Eye on NVIDIA

FQ3 2022 Earnings Insights

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Earnings Summary

NVIDIA reported a record FQ3 2022 results, with revenue coming in at $7.1 billion – beating consensus estimates and growing 50% year-over-year and 9% sequentially, and diluted non-GAAP earnings per share of $1.17 – up 60% year-over-year. This year-over-year growth underpinned strong revenues across the company's core gaming business (+42% y-o-y), data center business (+55% y-o-y), OEM and Other (+21%) and professional visualization (+144% y-o-y). The company's automotive business, its smallest, also grew 8% year-over-year, but down 11% sequentially. Non-GAAP gross margin was 67% of revenue, growing 150bps year-over-year and 30bps sequentially.

NVIDIA is guiding FQ4 2022 revenue at $7.4 billion (plus or minus 2 percent). Gross margin is expected to be 67%, give or take 50 basis points. The ~$300 million sequential revenue growth from FQ3 2022 to FQ4 2022 is expected to come from data center and gaming, more than offsetting a decline in cryptocurrency mining processors (CMPs), per NVIDIA CFO Collette Kress.

This was a strong quarter for NVIDIA, and shares rose as high as 11% at the next market open. The market reaction was strong despite the not so encouraging news on the pending Arm acquisition, which has run into some regulatory headwinds across the US, EU and China.

Jensen was especially forthcoming in the earnings call and eloquently articulated his vision on the future of accelerated computing. Rather than report on the segment specific details, this paper will talk about NVIDIA's outlook as seen through the lens of Jensen's answers to analyst questions.

The Omniverse Opportunity

When asked to define business success in Omniverse, Jensen highlighted 3 areas : Developer engagement (connecting with developers), enterprise engagement (development of apps) and engagement between developers and creators.

He cited specific near-term revenue opportunities as well – connecting disparate design worlds like Adobe, Autodesk and Revit and allowing work to be shared across worlds. He sees this remote work collaboration opportunity as driving PC, GPU, workstation, and server sales. Digital twins where companies like BMW use it for simulating entire factories to streamline and predict optimal workflow or where radio tower placements and beamforming for an entire city can be simulated in a digital twin of the city. He sees this as an immediate opportunity as well. Finally, Avatars in the Omniverse can help integrate technologies like computer vision, speech recognition and natural language processing and gesture recognition, speech synthesis and many

more into one system run in real time. These intelligent avatars are robotic systems that could transform retail, restaurants, transportation, and offices.

Jensen rattled off numbers that add up to a gigantic licensing total addressable market opportunity in the long term – e.g., 40 million creators and designers at $1000 per user per year or 100 million connected cars at $1000 per car per year. All these "digital agents" could be powered by NVIDIA GPUs in PCs, NVIDIA GPUs in cloud, and NVIDIA GPUs in Omniverse servers.

Jensen surmised that hardware and software licensing would contribute roughly equally to revenue over time. He called this "the largest graphics opportunity we have ever seen" and he also noted that today GPU penetration is still a small percentage of total compute and it will grow much more as Omniverse scales.

Why Omniverse Now?

According to Jensen, the reason the Omniverse opportunity is manifesting now is that four fundamental technologies that enable it are finally coming together – video graphics, physics simulations, artificial intelligence and computers that can process Graphics, Physics and AI all at once.

Omniverse is an amalgamation of many different pieces of technology that all had to be mature before they could all be used together. Many of these technologies evolved over multiple decades. The Omniverse Avatar integrates together MERLIN, the recommender; Megatron, the large language model; Riva, the speech AI, numerous computer vision AIs, natural speech synthesis, face and eye tracking, Maxine for virtual collaboration – and all these technologies are connected. They were all built in pieces and integrated over time to create what is called Omniverse Avatar.

Jensen believes Omniverse Avatar will be used in drive-throughs, fast food restaurants, in retail stores all over the world within less than five years. Shortage of labor around the world will only propel the demand. Making it cloud native ensured that it is instantaneous and feels realistic in these real-world scenarios.

"Chips Don't Create Markets; Software Creates Markets"

Jensen articulated the promise of accelerated computing and how it differs from general purpose computing. He reiterated that one of the reasons NVIDIA has been successful in creating new markets is because they focused on software and the full stack and not just on building chips.

"Accelerated computing requires a lot of work – for every domain, for every application in large domains that you'll use, you must have a whole stack. And so whenever you want to open a new market by accelerating those applications or that domain of applications, you have to come up with a new stack and the new stack is hard, because you have to understand the application, you have to understand the algorithms, the mathematics, you have to understand computer science to distribute it across, to take something that was single threaded and make it multi-threaded and make something that we've done sequentially and make it process in parallel. You break everything, you break storage, you break networking, you break everything."

Over the course of 30 years, NVIDIA become a full-stack company, which enabled them to open new markets and play a large role in democratizing artificial intelligence. And every year they continue to come up with new stacks.

NVIDIA Reach and Outlook

Demand for NVIDIA AI is strong with hyperscalers and cloud services deploying at scale and enterprises broadening adoption. More than 25,000 companies use NVIDIA AI.

Half of the Data Center business comes from the cloud and cloud service providers and the other half comes from enterprise businesses. About 1% of it comes from supercomputing centers (high performance computing).

Gaming and Pro Visualization businesses are surging. RTX opportunity continues to expand with the growing market of gamers, creators, designers and now professionals building home workstations.

The recently held GTC showcased the expanding universe of NVIDIA accelerated computing. In combination with AI and Data Center scale computing, NVIDIA is attempting to produce million X speed ups that will revolutionize many important fields like robotics, digital biology, and climate science. GTC highlighted NVIDIA full stack expertise in action, built on CUDA and acceleration libraries in data processing, in simulation, graphics, artificial intelligence, market and domain specific software. Software is what opens new growth opportunities and NVIDIA has 150 SDKs now addressed in many of the world's largest end markets.

According to Jensen, every single server will be GPU accelerated someday (that number is ~10% today). He emphasized that most workloads still only run on CPUs, which is the reason why for NVIDIA to grow, they have to be a full stack company and focus on the applications that require acceleration or benefits tremendously from acceleration.

A new theme in Jensen's narrative since the GTC is that of a **million X** speed up. He went to great lengths to talk about how that is an achievable number, how it has happened in the past and why it is likely to happen again. He cited the fields of digital biology, protein synthesis, protein engineering, electronic design automation (chip design) and climate science as all critical problems that can only be solved with million X and even billion X speed up.

"One application after another, we have to get it accelerated, one domain after another we have to get it accelerated."

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