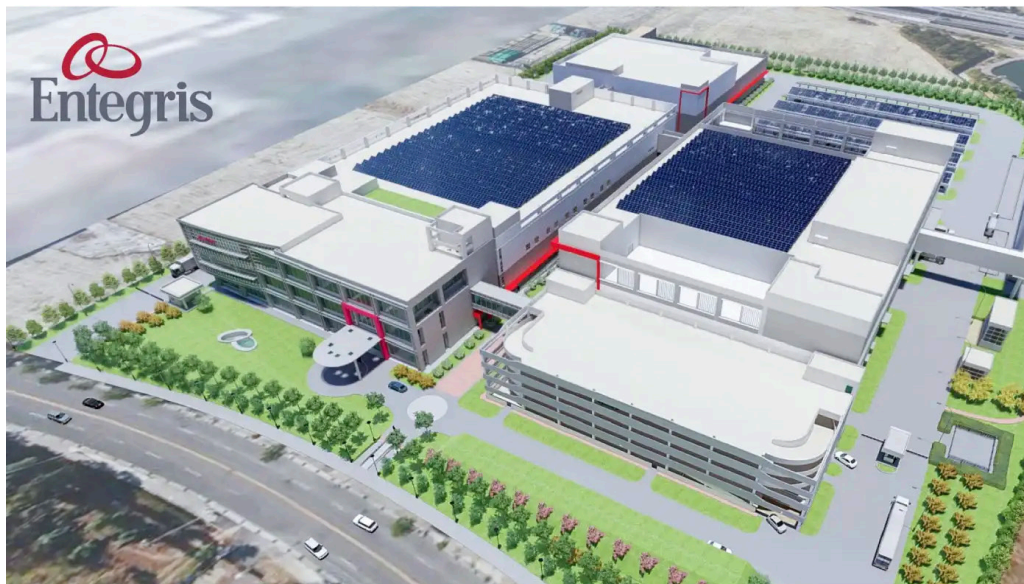


SEMICONDUCTORS

U.S. chip material maker Entegris doubles Taiwan investment to \$500m

CEO says robust industry growth will reduce the risk of a semiconductor glut

by CHENG TING-FANG | December 8, 2021 14:27 JST



U.S. chip materials maker Entegris is building its biggest production facility in Taiwan. (Photo courtesy of Entegris)

TAIPEI -- U.S. chip material maker Entegris plans to more than double its investment in Taiwan and build its largest manufacturing site on the island, in a major win for the key Asian chip economy as it races to secure its position in the semiconductor supply chain.

Entegris will invest \$500 million in Taiwan over the next three years, up from previous plans of \$200 million, company CEO and President Bertrand Loy told Nikkei Asia in an interview on Wednesday. The company is building a manufacturing facility in the southern Taiwanese city of Kaohsiung to supply Taiwan Semiconductor Manufacturing Co. and others. Operations are set to begin by the end of next year, with mass production to start by mid-2023.

Loy said the facility will make filtration and deposition materials for use in 3-nanometer and 2-nanometer chip production processes, the industry's most advanced chipmaking technologies. The smaller the nanometer, the more advanced the chips.

The investment comes amid growing calls from the U.S. and other major economies to bring more of the chip supply chain onto their shores due to worries over national security.

"Everyone [in the industry] is actually now realizing that shorter supply chains, closer to customers, may be a better model [of operation]," Loy told Nikkei Asia. "We intend to have shorter supply chains, more local manufacturing close to clusters of customers that we have in Taiwan, clusters of customers that we have in [South] Korea, or in Japan and in the U.S."

Loy said the company's major production presence is still in the U.S., which accounts for about 60%, but the industry veteran is looking to create a more balanced manufacturing footprint.



Entegris CEO and President Bertrand Loy predicts healthy growth for the global chip industry over the coming decade. (Photo courtesy of Entegris)

"If you fast forward to 2024 or 2025, I think production in the U.S. versus production elsewhere will likely be 50% and 50%," Loy said. "The reason it will not be more than that is that we are continuing to invest in the U.S. as well." Entegris already has production sites in Japan and South Korea.

Major chipmakers are in the midst of their most aggressive expansion ever to help alleviate the global chip supply crunch that has hit a swath of industries from automobiles to consumer electronics. The world's top three chipmakers alone -- TSMC, Intel and Samsung -- have earmarked more than \$350 billion for capital spending in the coming years. Capacity for cutting edge production -- defined as anything below 10-nanometer -- will more than double from its current level between now and 2025, Counterpoint Research estimates.

While some analysts and industry players have voiced concern about a potential supply glut once all these expansion plans are realized, Loy said his company is not concerned about short term fluctuations in the market.

"Growth is never linear," he said. "I think that the semiconductor industry for the next 10 years will be growing at twice the rate of GDP, and will get to that \$1 trillion [market size by 2030]. We need to get ready for that, and that means we need to add capacity. Could there be a year where things slow down a bit? Maybe. But we are not managing for the short term. We are managing for the long term."

Based in Massachusetts, Entegris is the world's top supplier of high-end filters, which are essential to ensure the purity of chemicals and liquids used in making chips and displays. Such materials are increasingly important as semiconductor manufacturing becomes more complex, with less tolerance for impurities and defects.

The company's new Taiwan site will first supply its top customer, TSMC, the world's biggest contract chipmaker, and later support other chipmakers. Entegris supplies all the world's chip leaders, including Intel, Samsung, Kioxia, Micron and SK Hynix. The company will also spend \$11 million expanding its technology center in Taiwan, Loy said.

The CEO also spoke of U.S. moves to roll out incentives for the domestic semiconductor industry, including the \$52 billion CHIPS Act. Loy, who is also the chairman of the board with SEMI, a global industry association, said such support should be made available to chipmaking material and equipment suppliers as well, and that foreign players investing in the U.S. should also be eligible.

"This is a very global industry relying on a very extensive global ecosystem. I think that opportunity should be given to everyone and should not be discriminatory," said Loy. "Go back in time, we benefited from incentives in Korea when we invested in Korea. ... I understand that, politically, it may be a hard decision to make, but from an economic standpoint, I think that is the right decision to make."

Taiwan, meanwhile, is receiving fresh investment from numerous chip materials makers. Formosa Sumco Technology, a joint venture between Taiwan's leading petrochemical giant Formosa Plastics and Sumco, the world's second-largest wafer material maker, is building a 28.26 billion New Taiwan dollar (\$1 billion) plant in the Taiwanese city of Yunlin that will begin production in 2024. Mitsubishi Chemical, Mitsui Chemicals and Hitachi Chemicals are also expanding their manufacturing presence in Taiwan.

Capital expenditure in the semiconductor industry is estimated to hit a record of more than \$148 billion for 2021, a 30% increase from a year ago and nearly six times higher than in 2009 amid the global financial crisis, according to IC Insights. That number is on track to increase even further in 2022.