

Intel and Micron start shipping the first SSDs based on QLC NAND flash technology-- a means to store four bits of data per memory cell, or a 33% capacity boost over the 3-bits-per-cell TLC NAND used in nearly all SSDs.



"With introduction of 64-layer 4bits/cell NAND technology, we are achieving 33% higher array density compared to TLC, which enables us to produce the first commercially available 1 terabit die in the history of semiconductors," Micron says. "We're continuing flash technology innovation with our 96-layer structure, condensing even more data into smaller spaces, unlocking the possibilities of workload capability and application construction."

However, while QLC NAND brings an increase in storage, it takes a hit in endurance. QLC NAND write endurance reaches around 1000 program/erase cycles, with lower write performance. This is due to the difficulty in discriminating between 16 possible voltage levels within a memory cell, compared to the 8 voltage levels used to store 3 bits per cell.

That said, the aforementioned storage boost brings about cost savings-- at least in the enterprise environments finding use for the first QLC NAND SSD Micron started shipping, the 5210 ION series. The enterprise SATA drive ships at a lower cost due to the reduced write performance and endurance, and is aimed as an HDD replacement.

The Micron 5210 ION will be generally available from Q3 2018 in capacities starting from 1.92 to 7.96TB.

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