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EBEAM INITIATIVE MEMBERS PRESENT COLLABORATIVE RESULTS AT SPIE/BACUS PHOTOMASK SYMPOSIUM 2011

Five Additional Companies Join eBeam Initiative

SAN JOSE, Calif., September 12, 2011—The eBeam Initiative, a forum dedicated to the education and promotion of new semiconductor manufacturing approaches based on electron beam (eBeam) technologies, today announced that several of its members will present the latest eBeam breakthroughs in mask and direct write technologies at the <u>SPIE/BACUS Photomask Symposium</u> <u>2011</u>—a worldwide technical conference and exhibition for the photomask industry. The collaborative results demonstrate eBeam support for advanced mask and IC manufacturing at the 20nm node and beyond. The SPIE/BACUS Photomask Symposium will be held September 19-22 at the Monterey Marriott Hotel in Monterey, California.

The eBeam Initiative also announced today that five additional companies have joined its ranks. These new members—Applied Materials, IMS CHIPS, Mentor Graphics Corporation[®], Multibeam Corporation and SoftJin Technologies—strengthen the ecosystem that is critical to supporting the commercialization of new eBeam technologies.

Aki Fujimura, CEO of D2S, Inc., managing company sponsor of the eBeam Initiative, said, "At the 20-nm node and beyond, eBeam technology will play an increasingly critical role in reducing mask costs and speeding time to market—no matter which path lithography takes. Ensuring that new eBeam approaches like multiple eBeam (MEB), mask process correction, model-based mask data preparation (MB-MDP) and other techniques are ready to address the lithography needs of the semiconductor industry at these advanced nodes requires continued investments in eBeam technology and collaboration across the semiconductor design and manufacturing ecosystem. We appreciate the support of our new and existing eBeam Initiative members who are collaborating so that semiconductor manufacturers can continue to scale cost-effectively."

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At the SPIE/BACUS Photomask Symposium 2011, eBeam Initiative members will present the following papers:

Monday, September 19

 3:40 p.m., Photomask Japan Special Session, Session JPM1 — "Benefits of overlapping shots for ArF and EUV mask process correction," presented by D2S

Tuesday, September 20

- 4:30 p.m., Session 6, Mask Data Preparation and Process Correction "QoR analysis of fractured data solutions using distributed processing," presented by SoftJin Technologies
- 4:50 p.m., Session 6, Mask Data Preparation and Process Correction "Reducing shot count through optimization-based fracture," presented by Mentor Graphics Corporation
- 6:00-7:30 p.m., Poster Session "Optimization of mask shot count using MB-MDP and lithography simulation," presented by GLOBALFOUNDRIES and D2S

Wednesday, September 21

 11:00 a.m., Session 12, Mask Pattern Generation I — "EBM-8000: EB mask writer for product mask fabrication of 22-nm half-pitch generation and beyond," presented by NuFlare Technology

Thursday, September 22

 11:30 a.m., Session 24, New Mask Making and Alternatives II — "Bottlenecks in data preparation flow for multibeam direct write," presented by Synopsys

For more information on eBeam Initiative activities at SPIE/BACUS Photomask 2011, please visit: www.ebeam.org.

About The eBeam Initiative

The eBeam Initiative provides a forum for educational and promotional activities regarding new semiconductor manufacturing approaches based on electron beam (eBeam) technologies. The goals of the Initiative are to reduce the barriers to adoption to enable more integrated circuit (IC) design starts and faster time-to-market while increasing the investment in eBeam technologies throughout the semiconductor ecosystem. Members and advisors, which span the semiconductor ecosystem, include: Abeam Technologies, Advantest, Alchip Technologies, AMTC, Applied Materials, Artwork Conversion, Cadence Design Systems, CEA/Leti, D2S, Dai Nippon Printing, EQUIcon Software GmbH Jena, e-Shuttle, Jack Harding from eSilicon Corporation, Fastrack Design, Fraunhofer CNT, Fujitsu Semiconductor Limited, GenISys GmbH, GLOBALFOUNDRIES, Grenon Consulting, HOYA Corporation, IMS CHIPS, JEOL, KLA-Tencor, Magma Design Automation, Mentor Graphics Corporation, Multibeam Corporation, NCS, NuFlare Technology, Petersen Advanced Lithography, Colin Harris from PMC-Sierra, Riko Radojcic from Qualcomm, Samsung Electronics, SoftJin Technologies, STMicroelectronics, Synopsys, Tela Innovations, TOOL Corporation, Toppan Printing, Vistec Electron Beam Lithography Group, and Xilinx. Membership is open to all companies and institutions throughout the electronics industry. To find out more, please visit www.ebeam.org.

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