VIDEO PROCESSING

Thursday, May 24 / 10:40 am 12:20 pm / Room 104A

Chair:
David A. Eccles, Eccles Engineering, Valley Center, CA, U.S.A.

Co-Chair:
Michiel A. Klompenhouwer, Philips Research Laboratories, Eindhoven, The Netherlands

44.1: Adaptive Digital Video-Format-Converter IC (10:40)

N. Balram, G. Shah
Marvell Semiconductor, Santa Clara, CA, U.S.A.

B. Ghosh, S. Garg, K. Sridhar
Marvell India Private Ltd., Banglore, India

Consumers now have access to a wide variety of video sources, many of which are low resolution and full of artifacts. But they still expect to obtain consistent high image quality on their large-screen flat-panel TVs. The first member of a new family of adaptive digital-video-format converter ICs that meets this need will be described.

44.2: *Distinguished Paper:* Adaptive Contrast Enhancement for Digital Video (11:00)

S. Srinivasan
Marvell India Private Ltd., Bangalore, India

N. Balram
Marvell Semiconductor, Santa Clara, CA, U.S.A.

A new real-time locally adaptive contrast-enhancement technique for digital-video applications will be described. The method is a modified contrast-limited histogram-equalization based procedure that adapts according to the video statistics. Shadows, mid-tones, and highlights were processed independently, allowing the details in dark regions to be enhanced without affecting the resolution in brighter regions.

44.3: Advantages of Two Spatial Nonlinear Channels for Color Manipulation (11:20)

H. Pan, S. Daly
Sharp Laboratories of America, Camas, WA, U.S.A.

Recent wide-color-gamut displays place additional demands on conventional color-manipulation methods. Noise from increased color gamut, film conversion, compression, and contouring from standard gamut inputs are all more visible especially on new higher-contrast low-noise displays. An image pipeline architecture that decomposes the input into two spatial-frequency bands and applies the color processing only to the lower band will be described. Also, a non-linear filter was used to eliminate noise problems around edges.

44.4: Motion-Compensated Frame-Rate Conversion for Motion-Blur Reduction **(11:40)**

E. B. Bellers, J. G. W. M. Janssen
NXP Semiconductor, San Jose, CA, U.S.A.

Motion blur is one of the major concerns of today's LCD panels. Driving LCD panels at higher frame rates provides a means to reduce the motion blur. But to be successful, the video stream also needs to be converted accordingly. A means to reduce the motion blur by applying high-frame-rate motion-compensated temporal interpolation will be described, and the architecture that enables implementation at a consumer price level will be illustrated.

44.5 Dynamic Wide-Color-Gamut RGBW Displays **(12:00)**

E. Langendijk, O. Belik, F. Budzelaar, F. Vossen
Philips Research Laboratories, Eindhoven, The Netherlands

RGBW LCDs transmit 50% more light and have 50% more resolution than conventional RGB displays, but the non-standard RGBW gamut previously resulted in poor color rendition. The Philips Dynamic Gamut concept that solves the color rendition problem will be described. The technical details of a 26-in. demonstrator will also be described.

LUNCH **(12:20–2:00)**

AUTHOR INTERVIEWS **(5:00–6:00)**