



Technical Papers

"What-If" Jitter Analysis from Synthesized Realistic PD Noise

Vishram Pandit (Intel Corp), Brian Wang (Intel Corp)

100 Gb/s Ethernet: Testing Receiver, Transmitter And Cable Assembly Parameters At Compliance Test Points

Chris Bridges (UNH-Io1), Christopher DiMinico (MC Communications/PHY-SI LLC), Curtis Donahue (University of New Hampshire Interoperability Test Lab), Oran Gafni (Intel), Mike Klempa (University of New Hampshire Interoperability Test Lab), Ken Ly (Cisco Systems), Adee Ran (Intel), Mike Resso (Keysight Technologies), Mike Sapozhnikov (Cisco Systems)

100 Gb/s Serial Transmission Over Copper Using Duo-binary Signaling

Johan Bauwelinck (INTEC), Jan De Geest (FCI), Timothy De Keulenaer (INTEC), Michael Fogg (FCI), Ramses Pierco (INTEC), Madhumitha Rengarajan (FCI), Guy Torfs (INTEC), Renato Vaernewyck (INTEC), Joris Van Kerrebrouck (INTEC), Arno Vyncke (INTEC)

100Gbps Dual-Channel PAM4 Transmission Over Datacenter Interconnects

Sudeep Bhoja (Inphi), Frank Chang (Inphi), Karthik Gopalakrishnan (Inphi), Sameer Herlekar (Inphi), Ishwar Hosagrahar (Inphi), Pulkit Khandelwal (Inphi Corporation), Jamal Riani (Inphi), Arun Tiruvur (Inphi), Jennifer Wu (Inphi)

25G Long Reach Cable Link System Equalization Optimization

Jinhua Chen (Luxshare-ICT), Yu Liao (Xilinx), Echo Ma (Luxshare-ICT), Geoff Zhang (Xilinx)

56 Gbps PCB Design Strategies for Clean, Low-Skew Channels

Erik Daniel (Mayo), Michael Degerstrom (Mayo), Barry Gilbert (Mayo), Chad Smutzer (Mayo)

A "Material" World, Modeling Dielectrics and Conductors for Interconnects Operating at 10-50 GBPS

Scott McMorro (Teraspeed Consulting, A Division of Samtec), Chudy Nwachukwu (ISOLA), Yuriy Shlepnev (Simberian Inc)

A Frequency Domain Approach to Transient Result for Power Distribution Network Analysis

Wenbin Ma (Cisco Systems), Jiang Wang (Cisco Systems), Yang Wu (Cisco)

A New Characterization Technique for Glass Weave Skew Sensitivity

Eric Bogatin (Teledyne LeCroy), Vidyadhar Deodhar (University, Co, Boulder), Bill Hargin (Nanya), Vinit Sonawane (Univ of Colorado, Boulder), Anand Ursekar (University, Co, Boulder)

A New SI-PI Co-Extraction Methodology & HSPICE Co-Simulation Simplification for A DDR3 Memory Interface

TingTing Au (eASIC), Antonio Ciccomancini Scogna (CST), Darryl Kostka (CST of America), Eng Huat Lee (eASIC), Ban P Wong (eASIC), Lian-Kheng Teoh (eASIC)

A Novel Power-Supply-Induced-Jitter Suppression Technique for High-Speed Interface Using Modulated-PDN

Chia-Yu Chan (MediaTek), Shang-Pin Chen (MediaTek), Sheng-Feng Lee (MediaTek)

A Tutorial on PAM4 Signaling for 56G Serial Link Applications

Brandon Jiao (Xilinx), Yu Liao (Xilinx), Hongtao Zhang (Xilinx), Geoffrey Zhang (Xilinx)

A Versatile Spectrum Shaping Scheme for Communicating Beyond Notches in Multi-Drop Interfaces
Kiarash Gharibdoust (EPFL), Ali Hormati (Kandou Bus), Amin Shokrollahi (Kandou Bus), Armin Tajalli (Kandou Bus), Christoph Walter (Kandou Bus)

Accurate De-Embedding Using Differential Improved TRL

Nathan Altland (FCI), Jan De Geest (FCI), Jason Ellison (FCI), Benjamin Staudt (FCI)

Advanced PI and SI Co-Simulation Skills *Limited Seating

Heidi Barnes (Keysight Technologies, Inc.), Steve Sandler (Picotest.com)

An Introduction to MIPI SerDes Protocols

Mohamed Hafed (Introspect Technology)

Analysis and Verification of DDR3/DDR4 Board Channel Impact on Clock Duty-Cycle-Distortion (DCD)

June Feng (Altera Corporation), GaWon Kim (Altera Corporation), Marjan Mokhtaari (Altera Corporation), Balaji Natarajan (Altera Corporation)

Analysis, Modeling and Characterization of Multi-Protocol High-Speed Serial Links

Wendem Beyene (Rambus Inc.), Hai Lan (Rambus)

Are There Any Rules of Thumb When It Comes to 100Gb/S Board Design? A Walkthrough From Physical Domain to Channel Operating Margin (COM) Testing

Liav Ben-Artzi (Marvell Israel LTD), Jacov Brener (Marvell)

Are We Crisp & Clear for DDR4 Memory Channel Radiated Emission?

Hany Fahmy (Intelligent Solutions BVBA), Klaus Krohne (CST South East Asia Pte. Ltd.)

BER- and COM-Way Channel Compliance Evaluation: What are the Sources of Difference?

Vladimir Dmitriev Zdorov (Mentor Graphics), Chuck Ferry (Mentor Graphics), Cristian Filip (Mentor Graphics), Alfred Neves (WildRiver Technology)

Block-Level Modeling Based Power and Signal Integrity Performance Optimization of Integrated Core and Memory System

Om Mandhana (Cadence Design Systems), Zhen Mu (Cadence)

Bluetooth 4.2 and the Internet of Things

Mark Jakusovszky (EM Microelectronic-US, Inc.)

Building IBIS-AMI Models from Datasheet Specifications

Eugene Lim (Intel of Canada), Donald Telian (SI Guys Consulting)

Case Study of ESD Issue Debug on Smartphone Reference Design

Yagnesh Waghela (Intel technology India PVT LTD)

Challenges and Solutions for Next-Generation OIF CEI-56G-LR and Backplane Interfaces

Mike Peng Li (Altera), Masashi Shimanouchi (Altera), Hsinho Wu (Altera)

Challenges in IO, Platform Design for a unique PAM3 Interface

Riaz Naseer (Intel Corporation), Ravindra Rudraraju (Intel Corporation), Hongjiang Song (Intel Corporation)

Channel operating margin for 56 Gb/s PAM4 chip-to-chip and backplane interfaces

Adam Healey (Avago Technologies), Cathy Liu (Avago Technologies)

Characterizing Geometry-Dependent Crossover Frequency for Stripline Dielectric and Metal Losses

Chudy Nwachukwu (ISOLA), Svetlana Sejas (ISOLA)

Chip and Package-Level Wideband EMI Analysis for Mobile DRAM Devices

Chan-Seok Hwang (Samsung Electronics), Sangnam Jeong (Samsung Electronics), Hyo-Soon Kang (Samsung Electronics), Jinwon Kim (Samsung Electronics), Daehee Lee (Samsung Electronics), Junho Lee (Samsung Electronics), Jong-Bae Lee (Samsung Electronics), Jieun Park (Samsung Electronics), Jinsung Youn (Samsung Electronics)

Chip, Package, and PCB Co-Design Methodology to Address PDN Design Challenges for High-Performance SoCs and FPGAs

Guang Chen (Altera), Dan Oh (Altera)

Clock Recovery for Signals with Spread Spectrum Clock Through Lossy Channels

Kan Tan (Tektronix)

Comparative Evaluation of 16 GT/s PCIe Gen4 and 22.5 GT/s SAS-4 Standards Evolution and Their Impact on Future Systems and SerDes

Mohammad Mobin (Avago Technologies), Aravind Nayak (Avago Technologies), Harvey Newman (Avago Technologies), Haitao Xia (Avago Technologies)

Deep Channel Analysis for 28 Gb/s and Beyond
Scott McMorrow (Teraspeed Consulting, A Division of Samtec)

Design and Analysis of Silicone Rubber-based TERAPOSER for LPDDR4 Memory Test
Bumhee Bae (KAIST), Daniel Jung (KAIST), Jonghoon Kim (KAIST), Heegon Kim (KAIST), Joungho Kim (KAIST)

Design and Verification for High-Speed I/Os at Multiple to 60 Gbps With Jitter, Signal Integrity, and Power Optimization
Mike Li (Altera)

Design of a Mobile AP GPU PDN based on Chip Power Model and Measurement
Youngwoo Kim (KAIST, Terahertz Interconnection and Package Lab.), Joungho Kim (KAIST)

Design, Modeling and Correlation of Low Swing High Speed Transmitter
Riaz Naseer (Intel Corp.), Ravindra Rudraraju (Intel Corporation), Hongjiang Song (Intel Corporation)

Effect of Conductor Profile Structure on Propagation in Transmission Lines
Christopher J. Caisse (Rogers Corporation), John Coonrod (Rogers Corporation), Bruce B. Fitts (Rogers Corporation), Allen F Horn III (Rogers Corporation), Patricia A. LaFrance (Rogers Corporation)

Electrical and Thermal Consequences of Non-Flat Impedance Profiles
Jae Young Choi (Oracle Corporation), Ethan Koether (Oracle Corporation), Istvan Novak (Oracle Corporation)

Electromagnetic Wave Absorption Technology for Stub Effects Mitigation
Shaowu Huang (Intel Corporation), Beomtaek Lee (Intel), Kai Xiao, Ph.D. (Intel)

Enabling HDMI2.0 for Smartphone and Tablet Segments without Active Level Shifter Resulting in Considerable BOM Savings
Sunil Kumar C R (Intel), Manjunath J (Intel), anoop karunan (Intel), Prakash K Radhakrishnan (Intel)

Evaluation of Gallium Nitride MOSFET for VRM Designs
Venkatesh Avula (The University of Idaho), Steve Sandler (Picotest)

Evaluation of PDN coupling on SOC
Manjunath J (Intel), Vishram S Pandit (Intel), Prakash K Radhakrishnan (Intel)

Gen4 PCIe Connector & Channel Design and Optimization: 16GT/s for Free
Steve Krooswyk (Intel Corporation), Marc Wells (Intel Corporation), Timothy Wig (Intel Corp)

Heat Slug influence on noise coupling of digital interface onto sensitive RF signals
Gil Sokolik (CSR Israel)

High-Speed Channel Design Boot Camp
Dr. Eric Bogatin (Teledyne LeCroy)

IBIS-AMI Based Link Analysis of Realistic 56G PAM4 Channels
Cathy Liu (Avago Technologies), Bob Miller (Avago Technologies), Minh Quach (Avago Technologies),
Fangyi Rao (Keysight Technologies)

Impacts of Dynamic Noise in Multi-Core or SOC Designs
Dan Oh (Altera Corporation), yujeong shim (Altera Corporation)

Improved Formulas for Crosstalk Coefficients
Eric Bracken (Ansys Inc.)

In-Depth Analysis of Non-Linear PDN Profile Caused by DDR IO Buffer States
Dan Oh (Altera), Changwook Yoon (Altera)

Integrating Multiple Networks & Communication Systems for Maximum Interoperability
Robert Lutz (Systech)

Introduction to Power Integrity *Limited Seating
Heidi Barnes (Keysight Technologies, Inc.), Steve Sandler (Picotest.com)

Investigation of Package Crosstalk and Impact to 28Gbps Transceiver Jitter Margin
Ravindra Gali (Xilinx), Sarajuddin Niazi (Xilinx), Hong Shi (Xilinx), Siow Chek Tan (Xilinx)

IP-Clean Behavior Modeling and Simulation of High Speed SerDes Receivers
Todd Bermensolo (Intel), Zao Liu (Intel), Hung Nguyen (Intel)

ISI Tolerant Signaling: A Comparative Study of PAM4 and ENRZ
Ali Hormati (Kandou Bus), Amin Shokrollahi (Kandou Bus)

Jitter, Noise Analysis and BER Synthesis on PAM4 Signals on 400 Gbps Communication Links
Maria Agoston (Tektronix), Mark Guenther (Tektronix), Kalev Sepp (Tektronix), Pavel Zivny (Tektronix)

Limitations of the Intra-pair Skew Measurements in Gigabit Range Interconnects
Yevgeniy Mayevskiy (TE Connectivity Medical)

Low Cost High Speed Internal Cable Solution for Client Systems
Xiang Li (Intel Corp.)

Lower Loss and Process Friendly Multi-layer Flexible Interconnect
Steve Kelly (PFC Flexible Circuits Limited), Thomas McCarthy (Taconic), Glenn Oliver (DuPont)

Measurement and Simulation of a High-Speed Electro/Optical Channel

Gustavo Blando (Oracle), Michael Cina (TE Connectivity), Shirin Farrahi (Oracle), Andrei Kaikkonen (TE Connectivity), Jeffery Marquart (TE Connectivity), Istvan Novak (Oracle), Xun Zhang (Oracle)

Microwave Interconnect Testing for 12G SDI Applications

O.J. Danzy (Keysight Technologies, Inc.), Jim Nadolny (Samtec)

Mid-Frequency Noise Coupling Between DC-DC Converters and High-Speed Signals

Gustavo Blando (Oracle), Laura Kocubinski (Oracle), Istvan Novak (Oracle)

Mueller & Muller CDR Algorithm and Its Application in High Speed Serial Links

Dawei Huang (Oracle Corporation), Gokhan Ileri (Oracle Corporation), Jieda Li (Oracle Corporation), Chai Palusa (Oracle Corporation), Connie Sakurada (Oracle Corporation), Jianghui Su (Oracle Corporation), Yan Yan (Oracle Corporation), Xun Zhang (Oracle Corporation)

Multiport, Asymmetric Fixture Characterization by Custom Calibration Kit

Josiah Bartlett (Tektronix), Joachim Schubert (Rosenberger Hochfrequenztechnik)

My Product Failed EMI - Now What Do I Do?

Kenneth Wyatt (Wyatt Technical Services LLC)

New SI Techniques for Large System Performance Tuning

Sergio Camerlo (Ericsson), Barry Katz (SiSoft), Michael Steinberger (SiSoft), Donald Telian (SiGuys)

Novel Methodology of IBIS-AMI hardware Correlation Using Trend and Distribution Analysis for High-Speed SerDes System

Hong Ahn (Xilinx), Seungyong (Brian) Baek (Cisco), Chris Borrelli (Xilinx), Jiali Lai (Cisco), Ivan Madrigal (Xilinx), Mike Sapozhnikov (Cisco), Alan Wong (Xilinx), Hongtao Zhang (Xilinx), Geoff Zhang (Xilinx)

Novel PI Flow Driven Using Powertree for Easier Data Visualization and Automation

Seungyong (Brian) Baek (Cisco systems inc), Sam Chitwood (Cadence Design Systems Inc.), Mike Kang (Cadence Design Systems Inc.), Amendra Koul (Cisco systems inc), Jiali Lai (Cisco systems inc), Dennis Nagle (Cadence Design Systems Inc.), Mike Sapozhnikov (Cisco systems inc), Jason Visneski (Cisco systems inc), Dingru Xiao (Cadence Design Systems Inc.), Jingping Zhang (Cadence Design Systems Inc.)

Old School RF Structure Meets Modern Signal Integrity: The Beatty Standard

Tim Wang Lee (Wild River Technology)

Optimal DDR4 System with Data Bus Inversion Feature in FPGA High Speed High Bandwidth Memory Interface

Penglin Niu (Xilinx), Changyi Su (Xilinx), Thomas To (Xilinx), Juan Wang (Xilinx), Yong Wang (Xilinx)

Optimized placement of microwave absorbers on high speed digital channels with SI and EMI considerations

Mohammad Ali Khorrami (Laird), Todd Steigerwald (AMD Advanced Micro Devices)

PAM-4 Simulation to Measurement Validation with Commercially Available Software and Hardware

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PAM4 for 400 Gbps: acquisition, measurement, and signal analysis

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PCB-Substrate Characterization at Multigigahertz Frequencies Through SIW Measurements

Gabriela Mndez-Jernimo (INAOE), Chudy Nwachukwu (Isola Group), Svetlana C. Sejas-Garca (Isola Group), Reydezel Torres-Torres (INAOE)

PDN Prototyping and Optimization at an Early Design Stage

Duhyoung Ahn (Samsung), Kyoungchoul Koo (Samsung), Jeewon Kwon (Samsung), Youngsoo Lee (Ansys Inc.)

Platform & SDRAM Power Integrity Design Optimization and Methodology for LPDDR4 and Beyond

Marwan Dakroub (Intel Corporation), Yan Fen Shen (Intel Corporation)

Power Delivery Modeling and Simulation for Server Systems

David G. Figueroa (Intel), Dr. Jiangqi He (Intel)

Power Integrity Design, Analysis, and Verification for Large Printed Circuit Boards

Don Thompson (RD Altanova), Thomas Warwick (RD Altanova)

Practical Issues and Solutions for Supply Induced Jitter Decomposition in High Speed Serial Links

Dan Oh (Altera Corporation), Yujeong Shim (Altera Corporation)

S-Parameters Boot Camp *Limited Seating

Dr. Eric Bogatin (Teledyne LeCroy)

Signal and Power Integrity PCB Characterization for Multi GHz High Speed Interface

Sriram Badrinarayanan (Intel Corporation), Almario Delos Angeles (Intel Corporation), Vishram Pandit (Intel Corporation), Min Wang (Intel Corporation), Emily Zheng (Intel Corporation)

Significance of Encircled Flux in Metrology of Insertion Loss In Multi-Mode Optical Fiber

Ravi Doddavaram (Fomolo. Pte Ltd), Cathy George (Psiber Data)

Specification Development for a High Speed Clock Forwarded Interface: DPHY2.0
RAJ KUMAR NAGPAL (SYNOPSYS, INC), Ravindra Rudraraju (Intel)

System Level ESD Design and Debug Considerations on Phone and Tablet Products
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Systematic Analysis of Electrical Link Bottlenecks and Strategies for Their Equalization
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The History and Evolution of IBIS Modeling
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Tradeoff Between Tightly and Loosely Coupled Differential Vias for Multi-Gbps Design
Jeremy Buan (Hirose Electric), Ching-Chao Huang (AtaiTec Corp), Clement Luk (Hirose Electric), Adam Nagao (Hirose Electric), Toshi Takada (Hirose Electric)

Two for One: Leveraging SerDes Flows for AMI Model Development
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Understand Silicon Photonics
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What Is That Thing Between My Tester and My Socket?
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Wireless Charging: Past, Present and Future
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