Equity Research

WELLS FARGO

Company Update — December 6, 2023

Semiconductors

Advanced Micro Devices, Inc. (AMD)

AMD: MI300 Launch—Cloud Breadth, AI Inference Performance (Memory is Key), Ethernet vs. InfiniBand, & More

Our Call

Today (12/6) we attended AMD"s *Advancing AI* (MI300 launch) event. Most incremental:
1. Cloud customer breadth, **2.** Focus on AI inference perf vs NVDA H100 (memory is key),
3. Ethernet vs. InfiniBand, & **4.** AMD RoCM software / ecosystem (vs. NVDA CUDA).

What We Think Matters the Most (See Discussion on Page 3):

1. MI300X Cloud Breadth; Supply & Demand Above $2B+ 2024 Guide. It was important for AMD to highlight the breadth of cloud customer adoption on the MI300X beyond **Microsoft Azure**. AMD highlighted **Oracle Cloud** (new GenAI services coming) and **Meta** (Meta able to adopt MI300X on OCP design in record time), but also notably stated that it currently sees *significant supply* and *customer demand* above its >$2 billion 2024 revenue guide.

2. Emphasis on AI Inference (vs. Training) Performance. As we have previously reported / expected, AMD's presentations highlighted the memory footprint (192GB HBM3; 5.3TB/s bandwidth) of the MI300X as a key architectural differentiator that plays particularly well for AI inference. While highlighting comparable AI training performance vs. NVDA H100, AMD showcased / emphasized a 1.4x to 1.6x better AI inference performance on Bloom 176B and Llama 2 70B.

3. Opening Up AMD's Infinity Fabric; Ethernet vs. InfiniBand for Back-End Networking. AMD announced that it is externally opening up its internally developed *Infinity Fabric* (internal GPU-to-GPU/CPU; vs. NVIDIA's proprietary NVlink) to innovators and strategic partners. AMD also emphasized its views on Ethernet winning vs. InfinIBand (NVIDIA proprietary) looking forward w/ Arista (Andy Bechtolshiem), Cisco (Jonathan Davidson), Broadcom (Jas Tremblay) hosted in a panel discussion.

4. AMD's ROCm Software Development / Ecosystem Expansion. AMD's ROCm open source software ecosystem support / partnerships remain a key focus as it relates to its competitive positioning vs. NVDA H100. While difficult to quantify, we think AMD positively highlighted its ecosystem expansion (now supporting 62,000+ models with Hugging Face on Instinct GPUs), including upcoming OpenAI Triton support. AMD note that most of the next-gen AI applications are written at frameworks above CUDA.

5. AI Accelerator TAM Update - A Huge Increase! AMD's CEO, Dr. Lisa Su, noted that AMD now sees an AI Accelerator market growing from $45B in 2023 to >$400B by 2027. This compares to AMD's prior (yr ago) estimate of the market growing from $30B in 2023 to $150B+ by 2027 - driven by customer plan discussions; expanding breadth of customer deploys. As shown below, we model the data center GPU market at $38.0B in 2023 growing to $95.3B by 2027; AMD at a mid/high-single digit rev. share by 2025.

Equity Analyst(s)

Aaron Rakers, CFA
Equity Analyst | Wells Fargo Securities, LLC
Aaron.Rakers@wellsfargo.com | 314-875-2508

Joe Quatrochi, CFA
Equity Analyst | Wells Fargo Securities, LLC
Joe.Quatrochi@wellsfargo.com | 314-875-2055

Jake Wilhelm, CFA, CPA
Associate Equity Analyst | Wells Fargo Securities, LLC
Jake.Wilhelm@wellsfargo.com | 314-875-2502

Michael Tsvetanov, CFA
Associate Equity Analyst | Wells Fargo Securities, LLC
Michael.Tsvetanov@wellsfargo.com | 314-875-2558

Rating	Overweight
Ticker	AMD
Price Target/Prior:	$130.00/NC
Upside/(Downside) to Target	9.8%
Price (12/05/2023)	$118.38
52 Week Range	$60.05 - 132.83
Shares Outstanding	1,615,498,891
Market Cap (MM)	$191,243
Enterprise Value (MM)	$187,926
Average Daily Volume	38,841,415
Average Daily Value (MM)	$4,598
Dividend (NTM)	$0.00
Dividend Yield	0.0%
Net Debt (MM) - last reported	$(3,317)
ROIC - Current year est.	(0)%
3 Yr EPS CAGR from current year (unless otherwise noted)	52%

$ EPS	2022A	2023E Curr.	2023E Prior	2024E Curr.	2024E Prior
Q1 (Mar)	1.13 A	0.60 A	NC	0.68 E	NC
Q2 (Jun)	1.05 A	0.58 A	NC	0.83 E	NC
Q3 (Sep)	0.67 A	0.70 A	NC	0.98 E	NC
Q4 (Dec)	0.69 A	0.77 E	NC	1.18 E	NC
FY	3.53 A	2.65 E	NC	3.67 E	NC
P/E	33.5x	44.6x		32.3x	

Source: Company Data, Wells Fargo Securities estimates, and Refinitiv. NA = Not Available, Volatility = Historical trading volatility

Wells Fargo Express Takeaways

Advanced Micro Devices, Inc. (AMD) | Rating: Overweight | Price Target: $130.00
Analyst: Aaron Rakers

Financials

FY (Dec)	2022A	2023E	2024E
$			
ESTIMATES			
EPS			
Q1	1.13 A	0.60 A	0.68 E
Q2	1.05 A	0.58 A	0.83 E
Q3	0.67 A	0.70 A	0.98 E
Q4	0.69 A	0.77 E	1.18 E
AN	3.53 A	2.65 E	3.67 E
Rev. (MM)	23,601.0 A	22,638.3 E	25,396.4 E
EBIT (MM)	6,345.0 A	4,865.7 E	6,787.7 E
EBITDA (MM)	6.97B A	5.51B E	7.49B E
FCF (MM)	5,598.5 A	7,694.8 E	8,759.2 E

WELLS FARGO vs. CONSENSUS			
Consensus Estimate	-	2.74 E	4.08 E
Difference from Consensus		(3.2)%	(10.1)%

VALUATION			
P/E	33.5x	44.6x	32.3x
EV/Revenue	8.0x	8.3x	7.4x
EV/EBIT	29.6x	38.6x	27.7x
EV/EBITDA	27.0x	34.1x	25.1x
EV/FCF	33.6x	24.4x	21.5x
FCF Yield	4.2%	5.7%	6.5%

Consensus Estimate: Consensus EPS Estimate; Source: VisibleAlpha
Source: Company Data, Wells Fargo Securities estimates, and Refinitiv.
NA = Not Available, NE = No Estimate

Investment Thesis

We are positive on AMD's ability to continue gaining share in the server and PC CPU markets, increasing traction in datacenter GPUs, positive / accelerating incremental operating leverage, and ultimately earnings power in excess of $6/share by 2025. As such, we reiterate our Overweight rating.

Risk vs. Reward – Upside/Downside Price Target Scenarios
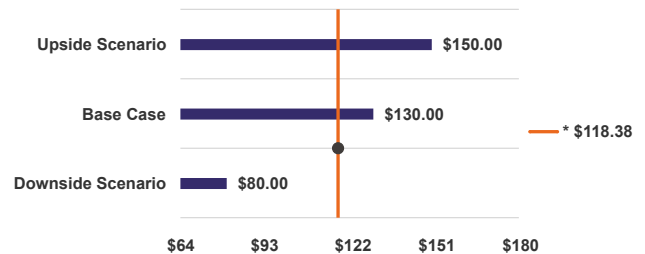
As of 12/05/23
Source: Wells Fargo Securities, LLC estimates and Refinitiv.

Base Case | $130.00

Our 12-month price target of $130 represents a ~27x P/E multiple on our C2025 estimate. This compares to AMD shares trading at a 5-yr. historical median forward 12-month P/E of ~35x. Our thesis is driven by an expectation of AMD's continued EPYC server CPU share gains + a broadening AI positioning via MI300 GPU solutions.

Upside Scenario | $150.00

Our $150 upside scenario assumes that AMD can continue to gain CPU share (server and client) + significant TAM expansion opportunity / positioning to capitalize on AI infrastructure deployments. Amid AI-driven upside momentum, we would expect to see gross margin expansion and a path to non-GAAP EPS upside of $6/sh+ (25x P/E)

Downside Scenario | $80.00

Our $80 downside scenario (20x P/E on $4 EPS) assumes that competitive pressure (most notably from Intel) tempers CPU share gains/expectations. We see a downside scenario also in the event that AMD's datacenter GPUs fail to adequately compete with NVIDIA and meet investor expectations. Improved Intel competitive positioning + incremental competitive positioning of Arm-based silicon will be a key focus.

Upcoming Catalysts

4Q23 earnings in late January

Company Description

Founded in 1969, Advanced Micro Devices (AMD), based in Sunnyvale, California, designs and manufactures microprocessors and graphics chips for computing and other applications.

6. Product Cycle Cadence. Although not noted in the company's prepared presentations, during the investor meeting hosted at today's event it was noted AMD will execute on roughly a twelve-month cadence of Instinct data center GPU product cycles; company emphasizing its deep engagements with its cloud customers and a focus on multi-generational product development (i.e., similar to how it has executed on their EPYC server CPU product cycles). We think this is / will be a key focus as we / investors gauge the company's competitive positioning relative to NVIDIA's now twelve-month product cycle cadence (vs. historical 18-24 months) – i.e., next-gen *Blackwell* GPUs slated for intro in 2H2024. Intel's Gaudi3 (2024) and *Falcon Shores* (GPU w/ Gaudi integration; 2025) will also be core competitive platforms in focus.

7. AMD Data Center GPU Estimates Unchanged. As a reminder, based most notably on cloud customer commitments, AMD had outlined an expectation of generating >$2B in data center GPU rev. in 2024k; guiding $400M contribution in 4Q23, which most notably (we est. $300M+) from AMD's *El Capitan* deploy. We maintain our AMD 2024 and 2025 Data Center GPU revenue estimates at ~$2.1 billion and $3.3 billion, respectively. We continue to estimate that AMD can achieve a mid / high single-digit rev. share in data center GPUs in 2024-2025. We currently estimate the data center GPU market at $48.7 billion and $65.3 billion in 2024 and 2025, respectively ([see table below](#)).

Dr. Lisa Su - Huge AI Accelerator TAM Increase ($400B by 2027!); MI300X Details

- **Huge TAM Expansion ($400B by 2027!):** A year ago AMD outlined an estimate that the AI accelerator market would grow at a ~50% CAGR, or from $30 billion in 2023 to $150 billion by 2027. AMD believes it is now clear that demand is growing much faster and is thus significantly increasing its AI accelerator TAM estimate **to $45 billion in 2023 to >$400 billion by 2027.**

- This TAM ranges from on-premise to cloud. AMD is centered on three key priorities: **1.** Energy performance GPUs, CPUs, and overall AI-optimized silicon. **2.** Improving our software development platform for AMD hardware; ease of use is key. **3.** It is all about partnerships – expanding the co-innovation work from cloud providers, system OEMs, and software developers to accelerate cooperation.

- **MI300X Specifications:** AMD's new Instinct MI300X, when compared to the prior generation MI250X, was noted as providing 3.4x better FP16 performance, 6.8x higher INT8 performance, which is driven by up to 1.5x more memory capacity, and 1.6x memory bandwidth - i.e., 192GB across eight stacks of HBM3 memory (not HBM3e) with 5.3TB/s bandwidth. This is packaged with 256MB of AMD Infinity Cache. AMD also highlighted supports for TF32, BP8, and Sparsity. We would note that thiscompares to the NVIDIA H100 and H200 memory bandwidth at 3.35TB/s and 4.8TB/s, respectively. The MI300X's 192GB of HBM3 memory also compare to the 128GB in the MI250X and NVIDIA's *Hopper* H100 and new H200 having max memory capacities at 96GB (HBM3) and 141GB (HBM3e), respectively. Intel's Gaudi2 AI silicon supports 96GB of HBM2e memory capacity (next-gen Gaudi3 reported at 144GB HBM3)..

  The MI300X has 153B transistors (as expected) across a dozen 5nm and 6nm chiplets (expected). The chip features 4x 6nm I/O die in its base layer with eight 5nm CDNA 3 GPU chiplets (XCDs) with total of 304 AMD CDNA Compute Units connected using hybrid bonding in a 750W power envelope (vs. 700W for the NVIDIA H200).

- **MI300X vs. NVIDIA H100.** Relative to the NVIDIA H100 AMD highlighted the MI300X offering 2.4x memory capacity, 1.6x memory bandwidth, 1.3x FP8 TFLOPs, and 1.3x FP16 TFLOPs compared to NVIDIA's H100 GPU. AMD also highlighted the performance of an 8x MI300X GPU single vs. 8x NVIDIA. H100 GPU system. The company highlighted equivalent training performance; emphasizing inference performance leadership – e.g., Bloom 176B at 1.6x better performance (throughput); Llama 2 70B at 1.4x better performance (latency improvement).

- **System OEM Highlights.** In addition to the aforementioned cloud customer adoption, AMD, as expected, also highlighted the alignment of MI300X with system OEMs, including highlighted partnerships with Dell, Super Micro, Lenovo. **Dell:** Dell will include the AMD MI300X in their expanding XE-series line-up w/ a new configuration of 8x MI300X GPUs (note: Dell's reported

$1.6 billion AI server pipeline exiting October was noted only reflecting NVIDIA-based solutions). **Super Micro**: Super Micro, as expected, will include a line-up of AMD MI300-based systems w/ the company's rack-scale building-block solutions (note: Super Micro has reported GPU-based solutions account for 50%+ of its total revenue over past two quarters). **Lenovo:** Lenovo believes Gen AI will be a hybrid approach with compute moving to the edge. MI300X will be added to the Lenovo ThinkSystem w/ 8x MI300X with dual EPYC CPUs.

Victor Peng - AI Software / ROCm 6.0

While it is difficult to quantify AMD's competitive positioning / evolution of their ROCm software ecosystem (vs. NVIDIA CUDA), the company highlighted some of the progress it is making. AMD reiterated their focus on building ROCm with a focus on open source and the ecosystem vs. NVIDIA's proprietary/closed approach with CUDA. The company announced that it will ship ROCm 6.0 this month, which was optimized specifically for generative AI and LLMs. ROCM 6.0 also expands ecosystem support and performance, has support for FP16/BF16 and now FP8 data types, and incorporates advanced kernal optimizations. AMD highlighted 2.6x 1.4x and 1.3x performance improvement in vLLm, HIP Graph, and Flash Attention kernals, respectively. All in, the MI300X + ROCm 6.0 offers an 8x speed up relative to the MI250X + ROCM 5.0. In addition, the MI300X with ROCm 6.0 delivers 1.2x the inferencing performance on Llama 2 (medium kernal) vs. the NVIDIA H100.

From an ecosystem perspective, AMD announced/highlighted the following:

- The MI300X GPUs will be supported with the standard OpenAI Triton distribution beginning with the upcoming 3.0 release.

- There are now 62,000 Hugging Face models running on Instinct platforms

- Pytorch continues to thrive, and AMD is making significant contributions to other frameworks including TensorFLow, JAX, OpenAI Triton, OpenXLA, ONNX Runtime, DeepSpeed, etc.

- AMD recently acquired NodAI (open source Ai compiler) and Mipsology (high efficiency inferencing).

Forest Norrod – Open Networking; Ethernet vs. InfiniBand

- AMD is leaning in on its ability to enable large scale GPU clustered environments with tightly interconnected GPUs in each server via Infinity Fabric (vs. NVIDIA NVlink). These have both been proprietary.

- Today – AMD is extending access to the Infinity Fabric ecosystem to innovators and strategic partners across the industry.

- Beyond the node, still need to connect via fabrics (east-west). Networking at this level has been Ethernet and InfiniBand. AMD highlights this in the context of the front-end vs. the back-end networking ecosystem. Front-end is where Ethernet has traditionally played, where the back-end is where the InfiniBand vs. Ethernet resides.

- AMD (as expected) believes Ethernet is the key long-term solution given performance, scalability, and a broad open ecosystem (including a focus on advanced congestion control – a key area of focus, in our opinion). The company highlighted Ethernet extensions like the HPE | Cray Slingshot interconnect, as well as efforts at Google. This is also highlighted by the Ultra Ethernet Consortium (UEC).

- **Ethernet Visionaries.** AMD had Jonathan Davidson (Cisco), Jas Tremblay (Broadcom), and Andy Bechtolsheim (Arista) on the stage, which focused on the open standard / ubiquitous nature of Ethernet. In terms of the advantages of Ethernet for the back-end network, the panel noted: **1.** Ethernet scalability (note: Arista's recent presentation highlighted scalability up to 512k GPUs in a single cluster), **2.** Majority of hyperscale clouds today are either using Ethernet today or have plans to deploy going forward. **3.** The NIC is a key component; many more linkages will existing between the switch and NIC (note: we continue to highlight NVIDIA's Spectrum-X Ethernet solutions as moving congestion control into their BlueField-3 SuperNICs).

- ***Ultra Ethernet Consortium (UEC).*** The panel noted that while Ethernet AI is ready today, it needs to continue to innovate with open standards. It was noted that the UEC is not building something new, but rather enhancing the feature / functionalities. It was also noted that there is the need for

interoperability across many areas. Mr. Bechtolsheim noted that the ecosystem needs to optimize the RDMA over Converged Ethernet (RoCE) scaling support for 100,000s of GPUs.

- **High-Performance Computing (HPC) – The MI300A.** Mr. Norrod highlighted the MI300A – the APU with Zen4 CPU + CDNA 3 GPUs. AMD highlighted that the MI300A began volume manufacturing earlier this quarter, which will be first deployed in the *El Capitan* supercomputer. With the MI300A, the Zen4 EPYC CPU chiplets are integrated on the I/O dies (3x CCDs w/ 24 cores). The solution has 128GB of HBM3 memory running at 5.3TB/s of memory bandwidth. This architecture provides unified memory, optimized performance management across CPU and GPUs (workload dependent; optimizing app performance), and streamlined performance.

  The 146 billion transistor MI300A provides 61TFLOPs of FP64, 122TF FP32. The MI300A has 1.6x more memory capacity and bandwidth vs. the NVIDIA H100; 1.8x m eFP64 and FP32 performance; comparable FP16 performance. AMD also noted that the HPC performance per watt is 2x the NVIDIA Grace Hopper (GH200).

AI in PCs

AMD took the opportunity to also provide an update on its thoughts on AI integration into client CPUs. The company highlighted its Ryzen Mobile 7040 series with the embedded Xilinx-based AI engine (the XDNA) and reported that it has shipped millions of AI enabled PCs. AMD believes we are at the very beginning of the AI PC journey and is emphasizing that it is working very closely with Microsoft on this evolution.

AMD is launching the Ryzen AI 1.0 software – a new package for developers to create AI-enabled applications to run on Ryzen AI hardware using pre-trained models (e.g., using models on Hugging Face and deploy on ONNX runtime). AMD also introducing their *Hawk Point* Ryzen 8040 mobile CPUs with 8 cores / 16 threads, 24MB of cache, RDNA 3 embedded graphics, and up to 5.2/4.0GHz base/ boost frequency. The 8040 delivers 1.6x more AI processing performance vs. the Ryzen 7040-series. Systems based on the 8040 are expected to be available from leading OEMs begining 1Q24. The company also announced that its next Gen *Strix Point* Ryzen mobile CPU will launch in 2024 with XDNA 2 and next-gen NPU for Gen AI.

Wells Fargo Datacenter GPU Forecast

Below we include our current data center GPU forecast - now estimating the GPU market to grow from $38.0 billion in 2023 to $48.7 billion and $65.3 billion in 2024 and 2025, respectively. Our estimates reflect an expectation the server GPU attach rate would expand to 14% by 2025 with ~4.6 GPUs/server. *Gartner* recently (11/30) published an AI server forecast estimating that AI server spending would grow from $51.9 billion in 2023 to $80.6 billion by 2027, representing a +30% CAGR. We would note that *Gartner's* forecast implies an average AUP ($/unit) for AI servers at ~$30,000 per server, which we view as potentially conservative.

Wells Fargo Datacenter GPU Forecast
(Units / $ in Millions)

	2016	2017	2018	2019	2020	2021	2022	2023E	2024E	2025E	2026E	2027E	CAGR% '17-'22	CAGR% '22-'27E
Total Servers Shipped	11.104	11.455	12.956	12.537	12.672	12.918	13.827	12.424	13.245	14.185	15.249	16.164	3.8%	3.2%
- Y/Y % Change -	0.1%	3.2%	13.1%	(3.2%)	1.1%	1.9%	7.0%	(10.2%)	6.6%	7.1%	7.5%	6.0%		
Estimated GPUs Shipped	0.450	0.717	0.842	0.840	1.259	2.110	2.801	5.488	6.854	9.135	12.142	13.513	31.3%	37.0%
- Y/Y % Change -	140.0%	59.2%	17.5%	(0.2%)	49.8%	67.7%	32.7%	95.9%	24.9%	33.3%	32.9%	11.3%		
Estimated GPUs per Server	3.75	4.00	4.00	4.20	4.20	4.30	4.40	4.65	4.50	4.60	4.55	4.40		
Implied Servers w/ GPUs	0.120	0.179	0.211	0.200	0.300	0.491	0.914	1.180	1.523	1.986	2.669	3.071	38.5%	27.4%
- Implied Server Penetration Rate	1.1%	1.6%	1.6%	1.6%	2.4%	3.8%	6.6%	9.5%	11.5%	14.0%	17.5%	19.0%		
Estimated Datacenter GPU Revenue	$1,171	$2,057	$2,886	$2,580	$4,481	$7,150	$10,250	$38,005	$48,665	$65,317	$86,208	$95,267	37.9%	56.2%
- Y/Y % Change -	173.6%	75.7%	40.3%	(10.6%)	73.7%	59.6%	43.4%	270.8%	28.0%	34.2%	32.0%	10.5%		
Implied Blended ASP ($/unit)	*$2,602*	*$2,870*	*$3,426*	*$3,070*	*$3,561*	*$3,388*	*$3,659*	*$6,925*	*$7,100*	*$7,150*	*$7,100*	*$7,050*	5.0%	14.0%
- Y/Y % Change -	14.0%	10.3%	19.4%	(10.4%)	16.0%	(4.8%)	8.0%	89.2%	2.5%	0.7%	(0.7%)	(0.7%)		
Server CPU Sockets Shipped (Gartner)	21.341	21.897	25.006	23.997	24.358	24.425	25.816	23.108	24.768	26.668	28.973	30.227	3.3%	3.2%
- Implied GPUs Shipped as % of Server CPU Sockets	2.1%	3.3%	3.4%	3.5%	5.2%	8.6%	10.8%	23.8%	27.7%	34.3%	41.9%	44.7%		
- Ratio of CPU Sockets to Servers Shipped	1.92x	1.91x	1.93x	1.91x	1.92x	1.89x	1.87x	1.86x	1.87x	1.88x	1.90x	1.87x		
- Implied GPUs Shipped as % of Total Server CPU Sockets	0.6%	0.8%	0.8%	0.8%	1.2%	2.0%	3.5%	5.1%	6.1%	7.4%	9.2%	10.2%		
Est. Datacenter GPU Revenue by Vendor:														
NVIDIA	$841	$1,800	$2,747	$2,415	$4,330	$6,838	$9,958	$37,245	$45,745	$60,092	$78,019	$82,882	40.8%	52.8%
AMD	$16	$62	$225	$211	$152	$289	$269	$461	$2,061	$3,262	$5,056	$7,331	34.1%	93.7%
Intel	$314	$195	$10	$0	$0	$15	$9	$300	$858	$1,963	$3,134	$5,053	(45.9%)	254.7%
Implied Revenue Share (%):														
- NVIDIA	71.8%	87.5%	95.2%	93.6%	96.6%	95.6%	97.2%	98.0%	94.0%	92.0%	90.5%	87.0%		
- AMD	1.4%	3.0%	7.8%	8.2%	3.4%	4.0%	2.6%	1.2%	4.2%	5.0%	5.9%	7.7%		
- Intel	26.8%	9.5%	0.3%	0.0%	0.0%	0.2%	0.1%	0.8%	1.8%	3.0%	3.6%	5.3%		
Implied NVIDIA Data Center Breakdown (Compute vs. Networking)					*- Note: Mellanox Acquisition Closed on Apr. 27, 2020*									
- Compute Revenue (GPUs + Other)	$830	$1,932	$2,932	$2,983	$5,032	$7,745	$10,937	$39,107	$48,032	$63,096	$81,920	$87,027	41.4%	51.4%
- Networking (Mellanox Pre-Acq.; Est. Post-Acq. Revenue)	$857	$864	$1,089	$1,332	$2,093	$2,868	$4,068	$12,905	$14,410	$17,667	$22,937	$21,757	36.3%	39.8%
Total Revenue	$1,687	$2,796	$4,021	$4,315	$7,125	$10,613	$15,005	$52,013	$62,441	$80,763	$104,857	$108,783	39.9%	48.6%
- Networking $ Spend per $1 Compute Spend	$1.03	$0.45	$0.37	$0.45	$0.42	$0.37	$0.37	$0.33	$0.30	$0.28	$0.28	$0.25		

Source: Gartner; Wells Fargo Securities, LLC Estimates

Investment Thesis, Valuation and Risks

Advanced Micro Devices, Inc. (AMD)
Investment Thesis
We are positive on AMD's ability to continue gaining share in the server and PC CPU markets, increasing traction in datacenter GPUs, positive / accelerating incremental operating leverage, and ultimately earnings power in excess of $6/share by 2025. As such, we reiterate our Overweight rating.
Target Price Valuation for AMD: $130.00 from NC
Our 12-month price target of $130 represents a ~27x P/E multiple on our C2025 estimate. This compares to AMD shares trading at a 5-yr. historical median forward 12-month P/E of ~35x. Our thesis is driven by an expectation of AMD's continued EPYC server CPU share gains + a broadening AI positioning via MI300 GPU solutions.
Risks to Our Price Target and Rating for AMD
Risks include technology roadmap execution, key executive risks, increasing / broadening competitive landscape, increasing investor upside expectations / sentiment, integration and accretion generation from Xilinx acquisition, and improved execution by the company's main competitor.

Required Disclosures

I, Aaron Rakers, certify that:
1) All views expressed in this research report accurately reflect my personal views about any and all of the subject securities or issuers discussed; and

2) No part of my compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed by me in this research report.

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Additional Information Available Upon Request

Advanced Micro Devices, Inc. Rating History as of 12-05-2023

powered by: BlueMatrix

Initiation (I); Drop Coverage (D); Overweight (BUY); Equal Weight (HOLD); Underweight (SELL); Suspended (SR); Not Rated (NR); No Estimate (NE)
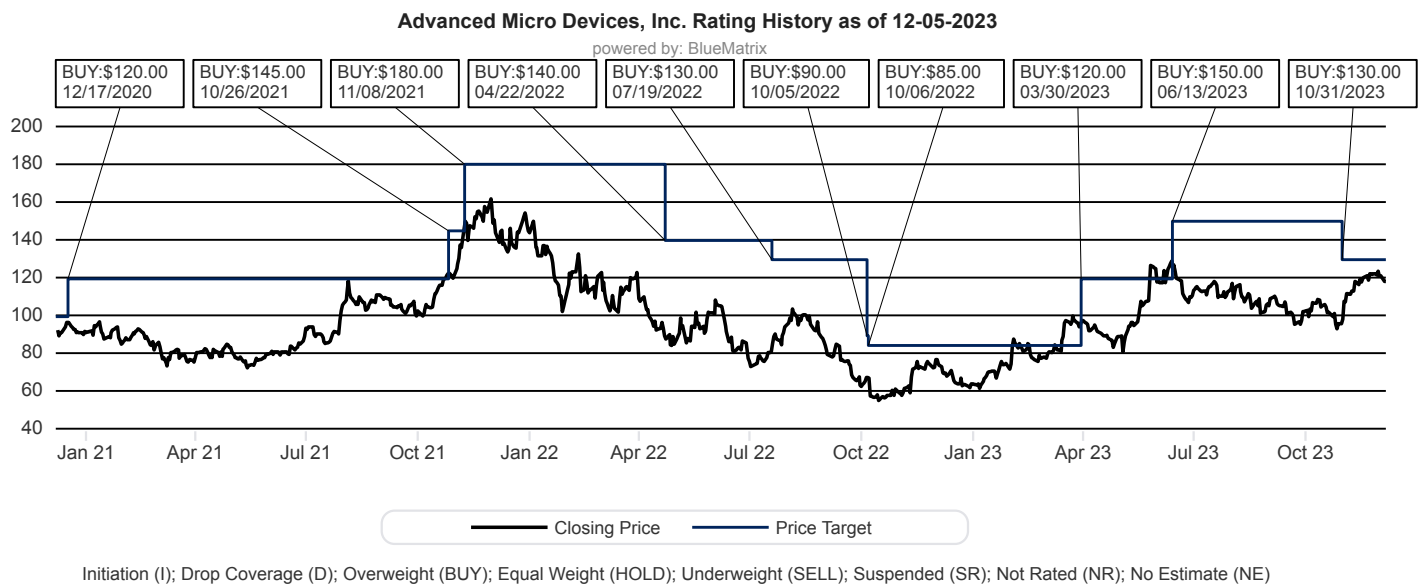
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Wells Fargo Securities, LLC, or its affiliates has a significant financial interest in Advanced Micro Devices, Inc..

STOCK RATING

OW=Overweight: Total return on stock expected to be 10%+ over the next 12 months. BUY

EW=Equal Weight: Total return on stock expected to be -10% to +10% over the next 12 months. HOLD

UW=Underweight: Total return on stock expected to lag the Overweight- and Equal Weight-rated stocks within the analyst's coverage universe over the next 12 months. SELL

NR=Not Rated: The rating and price target has been removed due to lack of fundamental basis to support the recommendation or due to legal, regulatory or company policy considerations.

As of December 5, 2023

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