

The Debut of 1 Terabyte Hard Drives

Key Points:

- Hitachi Global Storage Technology announced at the 2007 CES conference that they would begin shipping the world's first 1 TB hard disk drive
- The Hitachi drive uses perpendicular recording to achieve 3.5-inch disk drive areal densities of over 140 Gbps
- The Hitachi announcement follows announcements by other drive companies of new storage capacities for 1.8-inch and 2.5-inch disk drives
- Not to be outdone Seagate also said that it will ship 1 TB hard disk drives in the first half of 2007.

Analysis: The day has finally come when you can buy a terabyte of storage capacity on a single 3.5-inch hard disk drive! This is a milestone but also an indicator of things to come. Recently Toshiba announced a 100 GB 1.8-inch hard disk drive and Fujitsu announced a 300 GB 2.5-inch drive (somewhat thicker than normal 2.5-inch disk drives).

I expect that the areal density growth of hard disk drives will result in multi-TB 3.5-inch disk drives by 2010 (perhaps more than 3 TB), 2.5-inch drives with greater than 1 TB capacity and 1.8-inch drives with storage capacities greater than 300 GB in the same period. Such storage capacities will enable high capacity for low cost enterprise storage as well as static and mobile consumer electronic products and home network storage. With cumulative home storage capacities expected to be around 5 TB for a typical tech-savvy home by 2010 and possibly hundreds of TB by the next decade with the growth in personal storage we will need all the storage capacity that we can get.

Using bit pattern recording as well as heat assisted recording and more advanced recording channels storage experts project that areal densities of 50 Tbps may be possible over the next 15 to 20 years. With about 20 Tbps recording densities we could see 100 TB 3.5-inch disk drives and well over a TB 1-inch drive storage capacities. We could easily see a terabyte in your pocket and a petabyte in your home in the next decade.

With an apparently insatiable appetite for inexpensive digital storage I expect that hard disk drives will continue to play a major role in enabling our digital lifestyle and this will drive total disk drive demand. By the next decade total disk drive shipments should exceed 1 billion units per year (2006 drive shipments were about 436 million units).