

HDD: the Evolution

What high-tech product advances the fastest ?

It's probably the **hard drive**

The capacity **doubles** easily every two years and sometimes every year

Faster even than the chip progress described by **Moore's Law**

1956

First HDD, EVER



IBM Model 350

From **IBM**
applied on IBM system 305,
first computer ever had HDD

50 24-inch disks

5 Megabytes

\$50,000

\$10,000/Mb !!!

IBM RAMAC 305



1973

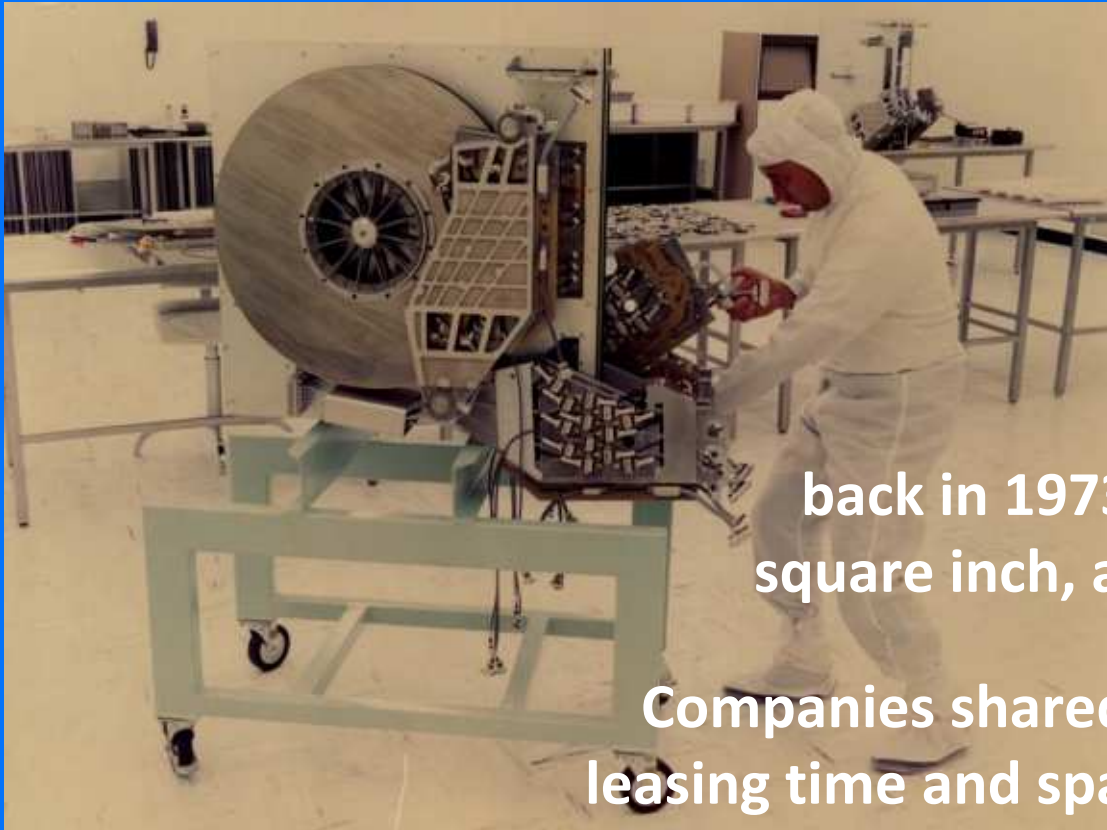
First **Modern** HDD



IBM 3340 storage system

First one to feature low-mass heads, lubricated disks and sealed assembly

capacity of 35 or 70 MB
features 2 or 4 14-inch disks



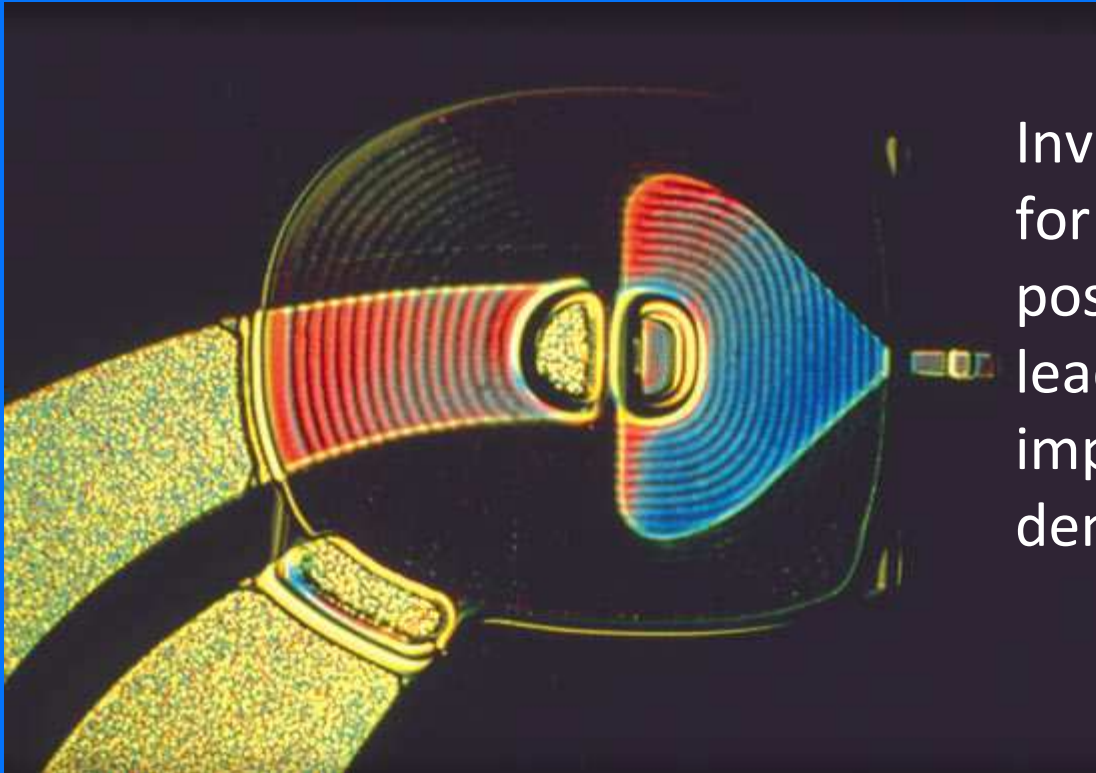
back in 1973, held 1.7MB per square inch, a record at the time

Companies shared these systems, leasing time and space when required

The going rate was **\$7.81 a megabyte, 38** percent more than the price of oil at the time

1980

Giant Magneto Resistive head



Invented by IBM, allowed for greater accuracy in positioning of data, which lead directly to improvements in areal density

1981 First 1-GB plus drive



IBM 3380

2.52 GB

\$81,000-\$142,200

size of a refrigerator

550 pounds!!!

1991



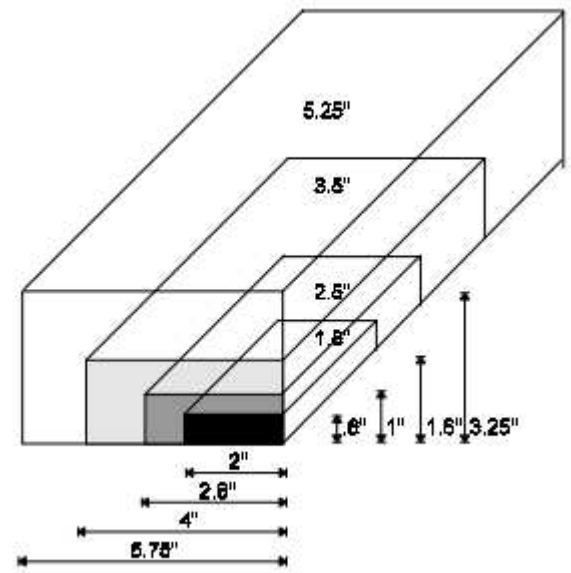
Tanda-1

2.5-inch Tanba-1 drive, which came out in 1991, contained 63MB of data storage space

Such 2.5-inch drives are still common in notebooks, but can now hold 1TB.

1999







\$3398
10MB

THE HARD DISK YOU'VE BEEN WAITING FOR

XCAMP introduces a complete micro-size disk subsystem with more...

- MORE STORAGE
- MORE SPEED
- MORE VALUE
- MORE SUPPORT

1100 users... The XCAMP subsystem is now available with 10 megabytes of storage. 5 megabytes also available at \$2,595.00. Compare the price and features of any other 5 1/4-inch — or even 8-inch — drive, and you'll agree that XCAMP's value is unbeatable.

OUTPERFORMS OTHER HARD DISKS
Fleeter disk and larger, more expensive hard disks are no match for the powerful little system. More data is available on every seek — 64K on 10MB and 32K on 5MB. Faster seek time too — an average of 70MS. It provides solid performance anywhere with only 20 watts of power. Data is protected in the sealed enclosure, and the landing zone for heads provides another margin of safety. The optional power head plugs directly into the S100 bus and provides power for the drive.

FAST CONTROLLER
The XCAMP controller is the key to this system's high efficiency operation. Speed-up features include interface without table lookup; block detach with controller buffer, and read lookahead. OEMs worldwide have already proven the outstanding performance of the XCAMP controller.

MORE SOFTWARE
Included with the system is software for testing, formatting, I/O drivers for CP/M[®], plus an automatic CP/M driver attach program. Support software and drivers for MP/M[®] and Ceed[®] are also available. The sophisticated formatting program assigns alternate sectors for any weak sectors detected during formatting, assuring the lowest possible error rate — at least ten times better than floppy.

WARRANTY
The system has a full one-year warranty on parts and workmanship.

ALSO AVAILABLE FROM XCAMP

- General Purpose controllers (8 bit interface, with easy interface to microprocessor-based systems.
- GP controller adapter that plugs directly into most Z80 computers.
- ST/R GP controller for the 5MB and 10MB drive above, with ST306 type interface.
- SDR GP controller for SA1000 interface.
- SM/R GP controller for storage module drives.
- ST/S, SD/S, and SM/S, same as above, for the S100 bus.

Quantity discounts available. Distributor, Dealer, and OEM inquiries invited.

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10 Megabyte Hard Disk

\$3,495*



540-12 Top Load Drive
* Factory rebuilt 10MB cartridge disk drive only
A new Cameo Data Systems controller is available for \$1,495
\$4,495 for a brand new Ampex 10MB drive only



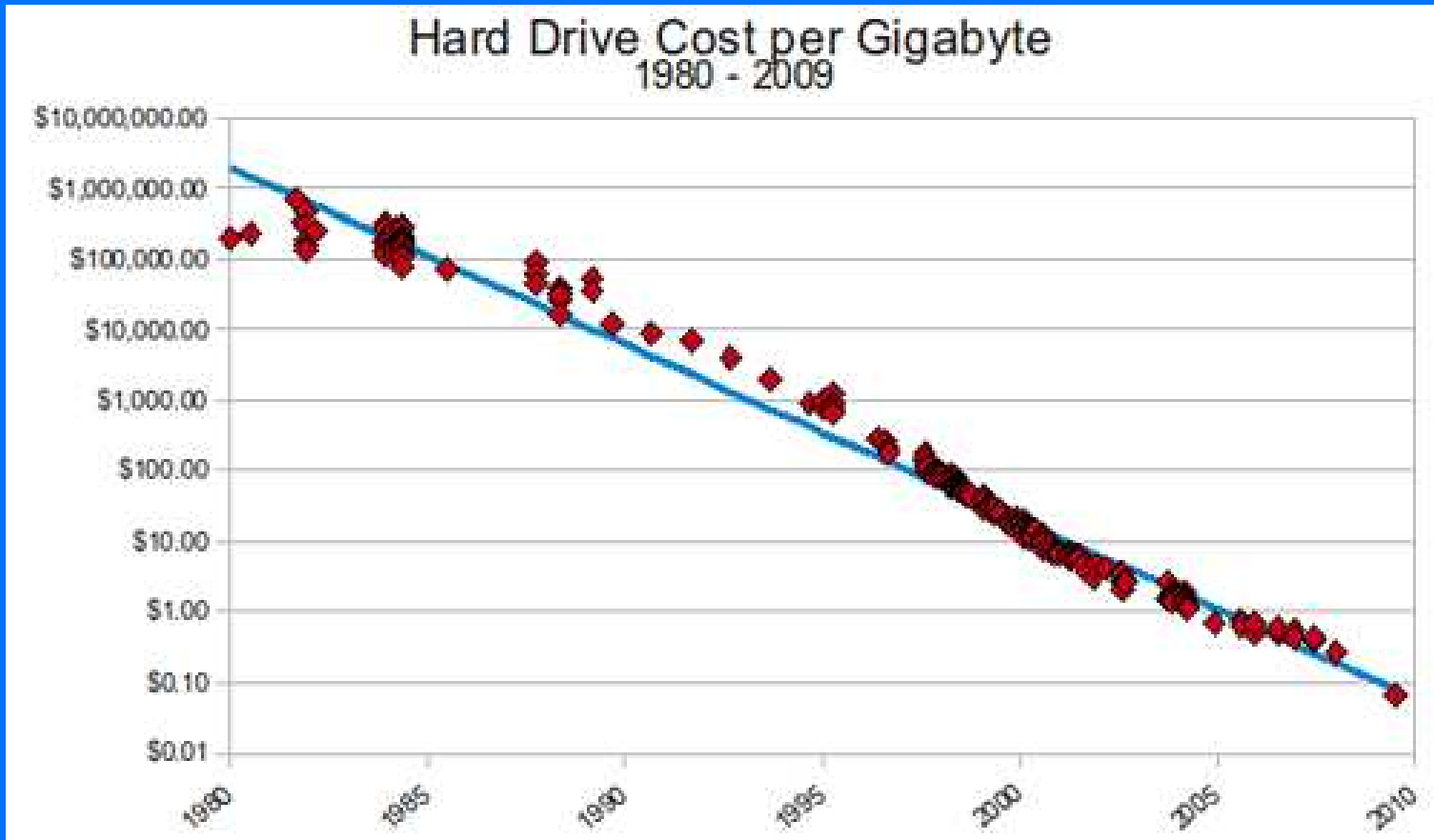

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BYE July 1980 291



$$\text{cost} = 10^{-0.2502(\text{year}-1980)+6.304}$$

¡¡GRACIAS!!

