



Sustainable data storage

Opportunity

Current data storage media were not designed to retain data for more than a few years, decades at best.

Storage media must be frequently replaced and data migrated which drives costs for data storage.

Over 70% of data is almost never retrieved but kept for decades without the intent to be ever deleted.

Innovation

Cerabyte writes data at high speed with a multi-million laser beam matrix on Cerabyte ceramic-on-glass sheets.

The laser matrix is shaped by a digital mirror device punching nanoscale holes into the ceramic coating of the Cerabyte sheets.

Cerabyte sheets are stored in cartridges inside a robotic library. Data is read with a high-speed microscope camera.

Prototype

A fully operational end-to-end prototype, using only standard parts, is ready to be showcased at our labs.

The demo system was built from commercial off-the-shelf parts to validate the feasibility of the concept.

With this setup we already achieve MB/s scale write & read speeds, and GB/media-scale storage capacities.

Scale-up

Cerabyte is leveraging materials already produced in large quantities and semi fab tool technology for its solutions.

Fast scale-up is possible, and some elements will need to be redesigned to achieve target speeds and data densities.

Creating smaller structures on thinner substrates will enable PB-class per rack storage densities by 2025.

Product

The standard configuration will comprise of the write rack with the writing units and several library racks.

Every library rack has at least one reading unit. The DC rack form factor easily integrates into DC facilities.

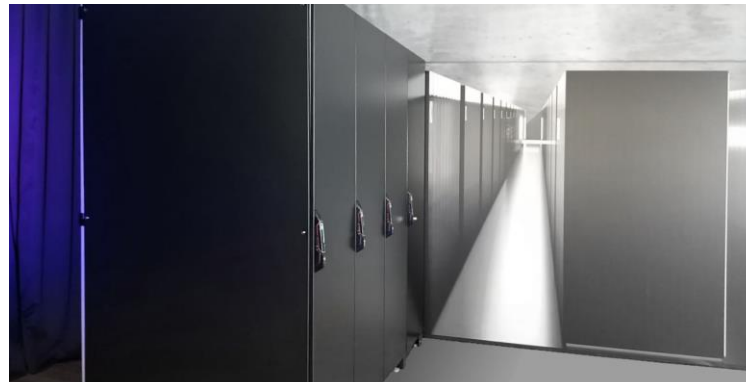
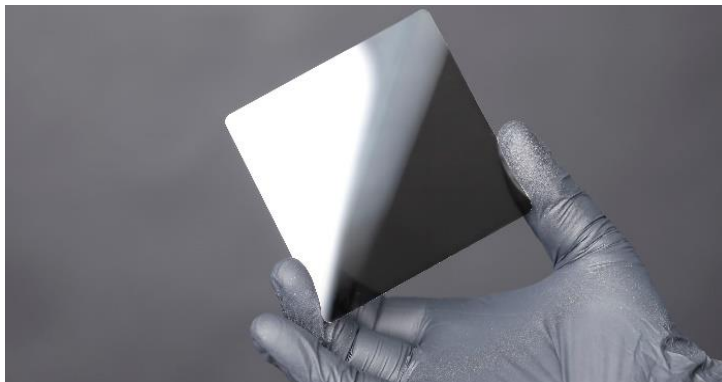
Existing library automation infrastructure is able to handle the initial cartridges, using the LTO form factor.

Roadmap

Beginning with a 1PB rack-scale pilot, capacities are expected to eventually scale towards 100PB by 2030.


Performance for writing & reading will advance from MB/s-scale to 100MB/s and ultimately beyond 1GB/s.

Access time will accelerate from initially 90s down to 10s for the lowest latency system level configurations.





Paving the way towards the Yottabyte Era



Best for over 70% of data



Reduce CO₂ footprint



Heat and fire safe




Saving up to 99% energy



No energy for storage



Corrosion resistant



75% lower total cost



Green, fully recyclable



Moisture & water proof



Unlimited media life



Eliminate E-waste



UV light resistant




No periodic migrations



Ceramic On Glass



Radiation resistant



Use semi tool tech



Immutable, cyber safe



Safe from EMP burst

| | Write/read per second | Capacity per Rack | Access in seconds |
|------|-----------------------|-------------------|-------------------|
| 2024 | 100 MB | 1 PB | 90 |
| 2025 | 500 MB | 5 PB | 30 |
| 2027 | GB | 30 PB | 15 |
| 2030 | 2+ GB | 100 PB | 10 |
| 2050 | TB | EB | 5 |

Interested in a pilot? Please contact: demo@cerabyte.com