

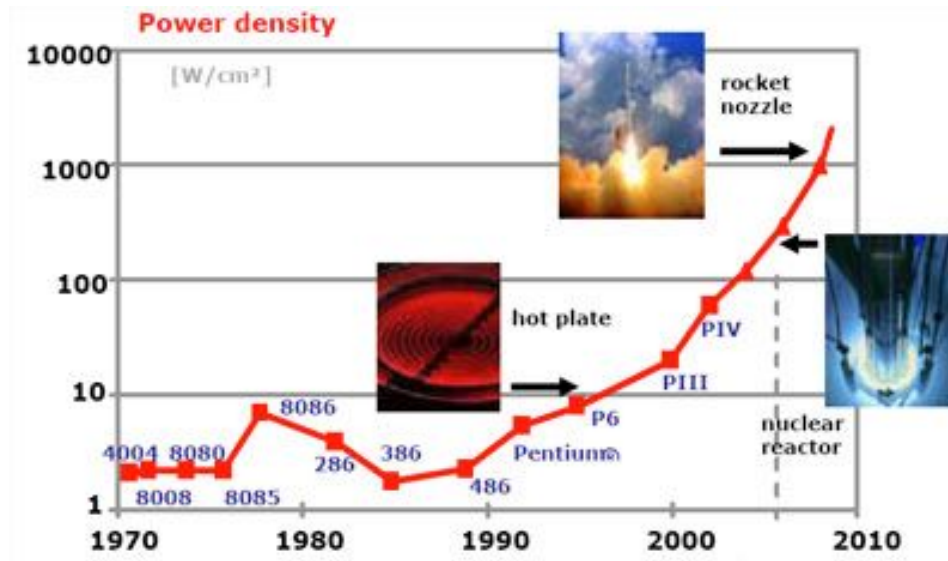
# Four New Ways to Chill Computer Chips

Larichev Anton

IU4-53

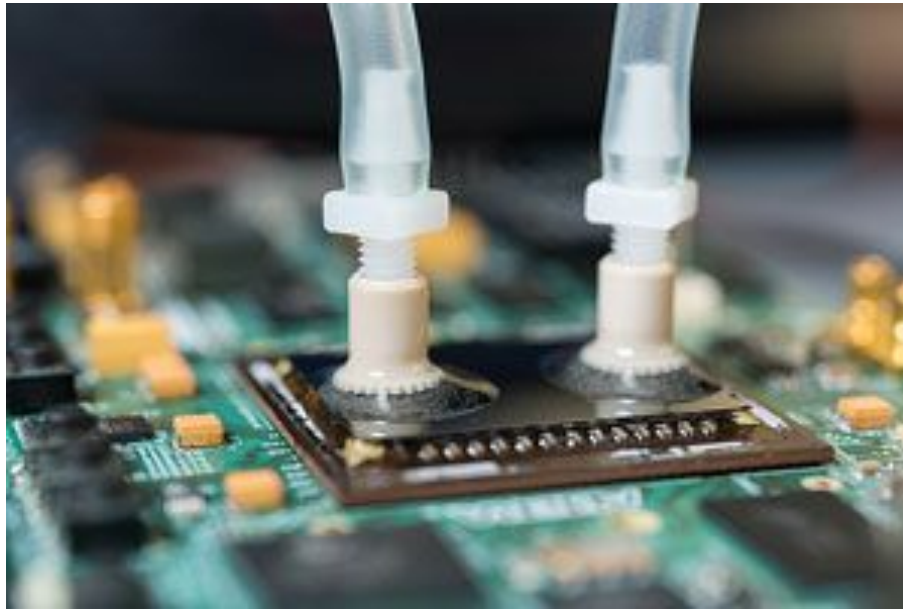
# Plan

- Substance of the Problem
- New methods
  - Tiny Water Pipes
  - The Fridge
  - The Fan of Fans
  - Carbon Nanotubes
- Conclusion



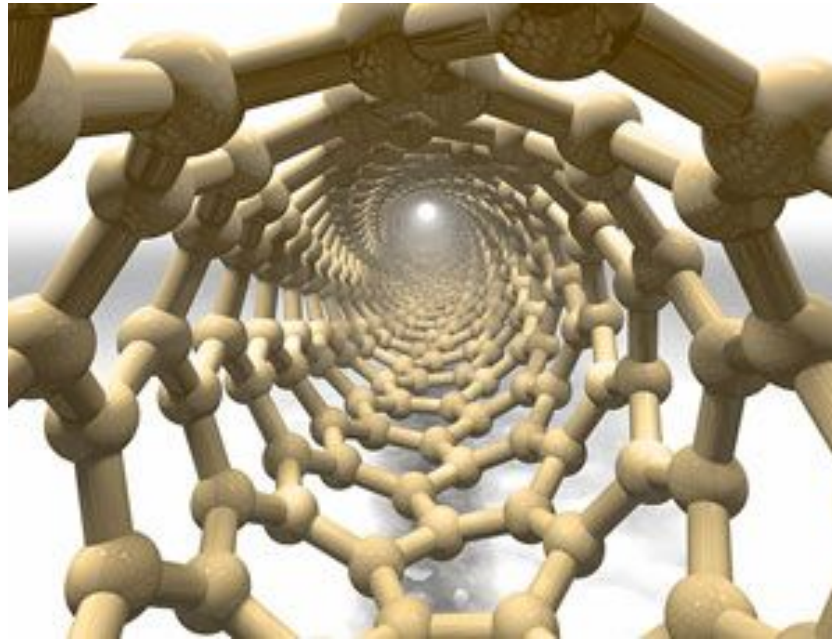
The growing power density (measured in W/cm<sup>2</sup>) of Intel's microchip processor families. (Source: Intel)

# Tiny Water Pipes

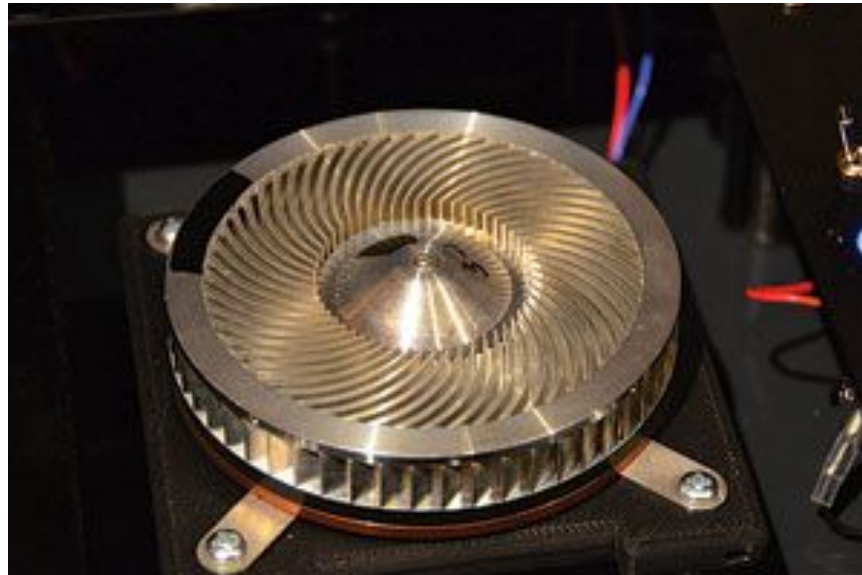


Water flows through microchannels on a chip.

# Carbon Nanotubes

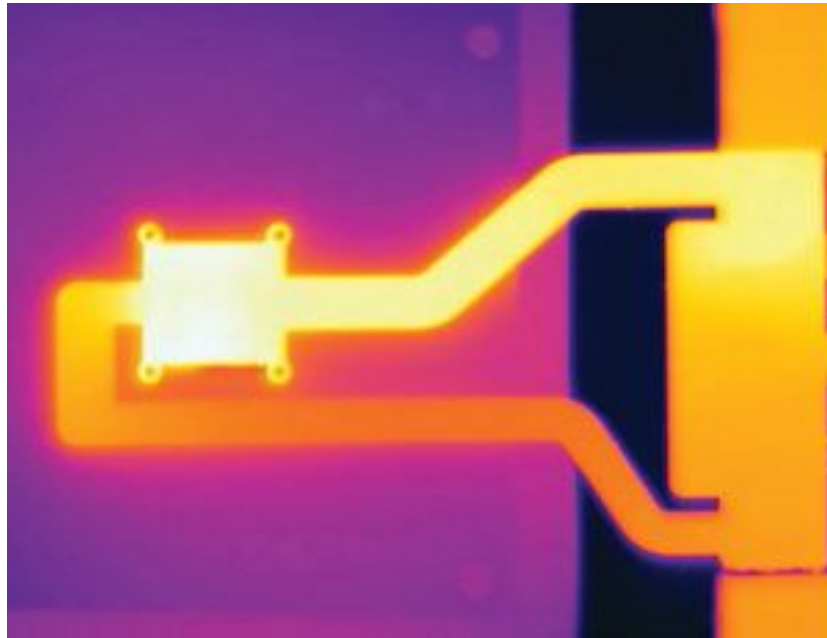


# The Fan of Fans



CoolChip has combined the heat sink and fan for added efficiency.

# The Fridge



Fujitsu's superslim refrigerator is designed to suck heat out of a smartphone.

# Conclusion