

HAS APRIL BEEN YOUR CRUELEST MONTH?

MEMPHIS
WE KNOW MEMORY

NO.04 APRIL24 MEMPHIS MEMORY ESSENTIALS

Everything you need to know about the semiconductor memory industry, from legacy technologies to latest innovations.

Brought to you by MEMPHIS Electronic, your Memory Competence Center and DRAM module configurator. We are posting similar stories regularly on [LinkedIn](#), so follow us there to stay on top of the news.

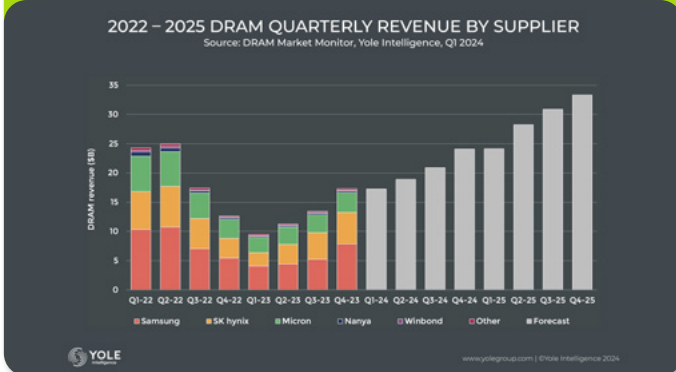
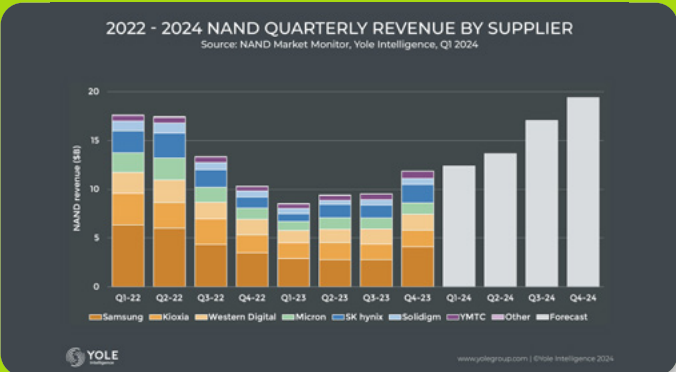
Has April been your cruelest month?

April is the cruelest month, said T. S. Elliot in his poem The Waste Land. Mixing memory and desire, stirring dull roots with spring rain. And it's not just the weather that is cruel. With regards to "mixing memory and desire", the severe earthquake in Taiwan raised fears about the supply of memory components. But luckily Taiwan and the manufacturers were well prepared, and the production only saw minor disruptions.

Still, some blame the earthquake for the rising memory prices, but if you are following us, you know that the prices started to increase already at the beginning of the year, as Yole's reports below prove.

The price development was one of the topics we discussed with clients and prospects at embedded world earlier this month. However, the price increases have not been as staggering as some analysts expected, so the focus was more on new technologies and developments like longevity SSDs or our new lead-free DRAM module family. So semiconductor memory is by no means a wasteland. Don't believe us? Then check out our news below.

What else happened this month? MEMPHIS turned 33 and we are nominated as distributor of the year. So help us mark this anniversary by voting us to the best specialist distributor [here](#).



NAND to return to profitability in 2024

If you follow the semiconductor memory market, you are aware that the NAND market saw a significant price decline in the second half of 2023. However, according to [Yole Group's](#) most recent quarterly NAND Market Monitor, NAND saw its lowest annual revenue (\$40 billion, -33%) and operating margin (-49%) figures since 2016.

However, the NAND market is projected to grow at a compound annual growth rate of 21% (CAGR2023-2029), driven by increased average unit contents and the cannibalization of HDDs by enterprise SSDs in data centers. Furthermore, the emergence of Gen AI is expected to contribute to increased data generation, further boosting average unit content. Mobile and SSDs are anticipated to maintain their dominance in driving NAND demand.

Read more [here](#).

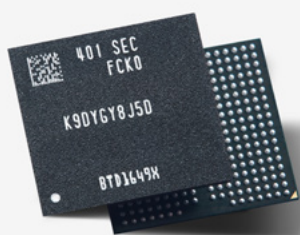
DRAM revenue higher than expected

By the end of 2023, [Yole Group](#) saw the DRAM industry at the lowest level since 2016, in its quarterly DRAM Market Monitor, Q1 2024 update. However, with the growing demand for acceleration hardware for generative AI, the DRAM market is recovering, with HBM and data centers leading the way.

Server and data center is the largest market segment for DRAM demand, accounting for almost 50% of bit shipments in 2023. The demand growth of DRAM in data centers is expected to outperform the broader DRAM market for the foreseeable future, especially as new technologies like HBM and CXL begin to take hold.

Read more [here](#).

Samsung's new V-NAND



- ✓ Small size
- ✓ Large capacity
- ✓ Fast data transfer

Winbond Extends TrustME® Secure Flash W77Q family



Samsung 290 layer NAND

Samsung has announced the start of mass production of its one-terabit triple level cell V-NAND (vertical NAND). With the industry's smallest cell size and thinnest mold, Samsung improved the bit density of the 9th-generation V-NAND by about 50% compared to the 8th-generation V-NAND. According to Tom's Hardware, this new NAND features 290 active layers. This might not be a massive increase in layers, but a clever stacking and etching technology that etches electron pathways through two stacks two 145-layers that are then combined.

Read more [here](#).

Winbond's Secure Flash Family

Winbond has extended its TrustME® Secure Flash W77Q family with 256Mb, 512Mb and 1Gb devices that are the first in the market to implement Leighton-Micali Signature (LMS) algorithm for PQC (Post Quantum Cryptography). This represents a critical enhancement for securing connected IoT edge devices used in commercial, industrial and server segments.

Winbond is the first memory vendor to integrate PQC, meeting the emerging regulation requirements. These devices are optimally designed for applications in Industrial IoT, networking, servers, and critical infrastructure applications.

Read more [here](#).

Intelligent Memory DDR5 modules Commercial, Industrial & fully RoHS-compliant



Intelligent Memory launches DDR5 Modules

Intelligent Memory expands its DRAM module product range with new DDR5 modules with 16 and 32 Gigabyte capacities, 5600 MHz clock frequency and in SO-DIMM, UDIMM and RDIMM form factors. To free customers from the need to rely on exemption 7c-I to the RoHS directive, the new DDR5 module range is also available in fully lead-free options.

Read more [here](#).

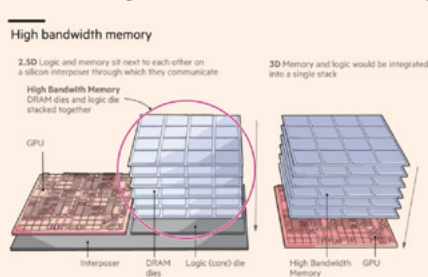


Tailor-made DRAM modules

There are a lot of memory modules out there - and still, you can't find the one with a guaranteed fixed BOM? Or the one that is just right for your application? We can configure just about any module from almost any DRAM component that is currently available on the market. And we guarantee a fixed BOM for the entire lifetime. That's what makes us your Memory Competence Center.

Read more [here](#).

Why Advanced Packaging Matters



Why Advanced Packaging Matters

The announcements of Samsung Semiconductor and TSMC to invest in advanced chip packaging facilities inspired the Financial Times to explain what advanced chip packaging actually is and its advantages.

By integrating or "packaging" multiple chips more closely together, chipmakers can increase speed and efficiency while circumventing the limits of miniaturization.

In any way, advanced packaging requires closer collaboration between industry specialists, and this provides an opportunity for second-tier chipmakers and traditional packaging companies.

A very good read with good visualization that's worth a [read](#):



MEMPHIS Electronic Turned 33

Can you believe it? MEMPHIS has turned 33! This means that for 33 years:

- Memory** is our business.
- Expert** advice on all aspects of memory products
- Mind-blowing** linecard
- Personal** relationships and people matter
- Honesty** and integrity are our building blocks of trust
- In-depth** industry expertise - yes, WE KNOW MEMORY
- Solid** as a rock - after all, we've been around for 33 years!

Thanks to all our employees, customers, partners and memory manufacturers for your continued support and trust in us. It's a pleasure to work with and for you!

Love us? Then vote for us as Distributor of the Year [here](#).

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Let us know how we are doing and what topics you would like to read more about.

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