What are semiconductors?

Semiconductors are the foundation of modern technology. They improve our lives, increase industry sales, and create new possibilities for the future. Without them, billions of devices across the planet would not function. Semiconductors are everywhere — from smartphones to the cars you drive. They run the internet and power our homes. They are the material of modern technology.

How are semiconductors made?

A common chip is only about 1 millimeter thick and contains roughly 30 different layers of components and wires that make up its complex circuitry. Billions of microscopic switches and wires make them work. As small as a fingernail, semiconductors are arguably the most complex products ever manufactured.

What is photolithography?

As the mask is exposed, a photolithography machine deposits a film of chemical on the silicon wafer. This chemical forms a pattern that’s directly related to the image on the mask. When the mask is removed, a unexposed section of the film is washed away, leaving behind a pattern that resembles the transistors and wires drawn on the mask.

Major processor architectures

Silicon wafers are made from the silicon extracted from sand. The wafers are made into wafers. Each wafer will contain hundreds of chips. From here, technicians wear bunny suits and use high-tech equipment in a clean room area. The wafers are then diced into individual chips called dies. Here, technicians take each die and test them one last time to ensure they work. Each chip is then mounted between a heat spreader and a substrate to form a sleek, enclosed package. The exterior package protects die from damage, heat and contaminants. Inside a computer, the package forms electrical connections between the chip and the circuit board. The circuit board connects the computer processor to other parts of the computer and to external devices.

What are masks?

Masks are templates used to print circuitry onto a silicon wafer. Mask engineers use computerized drawings from circuit design.

Familiarize yourself with various kinds of semiconductors and learn more about what they do.

Semiconductors are a worldwide business. The Intel T ech 101 series mixes visuals and descriptions to break down complex subjects and demystify the technology we use every day.

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