

# 60GB 1.8-inch Hard Drive from Toshiba Sets a Record

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[Toshiba](#) Storage Device Division (SDD), the industry pioneer in small form factor storage, today announced a new family of **1.8-inch hard disk drives (HDDs)** that deliver the industry's highest capacities in this category with its 30GB "MK3006GAL" and 60GB "MK6006GAH." These drives also feature improved shock tolerance, power consumption and vibration control for better performance in mobile consumer electronics devices.

To achieve this industry-leading capacity, Toshiba has set a new benchmark for areal density in the 1.8-inch HDD category at 93.5 gigabits per square inch. This has allowed Toshiba to pack 30GB of data onto a single 1.8-inch platter, an increase of 50 percent over current models, delivering drives that are ideally suited for in-demand consumer electronics products such as mobile audio players and mobile notebook PCs.

"We are delighted to announce the world's highest capacity 1.8-inch HDD," said Amy Dalphy, manager, HDD business unit, Toshiba SDD. "We made improvements to push the capacity, increase shock resistance and to lower power consumption and noise. The resulting drives are perfect for integration in audio applications, such as mobile audio players, and mini-notebook PCs. We will continue to introduce high-capacity, small form factor HDD and contribute to making a reality of ubiquitous computing."

The key to setting a new areal density benchmark of 30GB on a single

platter -- and achieving a 1.8-inch drive with the largest capacity ever -- was the replacement of the Pico Sliders with Femto Sliders. Femto Sliders are attached to the drive's heads, and maintain the appropriate distance from the disk during read and write operations. The new Femto Sliders are 35 percent smaller and much lighter. Advances were also achieved in the thin-film technology for both the head and the platter.

Engineered to meet the stringent requirements for mobile devices such as MP3 players, handheld video players and handheld computers, Toshiba's new 30GB (single platter) and 60GB (dual platter) HDDs offer industry-leading operating shock tolerance of 500G and non-operating shock tolerance of 1,500G through the employment of fluid dynamic bearing (FDB) motor technology. The drives' FDB motor also provides improved acoustics.

Toshiba's new 1.8-inch drives also achieve improvements in vibration resistance and power consumption. The drives are capable of withstanding 2G of vibration during operation. Power consumption of the MK6006GAH and MK3006GAL are approximately 20 percent lower on average than the company's current drive(a) due to application of pulse width modulation (PWM) to control the disk rotation speed. A DC-DC converter is also used in the power unit to reduce power consumption.

### Shipping and Toshiba Product Family Information

The 1.8-inch 30GB and 60GB HDDs will begin shipping in the fourth quarter 2004. Toshiba has shipped more than 7.5 million 1.8-inch HDD units, achieving volume leadership in this form factor. Toshiba's new 1.8-inch HDD family joins the company's current mobile HDD lineup, which includes 2.5-inch HDDs available in 20GB, 30GB, 40GB, 60GB, 80GB and 100GB capacities. Toshiba's 1.8-inch HDD's are currently available in 10GB, 20GB, 30GB (currently a dual platter drive), 40GB

capacities for embedded applications and in a 5GB PC-Card-type mobile HDD. Toshiba most recently announced its 0.85-inch HDD, which has planned capacities of 2GB to 4GB and is featured in this year's Guinness Book of World Records as the world's smallest multi-gigabyte HDD.

Drive Specifications MK6006GAH MK3006GAL

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Capacity 60GB 30GB

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Number of platters 2 1

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Number of heads 4 2

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Average seek time 15 msec

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Data transfer rate Ultra DMA / 100

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Rotational speed 4,200 rpm

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Buffer memory 2 MB 2 MB

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Interface ATA-6

External Dimensions

(WxDxH; mm) 54 x 78.5 x 8 54 x 78.5 x 5

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Weight 62 g 51 g

Energy consumption

efficiency 0.005 W/GB 0.01 W/GB

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Operating 4,900 m/s<sup>2</sup> (500G, 2msec)

Shock resistance -----

Non-operating 14,700 m/s<sup>2</sup> (1500G, 1msec)

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Note: Toshiba defines a megabyte (MB) as 1,000,000 bytes and a gigabyte (GB) as 1,000,000,000 bytes.

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(a) Comparison based on Toshiba's current 1.8-inch 20GB and 40GB HDD, "MK4004GAH" and "MK2004GAL."

The original press release is available [here](#).

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