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17 – 19 June 2012**



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Sunday, 17 June 2012

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Session Chair: Albert Jerng – MediaTek

Session Co-Chairs: Jacques C. Rudell - Univ. of Washington

Larry Kushner – BAE Systems

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Session RSU5B: RFIC Reception

Monday, 18 June 2012

8:00 AM

Room 511BE

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Chair: Domine Leenaerts, NXP Semiconductors

Co-Chair: Danilo Manstretta, University of Pavia

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Department of EE, Korea Advanced Institute of Science and Technology, Daejeon, Korea

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IC Design Group, CTIT Institute, University of Twente, Enschede, The Netherlands

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Hiu Fai Leung and Howard C. Luong

Hong Kong University of Science and Technology, Clear Water Bay, Hong Kong

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Jeong-Yeol Bae¹, Suna Kim¹, In-Young Lee¹, Justin Cartwright² and Sang-Gug Lee¹

¹Dept. of Electrical Engineering, Daejeon, Korea ²Dept. of Electrical and Computer Engineering, Virginia Polytech University, Blacksburg, VA, USA

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Qian Ma¹, D. Leenaerts^{1,2} and R. Mahmoudi¹

¹Mixed-Signal Microelectronics Group, Eindhoven University of Technology, The Netherlands,

²NXP Semiconductors, Eindhoven, The Netherlands

Monday, 18 June 2012

8:00 AM

Room 511CF

Session RMO1C: Spectrum Sensing and Cognitive Radio Receivers

Chair: Walid Ali-Ahmad, MediaTek

Co-Chair: Glenn Chang, Maxlinear

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Juhwan Yoo¹, Stephen Becker³, Matthew Loh¹, Manuel Monge¹, Emmanuel Candès²
and Azita Emami-Neyestanak¹

¹Department of Electrical Engineering, California Institute of Technology, Pasadena, CA, USA, ²Department of Statistics, Stanford University, Stanford, CA, USA, ³Laboratoire Jacques-Louis Lions, Paris, France

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Integrated Circuit Design / Computer Architecture for Embedded Systems CTIT Research Institute,
University of Twente, Enschede, The Netherlands

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Bodhisatwa Sadhu¹, Martin Sturm¹, Brian M. Sadler² and Ramesh Harjani¹

¹University of Minnesota, Minneapolis, MN, USA, ²Army Research Laboratory, Adelphi, MD, USA

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Alan W.L. Ng and Howard C. Luong

Hong Kong University of Science and Technology, Clear Water Bay, Hong Kong

Monday, 18 June 2012

8:00 AM

Room 510BD

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Sofiane Aloui¹, Yohann Luque¹, Nejdal Demirel¹, Bernardo Leite¹, Robert Plana², Didier Belot³
and Eric Kerherve¹

¹University of Bordeaux, IMS Laboratory, Talence, France, ²LAAS-CNRS, Toulouse, France, ³STMicroelectronics,
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Amir Agah¹, Hayg Dabag¹, Bassel Hanafi¹, Peter Asbeck¹, Lawrence Larson² and James Buckwalter¹

¹Department of Electrical and Computer Engineering, University of California, San Diego, CA, USA,

²School of Engineering, Brown University, Providence, RI, USA

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Jin-Fu Yeh¹, Jeng-Han Tsai² and Tian-Wei Huang¹

¹Dept. of Electrical Engineering and Graduate Institute of Communication Engineering,

National Taiwan University, Taipei, Taiwan, ²Dept. of Applied Electronics Technology National Taiwan Normal
University, Taipei, Taiwan

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Olumuyiwa T. Ogunnika¹ and Alberto Valdes-Garcia

IBM T.J. Watson Research Center, Yorktown Heights, NY, USA, ¹Now with Massachusetts Institute
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Kuen-Jou Tsai, Jing-Lin Kuo and Huei Wang

Dept. of Electrical Engineering and Graduate Institute of Communication Engineering, National Taiwan University,
Taipei, Taiwan

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10:10 AM

Room 511AD

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Chair: Fred Lee, Fairchild Semiconductor

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¹University of Minnesota, Minneapolis, MN, USA, ²IBM T. J. Watson Research Center, Yorktown Heights, NY, USA, ³Carnegie Mellon University, Pittsburgh, PA, USA, ⁴Rice University, Houston, TX, USA

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Christian Bredendiek¹, Nils Pohl¹, Klaus Aufinger² and Attila Bilgic³

¹Ruhr-Universität Bochum, Germany, ²Infineon Technologies AG, Neubiberg, Germany, ³KROHNE Messtechnik, Duisburg, Germany

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M. Jahn¹, K. Aufinger², T. F. Meister² and A. Stelzer^{1,3}

¹Christian Doppler Laboratory for Integrated Radar Sensors, Johannes Kepler University, Linz, Austria, ²Infineon Technologies, Neubiberg, Germany, ³Johannes Kepler University, Linz, Austria

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Wanghua Wu¹, John R. Long¹, R. Bogdan Staszewski¹ and John J. Pekarik²

¹Electronics Research Laboratory/DIMES, Delft University of Technology, Delft, The Netherlands, ²IBM Microelectronics, Burlington, VT, USA

Monday, 18 June 2012
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Sherif H. Abdelhalem¹, Prasad S. Gudem² and Lawrence E. Larson^{1,3}
¹University of California at San Diego, La Jolla, CA, USA, ²Qualcomm Inc., San Diego, CA, USA,
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¹Chair of Integrated Analog Circuits and RF Systems, ²Mixed-Signal CMOS Circuits, Aachen University, Germany,
³Computer Architecture Group, University of Heidelberg, Mannheim, Germany

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Room 510AC

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Chair: Paul Blount, Custom MMIC Design Services

Co-Chair: Brian Floyd, North Carolina State Univ.

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Oded Katz¹, Roe Ben-Yishay¹, Roi Carmon¹, Benny Sheinman¹, Frank Szenher², Donald Papae² and Danny Elad¹

¹IBM Haifa Labs, Haifa University Campus, Carmel Mountains, Israel, ²IBM STG, East Fishkill, Hopewell Junction, NY, USA

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Herbert Knapp¹, Markus Tremel², Andreas Schinko², Erich Kolmhofer², Stefan Matzinger², Georg Strasser², Rudolf Lachner¹, Linus Maurer² and Jürgen Minichshofer²

¹Infinitec Technologies, Neubiberg, Germany, ²DICE, Linz, Austria

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¹ECE, University of California, San Diego, California, USA, ²EE, Chungnam National University, Daejeon, South Korea

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¹ETRI, Daejeon, Korea, ²Kwangwoon University, Seoul, Korea, ³Chung-Ang University, Seoul, Korea,

⁴KAIST, Daejeon, Korea

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¹Dept. of Electrical Engineering, Univ. of Washington, Seattle, WA, USA, ²Broadcom Corporation,
Irvine, CA, USA

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¹Institute of Microelectronics, Tsinghua University, Beijing, China, ²Now with Analog Devices, Inc., Beijing, China, ³Now with University of California, San Diego, USA
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Solutions Research Laboratory, Tokyo Institute of Technology, Japan

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¹University of California, San Diego, La Jolla, CA, USA, ²Qualcomm Inc., San Diego, CA, USA
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¹Mobile Wireless Group, Intel Haifa, Israel, ²Electrical Engineering Technion, Haifa, Israel
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Amin Arbabian¹ and Ali M. Niknejad²
¹Department of Electrical Engineering, Stanford University, Stanford, CA, USA,
²Department of Electrical Engineering and Computer Sciences, UC Berkeley, Berkeley, CA, USA

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Room 510BD

Session RMO3E: Multiband and Reconfigurable Power Amplifiers

Chair: Jeffrey S. Walling, Rutgers University

Co-Chair: Nick Cheng, Skyworks Solutions, Inc.

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¹NXP Semiconductors, Eindhoven, The Netherlands, ²Eindhoven University of Technology, Eindhoven, The Netherlands

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Northrop Grumman Aerospace Systems, Redondo Beach, CA, USA

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Sang-Min Yoo¹, Benjamin Jann², Ofir Degani³, Jacques C. Rudell¹, Ram Sathwani² and Jeffrey S. Walling⁴
and David J. Allstot¹

¹Dept. of Electrical Engineering, Univ. of Washington, Seattle, WA, USA, ²Intel Corporation, Hillsboro, OR, USA,

³Intel Corporation, Haifa, Israel, ⁴Dept. of Electrical and Computer Engineering, Rutgers Univ.,
Piscataway, NJ, USA

Monday, 18 June 2012

4:00 PM

Room 511AD

Session RMO4A: Low-Power RF Circuits

Chair: Gernot Hueber, NXP Semiconductors

Co-Chair: Pierre Busson, ST Microelectronics

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R.C.H. van de Beek¹, M. Ciacci¹, G. Al-Kadi¹, P. Kompan² and M. Stark²

¹NXP Semiconductors, Eindhoven, The Netherlands, ²NXP Semiconductors, Gratkorn, Austria

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Qi Peng^{1,2}, Chun Zhang^{1,2}, Yanhong Song^{1,2}, Ziqiang Wang^{1,2} and Zhihua Wang^{1,2}

¹Institute of Microelectronics, Tsinghua University, Beijing, China, ²Tsinghua National Laboratory for Information Science and Technology, Tsinghua University, Beijing, China

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Lund University, Lund, Sweden

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Baradwaj Vignanam and Peter R. Kinget

Dept. of Electrical Engineering, Columbia University, New York, NY, USA

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Room 511BE

Session RMO4B: Advances in CMOS Receivers

Chair: Ed Balboni, Analog Devices

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Aravind Heragu, David Ruffieux and Christian Enz

Ecole Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland, Swiss Center for Electronics and Microtechnology (CSEM), Neuchatel, Switzerland

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¹IMEC, Heverlee, Belgium, ²Vrije Universiteit Brussel (VUB), Dept. of Electronics and Informatics (ETRO), Brussels, Belgium

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¹Ericsson Research, Lund, Sweden, ²Dept. of Electrical and Information Technology, Lund University, Lund, Sweden

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University of Michigan, Ann Arbor, MI, USA

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Chair: Gary Zhang, Skyworks Solutions, Inc.

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Wideband Envelope Tracking Power Amplifier for LTE Application

Dongsu Kim¹, Daehyun Kang³, Jooseung Kim¹, Yunsung Cho^{1,2} and Bumman Kim^{1,2}

¹Department of Electrical Engineering, Pohang University of Science and Technology,

²Division of IT Convergence Engineering, Pohang University of Science and Technology,

Republic of Korea, ³Broadcom Corporation, Matawan, NJ, USA

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D. Leipold¹, W. Allen², P. Sheehy¹ and G. Hau²

¹ANADIGICS, Inc., Warren Design Center, Warren, NJ, USA, ²ANADIGICS, Inc., Tyngsboro Design Center, Tyngsboro, MA, USA

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NXP Semiconductors, Eindhoven, The Netherlands

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Ping-Hsun Wu^{1,3}, Jian-Yu Li¹, Yu-Chi Wang² and Powen Hsu³

¹Info. and Comm. Research Lab., Industrial Technology Research Institute, Hsinchu, Taiwan,

²WIN Semiconductor Corporation, Taoyuan, Taiwan, ³Graduate Institute of Communication Engineering, National Taiwan University, Taipei, Taiwan

Tuesday, 19 June 2012

8:00 AM

Room 511AD

Session RTU1A: Frequency Generation Using Injection Locking and Coupling Techniques

Chair: Nobuyuki Itoh, Okayama Prefectural University

Co-Chair: Madhukar Reddy, Maxlinear

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Electronics Research Laboratory/DIMES, Delft University of Technology, The Netherlands
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Mahdi Bagheri^{1,2}, Rahim Bagheri² and Lawrence E. Larson¹
¹University of California San Diego, La Jolla, CA, USA, ²BroMarks, Carlsbad, CA, USA
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Institute for Electronics Engineering, University of Erlangen-Nuremberg, Erlangen, Germany
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A 0.8V 1.9mW 53.7-to-72.0GHz Self-Frequency-Tracking Injection-Locked Frequency Divider
Jun Yin and Howard C. Luong
The Hong Kong University of Science and Technology, Clear Water Bay, Hong Kong
- RTU1A-5 9:20 AM 309**
A 52-66GHz Subharmonically Injection-Locked Quadrature Oscillator with 10GHz Locking Range in 40nm LP CMOS
G. Mangraviti^{1,2}, B. Parvais¹, V. Vidojkovic¹, K. Vaesen¹, V. Szortyka^{1,2}, K. Khalaf^{1,2}, C. Soens¹, G. Vandersteen^{1,2} and P. Wambacq^{1,2}
¹IMEC, Leuven, Belgium, ²Vrije Universiteit Brussel, Brussels, Belgium

Tuesday, 19 June 2012
8:00 AM
Room 511BE
Session RTU1B: Baseband Circuits and Modulators
for Wideband Transceivers
Chair: Eric Fogleman, MaxLinear
Co-Chair: Ayman Fayed, Iowa State University

- RTU1B-1 8:00 AM 315**
A High-Dynamic Range, Broadband, RF Transmit Modulator IC
Ed Balboni¹, Benjamin Sam², Daryl Carbonari² and John Cowles²
¹Analog Devices, Wilmington, MA, USA, ²Analog Devices, Beaverton, OR, USA
- RTU1B-2 8:20 AM 319**
A 45-GHz, 2-bit Power DAC with 24.3 dBm Output Power, >14 V_{pp}
Differential Swing, and 22% Peak PAE in 45-nm SOI CMOS
Andreea Balteanu, Ioannis Sarkas, Eric Dacquay, Alex Tomkins and Sorin P. Voinigescu
ECE Department, University of Toronto, Toronto, ON, Canada
- RTU1B-3 8:40 AM 323**
An IF Digitizer IC Employing A Continuous-Time Bandpass Delta-Sigma ADC
R. Schreier¹, H. Shibata¹, P. Hendriks², M. Aliroteh¹, V. Kozlov¹, H.K. Tong¹, A. Del Muro², P. Shrestha²,
T. Caldwell¹, D. Alldred¹, W. Yang², D. Paterson² and P.W. Lai²
¹Analog Devices, Inc., Toronto, ON, ²Analog Devices, Inc., Wilmington, MA, USA
- RTU1B-4 9:00 AM 327**
A 5 Gbps Low Noise Receiver in 0.13 μ m CMOS For Wireless Optical
Communications
Behrooz Nakhkoob and Mona M. Hella
ECSE Department, Rensselaer Polytechnic Institute, Troy, NY, USA

Tuesday, 19 June 2012

8:00 AM

Room 511CF

Session RTU1C: Advanced Frequency Synthesis: Building Blocks

Chair: Jaber Khoja, Qualcomm Inc.

Co-Chair: Salvatore Levantino, Politecnico di Milano

RTU1C-1 8:00 AM 333

Dual Channel Injection-Locked Quadrature LO Generation for a 4GHz Instantaneous Bandwidth Receiver at 21GHz Center Frequency

Mohammad Elbadry¹, Bodhisatwa Sadhu¹, Joe Qiu² and Ramesh Harjani¹

¹Department of Electrical and Computer Engineering, University of Minnesota, Minneapolis, MN, USA, ²Army Research Laboratory, Adelphi, MD, USA

RTU1C-2 8:20 AM 337

A 2.9mW 53.4-79.4GHz Frequency-Tracking Injection-Locked Frequency Divider with 39.2% Locking Range in 65nm CMOS

Yue Chao and Howard C. Luong

Hong Kong University of Science and Technology, Hong Kong, China

RTU1C-3 8:40 AM 341

A 14.1-GHz Dual-Modulus Prescaler in 130nm CMOS Technology Using Sequential Implication Logic Cells

Wu-Hsin Chen, Elkim Roa, Wing-Fai Loke and Byunghoo Jung

School of Electrical and Computer Engineering, Purdue University, IN, USA

RTU1C-4 9:00 AM 345

A PAE of 17.5% Ka-band Balanced Frequency Doubler with Conversion Gain of 20 dB

Jiankang Li^{1,3}, Zhong Lu², Yong-Zhong Xiong³, Debin Hou^{3,4}, Ren Wang³, Wang Ling Goh⁵ and Wen Wu¹

¹Nanjing University of Science and Technology, Nanjing, China, ²Sichuan Province Economic and Information Commission, Chengdu, China, ³MicroArray Technologies, Chengdu, China, ⁴Southeast University, Nanjing, China, ⁵Nanyang Technological University, Singapore

Tuesday, 19 June 2012

8:00 AM

Room 510AC

Session RTU1D: Silicon Devices for ICs from RF to Millimeter Waves

Chair: Aditya Gupta, Northrop Grumman

Co-Chair: Fujiang Lin, University of Science and Technology of China

RTU1D-1 8:00 AM 351

Millimeter-Wave Characterization of Si/SiGe HBTs Noise Parameters

Featuring f_T/f_{MAX} of 310/400 GHz

T. Quémerais¹, D. Gloria¹, S. Jan¹, N. Derrier¹ and P. Chevalier¹

¹STMicroelectronics, Technology R&D, Crolles, France

RTU1D-2 8:20 AM 355

The Impact of Narrow Width Effects on High Frequency Performance and Noise in 35nm Multi-Finger n-MOSFETs

Kuo-Liang Yeh, Chih-Shiang Chang and Jyh-Chyurn Guo

Institute of Electronics Engineering, National Chiao Tung University, Hsinchu, Taiwan

RTU1D-3 8:40 AM 359

Nano Crystal Quantum Dots Tunable On-Chip ESD Protection

Zitao Shi^{1,2}, Xin Wang¹, Jian Liu¹, Lin Lin¹, Hui Zhao¹, Qiang Fang¹, Li Wang¹, Chen Zhang¹, Siqiang Fan³, He Tang¹, Bei Li¹, Albert Wang¹, Jianlin Liu¹, Yuhua Cheng² and Bin Zhao³

¹University of California, Riverside, USA, ²Peking Univ., China, ³Fairchild Semiconductor

RTU1D-4 9:00 AM 363

A Structure of Millimeter-Wave On-Chip Transmission Line Using Redistributed Copper Wire and Ground Shield

Takafumi Kuramoto, Takehiko Sakamoto, Hiroaki Namba, Takasuke Hashimoto, Shinichi Uchida,

Kenji Hayashi, Masayuki Furumiya, Hiroaki Ohkubo and Yasutaka Nakashiba

Renesas Electronics Corp., Kanagawa, Japan

RTU1D-5 9:20 AM 367

Stacked-Spiral RF Inductors with Fully-Filled Vertical Nanoparticle Magnetic Core

Jing Zhan¹, Xin Wang², Qiang Fang², Zitao Shi^{2,3}, Yi Yang¹, Tian-Ling Ren¹, Albert Wang², Yuhua Cheng³, Xinxin Li⁴ and Chen Yang⁴

¹Tsinghua University, Beijing, China, ²University of California, Riverside, CA, USA, ³SHRIME, Peking University, Shanghai, China, ⁴State Key Laboratory of Transducer Technology, Shanghai Institute of Microsystem and Information Technology, Shanghai, China

Tuesday, 19 June 2012

10:10 AM

Room 511AD

Session RTU2A: Low-Power Solutions for Wireless Sensor Applications

Chair: Pedram Mohseni, Case Western Reserve University

Co-Chair: Hua Wang, Georgia Institute of Technology

RTU2A-1 10:10 AM 373

A 98nW Wake-up Radio for Wireless Body Area Networks

Nathan E. Roberts and David D. Wentzloff

University of Michigan, Ann Arbor, MI, USA

RTU2A-2 10:30 AM 377

Highly Sensitive and Low Power Injection-Locked FSK Receiver for Short-Range Wireless Applications

Rong-Fu Ye¹, Tzyy-Sheng Horng¹ and Jian-Ming Wu²

¹Dept. of Electrical Engineering, National Sun Yat-Sen University, Kaohsiung, Taiwan, ²Dept. of Electronic Engineering, National Kaohsiung Normal University, Kaohsiung, Taiwan

RTU2A-3 10:50 AM 381

Multi-channel 180pJ/b 2.4GHz FBAR-based Receiver

Phillip M. Nadeau, Arun Paidimarri, Patrick P. Mercier and Anantha P. Chandrakasan

Microsystems Technology Laboratories, Massachusetts Institute of Technology, Cambridge, MA, USA

RTU2A-4 11:10 AM 385

A 4.9mW 7.5Mbps DAC-less 16QAM Transmitter for WBANs in Medical Applications

Qi Zhang^{1,2}, Wenfeng Lou¹, Weiyang Liu¹, Hui Wang² and Nanjian Wu¹

¹Institute of Semiconductors, Chinese Academy of Sciences, Beijing, P.R. China, ²Shanghai Advanced Research Institute, Chinese Academy of Sciences, Shanghai, P.R. China

Tuesday, 19 June 2012

10:10 AM

Room 511BE

Session RTU2B: Advanced Mobile and Wireless Transceivers and SoC's

Chair: Srenik Mehta, Qualcomm Inc.

Co-Chair: Andre Hanke, Intel Corp.

RTU2B-1 10:10 AM 391

Invited Paper: The Path towards Gb/s Wireless LANs

Masoud Zargari

Qualcomm Atheros, Irvine, CA, USA

RTU2B-2 10:30 AM 395

A WLAN and Bluetooth Combo Transceiver with Integrated WLAN Power Amplifier, Transmit-Receive Switch and WLAN/Bluetooth Shared Low Noise Amplifier

Renaldi Winoto, Ming He, Yuan Lu, David Signoff, Edwin Chan, Chi-Hung Lin, Wayne Loeb, Jinho Park and Li Lin

Marvell Semiconductor, Santa Clara, CA, USA

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A Multiband LTE SAW-less CMOS Transmitter with Source-Follower-Driven Passive Mixers, Envelope-Tracked RF-PGAs, and Marchand Baluns

Takao Kihara¹, Tomohiro Sano¹, Masakazu Mizokami¹, Yoshikazu Furuta¹, Takahiro Nakamura², Mitsuhiro Hokazono¹, Takaya Maruyama¹, Kenji Toyota³, Koji Maeda⁴, Yukinori Akamine⁴, Taizo Yamawaki⁴, Testuya Heima¹, Kazuaki Hori³ and Hisayasu Sato¹

¹Renesas Electronics Corp., Itami-shi, Hyogo, Japan, ²Central Research Laboratory, Hitachi, Ltd., Kokubunji-shi, Tokyo, Japan, ³Renesas Electronics Corp., Takasaki-shi, Gunma, Japan,

⁴Renesas Mobile Corp., Takasaki-shi, Gunma, Japan

RTU2B-4 11:10 AM 403

A 65nm GSM/GPRS/EDGE SoC with Integrated BT/FM

Chinq-Shiun Chiu¹, Hsiang-Hui Chang¹, Tzung-Han Wu¹, Shin-Fu Chen¹, Chieh-Chuan Chin¹, Wei-Kai Hong¹, Sheng Jau Wong², Li-Shin Lai¹, Chi-Hsueh Wang¹, Song-Yu Yang¹, Ta-Hsin Lin¹, Jhy-Rong Chen¹, Hung-Chieh Tsai¹, Hsi-Ming Yang¹, Hsiao-Wei Chen¹, Augusto Marques³, Caiyi Wang⁴ and George Chien⁵

¹MediaTek Inc., Hsinchu, Taiwan, ²MediaTek Singapore Pte Ltd., Singapore, ³Faculty of Sciences and Technology of Universidade Nova de Lisboa (FCT/UNL) and CTSUNINOVA, Lisbon, Portugal,

⁴MediaTek Inc., Austin, TX, USA, ⁵MediaTek Inc., San Jose, CA, USA

Tuesday, 19 June 2012

10:10 AM

Room 511CF

Session RTU2C: Advanced Modeling and Characterization for RF and mm-Wave Design

Chair: Tzung-Yin Lee, Skyworks Solutions, Inc.

Co-Chair: Francis Rotella, Peregrine Semiconductor

RTU2C-1 10:10 AM 409

An Improved VBIC Model for InP DHBTs

Yuxia Shi¹, Zhi Jin², Yongbo Su², Yuxiong Cao² and Yan Wang¹

¹Institute of Microelectronics, Tsinghua University, Beijing, P.R.China, ²Microwave Device and Integrated Circuit Department, Institute of Microelectronics, Chinese Academy of Sciences, Beijing, P.R.China

RTU2C-2 10:30 AM 413

Characterization and Modeling of Enhanced Voltage RF MESFETs on 45nm CMOS for RF Applications

Seth J. Wilk^{1,2}, M. Reza Ghajar¹, William Lepkowski^{1,2}, Bertan Bakkaloglu¹ and Trevor J. Thornton^{1,2}

¹Arizona State University, Tempe, AZ, USA, ²SJT Micropower Inc. Fountain Hills, AZ, USA

RTU2C-3 10:50 AM 417

On-Wafer CMOS Transistors De-Embedding Method Using Two Transmission Lines of Different Lengths

H. J. Saavedra-Gómez¹, J. R. Loo-Yau¹, P. Moreno¹, Brenda Edith Figueroa-Resendiz¹ and J. A. Reynoso-Hernández²

¹Centro de Investigación y de Estudios Avanzados del I. P. N. Unidad Guadalajara (Cinvestav-GDL), Colonia El Bajío, C. P., Zapopan, Jalisco, ²Centro de Investigación Científica y de Educación Superior de Ensenada (CICESE), Ensenada, Baja, CA, USA

RTU2C-4 11:10 AM 421

An Ultra-Broadband Model for On-Chip Transformers Based on Pole-Residue Formulae

Chengbo Qiu, Huang Wang, Jun Liu, Zhiping Yu and Lingling Sun

Key Laboratory of RF Circuits and Systems of Ministry of Education, Hangzhou Dianzi University, Hangzhou, Zhejiang, China

RTU2C-5 11:30 AM 425

A Broadband, Millimeter Wave, Asymmetrical Marchand Balun in 180 nm SiGe BiCMOS Technology

Duane C. Howard, Choon Sik Cho and John D. Cressler

School of Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, GA, USA

Tuesday, 19 June 2012

10:10 AM

Room 510AC

Session RTU2D: 60 GHz Transceiver Circuits

Chair: Arun Natarajan, IBM T. J. Watson Research Center

Co-Chair: Luciano Boggione, University of Massachusetts

RTU2D-1 10:10 AM 431

A Four-Path 60GHz Phased-Array Receiver with Injection-Locked LO, Hybrid Beamforming and Analog Baseband Section in 90nm CMOS

Kuba Raczkowski¹, Giovanni Mangraviti^{1,2}, Viki Szortyka^{1,2}, Annachiara Spagnolo^{1,3}, Bertrand Parvais¹, Roeland Vandebriel¹, Vojkan Vidojkovic¹, Charlotte Soens¹, Stefano D' Amico³ and Piet Wambacq^{1,2}

¹IMEC, Heverlee, Belgium, ²Vrije Universiteit Brussel, Brussels, Belgium, ³University of Salento, Lecce, Italy

RTU2D-2 10:30 AM 435

A 60GHz Wideband Low Noise Eight-Element Phased Array RX Front-End for Beam Steering Communication Applications in 45nm CMOS

S. Drago, M.C.A. van Schie, A.J.M. de Graauw, J.F. Osorio, M. Spella, Y. Yu, C.S. Vaucher, R.M.T. Pijper and L.F. Tiemeijer

NXP Semiconductors Research, Eindhoven, The Netherlands

RTU2D-3 10:50 AM 439

A CMOS Bidirectional 32-element Phased-Array Transceiver at 60GHz with LTCC Antenna

Emanuel Cohen^{1,2}, Mark Ruberto¹, Moshik Cohen³, Ofir Degani¹, Shmuel Ravid¹ and Dan Ritter²

¹Mobile Wireless Group, Intel Haifa, Israel; ²Electrical Engineering Technion, Haifa, Israel,

³Electrical and Computer Engineering, Ben-Gurion University, Beer-Sheva, Israel

RTU2D-4 11:10 AM 443

A Flip-Chip-Packaged and Fully Integrated 60GHz CMOS Micro- Radar Sensor for Heartbeat and Mechanical Vibration Detections

Te-Yu Jason Kao¹, Austin Ying-Kuang Chen², Yan Yan¹, Tze-Min Shen¹ and Jenshan Lin¹

¹Department of ECE, University of Florida, Gainesville, FL, USA, ²Now with Skyworks Solutions, Newbury Park, CA, USA

RTU2D-5 11:30 AM 447

A 5mW CMOS Wideband mm-Wave Front-End Featuring 17dB of Conversion Gain and 6.5dB Minimum NF

Andrea Ghilioni¹, Enrico Monaco², Mattea Repposi² and Andrea Mazzanti¹

¹Dipartimento di Elettronica, Universita di Pavia - Italy, ²STMicroelectronics, Pavia, Italy

Tuesday, 19 June 2012

1:30 PM

517CD

Session RTUIF: Interactive Forum

Chair: Waleed Khalil, Ohio State University

Co-Chair: Ayman Fayed, Iowa State University

RTUIF1 455

A Process-Scalable RF Transceiver for Short Range Communication in 90 nm Si CMOS

Atsushi Shirane, Mototada Otsuru, Sang_yeop Lee, Shin Yonezawa, Satoru Tanoi, Hiroyuki Ito, Noboru Ishihara and Kazuya Masu

Solutions Research Laboratory (SSRL), Tokyo Institute of Technology, Yokohama, Japan

RTUIF2 459

A 3.1-10.6 GHz Ultra Wide-band Impulse Radio Transmitter with Notch Implementation for In-Band Interferers in 90nm CMOS

H. Hedayati and K. Entesari

Analog and Mixed Signal Center, Texas A&M University, TX, USA

RTUIF4 463

An Extremely Low Consumption, 53mW, 65nm CMOS Transmitter for 60 GHz UWB Applications

Mariano Ercoli^{1,2}, Daniela Dragomirescu^{1,2}, Didier Belot³ and Robert Plana^{1,2}

¹CNRS; Toulouse, France, ²Université de Toulouse; Toulouse, France, ³STMicroelectronics Central R&D ¹Crolles, France

RTUIF5 467

5.8 GHz Low-Flicker-Noise CMOS Direct-Conversion Receiver Using Deep-N-Well Vertical-NPN BJT

Yu-Chih Hsiao¹, Chinchun Meng¹, Jin-Siang Syu¹, Chia-Ling Wang¹, Shyh-Chyi Wong² and Guo-Wei Huang³

¹Department of Electrical Engineering, National Chiao Tung University, Hsinchu, Taiwan, ²Richwave Technology Corporation, Taipei, Taiwan, ³National Nano Device Laboratories, Hsinchu, Taiwan

RTUIF6 471

A PA-Noise Cancellation Technique for Next Generation Highly Integrated RF Front-Ends

M. Omer¹, R. Rimini², P. Heidmann² and J.S. Kenney¹.

¹Georgia Institute of Technology, Atlanta, GA, USA, ²Qualcomm Inc, San Diego, CA, USA

- RTUIF7** **475**
A 2-11 GHz Reconfigurable Multi-Mode LNA in 0.13 μ m CMOS
Xiaohua Yu and Nathan M. Neihart
Department of Electrical and Computer Engineering, Iowa State University, Ames, IA, USA
- RTUIF8** **479**
Bias Optimized IP2 & IP3 Linearity and NF of a Decade-Bandwidth GaN MMIC Feedback Amplifier
Kevin W. Kobayashi
RF Micro Devices, Torrance, CA, USA
- RTUIF9** **483**
A -32dBm Sensitivity RF Power Harvester in 130nm CMOS
Seunghyun Oh and David D. Wentzloff
University of Michigan, Ann Arbor, MI, USA
- RTUIF10** **487**
A 5bit 1GS/s 2.7mW 0.05mm² Asynchronous Digital Slope ADC in 90nm CMOS for IR UWB Radio
M. Ding^{1,2}, P. Harpe^{1,2}, H. Hegt², K. Philips¹, H. de Groot¹ and A. van Roermund²
¹Holst Centre, Eindhoven, The Netherlands, ²Eindhoven University of Technology, Eindhoven, The Netherlands
- RTUIF11** **491**
A 30-65 GHz Reduced-Size Modulator with Low LO Power Using Sub-Harmonic Pumping in 90-nm CMOS Technology
Ping-Han Tsai, Che-Chung Kuo, Jing-Lin Kuo, Sofiane Aloui and Huei Wang
Dept. of Electrical Engineering and Graduate Institute of Communication Engineering, National Taiwan University, Taiwan, R.O.C.
- RTUIF12** **495**
An 84 mW 0.36 mm² Analog Baseband Circuits for 60 GHz Wireless Transceiver in 40 nm CMOS
Masaya Miyahara, Hironori Sakaguchi, Naoki Shimasaki and Akira Matsuzawa
Tokyo Institute of Technology, Tokyo, Japan
- RTUIF13** **499**
A Phase-Shifting Up-Converter for 30GHz Phased Array Applications
Yu Pei^{1,2}, Ying Chen¹, Domine M. W., Leenaerts^{1,2} and Reza Mahmoudi²
¹NXP Semiconductors, Eindhoven, The Netherlands, ²Eindhoven University of Technology, Eindhoven, The Netherlands

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A Low-power K-band CMOS UWB Radar Transceiver IC for Short Range Detection	
Sungeun Lee, Sunwoo Kong, Choul-Young Kim ¹ and Songcheol Hong Department of Electrical Engineering, KAIST, Daejeon, Republic of Korea, ¹ Chungnam National University, Daejeon, Republic of Korea	
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A Broadband Millimeter-Wave Passive CMOS Down-Converter	
Anna Moroni and Danilo Manstretta University of Pavia, Pavia, Italy	
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A 77GHz Automotive Radar Receiver in a Wafer Level Package	
Christoph Wagner ¹ , Josef Böck ² , Maciej Wojnowski ² , Herbert Jäger ¹ , Johannes Platz ¹ , Markus Tremml ¹ , Florian Dober ¹ , Rudolf Lachner ² , Jürgen Minichshofer ¹ and Linus Maurer ¹ ¹ Danube Integrated Circuit Engineering, Austria, ² Infineon Technologies AG, Neubiberg, Germany	
RTUIF17	515
A Novel mmWave CMOS VCO with an AC-Coupled LC Tank	
Vishal P. Trivedi and Kun-Hin To Freescale Semiconductor Inc., Tempe, AZ, USA	
RTUIF18	519
A 4.1-to-6.5GHz Transformer-Coupled CMOS Quadrature Digitally-Controlled Oscillator with Quantization Noise Suppression	
Shiyuan Zheng and Howard C. Luong Hong Kong University of Science and Technology, Clear Water Bay, Hong Kong, China	
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A Reconfigurable 4.7-6.6GHz and 8.5-10.7GHz Concurrent and Dual-Band Oscillator in 65nm CMOS	
Alvin Li and Howard C. Luong Hong Kong University of Science and Technology, Clear Water Bay, Hong Kong, China	
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A CMOS Flash TDC with 0.84 - 1.3 ps Resolution Using Standard Cells	
Takahiro J. Yamaguchi ^{1,2} , Satoshi Komatsu ² , Mohamed Abbas ² , Kunihiro Asada ² , Nguyen Ngoc Mai-Khanh ² and James Tandon ² ¹ Advantest Laboratories, Miyagi, Japan ² D2T, VDEC, University of Tokyo, Tokyo, Japan	

- RTUIF21** **531**
A 0.6-7 Gbps, 1/7 Rate, Burst Mode Clock and Data Recovery Circuit and Demultiplexer
Yu-Hsian Chen and Wei-Zen Chen
Department of Electronics Engineering, National Chiao-Tung University, Hsin-Chu, TAIWAN
- RTUIF22** **535**
A Performance Study of Layout and V_t Options for Low Noise Amplifier Design in 65-nm CMOS
Quan Pan¹, Tzu-JinYeh², Chewnpu Jou², Fu-Lung Hsueh², Howard Luong¹ and C. Patrick Yue¹
¹Hong Kong University of Science and Technology, Clear Water Bay, Hong Kong, ²Taiwan Semiconductor Manufacturing Company Limited, Hsinchu, Taiwan
- RTUIF23** **539**
Frequency Response Enhancement of Spiral Inductor's Q-Factor by Adopting Defected Ground Structure in Standard CMOS Process
Yu Ye^{1,2}, Jian-Zhong Gu¹, Rong Qian¹ and Xiao-Wei Sun¹
¹Key Laboratory of Terahertz Technology, Shanghai Institute of Microsystem and Information Technology, Shanghai, China, ²Graduate University of Chinese Academy of Sciences, Beijing, China
- RTUIF24** **543**
Characterization and Modeling of the Junction Diode for Accurate RF Model in the 36nm MOSFET
Yujen Wang, Willy Tsao and Zheng Zeng
MediaTek Inc., Hsinchu, Taiwan