MEEN 489

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Digital Light Processing

Overview

Definition

History

How it works

Applications

Pros/Cons

Summary

What is DLP?

Digital Light Processing

Developed by Texas Instruments

Semiconductor reflects light, projects picture

Video projectors, televisions, and digital cinema

History

1987: Dr. Larry Hornbeck develops DMD semiconductor

1996: First commercial DLP projector

1997: DLP at Oscars

2006: 10 million DLP systems shipped in 10 years

2009: DLP cinema in >14,000 theatres

How does DLP technology work?

Light source shines through color filter

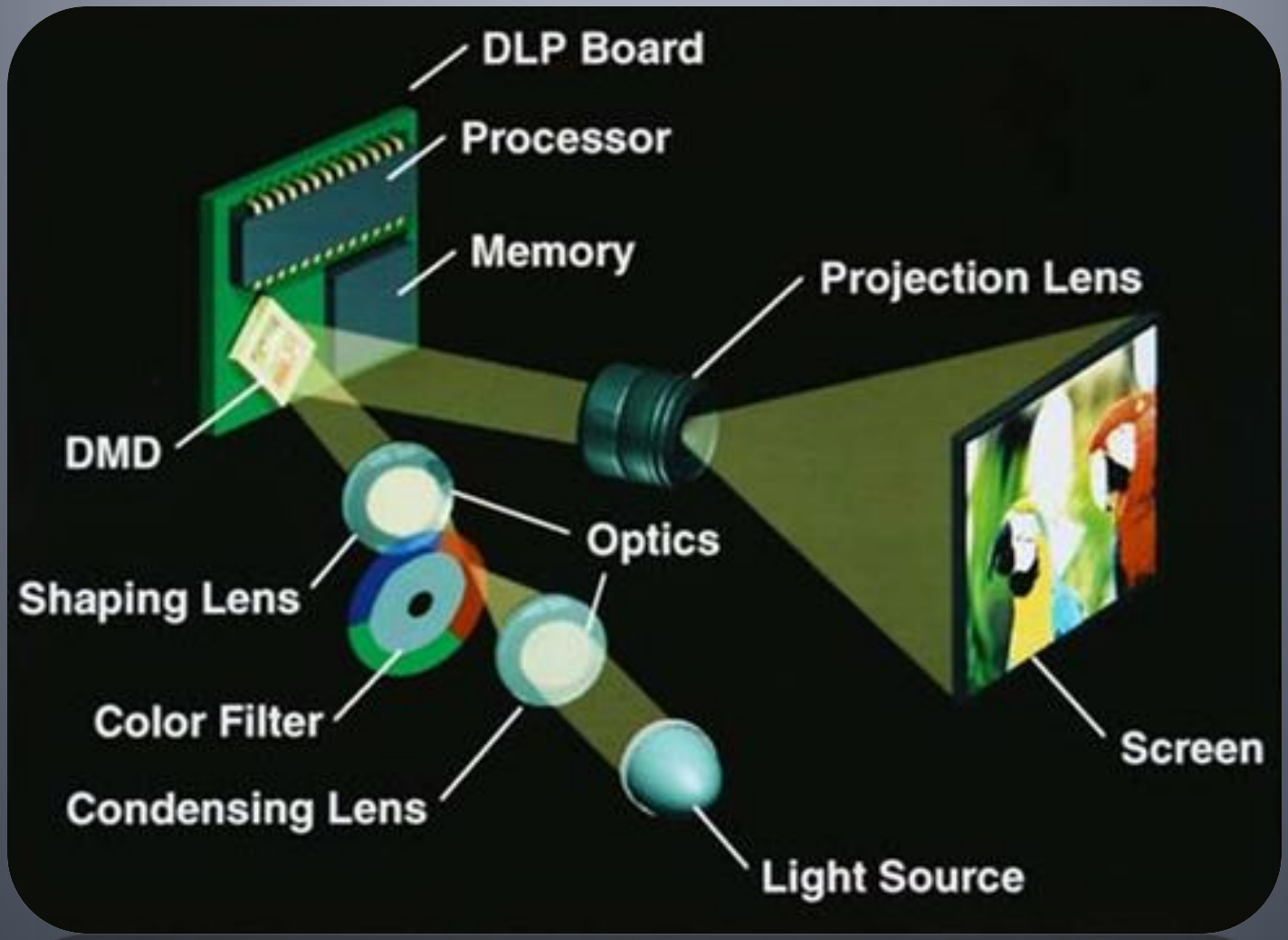
DLP Chip

- 2 million micro mirrors
- 1 mirror = 1 pixel
- Tilts towards or away from light

Light reflected onto screen

Single DLP Chip system: 16.7 million colors

How does DLP technology work?



Applications

- DLP High Definition TVs
  - Mitsubishi and Samsung
- Personal & Commercial Projectors
- Movie Theatre Projectors
- Photo finishing, Microscopes, Spectroscopes, and Medical imaging

Future Developments

- 3D Projection
  - One projector instead of two
  - Decrease cost
- Dual View
  - Offsets image in terms of time
  - Two perspectives with glasses

Advantages of DLP

Clear and sharp image

DLP TVs do not deteriorate

Lightweight

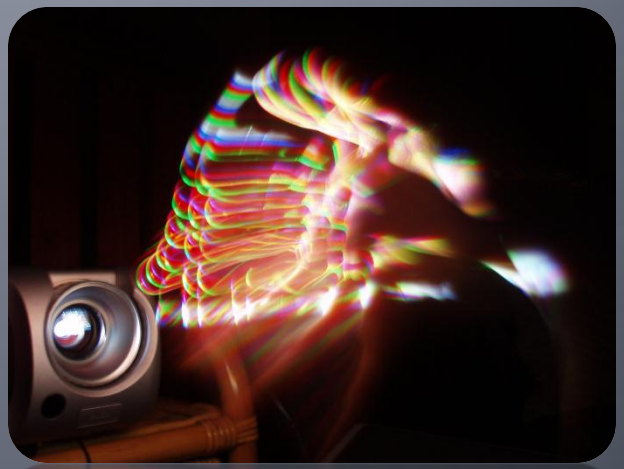
Cost Effective

Disadvantages of DLP

Rainbow Effect

DLP TVs thicker than LCD, Plasma

Smaller viewing angle



Summary

DLP technology offers exceptional quality

Primary manufacturer: Texas Instruments

Used in TVs, projectors, movie theatres

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Questions?