



Dai Nippon Printing, Takumi Technology and a major semiconductor maker jointly developed automated criticality aware photo-mask inspection system

Sunnyvale, Calif. – February 26, 2007 – Dai Nippon Printing Co., Ltd., (“DNP”) the leading manufacturer of advanced photomasks for the semiconductor industry today announced its technology partnership with Takumi Technology Corporation, a leading provider of DFM software for advanced process technology.

Takumi Technology has developed several generations of design driven defect analysis software and methodology that can speed up defect judgment as well as categorizing post-mask-inspection treatment. Under this partnership, DNP, Takumi Technology and a major semiconductor maker will co-develop an automated criticality aware photomask inspection system aiming to reduce the manufacturing cost and turn-around-time (TAT) of advanced photomasks.

As technology evolves from 90, 65 to 45 nm process technology, the higher costs associated with photomasks and the longer TAT for delivery is becoming important issues. In order to improve these conditions, it is necessary to improve the methodology of the entire semiconductor manufacturing flow in addition to improvement of manufacturing process at photomask makers. DNP, recognizing these issues, enlisted Takumi Technology and a major semiconductor vendor to co-develop an automated photomask inspection system networked with a semiconductor maker (a customer of DNP).

“With this new system, we can rank each region in the photomask using criticality awareness to determine if it is an area with critical defects, non-critical defects, no defects, regions with small impact on semiconductor performance, or regions with no impact on semiconductor performance”, says Mr. Naoya Hayashi, General Manager of DNP Electronic Device Laboratory. With this system, semiconductor makers can minimize the effects of mask overkill and results in better mask yields and corresponding reduction in inspection costs. The automation provided by the design driven defect analyzer and networked environment also provides seamless data transfer between DNP and semiconductor maker via a secured data transport, substantially reducing inspection time and delivery through-put.

DNP and Takumi have started development and are currently in beta testing phase. DNP anticipates completion of joint development by March 2008 and ready for deployment to its worldwide customers. DNP will provide the software to their semiconductor customers as part of their customer service and at no extra costs.

Mr. Naoya Hayashi, DNP General Manager of Electronic Device Laboratory remarked, “We have investigated various approaches to deploy criticality aware mask inspection and concluded that Takumi’s design driven defect analyzer software is the most advanced off the shelf technology available today. It is a very flexible platform that can be extended to include DNP’s unique requirements in managing exploding data file sizes, seamless data transfer between customers and DNP, and accuracy needed in translating mask image defect data to layout data format.

Furthermore, Takumi's methodology enabled us to maintain our existing technical engagement model with our customer and minimize any major efforts in re-tooling our flow."

The partnership enables on-going collaborative development, helping both companies. Akifumi Goto, Takumi's President and CEO commented, "For a young technology company such as Takumi to receive such a firm endorsement by a company of Dai Nippon Printing's stature is a confirmation that we are providing leading edge technology for advanced process geometries and measurable value to our customers and that our DFM methodologies in mask data preparation, defect analysis and layout modification for yield improvements can truly close the growing gap between design and manufacturing for sub-wavelength processes."

About Dai Nippon Printing Co. Ltd.

DNP is a world-class printing conglomerate (Yoshitoshi Kitajima, CEO) with 1.5075 trillion yen in annual revenues and approximately 35,000 employees. Based in Tokyo, Japan, DNP offers a broad range of products and services for publishing, commercial printing, smart cards, networking, and electronics components, among others. Its products in the electronics field include color filters and other components for LCDs, photomasks, PCBs and semiconductor-related components. In the photomask market DNP is a world leader, utilizing its time honored printing techniques and know-how in the fabrication of cutting-edge photomasks

About Takumi Technology Corp

Founded in October 2003 and headquartered in Sunnyvale, California, Takumi Technology Inc. is the leader in providing systems solutions for design-for-manufacturing (DFM) for sub-wavelength process nodes. Takumi Technology presently offers criticality aware software solutions for backend tapeout flow, defect analysis and layout optimization. Takumi's criticality aware methodologies are completely vendor-agnostic and enable our customers to maximize their productivity and investment in their existing third party EDA tools. Takumi's technologies have been deployed with leading IDMs in 45nm, 65 nm and 90 nm technology nodes. Takumi Technology BV (The Netherlands) and Takumi Technology KK (Japan) are wholly owned subsidiaries of Takumi Technology Corp.

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