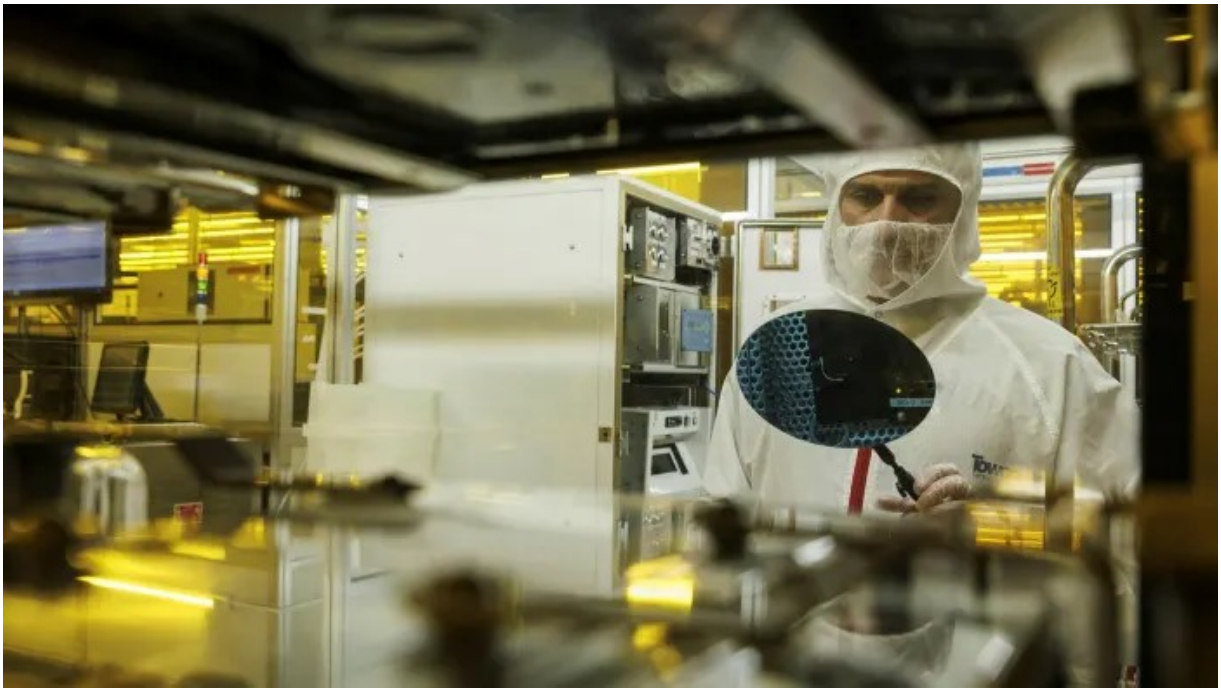
Semiconductors

Chipmakers face two-year shortage of critical equipment

Intel admits expansion to be restricted as it works with ASML to boost capacity



A technician inspects a semiconductor wafer during testing in a clean room at an Intel plant in Israel © Bloomberg

Peggy Hollinger and **Richard Waters** 8 HOURS AGO

Chipmakers' multibillion-dollar expansion plans will be constrained by a shortage of critical equipment over the next two years as the supply chain struggles to step up production, according to one of the industry's most important suppliers.

The warning comes from Peter Wennink, chief executive of ASML, which dominates the global market for the lithography machines used to make advanced semiconductors.

"Next year and the year after there will be shortages," Wennink said. "We're going to ship more machines this year than last year and . . . more machines next year than this year. But it will not be enough if we look at the demand curve. We really need to step up our capacity significantly more than 50 per cent. That will take time."

ASML's machines are used to etch circuits into silicon wafers. "It is the single most critical company in the semiconductor supply chain," said Richard Windsor, tech analyst at Radio Free Mobile. "It is the printing press of silicon chips."

Wennink said ASML was assessing with its suppliers how to increase capacity. It was not yet clear the scale of investment required, he said. ASML has 700 product related suppliers, of which 200 are critical.

His comments come as the semiconductor industry accelerates investment in new

production to meet a global shortage of chips and surging demand. Analysts expect the market to double to $1tn by 2030.

Intel last week said it would invest roughly €33bn in manufacturing and research in Europe, rising to €80bn by the end of the decade, depending on demand. It has also announced plans to invest $40bn to expand chip manufacturing in the US.

The US chipmaker is racing to catch up with the industry leader, Taiwan's TSMC, which is investing more than $100bn over the next three years. Samsung has said it will invest $150bn by the end of the decade to expand production, part of an estimated Won510tn ($421bn) to be invested by more than 150 South Korean companies, according to the government.

The US and Europe are also planning tens of billions in support for chip manufacturing, in an attempt to reduce their reliance on Asian manufacturers.

Pat Gelsinger, chief executive of Intel, acknowledged that the equipment shortage posed a challenge for the company's expansion plans. He said he was in direct contact with Wennink on the shortages, and Intel had sent its own manufacturing experts to the company to help accelerate production.

"Today this is a constraint," he told the Financial Times. But he stressed that there was still time to resolve the issue. It would take two years to build the shell of the chip factory. "Then you start to fill it with equipment in year three or four," he said.

Wennink agreed there was still some time to expand capacity in the supply chain, as many of the new manufacturing facilities would not come on line before 2024. But this would not be simple. For example, the most complex component of ASML's equipment was the lens, made by German manufacturer Carl Zeiss.

"They need to make significantly more lenses," Wennink said. But first the company would have to "build clean rooms; they need to start asking for permits; they need to start organising the building of a new factory. Once a factory is ready, they need to order the manufacturing equipment; they need to hire people. And then . . . it takes more than 12 months to make the lens."

Additional reporting by Joe Miller