DISPLAY ELECTRONICS

P.41: A 1.6-Gbps Low-Power Receiver for Display Interfaces Using a 3.3-V and 0.35-μm CMOS Process

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A low-power asynchronous receiver circuit that converts a 1.6-Gbps low-voltage (less than 100 mV) differential input signal to a CMOS level signal by using a 0.35-μm CMOS process will be presented. Compared to previous LVDS receiver circuits, the proposed receiver can save more than 40% of the power. In addition to the low power consumption, the proposed receiver has a rail-to-rail common-mode voltage range.

P.42: A 10-bit Gray-Scale Digital-to-Analog Converter with an Interpolating Buffer Amplifier for AMLCD Column Drivers

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A 10-bit digital-to-analog converter with an interpolating buffer amplifier is proposed for AMLCD column drivers. The proposed circuit decreases the DAC (pass-transistor logic) area per channel compared to that of a conventional circuit. The average static current per channel is 1.8 μA and the average interpolating error rate in most of the gray range is sufficiently small and under 0.5% in the mid-gray range. The channel output uniformity is also guaranteed by the proposed error-reduction technique.

P.43: A Multi-Chip Reference-Current-Generating Circuit for Current-Mode Column-Driver ICs

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A reference current-generating circuit is proposed for current-mode displays using multiple-column-driver ICs. The circuit supplies uniform current to each column driver. The cascaded reference circuits use an input reference current, sense it, and independently generate output currents in accordance with it. The generated output error currents in column-driver ICs have a 0.1% error to input reference current.

P.44: High-Video-Image-Quality Technology: Dynamic Scanning Backlight with Black Insertion (DSBBI) Implemented in a 32-in. OCB-LCD TV

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A dynamic scanning backlight used in the black-insertion method was proposed to increase contrast and reduce MPRT. This technology was successfully implemented in a 32-in. OCB-LCD TV, resulting in a contrast ratio of over 1000:1 and an MPRT below 6 msec.

P.45: Optimization of LCD Color Performance Using a New ACC Technique

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A new method for color correction, which uses a spatially emulated pattern and measured values on the pattern to reduce the time-consuming ACC process previously employed, has been developed. This method is contained as an algorithm in a software tool and has been applied successfully to a PVA-mode panel.

P.46: FRC Frame Distribution to Frame Pattern of MLA Drive System

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An undesirable frame pattern was seen in a multi-line-addressing (MLA) drive system when the same halftone is displayed in all the screens of an STN-LCD panel. This problem was solved by distributing the frame by turning on and turning off and minimizing the effective voltage difference between the pixels of each field.

P.47: Current Mode: A New Way to Power, Control, and Dim CCFL and EEFL Backlights

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Graphical load-line analysis, adapted from Esaki diode theory, was rescaled for CCFLs and shows that simple current-mode control utilizing a close-coupled transformer makes “strike” obsolete. Sharply higher lamp-current efficacy will be presented graphically. Waveform comparisons showing improved start-stop, power factor, and crest factor were appended.

P.48: MOVED TO 44.5

P.49: A Novel Driving Method with Different RGB Driving Voltages for Bistable Displays

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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 discussed.

P.193: Reduction of Power-Consumption and EMI of LCD Interface via Vertical Differential Encoding and Data Bit Mapping Optimization

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Electromagnetic-interference (EMI) reducing techniques, which utilize a vertically differential EMI suppression method (VDE), and data bit-mapping optimization for low-voltage differential-signaling (LVDS) transmission lines have been developed. This method utilizes the correlation of adjacent two vertical lines for image data. The novel technique reduced EMI by 8 dB.