

# MEMS-ACTUATED OPTICAL DEVICES WITH MOLDED MEMS LAYERS

Tech ID: 34736 / UC Case 2026-160-0

## PATENT STATUS

Patent Pending

## BRIEF DESCRIPTION

An optical circuit switch having a distinct-layered architecture provides a highly scalable design for high-radix switching matrices. To achieve this, the platform features an out-of-plane spatial separation between an underlying optical layer and a distinct overlying micro-electromechanical systems layer. This structural separation allows mechanical components and electrical interconnects to cross directly over the optical waveguides without planar routing interference, which significantly reduces the overall footprint of the optical circuit switch.

## SUGGESTED USES

»

High-scale switching matrices within large-scale data center networks to manage heavy data traffic

»

Optical circuit routing for telecommunication infrastructure to eliminate planar routing interference

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Footprint-optimized optical interconnects for next-generation high-performance computing clusters

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Zero-standby-power optical switching applications utilizing integrated bistable spring mechanisms

»

Micro-electromechanical systems-actuated infrastructure for complex co-packaged optics frameworks

## ADVANTAGES

»

Eliminates planar routing interference by completely separating mechanical components from underlying optical pathways

»

Features a significantly reduced physical footprint compared to traditional co-planar switching architectures

»

Enables highly efficient zero-standby-power operation through the integration of bistable spring mechanisms

»

Reaches high-aspect-ratio conductive structures via the precise molding of a sacrificial layer

## CONTACT

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## INVENTORS

» Wu, Ming Chiang A.

## OTHER INFORMATION

### CATEGORIZED AS

» **Communications**

» Networking

» Optical

### RELATED CASES

2026-160-0

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Supports highly scalable and high-radix switching matrices necessary for expanding large-scale networks

RELATED MATERIALS

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ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

► [Integrated Microlens Coupler For Photonic Integrated Circuits](#)



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