



Advanced Micro Devices (NASDAQ:AMD)

Ciaran Downie-Cheetham | Fasiha Haidry | Nikita Gaiind | Peter Rugosi | Sabeeh Mallick

December 2021

LEXINGWORTH

3-7

Company Overview

8

Industry Overview

9-10

Risks & Catalysts

11-12

Investment Thesis

13-14

Valuation

15

Recommendation

Company Description

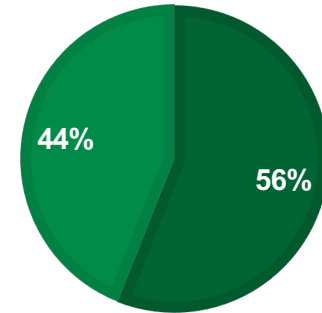
Advanced Micro Devices, Inc. is an American multinational semiconductor company that operates in computer processing and consumer electronics goods by producing processing units, chipsets, flash memories, and graphic processors.

Revenue Segment in Q3 2021

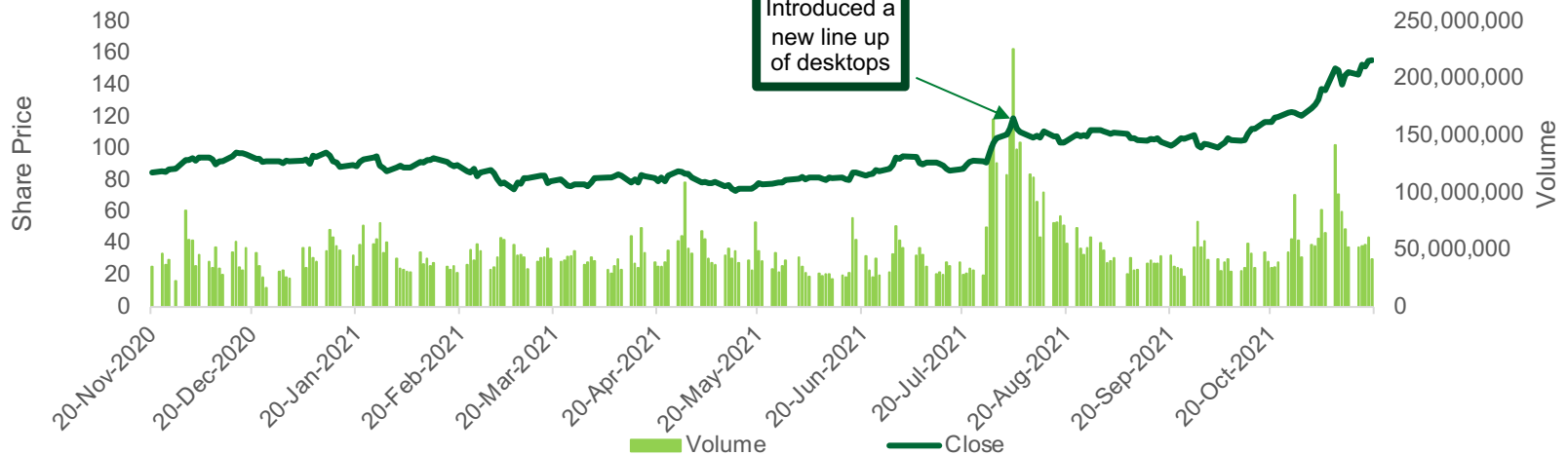
Total Revenue \$4.3B

- Computing & Graphics
- Enterprise, Embedded & Semi-custom

C&G: Computational and visual data processing in computing devices.
EE&SC: Computational and visual data processing in the Server, Embedded computing device, and custom-designed computing device markets.



Historic Stock Price (1-year)



Executive Team



Dr. Lisa Su – President and CEO

Dr. Lisa has been in position as president and CEO since 2014 and serves on the AMD board of directors. She has a bachelor’s, master’s, and doctorate degree in electrical engineering from the Massachusetts Institute of Technology.



Rick Bergman – EVP and Graphics Business Group

Bergman was president and CEO for Synaptics from 2011 to 2019 and has a Bachelor of Science degree in electrical engineering from the University of Michigan and a Master’s degree in business administration.



Darren Grasby – EVP and Chief Sales Officer, President EMEA

Grasby joined AMD back in 2007. His previous experience includes working as a senior vice president of global Computing and Graphics sales.



Devinder Kumar – EVP, CFO and Treasurer

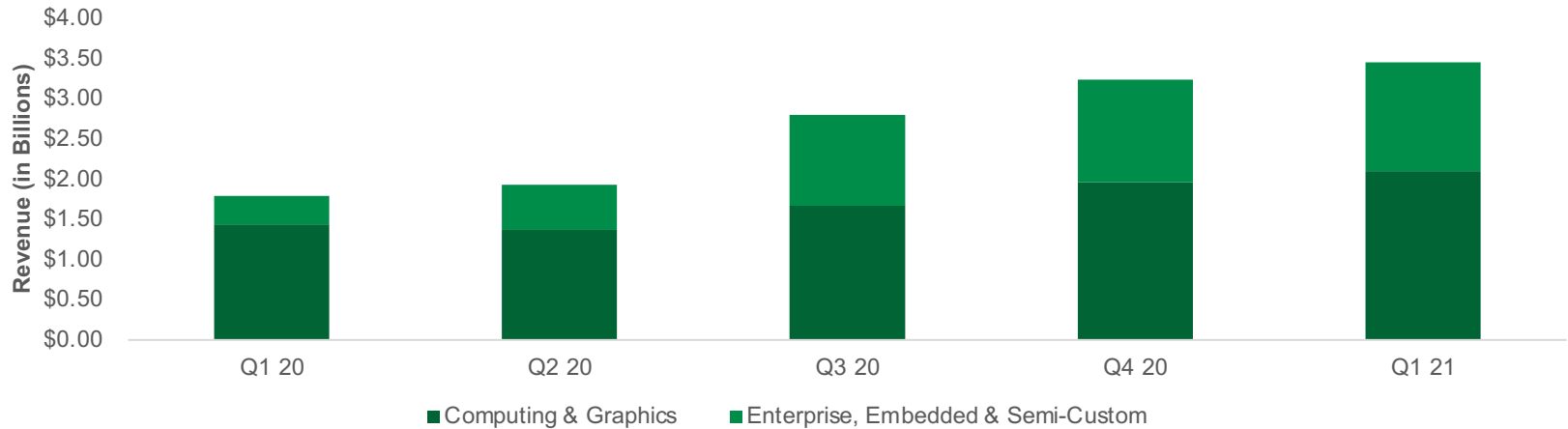


Mark Papermaster – Chief Technology Officer and EVP

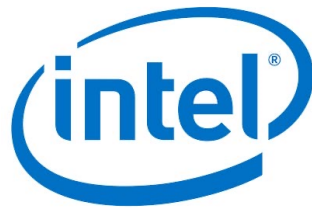


Martin Ashton – SVP, Graphics Architecture and RTG IP Development

Revenue Seasonality



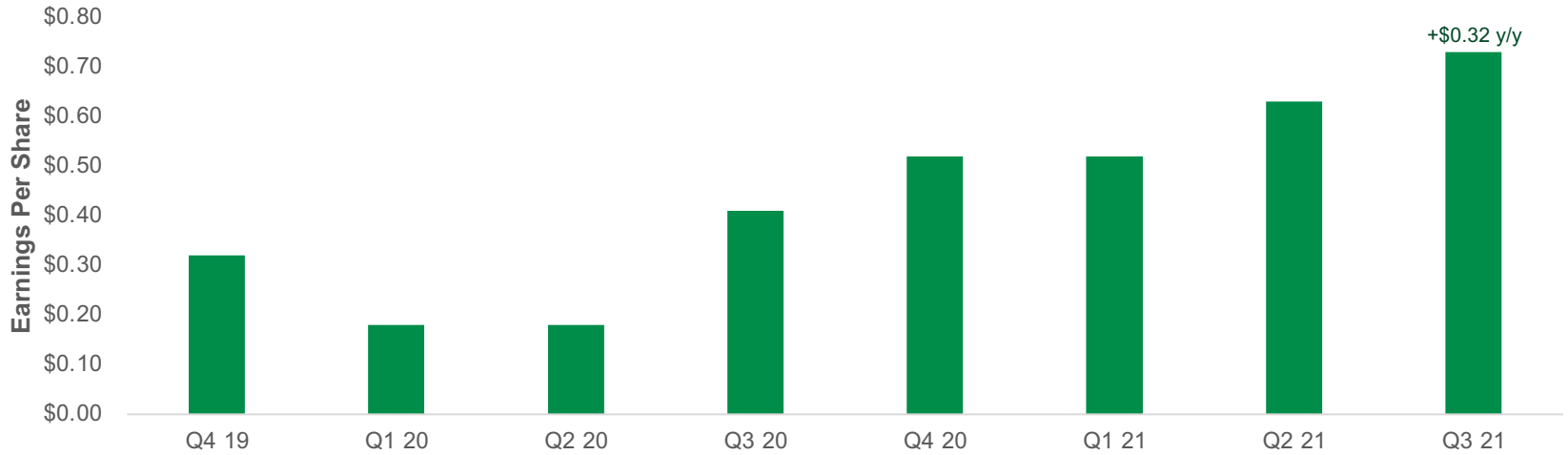
Competitors



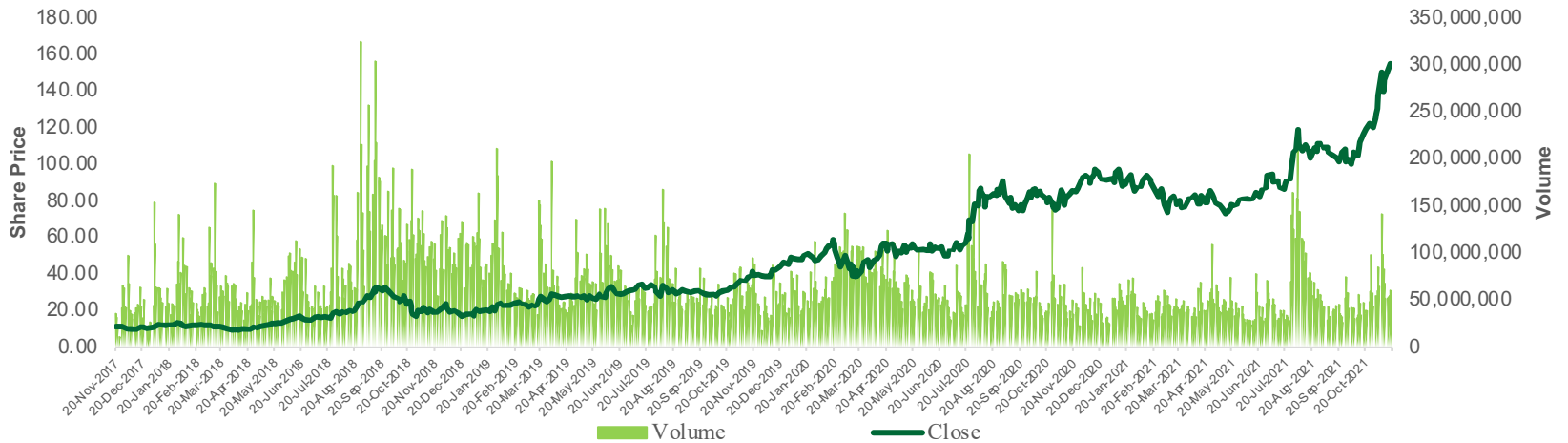
Key Stats – November 15, 2021

Share Price	\$144.48
52-Week Range	\$72.50 - 155.65
Market Cap	\$182.7611B
Total Debt (mm)	\$330
Enterprise Value	\$188.22B
Credit Rating (S&P)	BBB-

Earnings Per Share Trend



Historic Stock Price (5-year)



Top 20 Shareholders

Investor Name	Value (\$, M)	% Outstanding
The Vanguard Group, Inc.	10,076.70	8.11%
BlackRock Institutional Trust Company, N.A.	5,568.20	4.48%
State Street Global Advisors (US)	4,650.44	3.74%
T. Rowe Price Associates, Inc.	4,487.38	3.61%
Capital World Investors	3,691.90	2.97%
Fidelity Management & Research Company LLC	3,359.89	2.70%
JP Morgan Asset Management	2,768.18	2.23%
Wellington Management Company, LLP	2,214.75	1.78%
Geode Capital Management, L.L.C.	1,985.09	1.60%
Fisher Investments	1,623.69	1.31%
Artisan Partners Limited Partnership	1,216.01	0.98%
Capital Research Global Investors	1,171.04	0.94%
Norges Bank Investment Management (NBIM)	991.46	0.90%
Invesco Advisers, Inc.	1,043.64	0.84%
Northern Trust Investments, Inc.	949.29	0.76%
Legal & General Investment Management Ltd.	858.68	0.69%
BlackRock Investment Management (UK) Ltd.	839.18	0.68%
Janus Henderson Investors	787.90	0.63%
Susquehanna International Group, LLP	770.04	0.62%
Renaissance Technologies LLC	705.62	0.57%

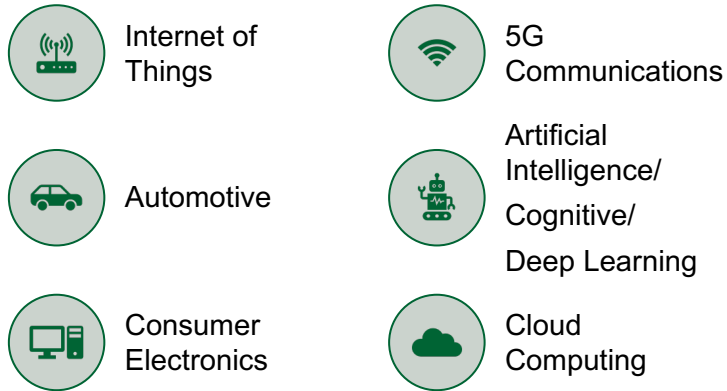
Stock Split History

Record Date	Payment Date`	Split Ratio
09/27/78	10/25/78	3-for-2 Stock Split
09/24/79	10/24/79	3-for-2 Stock Split
09/22/80	10/23/80	2-for-1 Stock Split
09/27/82	10/27/82	3-for-2 Stock Split
07/27/82	08/22/93	2-for-1 Stock Split
08/07/00	08/21/00	2-for-1 Stock Split

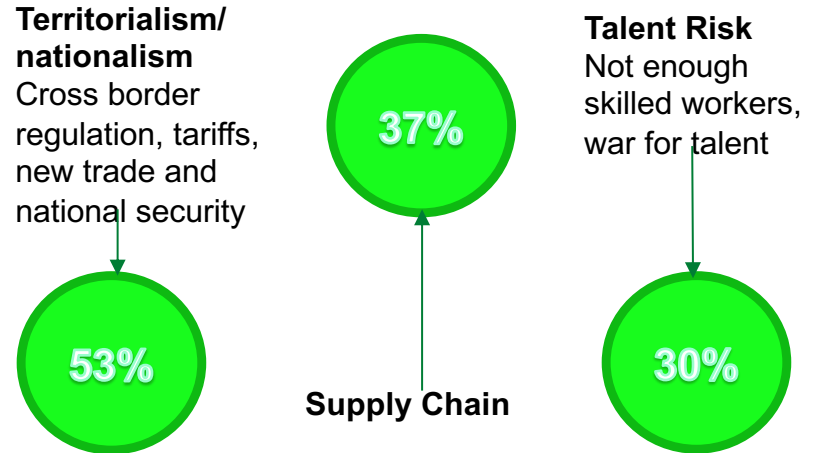
EFTs with the most AMD Shares

Fund Name	Number of Shares
Invesco QQQ Trust	\$15.8m
SPDR S&P 500 ETF Trust	\$12.48m
iShares Core S&P 500 EFT	\$9.61m
Vanguard S&P 500 EFT	\$7.74m
Vanguard Total Stock Market ETF	\$6.86m

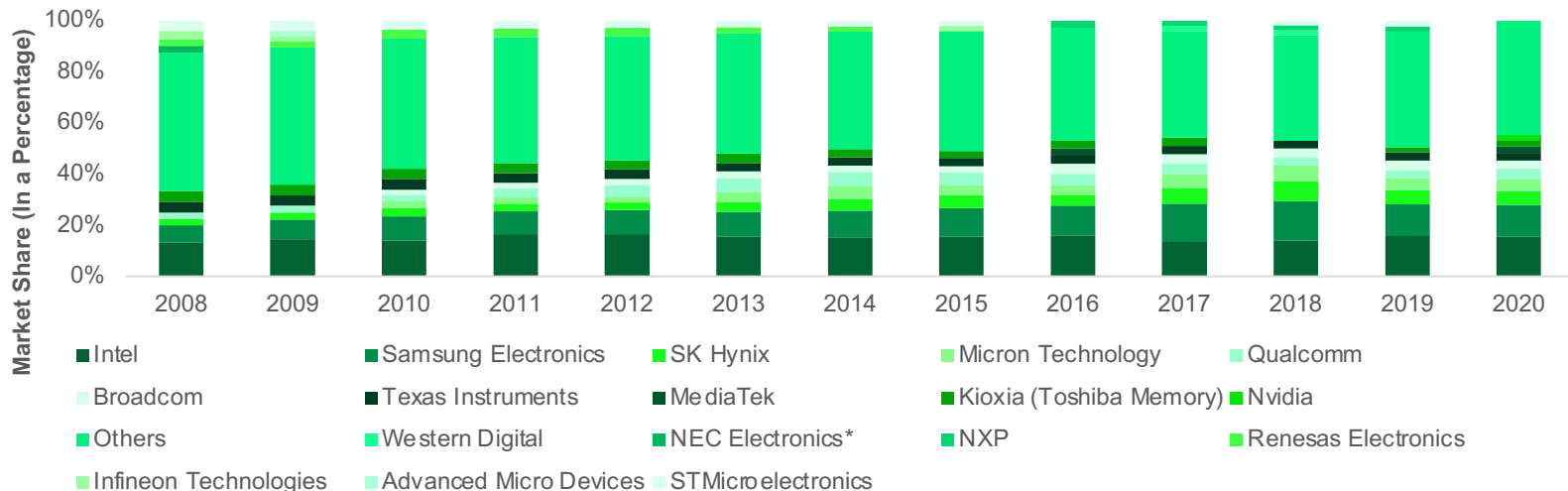
Key Growth Drivers in the Industry



Predicted Top Issues in the Industry

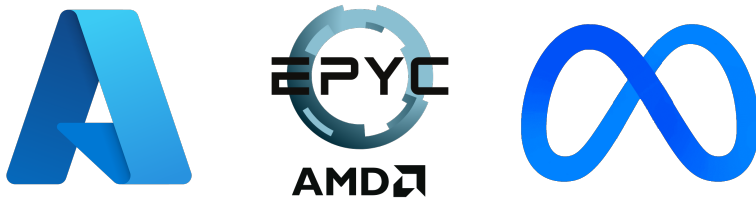


Worldwide Semiconductor Companies Market Share from 2008 to 2020



Growth in Business & Consumer Demand

- While the demand for home computing has boomed, AMD has been stealing market share
- 4.2% of the x86 CPU market was stolen by AMD over the last 12 months
- AMD has been dominant in high end processors



Crypto Currency Mining

- AMD GPUs are very popular for mining
- New currencies allow users to use CPUs for mining
- Could lead to the mining demand currently seen in the GPU market

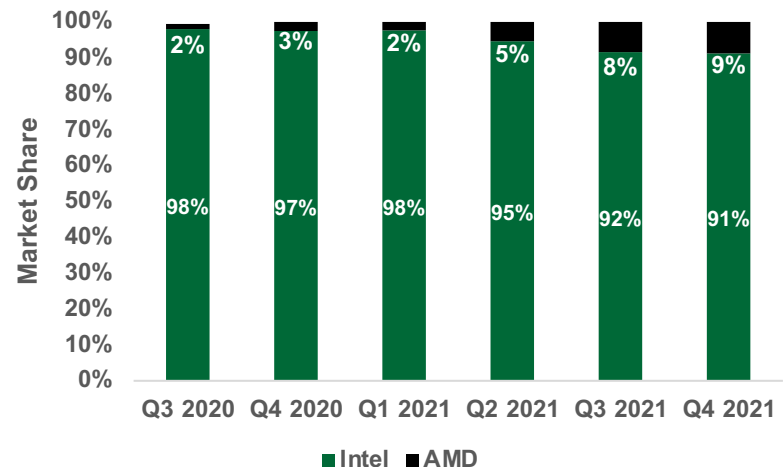


Xilinx Acquisition

- \$35 billion all stock acquisition, announced late 2020
- Expected to be immediately accretive with \$300 million in operating efficiencies in the first 18 months
- Will provide new access to FPGA, telecom, 5G, and server markets

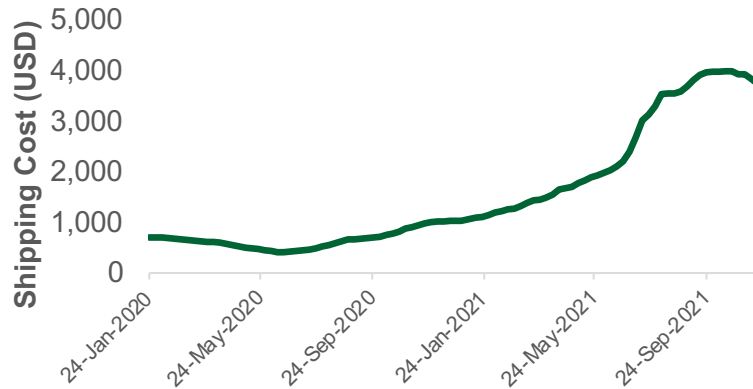


AMD vs Intel Server CPU Market Share



Supply Chain Disruption

HARPEX Charter Rates Index



Overreliance on Suppliers

- The chip shortage has exposed fabless designers over reliance on foundries for supply
- Had to amend deal with Global Foundries for older chips (12nm/14nm)
- GF behind on 7nm and 5nm technology compared to TSMC



Overcapacity

- Lots of capacity currently being added in response to the chip shortage, overcapacity projected for 2023
- Intel spending \$20 billion on two new foundries
- Samsung spending \$17 billion to add capacity
- TSMC and SUMCO spending \$2.89 & \$2.1 billion respectively

New Entrants

- Apple is now producing proprietary M1 chips to replace legacy Intel CPUs
- ARM chips becoming much more popular
- Nvidia’s potential acquisition of ARM could mean more competition in the CPU market
- Alibaba, Microsoft, Google and Amazon are all designing their own server chips



Demand Growth in Semiconductor Companies

- Multiple near-term and longer-term trends will benefit semi-conductor industries.
- The shortage caused companies to increase investment in production capacity.
- Semiconductor demand will trend higher in the long run. Higher digitization following Covid-19, the 5G upgrade cycle in the wireless market, and the need for more advanced chips for applications.
- Sales increased 6.5% in 2020.

Price Hikes



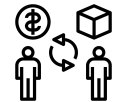
RX 6000 Series MSRP being raised 10%



Resale prices are 50% to 120% higher than MSRP

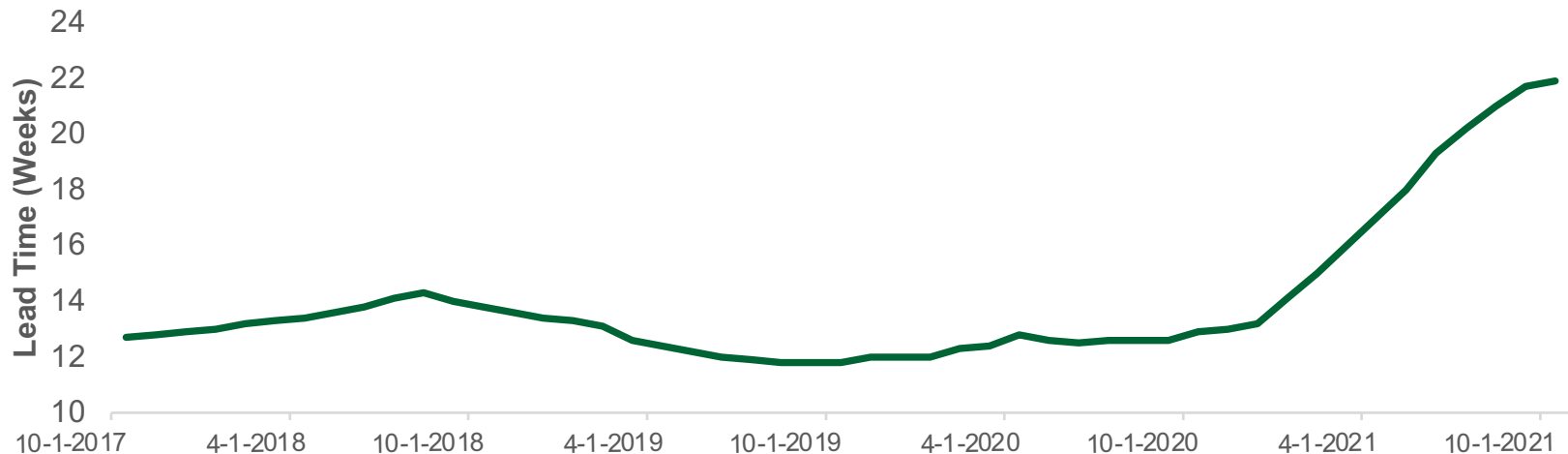


Resale prices are beginning to approach their previous peak reached in May 2021



Suggest customers are willing to pay far higher than MSRP

Semiconductor Lead Time



Server Growth



Epyc server chips are accelerating towards deployment at Cloudflare, Vimeo, and Netflix.

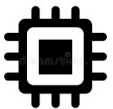


The enterprise server pipeline also shows signs of growth opportunity through financial, automotive, and aerospace industries.



Servers are expected to optimize towards newly developed computer and data intensive workloads, as global usage and dependence of AI and analytics in industries continues to grow.

Global Partnerships



Partnered with Meta (Facebook) recently to become Metas Chip Customer.

The plan is for Meta to start manufacturing metaverse hardware devices using AMD's chips.



TESLA

Tesla is reported to have been switching its Model Y cars from an Intel-branded chip to an AMD Ryzen.

Competitive Advantage



Focus on middle range, lower cost/budget friendly chipsets.



Faster performance of chips, AMD make them more accessible.



AMD's EPYC chips offer more data processing strength than Intel, and encrypted memory.

DCF Base Case Output

Gordon Growth Method		Terminal Multiple Method	
PV of Forcast Period	22,329	Cumulative PV of Free Cash Flow	22,329
<i>% of Enterprise Value</i>	<i>17.8%</i>	<i>% of Enterprise Value</i>	<i>17.1%</i>
<u>Terminal Value</u>		<u>Terminal Value</u>	
Terminal Year UFCF	6,602	Terminal Year EBITDA	8,654
Perpetuity Growth Rate	4.0%	EBITDA Multiple	20.0x
Terminal Value	165,104	Terminal Value	173,071
PV of Terminal Value	103,131	PV of Terminal Value	108,108
<i>% of Enterprise Value</i>	<i>82.2%</i>	<i>% of Enterprise Value</i>	<i>82.9%</i>
Enterprise Value	125,460	Enterprise Value	130,437
Less: Net Debt	1,267	Less: Net Debt	1,267
Equity Value	126,727	Equity Value	131,704
Fully Diluted Shares Outstanding	1,208	Fully Diluted Shares Outstanding	1,208
Implied Share Price	\$104.94	Implied Share Price	\$109.06
Current Share Price	\$144.48	Current Share Price	\$144.48
Implied Margin of Safety	(27.4%)	Implied Margin of Safety	(24.5%)

DCF Base Case Sensitivity

Terminal Growth Share Price Sensitivity (\$)

Terminal Growth	WACC				
	7.2%	7.7%	8.2%	8.7%	9.2%
3.0%	109.59	97.48	87.72	79.70	72.99
3.5%	122.31	107.23	95.41	85.88	78.05
4.0%	139.05	119.66	104.94	93.39	84.09
4.5%	162.08	136.01	117.08	102.71	91.43
5.0%	195.79	158.52	133.06	114.57	100.53

Exit Multiple Share Price Sensitivity (\$)

Exit Multiple	WACC				
	7.2%	7.7%	8.2%	8.7%	9.2%
19.0x	110.08	107.29	104.59	101.96	99.42
19.5x	112.45	109.59	106.82	104.14	101.54
20.0x	114.82	111.89	109.06	106.32	103.66
20.5x	117.18	114.19	111.30	108.49	105.78
21.0x	119.55	116.50	113.54	110.67	107.89

Comparable Companies Universe

Company	Equity Value	TEV	LTM EV/Revenue	NTM EV/Revenue	LTM EV/EBITDA	NTM EV/EBITDA
NVIDIA Corp.	\$619,877	\$630,821	26.0x	24.7x	65.2x	47.5x
Intel	\$185,336	\$225,640	2.9x	2.8x	6.4x	6.9x
Qualcomm	\$138,603	\$154,348	4.6x	4.9x	13.6x	12.5x
Synopsys	\$42,414	\$42,521	10.4x	10.1x	45.6x	29.1x
Marvell Technology	\$34,008	\$35,201	11.9x	12.1x	58.0x	31.2x

Advanced Micro Devices Inc.	\$126,727	\$127,994	13.1x	9.15	75.5x	35.26
------------------------------------	------------------	------------------	--------------	-------------	--------------	--------------

Median			10.4x	10.1	45.6x	29.1
Average			11.1x	10.9	37.8x	25.5

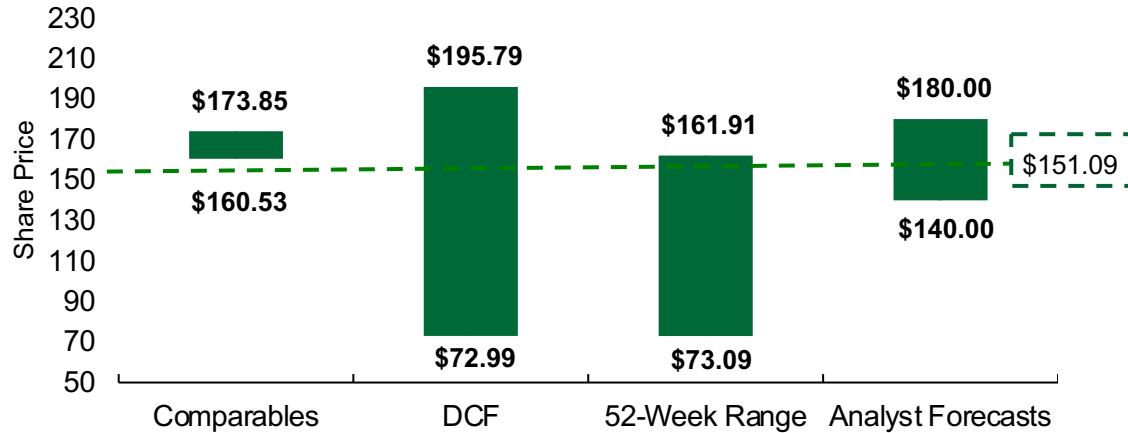
Analysis

- Our Competitors that were chosen are in line with AMD's management team, value and industry
- When valuing AMD, we used the FW EV/Revenue Multiple
- Our implied share price is at \$167.19

Valuation Summary

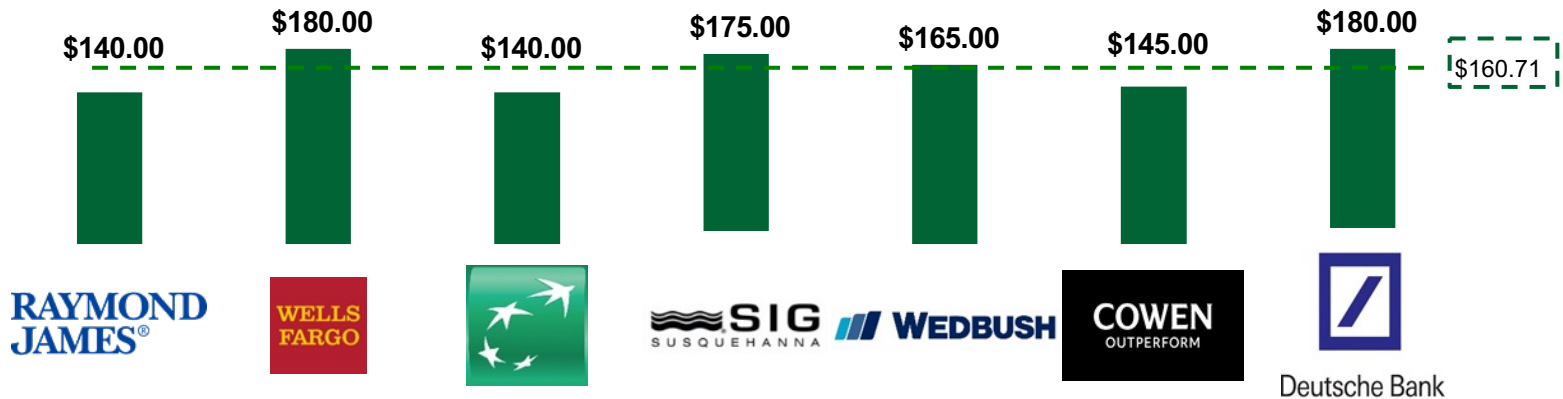
FW EV/Revenue	10.5x
AMD FWD Revenue	\$19,160
Total Enterprise Value	\$201,199.2
- Net Debt	(\$1,267)
- Preferred Stock	\$0
- NCI	\$0
Equity Value	\$202,466.2
Shares Outstanding (mm)	1,211
Implied Share Price	\$167.19

Football Field



Analysis	Average	Weight
Comparables	\$167.19	40%
DCF	\$134.39	30%
52-Week Range	\$117.50	10%
Analyst Forecast	\$160.71	20%
Weighted Avg	\$151.09	

Broker Price Targets



AMDO

Appendices



Nikita Gaind

Position: Portfolio Manager

Program: Honours
Commerce

Year: 4th

Experience: LBC Capital,
Analyst



**Ciaran Downie-
Cheetham**

Position: Portfolio Manager

Program: Honours Commerce

Year: 4th

Experience: State Street,
Pricing Analyst



Sabeeh Mallick

Position: Associate

Program: Honours
Commerce

Year: 3rd



Peter Rugosi

Position: Associate

Program: Honours
Commerce

Year: 3rd



Fasiha Haidry

Position: Associate

Program: Honours
Commerce

Year: 3rd

Debt Tranche Analysis Summary

	Market Value	Yield to Maturity
Aug 15, 2022 7.5%	325,732,456	1.6%
Sep 01, 2026, 2.125	2,755,377	(12.0%)
0	-	-
Cost of Debt		1.5%
Total Weight		\$328,487,833.2

Capital Structure	Total Value	Weight
Equity	\$174,475,558,538.4	99.81%
Debt	\$328,487,833.2	0.19%
Preferred Equity	-	0.00%
Total	\$174,804,046,371.6	100.00%

WACC Analysis

10-Year U.S. Treasury	1.7%
Market Risk Premium	4.7%
Beta	1.380
Cost of Equity	8.2%
Weighted Average Price	-
Weighted Average Div./Share	-
Total Shares Outstanding	-
Cost of Preferred Equity	-
Cost of Debt	1.5%
Tax Rate	15.0%
After-Tax Cost of Debt	1.3%
WACC	8.2%

Appendix – DCF Assumptions



Assumptions	2021E	2022E	2023E	2024E	2025E	2026E
Revenue Growth	65.0%	18.5%	12.3%	10.4%	10.4%	10.4%
EBITDA Margin	26.3%	26.5%	26.0%	28.5%	29.5%	30.0%
Tax Rate	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
AR, % of Revenue	24.0%	24.0%	24.0%	24.0%	24.0%	24.0%
Inventories, % of Revenue	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%
AP, % of Revenue	19.0%	19.0%	19.0%	19.0%	19.0%	19.0%
Additions to PP&E, % of sales	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
PP&E Depreciation, % of gross	11.4%	11.4%	11.4%	11.4%	11.4%	11.4%
Other D&A, % of Gross	13.2%	13.2%	13.2%	13.2%	13.2%	13.2%

Revenue Growth	2021E	2022E	2023E	2024E	2025E	2026E
Upside	75.0%	28.5%	22.3%	20.4%	20.4%	20.4%
Base	65.0%	18.5%	12.3%	10.4%	10.4%	10.4%
Downside	55.0%	8.5%	2.3%	0.4%	0.4%	0.4%

EBITDA Margin	2021E	2022E	2023E	2024E	2025E	2026E
Upside	31.3%	31.5%	31.0%	33.5%	34.5%	35.0%
Base	26.3%	26.5%	26.0%	28.5%	29.5%	30.0%
Downside	21.3%	21.5%	21.0%	23.5%	24.5%	25.0%

Tax Rate	2021E	2022E	2023E	2024E	2025E	2026E
Upside	16.0%	16.0%	16.0%	16.0%	16.0%	16.0%
Base	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
Downside	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%

AR, % of Revenue	2021E	2022E	2023E	2024E	2025E	2026E
Upside	26.0%	26.0%	26.0%	26.0%	26.0%	26.0%
Base	24.0%	24.0%	24.0%	24.0%	24.0%	24.0%
Downside	22.0%	22.0%	22.0%	22.0%	22.0%	22.0%

Inventories, % of Revenue	2021E	2022E	2023E	2024E	2025E	2026E
Upside	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%
Base	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%
Downside	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%

AP, % of Revenue	2021E	2022E	2023E	2024E	2025E	2026E
Upside	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%
Base	19.0%	19.0%	19.0%	19.0%	19.0%	19.0%
Downside	18.0%	18.0%	18.0%	18.0%	18.0%	18.0%

Additions to PP&E, % of sales	2021E	2022E	2023E	2024E	2025E	2026E
Upside	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%
Base	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Downside	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%

PP&E Depreciation, % of gross	2021E	2022E	2023E	2024E	2025E	2026E
Upside	11.9%	11.9%	11.9%	11.9%	11.9%	11.9%
Base	11.4%	11.4%	11.4%	11.4%	11.4%	11.4%
Downside	10.9%	10.9%	10.9%	10.9%	10.9%	10.9%

Other D&A, % of Gross	2021E	2022E	2023E	2024E	2025E	2026E
Upside	23.2%	23.2%	23.2%	23.2%	23.2%	23.2%
Base	13.2%	13.2%	13.2%	13.2%	13.2%	13.2%
Downside	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%

DCF Bear Case Output

Gordon Growth Method	
PV of Forecast Period	15,737
<i>% of Enterprise Value</i>	21.9%
Terminal Value	
Terminal Year UFCF	3,602
Perpetuity Growth Rate	4.0%
Terminal Value	90,074
PV of Terminal Value	56,264
<i>% of Enterprise Value</i>	78.1%
Enterprise Value	72,001
Less: Net Debt	1,267
Equity Value	73,267
Fully Diluted Shares Outstanding	1,208
Implied Share Price	\$60.67
Current Share Price	\$144.48
Implied Margin of Safety	(58.0%)

Terminal Multiple Method	
Cumulative PV of Free Cash Flow	15,737
<i>% of Enterprise Value</i>	22.9%
Terminal Value	
Terminal Year EBITDA	4,250
EBITDA Multiple	20.0x
Terminal Value	84,995
PV of Terminal Value	53,091
<i>% of Enterprise Value</i>	77.1%
Enterprise Value	68,828
Less: Net Debt	1,267
Equity Value	70,095
Fully Diluted Shares Outstanding	1,208
Implied Share Price	\$58.04
Current Share Price	\$144.48
Implied Margin of Safety	(59.8%)

DCF Bear Case Sensitivity

Terminal Growth Share Price Sensitivity (\$)					
Terminal Growth	WACC				
	7.2%	7.7%	8.2%	8.7%	9.2%
3.0%	63.27	56.63	51.28	46.87	43.18
3.5%	70.20	61.95	55.47	50.25	45.94
4.0%	79.34	68.73	60.67	54.34	49.24
4.5%	91.90	77.65	67.29	59.42	53.24
5.0%	110.30	89.93	76.01	65.90	58.21

Exit Multiple Share Price Sensitivity (\$)					
Exit Multiple	WACC				
	7.2%	7.7%	8.2%	8.7%	9.2%
19.0x	58.64	57.22	55.85	54.51	53.22
19.5x	59.80	58.35	56.94	55.58	54.26
20.0x	60.96	59.48	58.04	56.65	55.30
20.5x	62.13	60.61	59.14	57.72	56.34
21.0x	63.29	61.74	60.24	58.79	57.38

DCF Bull Case Output

Gordon Growth Method	
PV of Forecast Period	31,608
<i>% of Enterprise Value</i>	15.0%
Terminal Value	
Terminal Year UFCF	11,462
Perpetuity Growth Rate	4.0%
Terminal Value	286,646
PV of Terminal Value	179,052
<i>% of Enterprise Value</i>	85.0%
Enterprise Value	210,660
Less: Net Debt	1,267
Equity Value	211,927
Fully Diluted Shares Outstanding	1,208
Implied Share Price	\$175.49
Current Share Price	\$144.48
Implied Margin of Safety	21.5%

Terminal Multiple Method	
Cumulative PV of Free Cash Flow	31,608
<i>% of Enterprise Value</i>	13.4%
Terminal Value	
Terminal Year EBITDA	16,402
EBITDA Multiple	20.0x
Terminal Value	328,041
PV of Terminal Value	204,909
<i>% of Enterprise Value</i>	86.6%
Enterprise Value	236,517
Less: Net Debt	1,267
Equity Value	237,784
Fully Diluted Shares Outstanding	1,208
Implied Share Price	\$196.90
Current Share Price	\$144.48
Implied Margin of Safety	36.3%

DCF Bull Case Sensitivity

Terminal Growth Share Price Sensitivity (\$)

Terminal Growth	WACC				
	7.2%	7.7%	8.2%	8.7%	9.2%
3.0%	183.44	162.47	145.60	131.74	120.14
3.5%	205.51	179.41	158.94	142.47	128.93
4.0%	234.58	200.98	175.49	155.51	139.42
4.5%	274.57	229.37	196.57	171.68	152.16
5.0%	333.10	268.45	224.31	192.27	167.97

Exit Multiple Share Price Sensitivity (\$)

Exit Multiple	WACC				
	7.2%	7.7%	8.2%	8.7%	9.2%
19.0x	198.62	193.44	188.42	183.56	178.85
19.5x	203.10	197.80	192.66	187.69	182.87
20.0x	207.59	202.16	196.90	191.81	186.88
20.5x	212.07	206.52	201.15	195.94	190.89
21.0x	216.56	210.88	205.39	200.07	194.91

Income Statement	FY2016	FY2017	FY2018	FY2019	FY2020	2021E	2022E	2023E	2024E	2025E	2026E
Revenue	4,272	5,253	6,475	6,731	9,763	16,109	19,089	21,437	23,667	26,128	28,845
Operating expenses, excld. D&A	(4,609)	(5,034)	(5,854)	(5,937)	(8,068)	(11,872)	(14,030)	(15,863)	(16,922)	(18,420)	(20,192)
EBITDA	(337)	219	621	794	1,695	4,237	5,059	5,574	6,745	7,708	8,654
D&A	(35)	(92)	(170)	(163)	(326)	(382)	(461)	(555)	(661)	(777)	(906)
EBIT	(372)	127	451	631	1,369	3,855	4,597	5,018	6,084	6,931	7,748
Income tax expense	(39)	(18)	9	(31)	1,210	(578)	(690)	(753)	(913)	(1,040)	(1,162)
EBIAT	(411)	109	460	600	2,579	3,276	3,908	4,266	5,172	5,891	6,586
Revenue Growth	-	23.0%	23.3%	4.0%	45.0%	65.0%	18.5%	12.3%	10.4%	10.4%	10.4%
EBITDA Margin	(7.9%)	4.2%	9.6%	11.8%	17.4%	26.3%	26.5%	26.0%	28.5%	29.5%	30.0%
% Tax Rate	nmf	14.2%	nmf	4.9%	nmf	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%