

# The Multifaceted Microdrive®

**HITACHI**  
Inspire the Next

## Big idea—tiny drive

The world's smallest, lightest one-inch hard drive was invented at Hitachi's San Jose Research Center by a team of engineers engaged in the study of micromechanical applications such as Si micro-machined motors and actuators for possible usage in very small disk drives. Subsequent feasibility studies lead to the first miniature hard drive, dubbed the Microdrive.

But the work did not stop there. In order to prove commercial viability, the Microdrive concept needed to be adapted to support large scale manufacturing and price points in line with the consumer market. Hitachi looked to conventional technologies, intelligently scaled to pack all the components of its larger disk drives into the Compact Flash Type II (36.4 x 42.8 x 5 mm) form factor. Achieving this level of miniaturization required overcoming challenges in spindle motor, actuator, and bearing system designs, electronics packaging, connector design, load/unload technology, and mechanical tolerances. Meanwhile, engineering expertise in the areas of actuator lock design, load/unload, and spindle bearings were working to integrate robustness into the miniature design.

## The heart of leading-edge products

These efforts resulted with the introduction of the Microdrive in 1998, offering 340 megabytes of capacity in the world's first one-inch hard disk drive. Rapid growth in magnetic disk recording densities provided the Microdrive a promising future, and accelerated the adoption of hard drives into a wide variety of handheld devices. Today the Microdrive is the storage solution used in many revolutionary digital consumer products. Hitachi's expertise in small form factor drives and partnership with the manufacturers of leading edge handheld applications fuels Microdrive's ability to meet the challenges of industry leadership in all areas most critical to small, portable hard disk drives—storage capacity, performance and shock-resistance. Hitachi's Microdrive is the heart of any number of leading edge consumer electronics products.



Now shipping in capacities as high as 6GB, Microdrive offers significantly more storage and faster data rates than other devices its size, including solid-state flash memory. With a maximum sustained data rate of 9MB per second, the Hitachi Microdrive is the fastest product of its kind. This translates to fewer data downloads, freedom from compression algorithms which sacrifice audio and video quality, and more content—more pictures in digital cameras, more music in digital music players, more data files in handheld PCs—than previously possible.

## Enabling innovation

The Hitachi Microdrive provides breakthrough storage capacity for portable electronic devices in the industry-standard CF Type II form factor. Microdrive's introduction in 1998 has ushered in a new age of consumer electronics and handheld devices featuring mobility and access to data on a variety of single- and multi-functional products. Microdrive was a revolutionary product when it was introduced in 1998. Today's engineers, product integrators and consumer products manufacturers continue to revolutionize our world from the core of the big capacity but compact sized Microdrive.



Figure 1: The Wide World of Microdrive

Visit [www.hitachigst.com/microdrive](http://www.hitachigst.com/microdrive) for additional information on Microdrive specifications, how to purchase Microdrive, and related technical and marketing information.

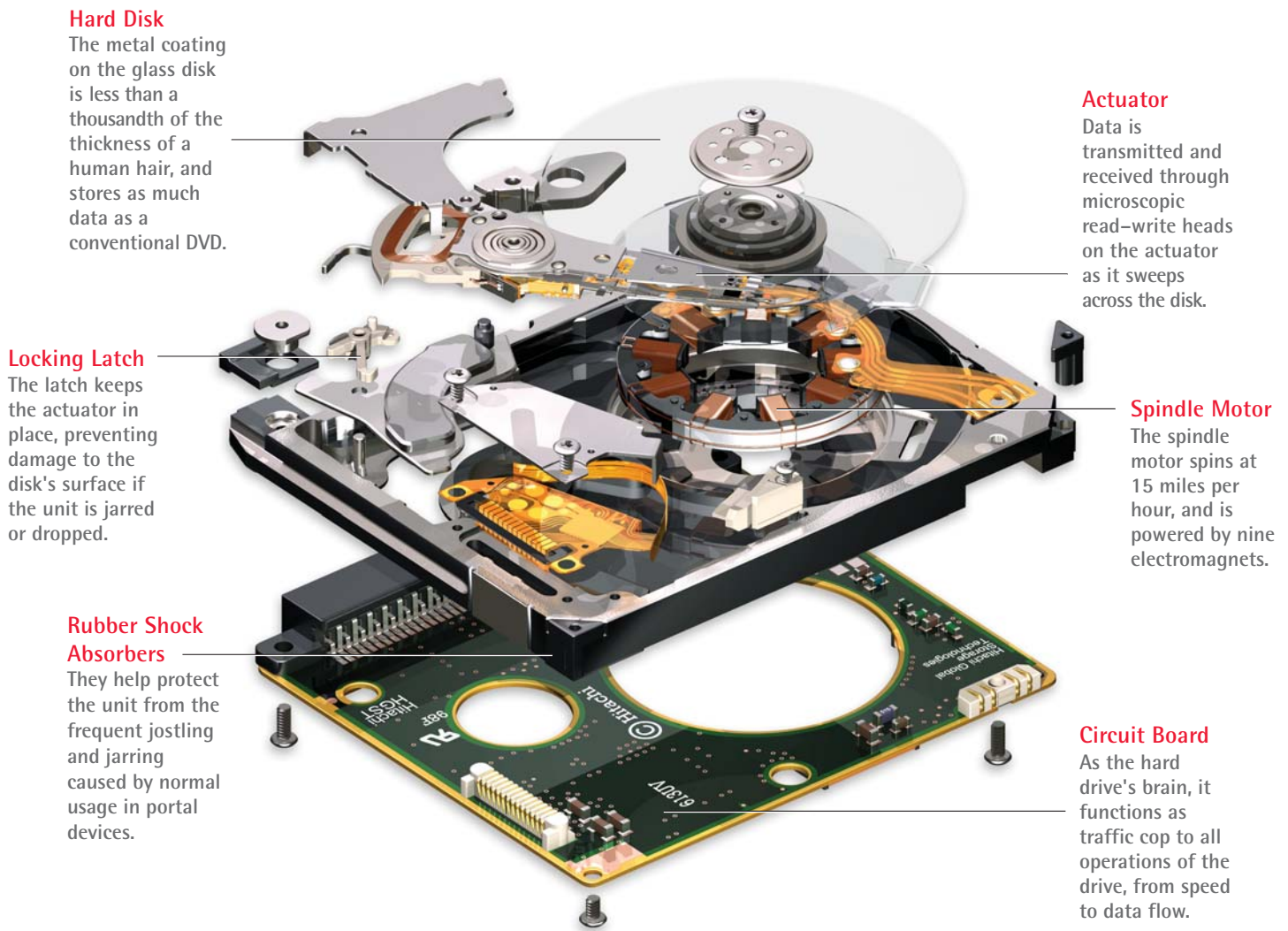


Figure 2: Anatomy of a Hitachi Microdrive

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