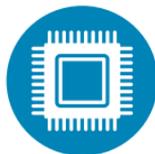


# Singapore hosts the entire semiconductor value chain



## Substrate manufacturing

Silicon is heated till it melts, and then solidified into a silicon rod or ingot. Thin wafers are sliced from it and polished till mirror-smooth.

### Companies:

Soitec, Siltronic

## Integrated circuit (IC) design

Chip designers use software to fit billions of tiny components onto each little chip.

### Companies:

Realtek, Xilinx, Broadcom

## Wafer fabrication and device manufacturing

Wafers are printed with layers of complex circuit designs.

### Companies:

SSMC, GlobalFoundries

## Packaging and testing

Printed wafers are cut into small chips, tested, packaged and embedded into electronic devices.

### Companies:

ASE Group, Powertech Technology

## Integrated device manufacturing

A full suite of end-to-end solutions, from design and manufacturing, to assembly and testing is provided.

Companies in the space: Micron, Infineon, STMicroelectronics, NXP Semiconductors

Source: Compiled by BT

## Key investments in 2018

### ■ **Systems on Silicon Manufacturing Company (SSMC), Nov 27**

Expanded its footprint in Singapore with the opening of its S\$300 million Annex 10 clean room. Annex 10 will enable SSMC to raise its production of automotive wafers from 26 per cent of the firm's capacity to 40 per cent; by 2023, it could be up to 60 per cent.

### ■ **Marvell Technology Group, Nov 12**

Opened its Operations Centre of Excellence at Tai Seng, which will also serve as its Asia Pacific headquarters.

### ■ **AAC Technologies, Oct 31**

Kicked off construction of its US\$200 million R&D center in Singapore. The center will mainly focus on R&D of high-end optics and MEMS sensor devices. Operation will begin in the second half of 2020 and bring about over 80 new, more complex jobs.

### ■ **Infineon Technologies, Oct 19**

Launched its first co-innovation space to help startups create prototypes and viable semiconductor solutions for commercial showcase.

### ■ **Siltronic, June 22**

Broke ground on a new crystal pulling hall that will be up in the second half of 2019. It will be equipped over about one year and will be fully operational by the end of 2020.

### ■ **Micron, April 4**

Broke ground in North Coast to add new cleanroom space to meet future manufacturing requirements for its 3D NAND flash memory products. The new facility will be a "multi-billion dollar investment". It will be equipped over the next five years or more, and add 1,000 new jobs here.

Source: EDB