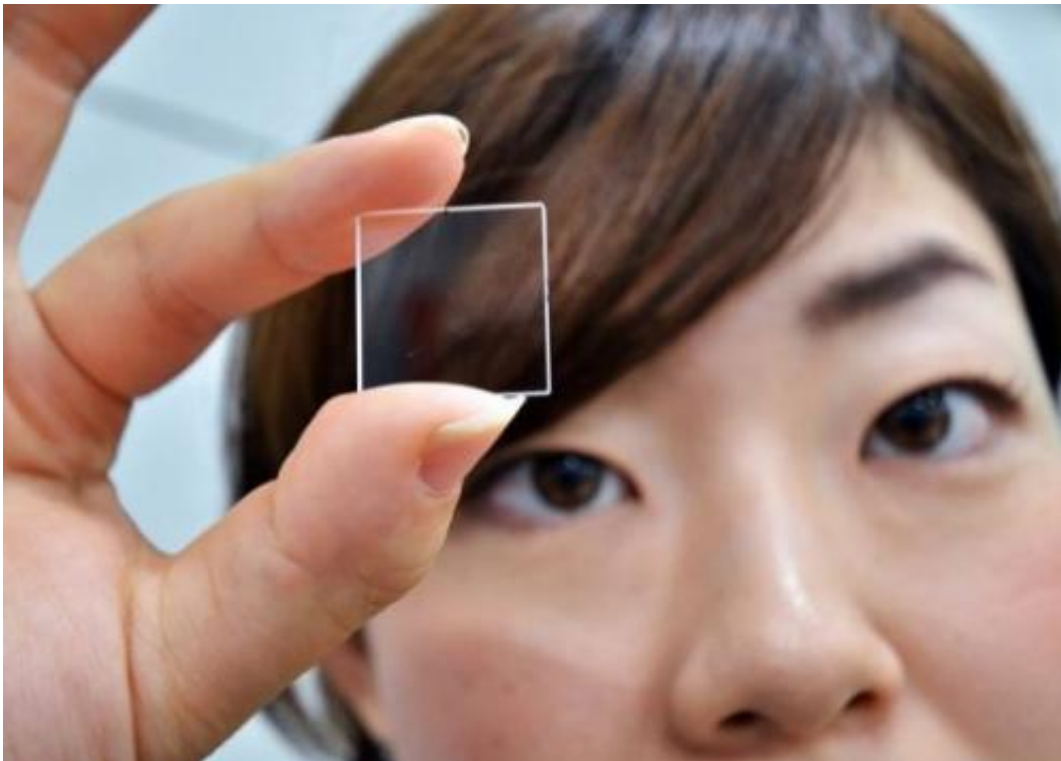


Data that lives forever is possible: Japan's Hitachi

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A woman holds up Japanese electronics giant Hitachi's new quartz glass plate technology, which can be used to store data indefinitely, in Tokyo on September 24. The company on Monday unveiled a method of storing digital information on slivers of quartz glass that can endure extreme temperatures and hostile conditions without degrading, almost forever.

As Bob Dylan and the Rolling Stones prove, good music lasts a long time; now Japanese hi-tech giant Hitachi says it can last even longer—a

few hundred million years at least.

The company on Monday unveiled a method of storing [digital information](#) on slivers of quartz glass that can endure [extreme temperatures](#) and hostile conditions without degrading, almost forever.

And for anyone who updated their LP collection onto CD, only to find they then needed to get it all on MP3, a technology that never needs to change might sound appealing.

"The volume of data being created every day is exploding, but in terms of keeping it for later generations, we haven't necessarily improved since the days we inscribed things on stones," Hitachi researcher Kazuyoshi Torii said.

"The possibility of losing information may actually have increased," he said, noting the life of digital media currently available—CDs and hard drives—is limited to a few decades or a century at most.

And the rapid development of technologies has resulted in frequent changes of data-reading hardware.

"As you must have experienced, there is the problem that you cannot retrieve information and data you managed to collect," said Torii, apparently referring to now-obsolete record players and cine films.

Hitachi's new technology stores data in binary form by creating dots inside a thin sheet of quartz glass, which can be read with an ordinary [optical microscope](#).

Provided a computer with the know-how to understand that binary is available—simple enough to programme, no matter how advanced computers become—the data will always be readable, Torii said.

The prototype [storage device](#) is two centimetres (0.8 inches) square and just two millimetres (0.08 inches) thick and made from quartz glass, a highly stable and resilient material, used to make beakers and other instruments for laboratory use.

The chip, which is resistant to many chemicals and unaffected by [radio waves](#), can be exposed directly to high temperature flames and heated to 1,000 degrees Celsius (1,832 Fahrenheit) for at least two hours without being damaged.

It is also waterproof, meaning it could survive natural calamities, such as fires and tsunamis.

"We believe data will survive unless this hard glass is broken," said senior researcher Takao Watanabe.

The material currently has four layers of dots, which can hold 40 megabytes per square inch, approximately the density on a music CD, researchers said, adding they believe adding more layers should not be a problem.

Hitachi have not decided when to put the chip to practical use but researchers said they could start with storage services for government agencies, museums and religious organisations.

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