

AMD 4Q Exceeds on Data Center Strength

AMD	31 est.	Advanced Micro	CY24rev:	18%
Qtr:	4Q	Grade:	D	Growth (qtr-qtr)
Rev:	6,168	Rev:	++	Rev: 6.3%
GM:	50.8%	EPS:	o	Fcst: -17-8%
EPS:	\$0.77	Fcst:	- - -	Div:

Advanced Micro Devices (AMD \$167.69 -4.37 at the close on 1/31/24)

4Q Earnings: AMD announced 4Q results after the close on Jan 30 that exceeded expectations due to Data Center strength, although 1Q guidance was below expectations due to Client, Gaming and Embedded weakness.

4Q Financial Results: 4Q revenue of \$6.2B was up +6% sequentially as Data Center growth more than offset declines in Gaming and Embedded. Non-GAAP gross margin of 51% was flat as revenue and margin expansion from Data Center offset the decline from more profitable Embedded, and operating margin increased by 90 basis points to 22.9%. Op ex of \$1.7B was up +8% on the year due to investments in AI opportunities. Cash flow from operations was \$381M, free cash flow was \$242M, and 2M shares were repurchased leaving cash at \$5.8B.

Data Center Segment Strength: Data Center includes all products sold into data center applications, including CPUs/MPUs (microprocessors), GPUs (graphics processing units), APUs (accelerated processors), FPGAs (Field Programmable Gate Arrays) as well as other products. Data Center 4Q revenue accounted for 37% of total sales and grew by +43% sequentially driven by Instinct MI3000 GPUs and 4th Generation EPYC CPUs. Operating margin grew to 29.2% from 19.3% in 3Q. Management believed it gained server CPU revenue share in the quarter due to EPYC strength. For 2023, Data Center sales grew by +7% to \$6.5B billion.

CPU sales continued to grow amid design wins at North American hyper-scalers despite soft demand in the overall market for cloud systems. Management claims 'more than 800 EPYC CPU-based public cloud instances.' EPYC sales accelerated in the enterprise market to a number of customers across the Forbes 2000 for inferencing workloads with deployments expected this year. Turin, the next generation EPYC, will launch later this year.

Instinct MI3000 GPUs ramped steeply during 4Q and exceeded \$400M with deployments across cloud, enterprise, supercomputer and AI developer customers. The company's ROCm 6 software suite helps AI software developers adopt AMD platforms, as does its partnership with Hugging Face's open-source AI models. AMD now expects data center GPU sequential growth this quarter and to total over \$3.5B in 2024, up from flat and \$2B previously, due to strong demand and additional supply chain capacity.

Client Segment Malaise: Client includes CPUs, APUs, and chipsets for PCs. Client revenue was flat sequentially and accounted for 24% of sales, as operating margin fell to 3.8% from 9.6%. However, it was up +62% on the year due to increasing Ryzen7000 CPU sales. For 2023, Client sales declined by -25% to \$4.7B due to weak PC markets.

The Ryzen 8000 family of CPUs was recently introduced that delivers enhanced AI performance on PCs. Strix, the next-generation Ryzen CPU will triple the AI performance and is expected to launch in notebook PCs later this year. While the PC market is expected to grow modestly this year with a heavier weighting 2H24 as AI PCs ramp, the company expects growth from its current products as well as the ramp of its new parts later in the year.

Gaming Segment Weakness: Gaming includes discrete GPUs, and semi-custom SoCs and development services for video game consoles. Gaming sales was down -9% sequentially to 22% of revenue due to decreasing semi-custom business partially offset by increasing Radeon GPU sales, while operating margin grew to 16.4% from 13.8%. For 2023, Gaming sales declined by -9% to \$6.2 billion.

The bad news is Gaming could decline by -30% this year on semi-custom weakness from video game consoles. But the good news is that Radeon 6000/7000 GPUs for PC graphics cards have been growing and a new RX 7600 XT desktop GPU was introduced earlier this month.

Embedded Segment Inventory Correction: Embedded includes mostly FPGAs but also a grab bag of products into a vast array of embedded systems. Embedded was down -15% sequentially and accounted for 17% of sales primarily due to customers reducing their inventory levels as operating margin declined to 43.6% from 49.2%. For 2023, Embedded revenue grew by +17% to \$5.3B due to the acquisition of FPGA-maker Xilinx in February, 2022.

(Verbiage continued on next page.)

AMD Financials

Segment	2022					2023				
	1Q	2Q	3Q	4Q	2022	1Q	2Q	3Q	4Q	2023
Segment										
Data Center	1,293	1,486	1,609	1,655	6,043	1,295	1,321	1,598	2,282	6,496
Client	2,124	2,152	1,022	903	6,201	739	998	1,453	1,461	4,651
Gaming	1,875	1,655	1,631	1,644	6,805	1,757	1,581	1,506	1,368	6,212
Embedded	595	1,257	1,303	1,397	4,552	1,562	1,459	1,243	1,057	5,321
Total Revenue	5,887	6,550	5,565	5,599	23,601	5,353	5,359	5,800	6,168	22,680
non-GAAP										
Gross Profit	3,100	3,538	2,776	2,859	12,273	2,675	2,665	2,963	3,133	11,436
Gross Margin	52.7%	54.0%	49.9%	51.1%	52.0%	50.0%	49.7%	51.1%	50.8%	50.4%
Operating Profit	1,837	1,982	1,264	1,262	6,345	1,098	1,068	1,276	1,412	4,854
Operating Margin	31.2%	30.3%	22.7%	22.5%	26.9%	20.5%	19.9%	22.0%	22.9%	21.4%
EPS (GAAP)	0.56	0.27	0.04	0.01	0.84	(0.09)	0.02	0.18	0.41	0.53
EPS (non-GAAP)	1.13	1.05	0.67	0.69	3.50	0.60	0.58	0.70	0.77	2.65
Segment Percent										
Data Center	22.0%	22.7%	28.9%	29.6%	25.6%	24.2%	24.7%	27.6%	37.0%	28.6%
Client	36.1%	32.9%	18.4%	16.1%	26.3%	13.8%	18.6%	25.1%	23.7%	20.5%
Gaming	31.8%	25.3%	29.3%	29.4%	28.8%	32.8%	29.5%	26.0%	22.2%	27.4%
Embedded	10.1%	19.2%	23.4%	25.0%	19.3%	29.2%	27.2%	21.4%	17.1%	23.5%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Segment Growth										
Data Center		14.9%	8.3%	2.9%		-21.8%	2.0%	21.0%	42.8%	7.5%
Client		1.3%	-52.5%	-11.6%		-18.2%	35.0%	45.6%	0.6%	-25.0%
Gaming		-11.7%	-1.5%	0.8%		6.9%	-10.0%	-4.7%	-9.2%	-8.7%
Embedded		111.3%	3.7%	7.2%		11.8%	-6.6%	-14.8%	-15.0%	16.9%
Total		11.3%	-15.0%	0.6%		-4.4%	0.1%	8.2%	6.3%	-3.9%
Operating Profit										
Data Center	427	472	505	444	1,848	148	147	306	666	1,267
Client	692	676	(26)	(152)	1,190	(172)	(69)	140	55	(46)
Gaming	358	187	142	266	953	314	225	208	224	971
Embedded	277	641	635	699	2,252	798	757	612	461	2,628
Adjustments/Other	(803)	(1,450)	(1,320)	(1,406)	(4,979)	(1,233)	(1,080)	(1,042)	(1,064)	(4,419)
Total (GAAP)	951	526	(64)	(149)	1,264	(145)	(20)	224	342	401
Operating Margin										
Data Center	33.0%	31.8%	31.4%	26.8%	30.6%	11.4%	11.1%	19.1%	29.2%	19.5%
Client	32.6%	31.4%	-2.5%	-16.8%	19.2%	-23.3%	-6.9%	9.6%	3.8%	-1.0%
Gaming	19.1%	11.3%	8.7%	16.2%	14.0%	17.9%	14.2%	13.8%	16.4%	15.6%
Embedded	46.6%	51.0%	48.7%	50.0%	49.5%	51.1%	51.9%	49.2%	43.6%	49.4%
Total (GAAP)	16.2%	8.0%	-1.2%	-2.7%	5.4%	-2.7%	-0.4%	3.9%	5.5%	1.8%

Embedded FPGA demand is expected to remain soft 1H24 as customer inventory levels continue to normalize. Longer term growth is expected after 25% more design wins last year. New Versal Prime Adaptive SoCs for aerospace, test and measurement, health care and communications markets with DDR5 DRAM memory support and increased DSP capability was launched, along with an automotive offering with AI capabilities. The company also launched Ryzen embedded processors for industrial automation, machine vision, robotics and edge server applications.

Guidance (non-GAAP): 1Q sales at \$5.4B +/- \$300M, gross margin of 52%, op ex of \$1.73B, and a 13% tax rate on 1.63B shares. The Data Center is expected to be flat as seasonal server weakness is offset by a strong GPU ramp. All other segments are expected to decline with semi-custom driving down Gaming the most.

For 2024 the company expects revenue growth and margin expansion on the strength of its Instinct GPUs and EPYC and Ryzen CPUs gaining share in Data Center and Client segments, while Embedded is expected to decline and Gaming is expected to decline by a lot: on the order of -30%.

Share Price Rock-and-Roll: AMD is doing very well riding the AI wave in Data Centers and it's easy to be bullish on its prospects. However, much of that enthusiasm is already reflected in the current share price, in my opinion. Early consensus has a wide spread of expectations: 2024 EPS of \$3.67 ranging from \$3-\$5 and sales at \$26B ranging from \$24-30B; and 2025 EPS of \$5.50 ranging from \$3.50-9 with sales of \$32.3B ranging from \$26-43.8B. At the weighted mid-points the shares are already trading at 10.5-times this year's sales and 8.5-times next year's, as well as 46-times this year's earnings and over 30-times next year's. The shares are clearly a growth and momentum opportunity that could likely experience significant volatility over the next several months—and quarters.

LEGEND		
		Grade
+++	exceeded the high-end of the range	A all +++
++	above consensus, within the high-end of the range	B all +
+	slightly above consensus	C all o/+
o	met consensus	D mixed -o/+
-	slightly below consensus	E all o/-
--	missed consensus, within the low-end of the range	F all -
---	missed the low-end of the range	

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