

# Miniaturized Full Color Laser Projector at the LASER 2007 show

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## MEMS Scanning Mirror based Laser Projection Module

Fraunhofer IPMS shows a full color laser projection system based on its own two dimensional micro scanning mirror. The system contains an ultra compact projection head and a separate laser and signal processing unit.

It allows the projection of arbitrary images and video sequences with a geometrical resolution of 640 x 480 pixels, 256 brightness levels per pixel and elementary color, and 50 hertz frame rate.

The projection modules developed by Fraunhofer IPMS and Fraunhofer IOF overcome limitations of conventional projection systems – like

rather large components for light deflection and high power light sources that consume lots of electrical power and radiate most of it thermally – by deploying the micro scanning mirror as key element for image generation and lasers as light sources.

The patented micro scanning mirror of Fraunhofer IPMS is an ideal base for the development of compact projection heads. It distinguishes itself by high mechanical robustness and ease of both electrical control and optical coupling of the laser beam. Besides the expertise of Fraunhofer IPMS in design and manufacturing of this mirror, the competence of the institute for development of all necessary hardware and software for the projection system was used to build the overall projection system. The projection system addresses markets like Infotainment in mobile devices (PDA, Laptop, ...), Automotive industry (driver assistance, Head-Up Display, Infotainment), Medicine electronics (acquisition of biometrical data, positioning aid for X-Ray diagnosis and treatment), Production technology (projection of reference points for drilling etc., pattern generator for tailoring of steel plates), and Metrology (structured lighting).

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