EUV multilayer optics – Mission: Possible

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After more than 20 years of fascinating, intensive and expensive research and development in universities, research labs, and industry around the world, extreme ultraviolet photons finally found their way into semiconductor fabs. EUV Lithography using a wavelength of 13.5 nm currently supports high-volume chip production at major semiconductor companies. While current EUV tools are printing wafers at a numerical aperture of 0.33, the next generation of EUV tools will operate at NA of 0.55.

While today’s multilayer optics performance is strikingly good, there is still room for improvement. This paper discusses opportunities, challenges, and risks of multilayer development for wavelengths from 1 nm to 100 nm as well as the current status of EUV multilayer performance and EUV multilayer optics production at optiX fab.