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DAINIPPON SCREEN MFG. CO., LTD.

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Dainippon Screen and Nikon Boost Their Collaborative Effort to the Next Level

Kyoto, Japan, November 4, 2004 - Dainippon Screen Mfg. Co., Ltd., (Headquarters: Kamigyo-Ku, Kyoto; President: Akira Ishida) and Nikon Corporation (Headquarters: Chiyoda-Ku, Tokyo; President: Teruo Shimamura) have mutually agreed to extend collaborative lithography related research efforts to next generation processes.

Semiconductor manufacturing processes continue to advance toward smaller linewidths with tighter uniformity control. While linking the coat/develop system and scanner into a single unit, or Lithocell, has been a requirement since the inception of Deep-UV lithography, increased sophistication of the tool interface and collaborative process optimization is mandatory to meet process requirements below 90nm.

Dainippon Screen (DNS) and Nikon began their current collaboration in July 2003 at Nikon's Kumagaya Plant. To best address future challenges at the 65nm node (and beyond), both companies have upgraded their respective toolsets. DNS has installed its latest 300mm coat and develop system, the RF^3 (pronounced "RF Cubed") in the Nikon lab. The track is linked to Nikon's NSR-S307E high-NA ArF Scanner.

Soichi Nadahara, corporate VP and General Manager of Technology at DNS stated, "Research and development with scanner manufactures is vital in advancing lithography processes and capability. Achieving CD uniformity goals at 65nm and below necessitates optimization of all components of the lithography cell and seamless integration between track and scanner. DNS is very excited to continue this vital effort with Nikon."

A key focus of the collaboration is CD uniformity improvement. This challenge is being addressed on multiple fronts. Overall variation is partitioned out between the coater/developer versus the scanner, allowing each company to optimize their own platforms and processes. Additionally, complementary solutions that can be solved on a cell level are sought out and synergistically addressed by the two companies. DNS and Nikon are also developing a more sophisticated track/scanner interface which will better control thermal management, airflow, critical time windows (e.g.; Post Exposure Delay or PED) along with providing improved lithography cell throughput.