

September 5, 2024

The Honorable Jonathan Kanter  
Assistant Attorney General  
Antitrust Division  
United States Department of Justice  
950 Pennsylvania Avenue, NW  
Washington, DC 20530

Dear Assistant Attorney General Kanter:

Competition is key to a thriving U.S. economy and faster economic growth. This is particularly true in the semiconductor market, which will drive future advances in artificial intelligence (AI) and other tech breakthroughs—the reason Congress provided \$52.7 billion in support for the industry in the CHIPS and Science Act.<sup>1</sup>

This is why I welcome the reports that the Department of Justice (DOJ) has opened an antitrust investigation into Nvidia,<sup>2</sup> whose blockbuster growth has made it one of the world's largest companies.<sup>3</sup> While this growth has been primarily driven by the recent AI boom,<sup>4</sup> it has been supercharged by Nvidia's use of anticompetitive tactics that have choked off competition and chilled innovation. I am pleased that the DOJ has joined authorities in other countries, such as the United Kingdom and the European Union,<sup>5</sup> in investigating Nvidia's conduct.<sup>6</sup>

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<sup>1</sup> White House, "FACT SHEET: CHIPS and Science Act Will Lower Costs, Create Jobs, Strengthen Supply Chains, and Counter China," press release, August 9, 2022, <https://www.whitehouse.gov/briefing-room/statements-releases/2022/08/09/fact-sheet-chips-and-science-act-will-lower-costs-create-jobs-strengthen-supply-chains-and-counter-china/>.

<sup>2</sup> Guardian, "Microsoft, OpenAI and Nvidia investigated over monopoly laws," Dan Milmo, June 6, 2024, <https://www.theguardian.com/business/article/2024/jun/06/microsoft-openai-and-nvidia-investigated-over-possible-breach-of-antitrust-laws>.

<sup>3</sup> Forbes, "Nvidia Now World's Most Valuable Company—Topping Microsoft And Apple," Antonio Pequeño IV, June 18, 2024, <https://www.forbes.com/sites/antoniopequenoi/2024/06/18/nvidia-now-worlds-most-valuable-company-topping-microsoft-and-apple/>.

<sup>4</sup> Guardian, "Nvidia reports stratospheric growth as AI boom shows no sign of stopping," Edward Helmore, May 22, 2024, <https://www.theguardian.com/technology/article/2024/may/22/nvidia-quarterly-earnings>.

<sup>5</sup> Bloomberg, "Nvidia Adds UK to List of Governments Scrutinizing Its Business," Ian King, February 21, 2024, <https://www.bloomberg.com/news/articles/2024-02-21/nvidia-adds-uk-to-list-of-governments-scrutinizing-its-business>.

<sup>6</sup> Reuters, "Nvidia gets subpoena from US DoJ, Bloomberg News reports," September 3, 2024, <https://www.reuters.com/legal/nvidia-hit-with-subpoena-us-justice-department-bloomberg-news-reports-2024-09-03/>.

Until recently, Nvidia was a relatively niche provider of gaming chips,<sup>7</sup> but as a “prime beneficiary of the AI frenzy,” it has seen its market capitalization increase by 250% between November 2021 and May 2024.<sup>8</sup> The money involved is vast, and Big Tech is spending most of it: Microsoft and Meta spent a combined \$9 billion on Nvidia’s chips last year alone.<sup>9</sup> Amazon purchased as many as 50,000 chips in 2023.<sup>10</sup> And Google plans to pour nearly \$40 billion into AI this year—much of it on Nvidia’s products and services.<sup>11</sup>

As a result of this spending, Nvidia now controls an estimated 90% of the market for high-end AI chips<sup>12</sup> and 98% of the lucrative and growing data center graphics processing units (GPUs) market.<sup>13</sup> Its hardware has been the underpinning of almost every AI milestone, including the development and deployment of OpenAI’s ChatGPT-4<sup>14</sup> and other models.<sup>15</sup> Market power like that means the company decides who gets chips from its limited supply and how much they pay, with some experts theorizing that Nvidia has been making a 1000% profit through the retail price of some of its chips.<sup>16</sup> This has effectively made Nvidia the gatekeeper for the world’s AI future.

But in carrying out this responsibility, Nvidia has shown that it is not committed to fair play. The company locks customers in by bundling products, software, and services<sup>17</sup>—a practice that has already triggered antitrust scrutiny in France—resulting in Nvidia’s own programming software being the only system that is fully compatible with its chips.<sup>18</sup> In a move that was ultimately blocked by the Federal Trade Commission, Nvidia has attempted to further raise barriers to entry by acquiring Arm Limited, the developer of essential chip architecture.<sup>19</sup> If the deal had gone through, experts say Nvidia would have gained “control over a software architecture that most of

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<sup>7</sup> Vox, “How Nvidia beat everyone else in the AI race,” Whizy Kim, March 7, 2024, <https://www.vox.com/money/2024/3/7/24092309/nvidia-stock-earnings-valuation-ai-explainer>.

<sup>8</sup> Washington Post, “See how Nvidia became one of the world’s most valuable companies,” Gerrit De Vynck and Rachel Lerman, June 27, 2024, <https://www.washingtonpost.com/technology/2024/06/27/nvidia-most-valuable-company-stock-key-moments/>.

<sup>9</sup> Observer, “Nvidia’s Market Cap Surpasses \$3T: Here Are the Largest Buyers of Its A.I. Chips,” Alexandra Tremayne-Pengelly, June 6, 2024, <https://observer.com/2024/06/nvidia-largest-ai-chip-customers/>.

<sup>10</sup> *Id.*

<sup>11</sup> Washington Post, “See how Nvidia became one of the world’s most valuable companies,” Gerrit De Vynck and Rachel Lerman, June 27, 2024, <https://www.washingtonpost.com/technology/2024/06/27/nvidia-most-valuable-company-stock-key-moments/>.

<sup>12</sup> Politico, “Feds set stage for antitrust probes of Nvidia, Microsoft and OpenAI,” Josh Sisco, June 6, 2024, <https://www.politico.com/news/2024/06/06/federal-antitrust-probes-nvidia-microsoft-openai-00161973>.

<sup>13</sup> HPCwire, “Nvidia Shipped 3.76 Million Data-center GPUs in 2023, According to Study,” Agam Shah, June 10, 2024, <https://www.hpcwire.com/2024/06/10/nvidia-shipped-3-76-million-data-center-gpus-in-2023-according-to-study/>.

<sup>14</sup> Fortune, “Can anyone beat Nvidia in AI? Analysts say it’s the wrong question,” Sharon Goldman, July 2, 2024, <https://fortune.com/2024/07/02/nvidia-competition-ai-chip-gpu-startups-analysts/>.

<sup>15</sup> PYMNTS, “OpenAI vs Nvidia Shapes Up as Battle of the AI Titans,” February 22, 2024, <https://www.pymnts.com/artificial-intelligence-2/2024/openai-vs-nvidia-shapes-up-as-battle-of-the-ai-titans/>.

<sup>16</sup> HPCwire, “Nvidia H100: Are 550,000 GPUs Enough for This Year?” Doug Eadline, August 17, 2023, <https://www.hpcwire.com/2023/08/17/nvidia-h100-are-550000-gpus-enough-for-this-year/>.

<sup>17</sup> Politico, “Feds set stage for antitrust probes of Nvidia, Microsoft and OpenAI,” Josh Sisco, June 6, 2024, <https://www.politico.com/news/2024/06/06/federal-antitrust-probes-nvidia-microsoft-openai-00161973>.

<sup>18</sup> Reuters, “Exclusive: Nvidia set to face French antitrust charges, sources say,” Foo Yun Chee, July 2, 2024, <https://www.reuters.com/technology/french-antitrust-regulators-preparing-nvidia-charges-sources-say-2024-07-01/>.

<sup>19</sup> Vox, “How Nvidia beat everyone else in the AI race,” Whizy Kim, March 7, 2024, <https://www.vox.com/money/2024/3/7/24092309/nvidia-stock-earnings-valuation-ai-explainer>.

the industry relie[s] on.”<sup>20</sup> As Nvidia cements its dominance, venture funders are investing less in companies attempting to build competing chips.<sup>21</sup> Indeed, the number of U.S. venture funding deals for AI chips fell approximately 80% between 2022 and 2023.<sup>22</sup>

The insatiable hunger of gargantuan Big Tech companies for Nvidia chips, along with the company’s opaque and preferential allocation of them, are starving startup companies of the infrastructure they need to do business<sup>23</sup> and crowding academic AI researchers out of the field.<sup>24</sup> Allowing a single company so much influence over AI research, development, and monetization poses dire economic risks. Competition powers a virtuous cycle of rapid innovation by impelling each market participant to create the best products. It creates jobs and generates tax revenue. It reduces the need for regulation by giving the market a role in keeping aspiring monopolists in check. It reduces costs for companies by giving them a choice of suppliers.

Without the intervention of U.S. regulators, the prospects of restoring competition in the semiconductor market are bleak. They will only grow bleaker as Nvidia approaches 100% ownership of the market, and as it begins pouring money into lobbying alongside the conventional Big Tech players<sup>25</sup> to shape the contours of AI regulation and lock in its advantage.<sup>26</sup> I thank you for your leadership and support efforts to undertake a comprehensive and fair investigation into Nvidia.

Sincerely,



Elizabeth Warren  
United States Senator

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<sup>20</sup> *Id.*

<sup>21</sup> Euronews, “Nvidia’s dominance in AI chips is deterring investment in would-be rival semiconductor start-ups,” November 9, 2023, <https://www.euronews.com/next/2023/09/11/nvidias-dominance-in-ai-chips-is-detering-investment-in-would-be-rival-semiconductor-start>.

<sup>22</sup> *Id.*

<sup>23</sup> New York Times, “The Desperate Hunt for the A.I. Boom’s Most Indispensable Prize,” Erin Griffith, August 16, 2023, <https://www.nytimes.com/2023/08/16/technology/ai-gpu-chips-shortage.html>.

<sup>24</sup> Washington Post, “Silicon Valley is pricing academics out of AI research,” Naomi Nix, Cat Zakrzewski, and Gerrit De Vynck, March 10, 2024, <https://www.washingtonpost.com/technology/2024/03/10/big-tech-companies-ai-research/>.

<sup>25</sup> Politico, “In DC, a new wave of AI lobbyists gains the upper hand,” Brendan Bordelon, May 12, 2024, <https://www.politico.com/news/2024/05/12/ai-lobbyists-gain-upper-hand-washington-00157437>.

<sup>26</sup> Guardian, “Microsoft president and Nvidia chief scientist testify in Senate AI hearings,” Johana Bhuiyan, September 12, 2023, <https://www.theguardian.com/technology/2023/sep/12/us-senate-ai-hearings-microsoft-nvidia>.