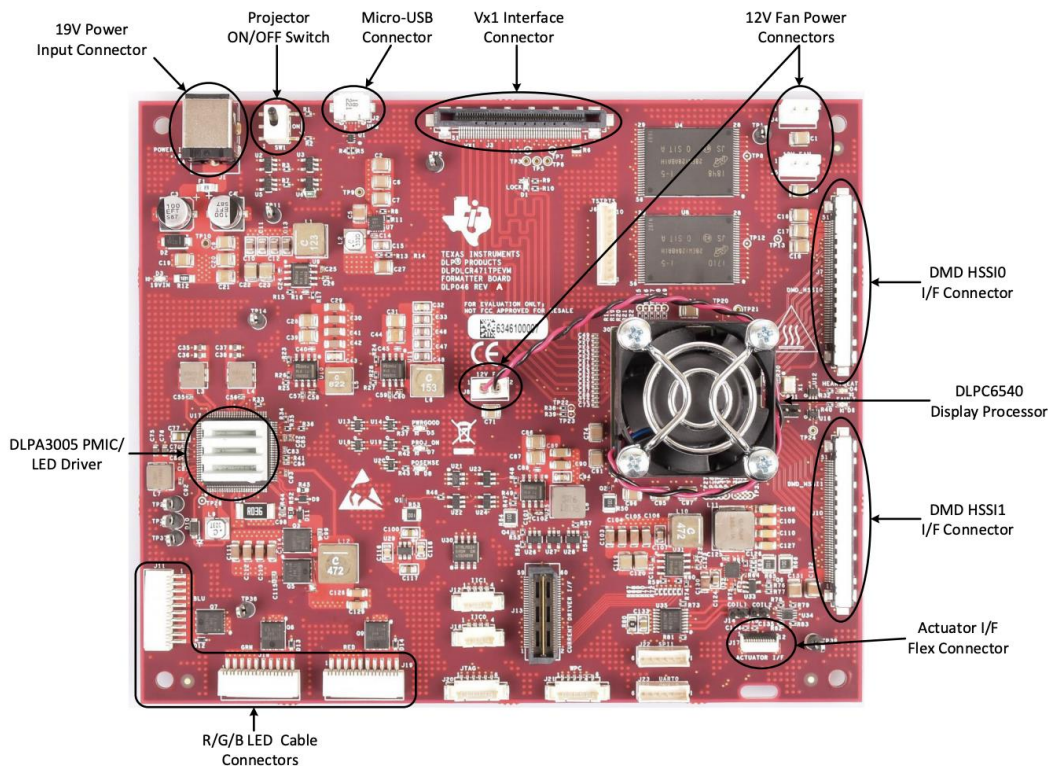


**Accelerate
development with
\$999 evaluation
module**

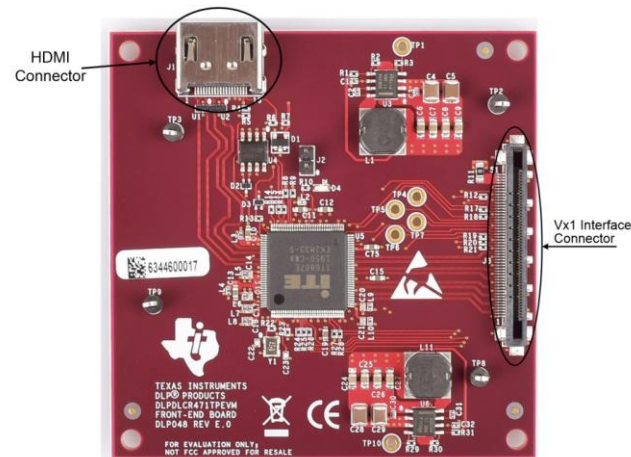
**Optical engine
enables 4K display
right out of the box**

DLPDLCR471TPEVM

DLPDLCR471TPEVM | 4K EVM



Formatter board



Front-end board



GERBER FILE

[DLPDLCR471TPEVM Formatter Board Electrical Design Files](#)

DLPC145.ZIP (7456 KB)



GERBER FILE

[DLPDLCR471TPEVM DMD Board Electrical Design Files](#)

DLPC146.ZIP (3421 KB)



GERBER FILE

[DLPDLCR471TPEVM Front-End Board Electrical Design Files](#)

DLPC147.ZIP (2561 KB)

[Design files](#)

DLPDLCR471TPEVM | Key resources

User's Guide DLP® LightCrafter™ Display 471TP EVM User's Guide



ABSTRACT

This user's guide presents an overview of the DLP® LightCrafter™ Display 471TP evaluation module (EVM) and a general description of the main features and functions. The document explains the first steps to getting started and shows a detailed description of onboard LEDs, connectors, and overall EVM assembly. The document provides the user a start with their first DLP LightCrafter Display 471TP evaluation module.

In addition to this document, additional reference documents are provided in [Section 2](#).

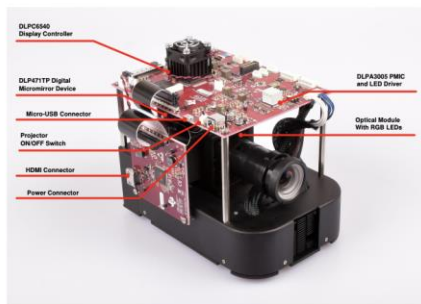


Figure 1-1. DLP LightCrafter Display Complete EVM

DLP471TP - MARCH 2021
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DLP® LightCrafter™ Display 471TP EVM User's Guide 1
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EVM user's guide

Programmer's Guide DLPC6540 Programmer's Guide



Sanjeev Kumar

ABSTRACT

This guide provides details of the software interface requirements for a DLPC6540 controller based system. This descriptions includes the communication protocol, initialization, default settings, common use cases and command descriptions.

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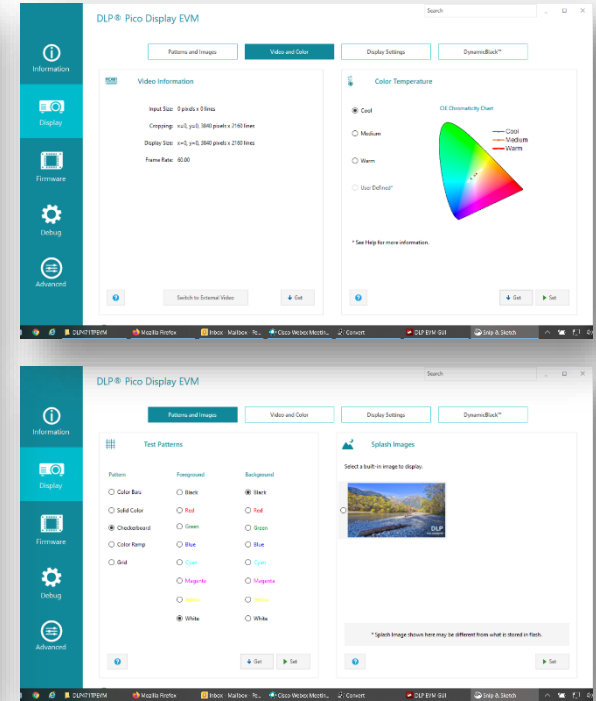
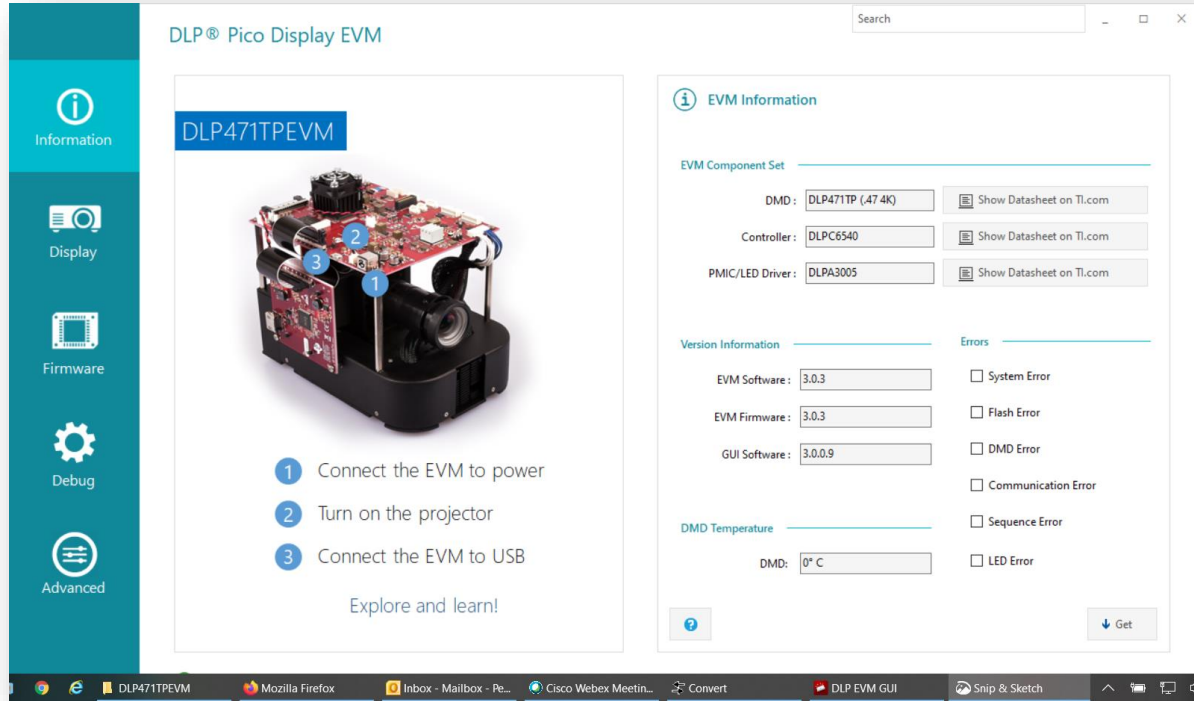
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DLPC6540 Programmer's Guide 1
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Programmer's guide

DLPDLCR471TPEVM | EVM GUI



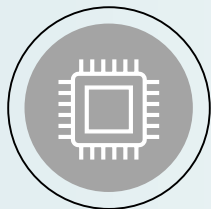
Download the [DLPDLC-GUI](#) to interface with the EVM and begin development

DLP471TP Chipset | Development options



Custom product design

Design a new product from the ground up with a custom optical module sourced from a DLP Pico optical module manufacturer.



System Integrator

Work with an experienced DLP Pico system integrator on a semi-custom product, with control over some features and specs.



ODM

Source a turnkey product with minimal customization options from an experienced DLP Pico projector ODM.

DLP471TP Chipset | Additional resources



[DLP471TP](#)



[DLPC6540](#)



[DLPDLCR471TPEVM](#)

- [How to solve two screenless TV design challenges](#) technical article
- [TI DLP System Design: Brightness Requirements and Tradeoffs](#) application note
- [Standard chipsets](#) 4K product list (for >1,500 lumens)
- [Optical module search tool](#) selection guide

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series, calendar and archived recordings



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