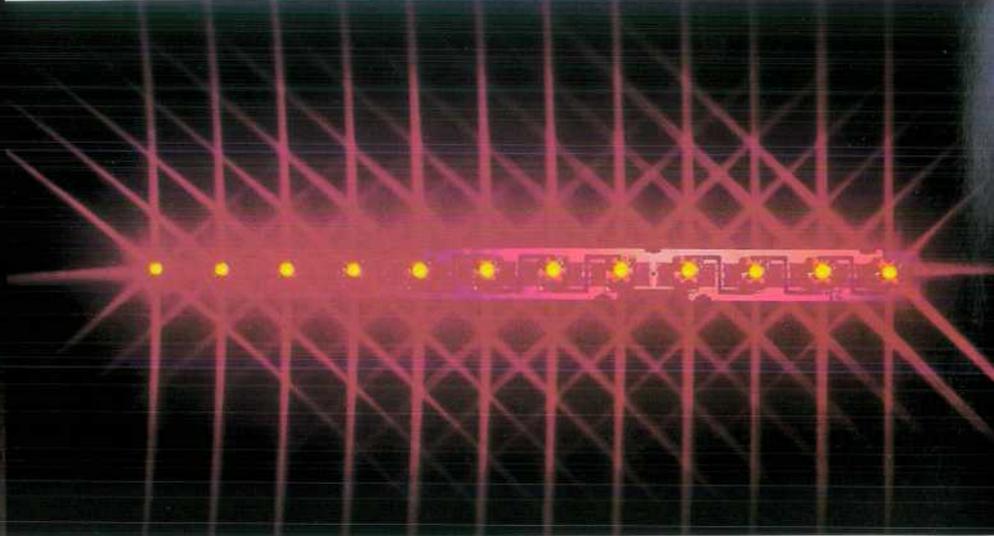
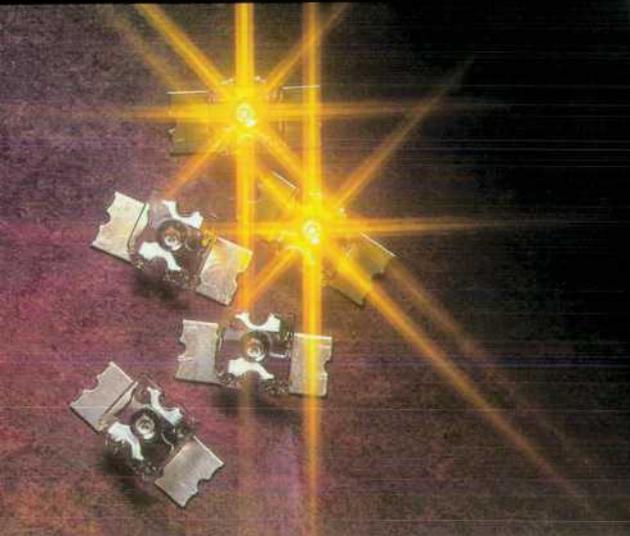
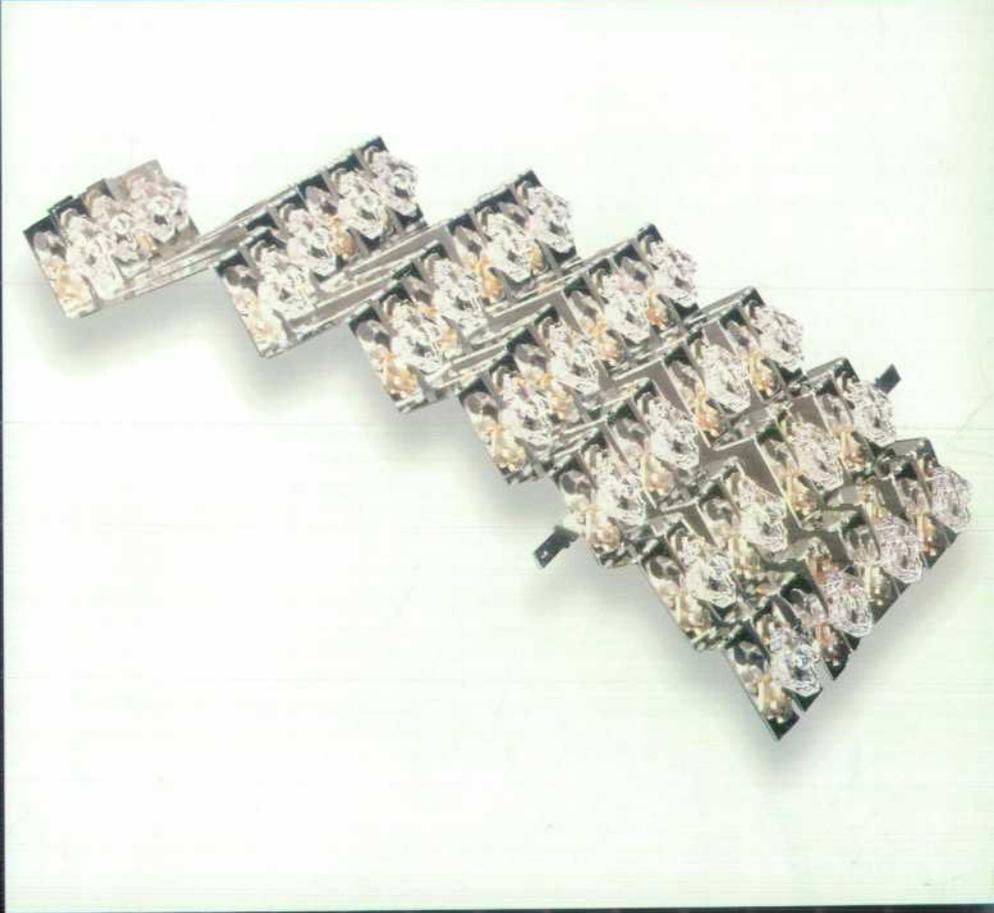
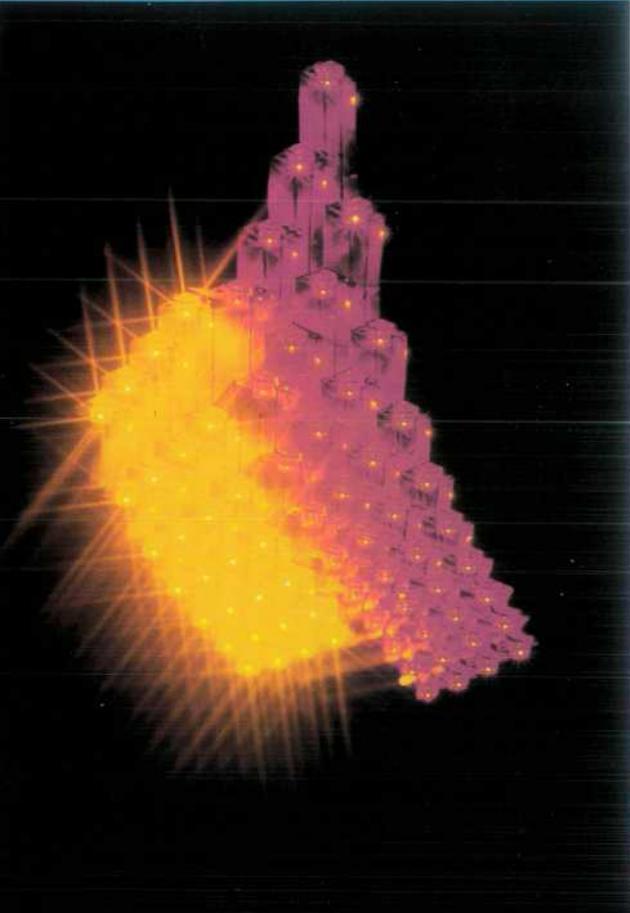


HEWLETT-PACKARD

# Journal

NOVEMBER 1998

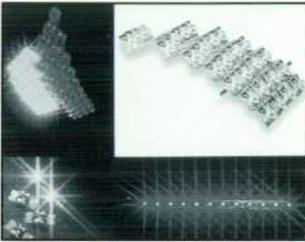
Technical Information from the Hewlett-Packard Company



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## THE COVER



The lower-left picture shows the SnapLED emitters that are attached to a clinch frame to make up the fully assembled SnapLED array shown in the upper-right picture. The other pictures show two more configurations of fully assembled SnapLED arrays.

## Highlights

*Improvements in LED brightness have resulted in their use in applications that were formerly the domain of incandescent lamps. For example, LEDs can now be found in street lights, traffic signals, and automobile signal lamps.*

*The first LED signal lamp appeared on a passenger vehicle in 1985. In 1986 the Nissan 300ZX center high mounted stop lamp used 72 LEDs assembled on a printed circuit board. With today's LEDs, this same function can be achieved with 12 LEDs. Because of the reduction in the number of LEDs required for a particular function, LED packaging and assembly costs have also been greatly reduced. Compared to conventional incandescent automotive signal lamps, LEDs have lower power consumption, decreasing the overall system cost in today's electrically demanding vehicles.*

*This issue of the Hewlett-Packard Journal begins with an article about an HP technology that uses LEDs for automobile taillamps. The technology, called HP SnapLED, is a three-dimensional assembly technique that allows LEDs to be packaged into thin taillamps in such a way that they can be customized to conform to the shape of a particular vehicle. The author describes the design and manufacturing processes involved in creating the SnapLED assemblies.*

*Other products and technologies described in this issue include: two API libraries for creating applications to access and control OTDRs, a project that ported a UNIX<sup>®</sup>-based product to Windows NT<sup>®</sup>, the issues involved in integrating technical and corporate data information systems, a new approach to developing internationalized software, and two papers from HP internal engineering conferences.*

C.L. Leath  
Managing Editor

# Articles

## HP SnapLED: LED Assemblies for Automotive Signal Lighting

**James W. Stewart**

An assembly technique allows LEDs to be custom configured for automotive taillamps.

## OTDR APIs Enable Customers to Build Their Own Systems

**Torsten Born and Peter Thoma**

Two software API libraries allow network operators to process OTDR measurement data and control OTDRs remotely.

## Updating a UNIX Application Suite for the Windows NT World

**Thomas W. Hutchinson and Ronald R. Derynck**

The authors describe some useful lessons they learned while porting a real-time UNIX-based application to a Windows NT environment.

## Integrating Real-Time Systems with Corporate Information Systems

**Ronald R. Derynck and Thomas W. Hutchinson**

Integrating distributed systems involves more than just connecting different communications technologies. It also involves connecting different information environments.

## New Approaches to Creating and Testing Internationalized Software

**Harry J. Robinson and Sankar L. Chakrabarti**

By stressing early defect detection and using the World Wide Web as a collaboration tool, the quality of internationalized software has been dramatically improved at many HP organizations.

## Comparison of Finite-Difference and SPICE Tools for Thermal Modeling of the Effects of Nonuniform Power Generation in High-Power CPUs

**Jeffrey L. Deeney and C. Michael Ramsey**

Two different analysis tools were used to study the effect of nonuniform power dissipation on the variation of junction temperature across the surface of a high-power CPU.

## A Low-Complexity, Fixed-Rate Compression Scheme for Color Images and Documents

**Nader Moayeri**

A computationally simple data compression scheme provides a modest compression ratio of 3 to 4 and is useful when hardware is limited and coding delays cannot be tolerated.

## The Hewlett-Packard Journal Website

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Online Departments:

**Current Issue**—November 1998, Vol. 50, no. 1.

**Past Issues**—review back to February 1994, complete with links to other HP sites.

**Index**—search back to our first issue in 1949.

WWW

November 1, 1998

Dear Reader,

Over the last few years the World Wide Web has become ubiquitous, and more and more people are accessing information on the web. Consequently, the Hewlett-Packard Journal will no longer be distributed in print form. November's issue is available on our website:

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Those of you interested in purchasing books about HP's technologies and products will find a list of titles Hewlett-Packard publishes with our publishing partners on our book publishing website:

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Thank you for your interest in the Hewlett-Packard Company and our products.

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