Everything you need to know about chips (again), climate and 3d printing

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Tech Curiosity

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How The Global Computer Chip Shortage Happened (9:26) start 4:10-5:23

It’s not an overstatement to say that semiconductors power the modern world. They’re not only a key component of nearly every electronic device we buy and use — they also power the factories that make the electronic devices we buy and use. And now, there aren’t enough of them getting made. Here’s how the global semiconductor chip shortage got so bad, and what’s being done to fix it.

A chip shortage that started as consumers stocked up on personal computers and other electronics during the Covid-19 pandemic now threatens to snarl car production around the world.

GM said that it would extend production cuts in the U.S., Canada, and Mexico until the middle of March. They join a long list of major automakers, including Ford, Honda and Fiat Chrysler, which have warned investors or slowed vehicle production because of the chip shortage…

How are Microchips made? (13:30) start 4:38-11:20

How are microchips made - from sand to semiconductor: Microelectronics usually is hidden to society – however, it is a constant companion in our daily lives. It tremendously contributes to the ongoing development and digitization of our world. But what is actually behind this technology?

In this video we explain how microchips are made and what conditions are necessary for manufacturing.

Also interesting: How the US strangles China's tech industry

The Extreme Physics Pushing Moore's Law to the Next Level (11:50) start 2:15-11:18

An integrated circuit, or chip, is one of the biggest innovations of the 20th century. The microchip launched a technological revolution, created Silicon Valley, and everyone's got one in their pocket (read: smartphones).

When you zoom in on one of these chips, you find a highly complex, nanoscale-sized city that's expertly designed to send information back and forth.

And chip manufacturers continue to shrink the size of microchips, hitting smaller and smaller milestones while also increasing the number of features a chip has. The result is an improved overall processing power.

This is what's been driving the semiconductor industry—a drumbeat called Moore's Law.

Bioelectronics will be commonly used by 2025 (4:30) start .23-1:11

Bioelectronics are a relatively new scientific field that could one day result in a new class of medicines that would not be pills or injections but miniaturised, implantable devices.

GSK believes that these devices could be programmed to read and correct the electrical signals that pass along the nerves of the body, including irregular or altered impulses that can occur in association with a broad range of diseases. The hope is that through these devices, disorders as diverse as inflammatory bowel disease, arthritis, asthma, hypertension and diabetes could be treated.

Sea level rise is so much more than melting ice (6:08) start :50-5:57

Climate change includes both global warming driven by human emissions of greenhouse gases and the resulting large-scale shifts in weather patterns.

Also interesting: Sea-level Rise for the Coasts of California, Oregon, and Washington: Past, Present, Future

And 3d Printing

3D Printing Is Changing the World (12:30) start 0-2:02, 7:33-9:00

- 3D-printing innovations in recent years have brought a sea change in the fabrication of everything from automobile parts to human bio-tissues.

Inside the 3D printing technology rapidly changing our future (13:30) start 2:22-4:22

- For less than a thousand dollars, you can now own a 3D printer - hook it up to your home computer and make anything your mind can imagine. Trinkets are easy; gadgets are a breeze, even a new car's possible.

3D printed Cars (5:10) start 3:00-3:27

- 3D printed vehicles with classic and sporty designs made of plastic or metal.

Why did Google win over Oracle at Supreme Court

- code was covered under the ‘doctrine of fair use’
- seen as a landmark dispute over what types of computer code are protected under American copyright law
- The Supreme Court reversed the appeals court’s decision (which held that the code in question was copyrightable and that Google’s use of it not protected by fair use), though it did not definitively resolve whether the code in question was copyrightable

Why did Google win over Oracle at Supreme Court (continued)

Justice Stephen Breyer, wrote

- Google took “only what was needed to allow users to put their accrued talents to work in a new and transformative program. To the extent that Google used parts of the Sun Java API to create a new platform that could be readily used by programmers, its use was consistent with that creative ‘progress’ that is the basic constitutional objective of copyright itself.”

Why did Google win over Oracle at Supreme Court (continued)

- Google says “Today’s Supreme Court decision in Google v. Oracle is a big win for innovation, interoperability & computing.”
- Oracle says “the Google platform just got bigger and market power greater. The barriers to entry higher and the ability to compete lower. They stole Java and spent a decade litigating as only a monopolist can. This behavior is exactly why regulatory authorities around the world and in the United States are examining Google’s business practices.”
- I say, hooray for Google. Oracle is sour grapes because they have been on this crusade for more than a decade (Oracle aims to destroy open source software industry) and this was an important battle they were sure to win. Kudos to the Supreme Court for making the right/best decision!