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## Understanding Hard Drive Performance

By [Patrick Schmid](#) published March 05, 2007



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### 8 Or 16 MB Buffer



Although there are still many drives using a 2 MB buffer, 8 MB can be considered standard today for mainstream desktop hard drives, and there are more and more drives with 16 MB cache as well. Larger hard drive caches not only make sense because of low DRAM prices, but from a technical standpoint as well. Hard drives utilize algorithms to pre-cache data, or to leave data in

memory to store incoming commands, because most products are capable of reorganizing these in order to process them as efficiently as possible, requiring little physical head movement. This feature is called Native Command Queuing (NCQ), and it also requires some memory to work, although the memory requirements are minor.

We wanted to check if there are differences between drives that sport 8 MB or 16 MB of buffer memory. Since we had received almost the complete Seagate Barracuda 7200.10 family, we picked four different 500 GB models to answer the question. All of them use three platters and only vary in terms of their interfaces - SATA/300 or UltraATA/100 - and cache size.

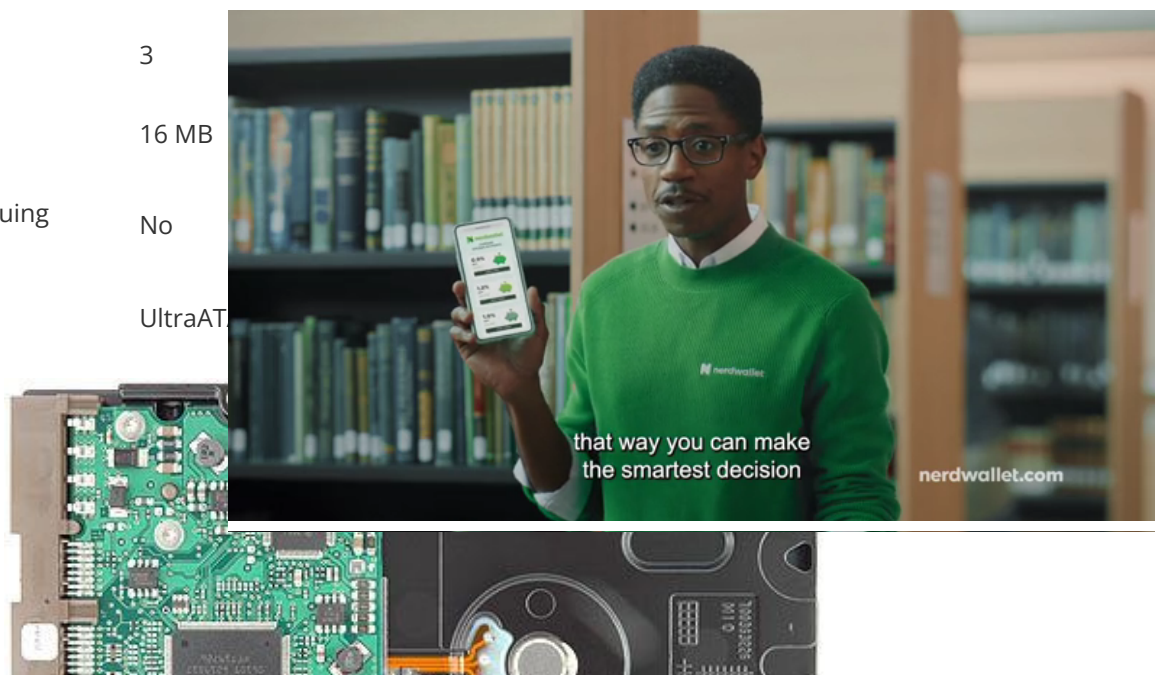
### Seagate Barracuda 7200.10 500 GB Comparison Table

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### In California

Manufacturer	Seagate	Seagate	Seagate	Seagate
Product	Barracuda 7200.10	Barracuda 7200.10	Barracuda 7200.10	Barracuda 7200.10
Model	ST3500630A	ST3500630AS	ST3500830A	ST3500830AS
Capacity	500 GB	500 GB	500 GB	500 GB
Spindle Speed	7,200 RPM	7,200 RPM	7,200 RPM	7,200 RPM
Platter	3			
Cache	16 MB			
Native Command Queuing (NCQ)	No			
Interface	UltraATA			





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## Patrick Schmid

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