



SSD

\$399 | [WWW.SAMSUNG.COM/AU/](http://www.samsung.com/au/)

Samsung 860 QVO 2TB

Another nail in the HDD coffin?

For years we've been talking about how SSDs are encroaching upon the mechanical hard drive market. While we're a long way from calling the death of the HDD, the advent of 4-bit per cell NAND is a big step towards addressing the advantages held by hard drives: price and capacity. QLC (Quad Level Cell) NAND has been seen in a couple of NVMe drives, but the Samsung 860 QVO 2TB we have on hand for review is the first QLC SATA SSD. It's priced very aggressively and looks to be a solid choice for users looking for a good value and/or high capacity SSD.

QLC NAND is inherently slower and has lower endurance than TLC NAND found in the majority of consumer SSD's. It offsets this with increased data density which leads to lower prices and higher capacities. With this in mind Samsung

has taken the smart step to leverage these advantages and produce a value-oriented SSD rather than follow the curious decisions of other QLC makers to launch with pricier NVMe models. SATA is still ubiquitous, and this seems to be good business decision. QLC is easily good enough to destroy hard drives, performance-wise, to go along with their fast access times, low power consumption and zero noise levels. QLC is here to stay and we expect some interesting models to appear throughout 2019.

The 860 QVO is a standard 2.5in SATA 6GB/s SSD. It's available in 1TB, 2TB and 4TB capacities. It uses Samsung's highly regarded MJX controller along with a 2GB DRAM buffer (for the 2TB drive). There's 256-bit AES hardware-based encryption support too. We're a little disappointed to have a three year warranty

as the endurance rating for the 2TB model is quite good at 720 Terabytes Written.

Performance-wise, the drive is able to max out the SATA interface in sequential testing. That will be the case for most common use scenarios, but Samsung implements what it calls Intelligent TurboWrite, which assigns an unused portion of the drive to run in SLC mode which boosts performance under light loads. The 2TB model allows for up to 78GB of this cache, so if you're writing more data than that at once, expect significant slowdowns in sequential performance. Synthetic testing showed the 2TB QVO to be surprisingly good, though random read and write performance was nothing to write home about.

The Samsung 860 QVO is an exciting SATA SSD market entrant. It's all about value with the 2TB model

coming in at \$399. The sweet spot 1TB model comes in at \$199 making it a seriously compelling option for mainstream users. In general use it matches other mainstream SSDs in performance, but it will temporarily drop to HDD-like speeds once you use up all of the Intelligent Cache.

Users looking to banish a HDD from their system or a gamer looking for a bigger library drive will find a lot to like here. Big capacity SSDs are finally starting to become serious options for mainstream users and Samsung is leading the charge with the 860 QVO. ■

Chris Szewczyk

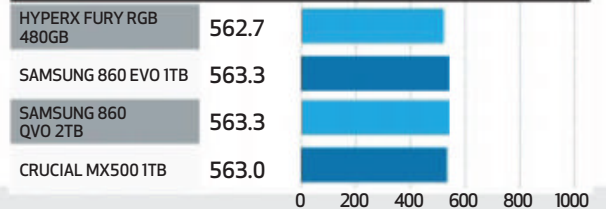
Verdict

The Samsung 860 QVO offers superb value, though it does have its limitations under very heavy loads.

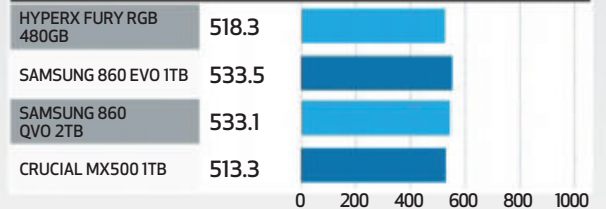


LABS BENCHMARK RESULTS

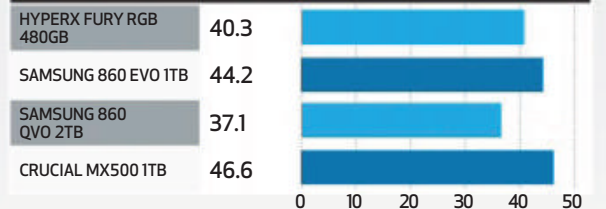
CRYSTALDISK MARK SEQUENTIAL READ (MB/S)



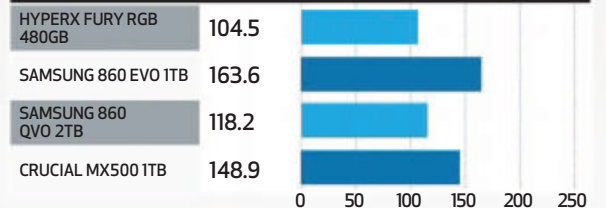
CRYSTALDISK MARK SEQUENTIAL WRITE (MB/S)



CRYSTALDISK MARK RANDOM 4K READ (MB/S)



CRYSTALDISK MARK RANDOM 4K WRITE (MB/S)



ANVIL STORAGE UTILITIES

