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Chipmakers' Bold Strategy for Revenue Spike: Foray into the Services Industry

“The current trend is partly driven by the desire to capture more value beyond just a one-off chip sale”

By Ayush Jain(<https://analyticsindiamag.com/author/ayush-jainanalyticsindiamag-com/>)





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The semiconductor industry is capital-intensive (<https://analyticsindiamag.com/how-much-does-it-cost-to-set-up-semiconductor-fab-in-india/>) and risk-prone. Even the mining giant, Vedanta Limited, struggled to find financial backers (<https://analyticsindiamag.com/the-vedanta-semiconductor-plant-has-gone-with-the-wind/>) to support its ambitions of setting up manufacturing units in India. The industry is highly cyclical, with upswings during times of high demand, which cause supply shortages, rising prices and revenue boosts. Then there are downturns, which are periods of inventory accumulation, causing declining prices, and little or no revenue growth.

To tackle the uncertainty and secure a stable stream of sales revenue and profits even when prices turn volatile, Samsung has introduced a new business model – the high-end chip rental service, under the banner ‘Memory-As-A-Service’ (MAAS). Samsung has found a way out of the juggernaut of market volatility by following the AWS way (the on-demand renting), offering DRAM farms for rent to data centre customers.

Under the new business model, Samsung plans to rent out memory semiconductors for high-performance computing (HPC), such as SSDs and next-generation CXL DRAM packages, to cloud service providers like Google in exchange for a rental fee.

Some commentators have interpreted the move towards services by companies like Samsung, Intel and Nvidia as a result of Moore's law slowing down. The scaling difficulties have made it challenging for companies to reduce the time-to-market (TTM) for up-and-coming hardware. Therefore, the service model is the recourse companies are taking to compensate for the lack.

Dr Randhir Thakur (<https://www.linkedin.com/in/dr-randhir-thakur-747378/>), president at Intel Foundry Services, recently said that Intel's new Systems Foundry model is a response to the industry transitioning from "system on chip" to a "system of chips". Thus, the focus will be towards optimising everything from the system and software architecture to how they manufacture and test. As part of this transformation, Intel will be providing offerings such as secure supply, open platforms, and composable solutions through chips, packaging, and system software. Thakur called for holistic solutions to overcome fundamental limits in semiconductors.

When **AIM** asked the same to Sravan Kundojjala (<https://www.linkedin.com/in/sravan-kundojjala-b974b83/>), principal industry analyst at Strategy Analytics, he said, "Moore's Law still has room to offer performance gains. The current trend is partly driven by the desire to capture more value beyond just a one-off chip sale. Intel, Samsung, Nvidia, Qualcomm etc, are all trying to get into the service model."

Move to 'As-A-Service' model

The software industry has had great success with the 'Software-As-A-Service' model. The internet boom enabled the software licensing model, allowing users to pay over a month/year while providing features and security updates. However, as Chetan Patil (<https://www.linkedin.com/in/chetanarvindpatil/>) notes here (<https://www.chetanpatil.in/the-need-for-semiconductor-as-a-service/>), the hardware industry (mainly the semiconductor industry) has struggled to adopt the product delivery

model. The 'build and ship' model locks the product as an end-all, with no facility to provide additional features at the silicon level. Patil emphasises that the only way companies could solve security flaws in the hardware was by Over-The-Air (OTA) update.

Commenting on the industry's sudden affinity towards services, Patil told **AIM**, "It is another business model to drive customer service. Nothing to do with Moore's law."

The industry has experimented in multiple ways when it comes to dealing with fluctuating chip prices. For example, the memory chip maker Micron Technologies announced (<https://www.reuters.com/technology/memory-chip-maker-micron-launches-new-pricing-experiment-stability-2022-05-12/>) a new pricing model, called the forward-pricing agreements. Unlike the existing volume-based agreements, the long-term agreements based on this scheme will depend on volume and price. Similarly, several companies were vowing to unlock new functionalities based on price. But, these experimentations never really took off, with the exception of a few.

Kundojjala cited the example of Ambrella (<https://www.ambarella.com>), an automotive and IoT chip company, which has had some success in this area with its System on Chips (SoC) which combines video compression, image processing, and computer vision performance for advanced driver assistance systems and robotic applications. The company unlocks new functionality based on customer requirements and charges accordingly.

Since semiconductors often have a lengthy design and production cycle, developing products with built-in capabilities that can be enabled after production and are more relevant a few years from now is crucial.

Samsung and Intel leading the way

In this light, Samsung's move comes as a boon to the industry struggling to find stability amidst the rising supply chain and geopolitical constraints

(<https://analyticsindiamag.com/deglobalisation-takes-centre-stage-in-semiconductor-land/>). Using the Memory-As-A-Service model, customers will be able to reduce costs associated with chip purchases by securing a deal at pre-set contract prices while obtaining system management services throughout the life cycle of such chips. Reports (<https://www.kedglobal.com/>) suggest that Samsung believes the new venture will contribute to at least 10% of its chip revenue.

However, Samsung is not alone. A month ago, Intel also introduced the pay-as-you-go model, called the Intel On Demand

(<https://www.intel.com/content/www/us/en/products/docs/ondemand/overview.html?s=31>) program, which will enable them to ship fewer SKUs (Stock Keeping Units), while still making the most of the technology it offers. The upcoming 4th Generation Xeon

Scalable Sapphire Rapids (<https://www.tomshardware.com/news/intel-sapphire-rapids-56-core-es-cpu-hits-33-ghz-at-420w>) come with various specialised accelerators and security features that all customers do not need at all times.

Intel will offer such end-users additional flexibility by sending them its CPUs with the capabilities disabled but an option to activate them when needed. Thus, by using the Software Defined Silicon (<https://www.tomshardware.com/news/intel-spills-more-beans-on-sdsi>) (SDSi) technology, Intel's customers will be able to upgrade their machines without changing actual hardware or providing clients with extra services.

Plus, the as-a-service offerings from select providers such as H3C, HPE, Lenovo, Supermicro, etc enable users to harness Intel® Xeon® processors to scale capacity, optimise value and dynamically align their infrastructure to meet business demand.

Additionally, as Patil noted in his blog, “The list of features enabled via software updates can be endless, from more cache memory to DRAM memory to extra processing cores to additional GPU for gaming applications to secondary cellular (perhaps 6G) antenna.”

Therefore, the customer-specific speciality chip, which has historically led to rising development costs and sales prices, now finds a sigh of relief in the **Semiconductor-As-A-Service** model.



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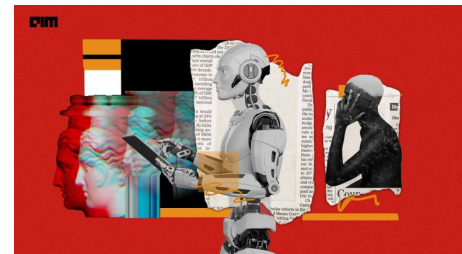
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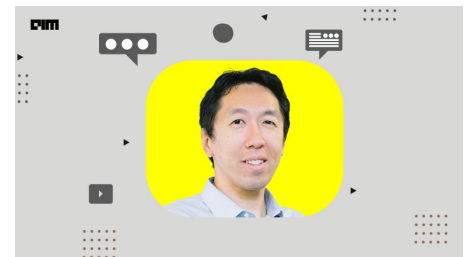


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As companies grapple with the ever-increasing volume, variety, and

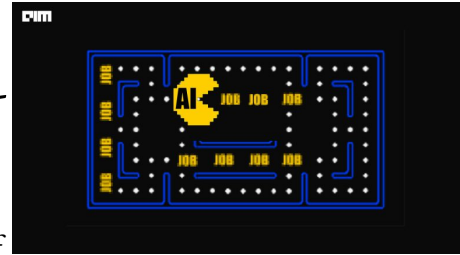
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velocity of data, the need to harness its power and derive meaningful insights has become paramount.

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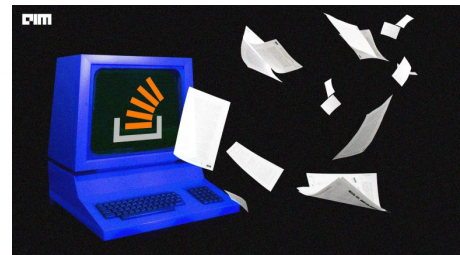
Given the anxiety over AI replacing jobs, let's find out how much of it has actually happened this year



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New statistics show that Stack Overflow has lost around 50% of its traffic over the past one and a half years.



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Brin has been helping the IT giant work on its AI capabilities since it has not been able to stay up to the mark since the LaMDA fiasco



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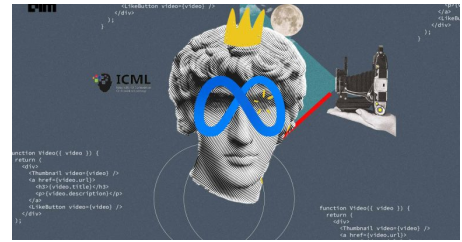
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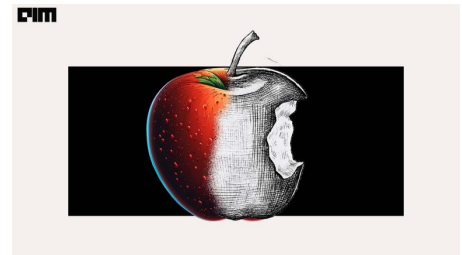
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