

2017 Joint International Symposium on e-Manufacturing and Design Collaboration (eMDC 2017) & Semiconductor Manufacturing (ISSM 2017)

**Hsinchu, Taiwan
15 September 2017**



**IEEE Catalog Number: CFP17SSM-POD
ISBN: 978-1-5386-1216-3**

**Copyright © 2017, Taiwan Semiconductor Industry Association (TSIA)
All Rights Reserved**

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP17SSM-POD
ISBN (Print-On-Demand):	978-1-5386-1216-3
ISBN (Online):	978-986-91715-3-3
ISSN:	1523-553X

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

Table of Contents

	Title	Authors	Affiliation	Page
N01	Device Scaling vs. Process Control Scaling: Advanced Sensorization Closes the Gap	*Alan Weber, Boyd Finlay, Mark Reath, Jack Downey, Chris Reeves, Jeff Wood, Patrick Minton, Niels Rackwitz, Eric Warren, Brian Conerny, Mohamed Elmrabet, Ray Bunkofske	*Cimetrix Incorporated, GLOBALFOUNDRIES	1
N02	ANYSYS Chip-Level and Wafer-Level Simulation on Semiconductor Process Development	Yu-Chih Chang, Chi-Min Chen, Yung-Tai Hung, Tuung Luoh, Tahone Yang, Kuang-Chao Chen	Macronix International Co., Ltd	3
N03	Design of a 60V-n-NLDMOS device based on thermal oxide technology for improvement of HCl	Syed Sanwar Imam, Gene Sheu	Asia University	N/A
N04	Dual Port SRAM Read-Disturb-Write mechanism and design for test	Robert Kuo-Hung Lo, Shaw-Wei Lu, Jordan Hsu, Quincy Li	Taiwan Semiconductor Manufacturing Company Ltd	7
N07	Target and Uniformity Controls of WLP in SSL/LED manufacturing	Keung Hui, KM Chen, Simon Chang, YC Lu, Leo Ke, SY Sheen	Taiwan Semiconductor Manufacturing Company Ltd	11
N08	A Promising Solution to Reduce Plasma Induced Damage (PID) of High Density Plasma (HDP) Oxide without Sacrificing the Gap-fill and Throughput Performance	Chin-Tsan Yeh, Chia-Sheng Yu, Ying-Tso Chen, Yen-Hao Shih, Chih-Yuan Lu	Macronix International Co., Ltd	16
N09	Understanding and Controlling Wafer Surface Contamination at Wafer Level Chip Scale Package	Wiljelm Carl K. Olalia, Kristine B. Bongat	ON Semiconductor Philippines Inc.	20
N10	Wafer Pattern Classification and Auto Disposition by Machine Learning	James Lin, Ji Fu Kung, Patrick Cheng, Austin Hwu, Chuang Tse Wang, Y B Hsu	United Microelectronics Corporation	24
N11	The productivity opportunities by applying machine learning algorithms in a fab	C.Y. Lai, P.F. Tsai, Steven Chang, Y.C. Wang, L.W. Teng	Taiwan Semiconductor Manufacturing Company Ltd	27

N13	Real-time Resource Allocations and Shceduling of Product-mix Production Systems with Multi-type jigs	Sumika ARIMA, Huizhen BU, Yutaka AKIYAMA, Hiroyuki MOTOMIYA	University of Tsukuba	29
N14	New RMS Design Based on SEMI E170 Secured Foundation Of Recipe Management System	Masahide Hirouchi, Ryuhichiroh Hattori	International Business Machines	33
N15	Real-time Shceduling of HMLV Productions using the Optimum Production Cycle extended by ATSP Solver	Sumika ARIMA, Huizhen BU, Yi-Fang Wang, Yuri ISHIZAKI	University of Tsukuba	37
N16	A Novel Method of WTW for Productivity Improvement	Stephen Tseng, Ji Fu Kung, Y B Hsu, James Lin, C W Yang, N S Shen	United Microelectronics Corporation	42
N17	Resolution of Die Chippings thru Determination of Occur and Escape Cause at Automatic Optical Inspection Process	Wiljelm Carl K. Olalia, Leo Angelo D. Oabel, Glenn T. Placido	ON Semiconductor Philippines Inc.	45
N19	Dynamic Scheduling of Product-mix Production Systems of MTS and MTO	Sumika ARIMA, Yutong ZHANG, Yutaka AKIYAMA, Yuri ISHIZAKI	University of Tsukuba	49
N20	Safety shutdown of process equipment by automatic remote operation	Kuniaki Ishimoto, Takeshi Watanabe, Hidenori Tanaka, Makoto Arinaga, Yasunori Fuchikami*	Japan Semiconductor Corporation, *Toshiba Corporation	53
N21	Particle removal efficiency evaluation of filters in high temperature IPA	Tomoyuki Takakura, Shusaku Daikoku and Shuichi Tsuzuki	Nihon Pall Ltd.	56
P01	A practical flow regarding 2nd party audit on quality proficiency in supplier management	Chien-Hui Lu, Demeter Chen , Wei-Fu Chang	Powerchip Technology Corporation	59
P02	An Universal Method to optimize Shrunk Distance of the Step Plate	Yun-Chieh Tseng, Chien-Hui Lu, Chien-jung Chiu	Powerchip Technology Corporation	63
P03	Base on Bias and Process capability index monitoring mechanism to improve tool consistency	Tzu-Ting Wang*, Ya-Juan Chan, Ching-Wen Chung, Wei-Fu Chang	Powerchip Technology Corporation	66

P04	The Application of TRIZ Algorithm solve the problem of byproduct	Yi-Fang Hsin, Guan-TingChen, Ming- Kuan Chou, Kuo-Chan Huang, Chien-Hui Lu, Yun-Chieh Tseng, Chia-chi Chao	Powerchip Technology Corporation	70
P05	To improve the Measure Fail Rate On SEM through Six Sigma DMAIC methodology	Chien-Hui Lu, Chia-chi Chao , Yi Cheng	Powerchip Technology Corporation	74