

Advanced Micro Devices (AMD)

\$58.90 (As of 02/19/20)

Price Target (6-12 Months): **\$64.00**

Long Term: 6-12 Months

Zacks Recommendation:

Neutral

(Since: 05/07/19)

Prior Recommendation: Underperform

Short Term: 1-3 Months

Zacks Rank: (1-5)

3-Hold

Zacks Style Scores:

VGM:B

Value: F

Growth: A

Momentum: B

Summary

AMD is benefiting from robust adoption of Ryzen, Radeon and latest second-gen EPYC processors. Further, accelerated adoption of AMD's products in the PC, gaming and data center industries remains a key catalyst. Strength in GPU ASPs primarily driven by higher datacenter GPU sales bodes well. Moreover, the growing clout of GPUs driven by increasing adoption of AI techniques and ML tools in industries like gaming, automotive and blockchain holds promise. Notably, shares of the company have outperformed the industry in the past year. However, the company provided cautious revenue guidance for the first quarter, which is a concern. Further, increasing expenses on product development amid stiff competition from NVIDIA and Intel are likely to weigh on profitability.

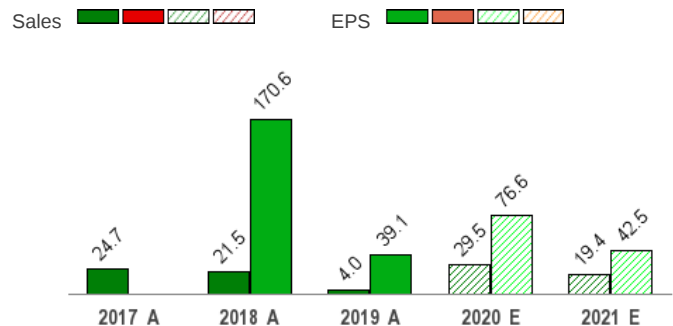
Price, Consensus & Surprise



Data Overview

52 Week High-Low	\$59.27 - \$21.04
20 Day Average Volume (sh)	56,341,844
Market Cap	\$68.9 B
YTD Price Change	28.4%
Beta	3.12
Dividend / Div Yld	\$0.00 / 0.0%
Industry	Electronics - Semiconductors
Zacks Industry Rank	Top 9% (23 out of 255)

Sales and EPS Growth Rates (Y/Y %)



Last EPS Surprise	6.7%
Last Sales Surprise	1.2%
EPS F1 Est- 4 week change	1.3%
Expected Report Date	05/05/2020
Earnings ESP	-0.4%
P/E TTM	92.0
P/E F1	52.1
PEG F1	1.7
P/S TTM	10.2

Sales Estimates (millions of \$)

	Q1	Q2	Q3	Q4	Annual*
2021	2,282 E	2,378 E	2,724 E	2,815 E	10,413 E
2020	1,804 E	1,926 E	2,415 E	2,569 E	8,720 E
2019	1,272 A	1,531 A	1,801 A	2,127 A	6,731 A

EPS Estimates

	Q1	Q2	Q3	Q4	Annual*
2021	\$0.32 E	\$0.35 E	\$0.45 E	\$0.48 E	\$1.61 E
2020	\$0.19 E	\$0.21 E	\$0.34 E	\$0.39 E	\$1.13 E
2019	\$0.06 A	\$0.08 A	\$0.18 A	\$0.32 A	\$0.64 A

*Quarterly figures may not add up to annual.

The data in the charts and tables, including the Zacks Consensus EPS and Sales estimates, is as of 02/19/2020. The reports text is as of 02/20/2020.

Overview

Santa Clara, CA-based Advanced Micro Devices Inc. provides microprocessors (x86-based), chipsets, discrete graphics processing units (GPUs) and professional graphics. The company also offers server and embedded processors and semi-custom System-on-Chip (SoC) products and technology for game consoles.

The company's desktop-based processor offerings include third and second generation AMD Ryzen and high-end AMD Ryzen Threadripper WX processors, among others, which find application among gamers and hardware enthusiasts.

AMD Athlon and AMD PRO processors cater to commercial and consumer desktop PC market. Mobile AMD Ryzen APUs comprising AMD Ryzen PRO APUs is enabling customers to introduce high-end commercial and consumer PCs and Notebooks.

AMD EPYC Embedded 3000 and AMD Ryzen Embedded V1000 families of processors pertaining to the high-performance embedded markets, offer high graphics and computing performance.

AMD's processors are primarily powered by the company's proprietary "Zen" CPU and "Vega" GPU architectures.

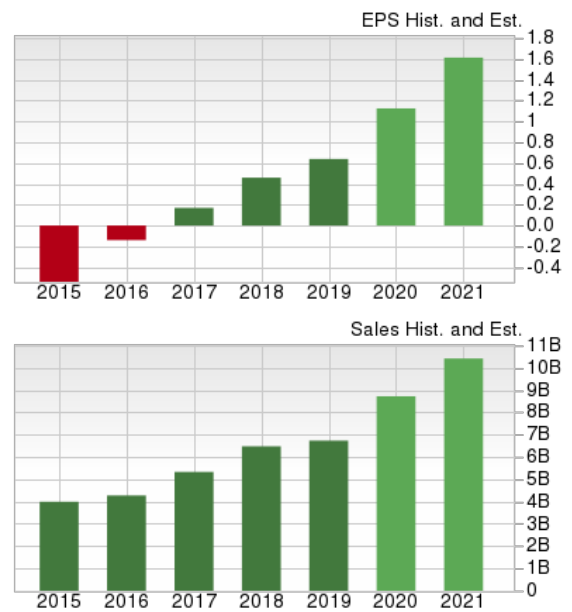
AMD reported revenues of \$6.731 billion in 2019, up 4% over 2018 tally. The company reports operations under two segments - Computing & Graphics and Enterprise, Embedded & Semi-Custom.

Computing and Graphics segment includes desktop and notebook processors and chipsets, discrete GPUs and professional graphics. This segment generated revenues of \$4.709 billion in 2019, an improvement of 14.2% year over year driven by robust adoption of 7 nm based EPYC and Ryzen processors developed on Zen 2 architecture.

Enterprise, Embedded and Semi-Custom segment includes server and embedded processors, dense servers, semi-custom SoC products, engineering services and royalties. This segment generated \$2.02 billion in 2019, down 14% year over year.

The company derived 26% of revenues from the United States in 2019. Meanwhile, international sales came in at 74% in 2019, driven by higher Computing and Graphics segment sales from China.

Intel Corporation is the company's most significant competitor in the microprocessor market. Intel, along with NVIDIA Corporation provides most of the competition in the graphics market.



Reasons To Buy:

- ▲ In order to diversify its business beyond the slowing, transitioning PC market, AMD started its semi-custom chip business in 2012 and has been performing very well till date. The semi-custom chip business combines both intellectual property (IP) from AMD's engineers as well as IP from customers to help design the chips for their own needs. Both Microsoft and Sony's game consoles use an accelerated processing unit (APU) chip that combines AMD's microprocessor and graphics technologies on the same piece of silicon. AMD plans to expand its semi-custom business into other high-growth markets such as the semi-custom ultra-low power client, embedded, dense server and professional graphics markets, where it can offer differentiated products that use its APU and graphics IP. The company's release of Vega-based GPUs and increasing demand for its Polaris products in both gaming and blockchain industries are key catalysts. AMD recently introduced promising features for gamers in computing, PC gaming and visualization technologies based on its new Radeon RX 5700 graphics card and third generation AMD Ryzen desktop processor. In CES 2020, AMD launched the much-awaited, next-generation, 7-nanometer (nm) Radeon Vega GPU, AMD Radeon VII. The card has been designed to deliver more than 29% of computing performance, offering extreme gaming details with 2X superior brightness and color volume. The number of Ryzen notebook models set to be launched in 2020 is 50% higher than the ones launched in 2019. These systems are mostly from the likes of Acer, Asus, Dell, HP, Lenovo and other OEMs and are expected to be launched in 2020. AMD also expanded Ryzen embedded family of processors by launching the new AMD Ryzen Embedded R1000 SoC.
- ▲ Despite its late entry, AMD has attained the position of a major player in the microprocessor and graphics processing markets. The company started small, targeting the low-end segment and gradually built a position for itself. AMD has had a very rough time because of the strength and market position of its two primary competitors Intel and NVIDIA. While Intel remains supreme in the microprocessor segment and has also notably strengthened its graphics capabilities, NVIDIA remains very strong in the graphics market. AMD combined its own engineering talent with that of ATI to develop capabilities in both these areas. Considering the might of its competitors, AMD has done well to hold its own in the face of significant changes in the markets it serves. Moreover, increasing demand for cryptocurrency mining has been a key catalyst for AMD's GPU sales in recent times.
- ▲ Given the persistent weakness in the core PC business, AMD like Intel, has started investing in its embedded business. Strength in this segment should continue in the future too as the company scores more wins. Given continued product enhancements and design wins at strategic players in key verticals such as digital signage and medical equipment, we expect the momentum to continue through 2020. The company is currently targeting the communications, industrial, and gaming segments of the market and there appear to be suitable design wins to generate substantial revenue growth over the next few years. These new SoCs are expected to deliver a noteworthy performance per watt improvement compared with its previous generation and offer industry-leading graphics capabilities for embedded designs. AMD expects the total addressable market for its high-performance embedded SOC and processors to be \$9 billion and therefore the company is trying to increase its share in this market by delivering competitive products.
- ▲ AMD entered into a definitive agreement to form a joint venture with Tianjin Haiguang Advanced Technology Investment Co., Ltd. (THATIC) in Apr 2016. This agreement is part of the company's efforts to gain share in China, which is the fastest growing regional data center server market. AMD licensed certain of its intellectual property (IP) to the THATIC JV for a total of approximately \$293 million in license fees payable over several years contingent upon achievement of certain milestones. The company also expects to receive a royalty based on the sales of the THATIC JV's products to be developed on the basis of its IPs. In 2016, AMD recognized \$88 million licensing gain associated with the THATIC JV. Recent trade deal with China is expected to benefit AMD in this regard.
- ▲ Per Gartner's preliminary data, PC shipments in fourth-quarter 2019, increased 2.3% year over year to 70.6 million units. Going by the IDC report, shipment rose 4.8% on a year-over-year basis and totaled 71.8 million in the period under review. An improving trend in PC shipments favors business prospects of AMD.

AMD is well-poised to benefit from strong demand for its x86-based microprocessors, semi-custom chips, and embedded processors, and GPUs driven by increasing adoption of AI and ML techniques.

Reasons To Sell:

- ▼ In the traditional computing market, which still generates a chunk of its revenues, AMD is up against Intel's strong market position. With Intel systems so well entrenched, there is an obvious preference for system integrators to choose Intel processors over AMD. So far, Intel processors have also afforded superior functionality, enabling it to exercise pricing power. In the past, AMD was forced to resort to penetration pricing, which severely impacted its profitability. Now that it is getting into the higher-range segment, it is facing very stiff competition from Intel. Moreover, AMD faces significant competition from NVIDIA in GPU market.
- ▼ AMD has had relatively greater success in the mobile segment and its current product lineup indicates that this focus will continue. However, competition in the mobile segment is likely to accelerate, with more ARM-based devices coming on the market. Moreover, Microsoft's surface devices and Google chromebooks tend to cannibalize on notebooks, which primarily run on Intel chips. This adds to the pressure on AMD. While Intel has been relatively less successful in the mobile segment, the company's initiative to build new products, enter into strategic alliances and offer subsidies could in combination drive notable share gains.
- ▼ AMD faces significant customer concentration from Sony and Microsoft. Consequently, loss of any one of these customers is anticipated to massively hurt the top line. Notably, Sony accounted for more than 10% of the company's total revenues in 2019.
- ▼ The balance sheet remains highly leveraged, despite several deleveraging efforts. Some of these efforts include the extension of maturities, which came at the cost of higher interest rates. Given the fact that cash burn continues and initiatives will take some time to yield results, we think this makes the shares risky. Total debt (including current portion) at the end of the fourth-quarter amounted to \$486 million.
- ▼ Moreover, the company is trading at premium in terms of Price/Book (P/B). AMD currently has a trailing 12-month P/B ratio of 23.2. This level compares unfavorably with what the industry witnessed in the last year. Additionally, the ratio is higher than the average level of 18.26 and is near the high end of the valuation range in this period. Consequently, the valuation looks slightly stretched from P/B perspective.

Intensifying competition in the traditional PC market and GPU segment, customer concentration and leveraged balance sheet remain headwinds.

Last Earnings Report

AMD Q4 Earnings & Revenues Top Estimates

Advanced Micro Devices reported fourth-quarter 2019 non-GAAP earnings of 32 cents per share, which beat the Zacks Consensus Estimate by 6.7%. Notably, the figure soared 300% year over year and improved 77.8% sequentially.

Revenues of \$2.127 billion surpassed the Zacks Consensus Estimate of \$2.101 billion. Moreover, the top line improved 50% year over year and 18% sequentially.

Seasonal uptick on holiday season, and strength in both Computing and Graphics, and Enterprise, Embedded and Semi-Custom segments drove the year-over-year improvement.

Segmental Details

Computing and Graphics segment (78.1% of total revenues) revenues grew 69% year over year and came in at \$1.662 billion.

In desktop vertical, seasonal uptick in demand for second and third generation Ryzen processors on account of holiday season drove segment results.

During the reported quarter, AMD introduced Ryzen 3950X mainstream desktop processor and latest Ryzen Threadripper processors aimed at high-end desktop market.

Client processor average selling price (ASP) improved year over year and sequentially, on higher Ryzen processor sales.

Revenues from Mobile processors grew double-digit on a year-over-year basis, primarily on account of higher unit shipments during the reported quarter.

Moreover, the company is banking on utilization of new Radeon Pro 5300M and 5500M mobile GPUs in Apple's latest MacBook Pro. The processors are based on 7 nanometer (nm) RDNA architecture to enable advanced graphics performance.

Management also remains optimistic regarding growing cloud of Ryzen 4000 mobile processors families across leading OEMs.

In graphics domain, higher sales of Radeon 5000 series GPUs based on RDNA architecture drove year-over-year unit shipments by double-digit percentage growth. GPU ASP increased year over year and sequentially, primarily driven by higher channel GPU sales.

Additionally, AMD rolled out Radeon RX 5500 XT and 5600XT graphics card, powered by the AMD RDNA gaming architecture.

Management noted that Data Center GPU sales improved sequentially. The company inked new deal wins in cloud, game streaming and VDI verticals in the reported quarter.

Notably, the company is investing in software enhancements to aid developers leverage Radeon Instinct accelerators for complex AI and HPC applications.

Enterprise, Embedded and Semi-Custom segment (21.9% of total revenues) revenues of \$465 million were up 7% year over year.

The year-over-year improvement can primarily be attributed to higher EPYC server processor sales, partially mitigated by lower semi-custom product revenues.

In server domain, management noted that improving ASPs and higher unit shipments of latest second-gen EPYC processors drove double-digit growth in revenues.

Strength in AMD's latest EPYC processors are enabling the company garner new deal wins from major enterprise, cloud, and HPC companies.

For instance, Google is leveraging EPYC processors to enhance data center environment and strengthen Google Cloud Platform. Moreover, Amazon, Microsoft, Oracle, Tencent, among others, are utilizing EPYC processors to enhance their respective data center architecture.

Particularly, AMD is optimistic about extended utilization of its 2nd Gen EPYC processors by Amazon Web Services, in Amazon EC2 (or Elastic Compute Cloud) compute-optimized instances, namely C5a and C5ad.

Further, Microsoft Azure HBv2 virtual machines are leveraging AMD's EPYC 7742 processor for HPC applications.

In enterprise domain, Dell has rolled out new platforms based on latest EPYC processors. Considering HPC vertical, San Diego Supercomputer Center intends to utilize Dell EMC PowerEdge servers powered by AMD's second Gen EPYC processors.

Operating Details

Non-GAAP gross margin expanded 400 basis points (bps) on a year-over-year basis to 45%, driven by strong adoption of latest 7 nm based EPYC and Ryzen processors.

Operating expenses on a non-GAAP basis increased almost 15% year over year to \$545 million, due to higher investments in Research & development (R&D) and go-to-market initiatives. R&D expenses rose 6.5% year over year to \$395 million. Marketing, general and administrative expenses surged 49.3% year over year to \$206 million.

Quarter Ending **12/2019**

Report Date	Jan 28, 2020
Sales Surprise	1.22%
EPS Surprise	6.67%
Quarterly EPS	0.32
Annual EPS (TTM)	0.64

Adjusted EBITDA soared 208.6% year over year to \$469 million on earnings growth.

Non-GAAP operating income came in at \$405 million, up 271.6% year over year. The year-over-year improvement was driven by higher revenue base and improvement in gross margin.

Segment wise, Computing and Graphics operating income soared 213% year over year to \$360 million, courtesy of solid improvement in Ryzen processors sales. Enterprise, Embedded and Semi-Custom operating income was \$45 million, against an operating loss of 6 million reported in the year-ago quarter. This can be attributed to strong adoption of EPYC processors.

Balance Sheet & Cash Flow

AMD ended the fourth quarter with cash and cash equivalents (including marketable securities) of \$1.50 billion compared with \$1.21 billion in the previous quarter.

Total debt (long-term plus short-term) was \$486 million, down from \$872 billion reported at the end of the previous quarter.

Operating cash flow came in at \$442 million, compared with \$234 million in the previous quarter.

Free cash flow was \$400 million compared with \$179 million in the previous quarter.

Guidance

AMD expects first-quarter 2020 revenues to be roughly \$1.8 billion (+/- \$50 million), indicating year-over-year growth of 42%. However, it reflects a decline of 15% on a sequential basis.

For first-quarter 2020, AMD expects robust sales from Ryzen, Radeon and EPYC products to drive year-over-year revenue growth.

However, sequential decline in revenues is anticipated on account of softness in semi-custom sales and seasonality.

Non-GAAP gross margin is anticipated to be 46%. Operating expenses are anticipated to be \$580 million.

Recent News

On Feb 18, 2020, AMD declared that its 2nd Gen AMD EPYC processors utilized by Google Cloud have accelerated the beta availability of N2D virtual machines (VMs) on Google Compute Engine.

On Feb 10, 2020, AMD announced the AMD Radeon Pro W5500 workstation graphics card for design and engineering professionals. It also announced the AMD Radeon Pro W5500M GPU to power next-generation, professional mobile workstations.

On Feb 4, 2020, AMD announced a multi-year partnership with Mercedes-AMG Petronas Formula One Team. The team will make use of AMD commercial solutions like AMD EPYC server processors and AMD Ryzen PRO laptop processors to optimize their workstreams.

Moreover, the AMD logo will be displayed on the team's 2020 Formula One car, the driver's race suit and on trackside infrastructure.

On Jan 13, 2020, AMD announced that the company has secured a contract from the European Centre for Medium-Range Weather Forecasts (ECMWF). Per the deal, AMD's EPYC 7742 server processors will be utilized to accelerate ECMWF's meteorological supercomputer, which is powered by AtoS's advanced BullSequana XH2000 technology.

On Dec 12, 2019, AMD rolled out Radeon RX 5500 XT graphics card, powered by the AMD RDNA gaming architecture.

On Dec 10, 2019, AMD unveiled Radeon Pro W5700X GPU with an aim to help Mac Pro users to easily cut through different types of professional visual content creation workloads.

On Nov 13, 2019, AMD declared that Radeon Pro 5300M and 5500M mobile GPUs are being utilized by the latest Apple MacBook Pro. The processors are based on 7nm RDNA architecture to enable advanced graphics performance.

Valuation

Advanced Micro Devices shares are up 85.9% in the past six-month period and 145.9% over the trailing 12-month period. Stocks in the Zacks sub-industry and the Zacks Computer & Technology sector are up 26.8% and 22.3% in the past six-month period, respectively. Over the past year, the Zacks sub-industry and sector are up 41% and 30.6%, respectively.

The S&P 500 index is up 16.9% in the past six-month period and 22.8% in the past year.

The stock is currently trading at 7.7X forward 12-month sales, which compares to 7X for the Zacks sub-industry, 3.78X for the Zacks sector and 3.57X for the S&P 500 index.

Over the past five years, the stock has traded as high as 8.13X and as low as 0.31X, with a 5-year median of 2.1X. Our Neutral recommendation indicates that the stock will perform in line with the market. Our \$64 price target reflects 8.37X forward 12-month sales.

The table below shows summary valuation data for AMD

Valuation Multiples - AMD					
		Stock	Sub-Industry	Sector	S&P 500
P/S F12M	Current	7.7	7	3.78	3.57
	5-Year High	8.13	7	3.78	3.57
	5-Year Low	0.31	2.89	2.3	2.54
	5-Year Median	2.1	5.86	3.02	3
EV/Sales TTM	Current	9.59	6.79	4.5	3.31
	5-Year High	9.59	6.87	4.5	3.31
	5-Year Low	0.53	2.69	2.56	2.16
	5-Year Median	2.36	5.33	3.47	2.79

As of 02/19/2020

Industry Analysis Zacks Industry Rank: Top 9% (23 out of 255)



Top Peers

Applied Materials, Inc. (AMAT)	Outperform
Microchip Technology Incorporated (MCHP)	Outperform
Broadcom Inc. (AVGO)	Neutral
Intel Corporation (INTC)	Neutral
Marvell Technology Group Ltd. (MRVL)	Neutral
Maxim Integrated Products, Inc. (MXIM)	Neutral
NVIDIA Corporation (NVDA)	Neutral
QUALCOMM Incorporated (QCOM)	Neutral

Industry Comparison Industry: Electronics - Semiconductors				Industry Peers		
	AMD Neutral	X Industry	S&P 500	INTC Neutral	MRVL Neutral	NVDA Neutral
VGM Score	B	-	-	A	F	B
Market Cap	68.89 B	807.46 M	24.59 B	287.03 B	16.90 B	192.60 B
# of Analysts	11	2	13	14	12	12
Dividend Yield	0.00%	0.00%	1.78%	1.97%	0.95%	0.20%
Value Score	F	-	-	B	D	F
Cash/Price	0.02	0.17	0.04	0.05	0.03	0.06
EV/EBITDA	90.02	7.53	14.21	8.58	30.92	54.14
PEG Ratio	1.70	2.11	2.09	1.79	3.56	3.19
Price/Book (P/B)	23.20	2.72	3.28	3.71	2.36	15.78
Price/Cash Flow (P/CF)	77.44	12.72	13.59	8.83	15.62	59.86
P/E (F1)	52.12	22.52	19.17	13.46	27.08	40.37
Price/Sales (P/S)	10.24	3.09	2.68	3.99	6.20	17.64
Earnings Yield	1.92%	3.16%	5.18%	7.44%	3.69%	2.48%
Debt/Equity	0.17	0.07	0.70	0.33	0.28	0.21
Cash Flow (\$/share)	0.76	0.75	6.93	7.60	1.61	5.26
Growth Score	A	-	-	B	F	A
Hist. EPS Growth (3-5 yrs)	NA%	3.58%	10.84%	20.24%	7.93%	43.93%
Proj. EPS Growth (F1/F0)	75.86%	30.00%	7.00%	2.38%	43.20%	34.63%
Curr. Cash Flow Growth	44.79%	-2.08%	7.81%	6.53%	70.60%	-20.70%
Hist. Cash Flow Growth (3-5 yrs)	27.24%	12.13%	8.25%	9.99%	14.93%	28.68%
Current Ratio	1.95	3.02	1.24	1.40	2.88	7.67
Debt/Capital	14.67%	8.06%	42.37%	24.62%	22.13%	17.30%
Net Margin	5.07%	1.81%	11.69%	29.25%	-16.47%	25.60%
Return on Equity	26.22%	4.78%	16.86%	29.01%	3.59%	26.08%
Sales/Assets	1.26	0.68	0.55	0.54	0.27	0.71
Proj. Sales Growth (F1/F0)	29.55%	8.21%	4.05%	2.20%	13.68%	21.61%
Momentum Score	B	-	-	B	D	A
Daily Price Chg	3.53%	1.71%	0.38%	1.47%	1.67%	6.11%
1 Week Price Chg	11.22%	3.07%	1.65%	1.89%	4.58%	15.18%
4 Week Price Chg	14.52%	0.00%	0.86%	6.98%	-9.25%	25.85%
12 Week Price Chg	49.45%	10.86%	4.56%	14.70%	-5.53%	44.20%
52 Week Price Chg	145.93%	20.93%	14.15%	30.59%	27.30%	98.49%
20 Day Average Volume	56,341,844	210,265	1,989,235	22,737,476	9,833,338	9,864,418
(F1) EPS Est 1 week change	0.00%	0.00%	0.00%	0.00%	0.00%	6.09%
(F1) EPS Est 4 week change	1.32%	0.00%	-0.03%	5.74%	0.20%	6.07%
(F1) EPS Est 12 week change	1.11%	0.00%	-0.21%	5.58%	-22.07%	6.99%
(Q1) EPS Est Mthly Chg	-9.86%	0.00%	-0.40%	25.02%	0.00%	14.90%

Zacks Style Scores

The Zacks Style Score is as a complementary indicator to the Zacks rating system, giving investors a way to focus on the highest rated stocks that best fit their own stock picking preferences.

Academic research has proven that stocks with the best Value, Growth and Momentum characteristics outperform the market. The Zacks Style Scores rate stocks on each of these individual styles and assigns a rating of A, B, C, D and F. We also produce the VGM Score (V for Value, G for Growth and M for Momentum), which combines the weighted average of the individual Style Scores into one score. This is perfectly suited for those who want their stocks to have the best scores across the board.

Value Score	F
Growth Score	A
Momentum Score	C
VGM Score	B

As an investor, you want to buy stocks with the highest probability of success. That means buying stocks with a Zacks Recommendation of Outperform, which also has a Style Score of an A or a B.

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