

US Semiconductors

Nvidia ASIC expansion: notable but no near-term impact on AVGO, MRVL

Industry Overview

Interesting opportunity but no immediate share shifts

Media reports suggest Nvidia might expand from its current dominance in merchant GPU AI accelerators into making more customized chips (aka ASIC) for the telecom, auto, gaming and even data-center markets. This could be a long-term competitive risk for current ASIC leaders AVGO, MRVL and their Taiwanese peers. However, we don't see any near-term industry implications since: 1) custom chip engagements take years to materialize, 2) AVGO/MRVL have critical networking IP and ASIC expertise, and 3) in many cases the customers work with AVGO, MRVL to create an alternative to NVDA, so using them for both merchant and ASIC defeats the purpose. Separately we flag the incremental benefits for EDA leaders SNPS and CDNS (more high-end design projects), the possibility for AMD to also pursue the market, and potential for INTC foundry to perhaps be involved in emerging ASIC manuf.

"Edge" AI could expand ASIC market TAM

Excluding custom ASICs used in phones and gaming devices (incl. NVDA's own Tegra chip used in Nintendo Switch), we estimate the size of the data center infrastructure ASIC market to be ~\$10-\$15bn. The market size could get significantly larger as generative AI capabilities spread towards the edge or closer to end enterprise, telco, and cable users. Indeed, the media report referenced above also highlights a potential partnership between NVDA and Ericsson for a wireless chip that includes GPU accelerators. Currently MRVL is a key ASIC partners for Nokia and Samsung.

Custom chips offensive and defensive move for NVDA

NVDA's high-end H100 accelerator is priced at \$25-30K+ with upcoming B100 likely at a premium to that (vs. AMD MI300 at \$15-20K and versus baseline CPU at only \$1-2K). While the NVDA products offers significant turnkey (system, software) advantages, there are applications where the customer might look for cheaper alternatives, such as in edge AI or AI inferencing applications. NVDA does have lower priced accelerator such as L40S, H20 etc. in the \$2-10K range but custom ASIC could be even lower cost and better optimized for power, space, performance and help to expand AI TAM.

INTC Foundry could be dark horse

The media reports don't mention INTC, but we won't be surprised to see its foundry operations (IFS) in the mix as a potential alternative to foundry leader TSMC. INTC has already suggested 4 high-performance computing customers for its 18A process and pursuing custom ASIC projects (and leveraging prior ASIC partnerships with Ericsson, Nokia etc.) could well be on the table, though we don't know INTC's specific involvement in any of the above projects since they still appear to be in early stages.

AMD also has ASIC expertise

We also flag AMD's ASIC expertise (exclusive designer of Xbox, PS5) and capabilities in AI accelerator market, so won't be surprised to see AMD also present itself as an alternative to NVDA, perhaps exacerbating competitive long-term risks for AVGO, MRVL.

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Glossary

AI: Artificial intelligence
AMD: Advanced Micro Devices
ASIC: Application Specific Integrated Circuit
AVGO: Broadcom
CDNS: Cadence
CPU: Central Processor
EDA: Electronic design Automation
GPU: Graphics Processor
INTC: Intel
IP: Intellectual Property
MRVL: Marvell
NVDA: Nvidia
SNPS: Synopsys
TAM: Total Addressable Market

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