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Major leap for faster computers

Super-fast quantum computers are now a step closer to becoming a reality, thanks to a breakthrough by scientists.

Edinburgh and Manchester University researchers have created a molecular device which could act as a building block for super-fast computers.

They have created components that could be used to develop quantum computers, which can make intricate calculations faster than conventional machines.

The academics used molecular scale technology instead of silicon chips.

They achieved the breakthrough by combining tiny magnets with molecular machines that can shuttle between two locations without the use of external force.

The manoeuvrable magnets could one day be used as the basic component in quantum computers.

'Major challenges'

Conventional computers work by storing information in the form of bits, which can represent information in binary code - either as zero or one.

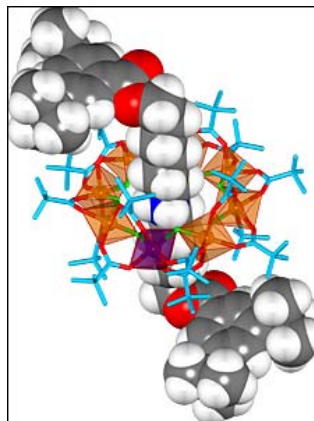
Quantum computers will use quantum binary digits, or qubits, which are far more sophisticated as they are capable of representing not only zero and one, but a range of values simultaneously.

Their complexity will enable quantum computers to perform more quickly than conventional machines.

Professor David Leigh, of Edinburgh University's school of chemistry, said: "This development brings super-fast, non-silicon based computing a step closer.

"The major challenges we face now are to bring many of these qubits together to build a device that could perform calculations, and to discover how to communicate between them."

The study, by Edinburgh and Manchester university scientists and published in the journal Nature, was funded by the European Commission.



A graphical representation of the molecular machine

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