

# BBC NEWS

## TECHNOLOGY

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## US military to attack Moore's Law for future computers

**Computers that can perform a quintillion calculations per second are being planned by the US military.**

The Defence Advanced Research Projects Agency (Darpa) has awarded the first grants to firms it wants to build so-called exascale computers.

These will be far more powerful than current top supercomputers which manage just over one petaflop - 1000 trillion calculations per second.

Darpa expects the first prototypes to be working by 2018.

### **'Reinvent computing'**

An exaflop is the equivalent of one million trillion calculations per second.

Darpa said its research project was needed to help analyse the tidal wave of data that military systems and sensors are expected to produce.

The research project, dubbed the Ubiquitous High Performance Computing (UHPC) program, would attempt to create hardware that "overcomes the limitations of current evolutionary approach".

That approach is characterised by Moore's Law which says the number of transistors that can fit on a given piece of silicon will double every 18-24 months.

The limitations of that approach are the mushrooming power, management and structural issues that crop up as components shrink.

To get around these limitations, grant recipients will have to design chips that use "dramatically" less power per calculation.

The ultimate goal of the research project would be to "re-invent computing" said the agency in a statement.

It is looking to "develop radically new computer architectures and programming models that are 100 to 1,000 times more energy efficient, with higher performance, and that are easier to program than current systems".

Chip giant Intel, graphics card maker Nvidia, MIT and the Sandia National Laboratory are all recipients of the first grants to be used to create prototype exascale machines.

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