LED BACKLIGHT DRIVING

Friday, May 25 / 10:40 am 12:00 pm / Room 104A

Chair:
Achin Bhowmik, *Intel Corp., Santa Clara, CA, U.S.A.*

Co-Chair:
A. S. Seyno Sluyterman, Philips Lighting, Eindhoven, The Netherlands

66.1: ***Distinguished Student Paper:*** **Deriving LED Driving Signal for Area-Adaptive LED Backlight in High-Dynamic-Range Displays** **(10:40)**

F. Li
Rochester Institute of Technology, Rochester, NY, U.S.A.

X. Feng, I. Sezan, S. Daly
Sharp Laboratories of America, Camas, WA, U.S.A.

An area-adaptive LED backlight increases the dynamic range of an LCD such that it can display images with higher realism. However, cross-talk makes the derivation of their driving signals a non-trivial task. Two solutions are introduced: an iterative de-convolution approach and a linear optimization approach. The performance of these two techniques will also bend evaluate.

66.2: **High-Speed-Driving-Circuit Design for RGB-LED Backlights** **(11:00)**

C-L. Liu, M-T. Ho, S-J. Chiou, C-J. Lin, C-N. Mo, W-C. Tai
Chunghwa Picture Tubes, Ltd., Taoyuan, Taiwan, ROC

C-F. Huang
Tatung University, Taoyuan, Taiwan, ROC

Architecture for a digital-input driving circuit for an RGB-LED backlight is proposed. By combining a digital interface for the driving circuit, matrix-arranged RGB LEDs, and the corresponding dc-dc conversion circuit, an area-color-controllable scanning-type backlight system for color-sequential LCDs with superior image quality will be demonstrated.

66.3: **Integrated Power-LED Module Driving System for LED Backlights** **(11:20)**

S. Y. Lee, C-H. Baek, D-H. Kim, J-W. Kwon, M-S. Choi
K-S. Byun
Samsung Electro-Mechanics, Kyunggi-do, Korea

An integrated-power-LED-module (IPLM) driving system for RGB LED backlights for LCDs has been developed. The dc-dc converters in the driver have been integrated into the main power and constant current circuits were merged into the LED modules so that the driver board can be eliminated from the backlight.

66.4: Spatial-Temporal Division in Field-Sequential-Color Technique for Color-Filterless LCDs **(11:40)**

C-C. Chen, Y-F. Chen, K-H. Chen, C-H. Chen, H-P. Shieh
National Chiao Tung University, Hsinchu, Taiwan, ROC

M-T. Ho
Chunghwa Picture Tubes, Ltd., Taoyuan, Taiwan, ROC

For color-filterless displays, a novel spatial and temporal division (STD) field-sequential-color (FSC) display technique divides each frame into many temporary sub-frames to improve the color breakup (CBU) and motion-blur effects. Fast refresh frequencies of RGB enhance the image quality. Spatial and temporal division not only results in low cost but also in low power consumption.

AUTHOR INTERVIEWS **(12:00–1:00)**