Supply Chain Explorer: Photolithography

This is an export from the Emerging Technology Observatory **Supply Chain Explorer** (https://chipexplorer.eto.tech). You can see the web version of this content at https://chipexplorer.eto.tech/?filter-choose=input-resource&input-resource=N25.

Photolithography

In photolithography, light is used to draw patterns into semiconductor wafers, creating the tiny circuits that comprise logic chips. A photolithography tool passes light through a photomask-a transparent plate with a circuit pattern-to transfer that pattern to a wafer coated with photoresist chemical. (Photomasks are themselves made with lithography tools.) The light dissolves parts of the photoresist according to the circuit pattern.

Advanced photolithography is critical to mass production of cutting-edge semiconductors. It requires enormously complex, expensive equipment supplied by only a few vendors in Europe and Japan. The most sophisticated photolithography processes involve extreme ultraviolet (EUV) scanners, produced exclusively by the Dutch firm ASML.