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D2S EXTENDS GPU-ACCELERATED WAFER PLANE ANALYSIS TO EUV PHOTOMASKS

D2S TrueMask® WPA enables fast and accurate simulation of complex and curvilinear mask shapes for cost-effective CD metrology

SAN JOSE, Calif., February 25, 2020—D2S, a supplier of GPU-accelerated solutions for semiconductor manufacturing, today announced that its TrueMask® WPA (Wafer Plane Analysis) solution – a GPU-accelerated aerial simulation tool that integrates with mask CD-SEM systems to provide fast, highly accurate and highly repeatable CD metrology for complex and curvilinear mask shapes – has been extended for use with EUV photomasks. TrueMask WPA enables mask shops to leverage existing CD-SEM equipment to identify mask-level CD uniformity (CDU) issues that will impact the wafer during subsequent lithography processing in the wafer fab in minutes instead of hours or days with other simulation approaches, and at a fraction of the cost of aerial imaging techniques.

"Our customers' previous experience with TrueMask WPA has shown that the GPU-accelerated aerial simulation approach is very effective at detecting issues with optical photomasks used in 193-nm immersion (193i) lithography. This also provides significant value add to our CD-SEM tools," stated Masahiro Seyama, senior vice president, Nanotechnology Business Group at Advantest. "We look forward to seeing the same benefits extend to EUV."

TrueMask WPA uses D2S GPU-acceleration technologies to provide aerial image simulation of complex and curvilinear EUV mask shapes extracted by CD-SEM machines at interactive speeds while accounting for 3D mask effects. It leverages FastLitho's rigorous 193i/EUV lithography simulator, which has been demonstrated to provide highly accurate results significantly faster than other lithography simulators.

"FastLitho's innovative method of simulating 193i and EUV lithography, including 3D mask effects, at interactive speeds are made even faster through GPU acceleration in collaboration with D2S. We have published results that demonstrate a 1000X speed-up compared to the next fastest lithography simulator running on CPUs," said Michael Yeung, president of FastLitho.

"Mask metrology at advanced nodes is increasingly difficult due to the increased demands on its accuracy. This difficulty is compounded by the move to EUV lithography, where mask 3D effects can significantly impact CD in the wafer fab," stated Aki Fujimura, CEO, D2S. "GPU acceleration is particularly useful in simulating the complex interactions of physical effects in semiconductor manufacturing processes, including lithography, in reasonable time. The extension of our TrueMask WPA solution to include EUV provides mask shops with a powerful new capability to assess the wafer impact from the mask images. This is yet another example of how GPU acceleration can be used to benefit the semiconductor industry."

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More information on TrueMask WPA can be found at https://design2silicon.com/products/wafer-plane-analysis-engine/.

About D2S

D2S is a supplier of GPU-accelerated solutions for semiconductor manufacturing. The company provides simulation-based custom solutions to leading equipment partners and D2S TrueMask® solutions to photomask and wafer manufacturers. D2S TrueMask solutions use the D2S Computational Design Platform to enable advanced photomask designs using complex rectilinear and curvilinear shapes for superior wafer quality within practical, cost-effective write-times. D2S is the managing sponsor of the eBeam Initiative and a founding member of the Center for Deep Learning in Electronics Manufacturing (CDLe). Headquartered in San Jose, Calif., the company was founded in 2007. For more information, see: www.design2silicon.com.

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