

Advanced Micro Devices (AMD)

\$86.35 (As of 08/25/20)

Price Target (6-12 Months): **\$92.00**

Long Term: 6-12 Months

Zacks Recommendation:

Neutral

(Since: 08/13/20)

Prior Recommendation: Outperform

Short Term: 1-3 Months

Zacks Rank: (1-5)

3-Hold

Zacks Style Scores:

VGM:B

Value: D

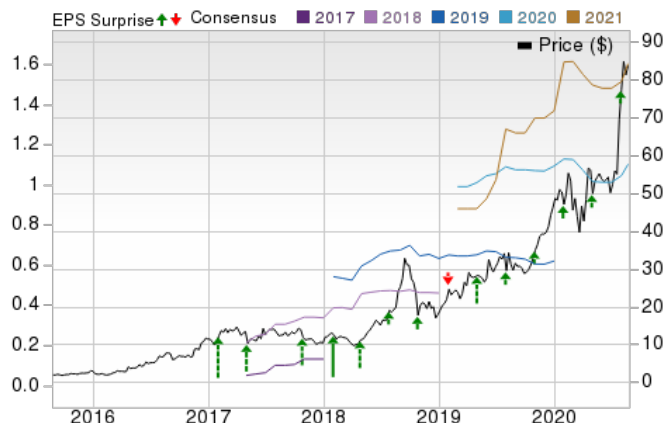
Growth: A

Momentum: C

Summary

AMD is benefiting from robust adoption of Ryzen, Radeon and latest second-generation EPYC server processors, courtesy of increasing proliferation of AI and ML in industries like cloud gaming and supercomputing domain. However, broad-based macroeconomic weakness owing to coronavirus-induced lockdowns are likely to put pressure on desktop processor-related sales. Also, increasing expenses on account of product development amid stiff competition from NVIDIA and Intel are likely to dent margins at least in near term. Nevertheless, accelerated adoption of AMD's products in the data center vertical, driven by work-from-home and online learning trends, remains a key catalyst. Also, partnerships with Amazon, Microsoft, Baidu and JD.com are opening newer business avenues. Notably, shares of AMD have outperformed the industry on a year-to-date basis.

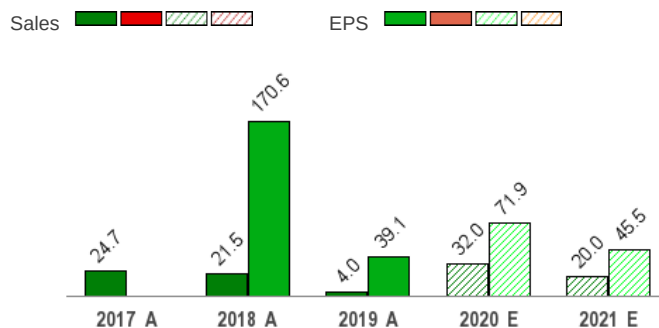
Price, Consensus & Surprise



Data Overview

52 Week High-Low	\$87.29 - \$27.43
20 Day Average Volume (sh)	64,231,576
Market Cap	\$101.4 B
YTD Price Change	88.3%
Beta	2.29
Dividend / Div Yld	\$0.00 / 0.0%
Industry	Electronics - Semiconductors
Zacks Industry Rank	Top 25% (64 out of 252)

Sales and EPS Growth Rates (Y/Y %)



Last EPS Surprise	12.5%
Last Sales Surprise	4.3%
EPS F1 Est- 4 week change	9.7%
Expected Report Date	11/03/2020
Earnings ESP	0.0%
P/E TTM	100.4
P/E F1	78.5
PEG F1	2.0
P/S TTM	13.3

Sales Estimates (millions of \$)

	Q1	Q2	Q3	Q4	Annual*
2021	2,375 E	2,541 E	2,873 E	2,929 E	10,660 E
2020	1,786 A	1,932 A	2,557 E	2,611 E	8,887 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	\$0.31 E	\$0.36 E	\$0.45 E	\$0.46 E	\$1.60 E
2020	\$0.18 A	\$0.18 A	\$0.36 E	\$0.39 E	\$1.10 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 08/25/2020. The reports text is as of 08/26/2020.

Overview

Advanced Micro Devices has strengthened its position in the semiconductor market on the back of its evolution as an enterprise-focus company from a pure-bred consumer-PC chip provider.

AMD has emerged as a strong challenger to NVIDIA's dominance in the graphic processing unit or GPU market based on its Radeon technology.

Launch of 7 nanometer (nm)-based AMD Radeon RX 5700-series gaming graphics card family featuring RDNA architecture, high-speed GDDR6 (Graphics Double Data Rate type 6) memory and support for the PCIe 4.0 interface, has helped the company increase presence among gamers.

Moreover, AMD's Radeon Pro graphics cards and Radeon VR Creator cards support game developers, and virtual reality (VR) and augmented reality (AR) technologies, respectively.

Further, AMD Radeon Instinct family of GPU products are gaining traction in data center applications, including deep learning training and traditional high-performance computing (HPC) workloads.

Additionally, AMD EPYC 7001 Series of high-performance processors is helping AMD gain share in the server market. Further, AMD EPYC Embedded 3000 Series of processors addresses new markets including, networking, storage and edge computing devices.

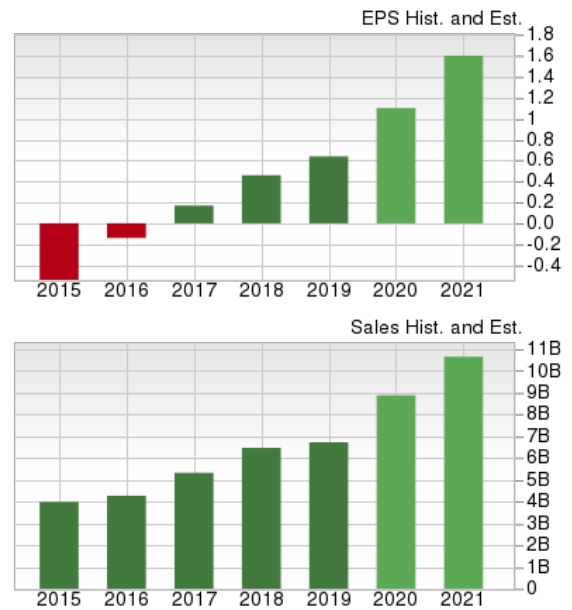
In consumer-PC market, AMD has become a key challenger to Intel courtesy AMD Ryzen desktop processor family. The company's desktop-based processor offerings include Ryzen and high-end Ryzen Threadripper processors, among others. AMD Athlon and AMD PRO series of processors cater to commercial and consumer desktop PC market.

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

Santa Clara, CA-based, AMD generated revenues of \$6.731 billion in 2019. The company reports operations under two segments — Computing and Graphics, and Enterprise, Embedded and 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.

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.



Reasons To Buy:

- ▲ In order to diversify its business beyond the slowing, transitioning PC market, AMD is enhancing its semi-custom chip business, which has been performing well till date. 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 in both gaming and blockchain industries are key catalysts. 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.
- ▲ 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 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.
- ▲ Strength in 7 nanometer-based processors are expected to strengthen the company's competitive position in the commercial and server market against Intel. Notably, Intel's chips utilize process technologies that are designed in-house. Meanwhile, AMD is currently leveraging Taiwan Semiconductor Manufacturing Company's 7 nm process technology, which is enabling it to deliver its advanced 7 nm chips faster to market. Further, AMD aims to deliver "Zen 4" core architecture, which is "currently in design" utilizing advanced 5 nm process technology. This is a major concern for Intel, which is yet to deliver 7 nm chips. Markedly, Intel noted delay in 7nm process-based chips in its second-quarter earnings conference. The company has detected a defect mode in 7 nm process, which caused yield degradation. This is expected to favor AMD capture market share and challenge Intel's dominance in the semiconductor market.
- ▲ 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. AMD expects the total addressable market for its high-performance embedded SOCs and processors to be \$9 billion and therefore the company is trying to increase its share in this market by delivering competitive products.
- ▲ Per Gartner's preliminary data, PC shipments in second-quarter 2020 improved 2.8% year over year to 64.8 million units. Going by the IDC report, shipments were up 11.2% on a year-over-year basis to 72.3 million in the quarter. The improving trend in PC shipments, driven by work-from-home and online learning wave, is likely to positively impact PC-makers that eventually bode well for AMD's growth prospects.
- ▲ Management execution has been good amid testing times in the wake of the coronavirus pandemic. AMD has solid net-cash balance of \$1.09 billion as of Jun 27, 2020, up from \$902 million as of Mar 28, 2020. During the second quarter, the company generated \$243 million in cash from operations, against operating cash outflow of \$65 million in the first quarter. Free cash flow was \$152 million in the second quarter against free cash flow outflow of \$120 million in the prior quarter. The increasing liquidity and cash flow trend reflect that the company is making investments in the right direction. The strong cash balance can aid the company to pursue strategic acquisitions and other investments in growth initiatives. Notably, total debt to total capital of 12.9% is much lower than the industry's figure of 51.2%. Further, times interest earned is 10.6X, compared with the industry's figure of 4.5X.

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.
- ▼ 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. Also, AMD derives a significant proportion of its revenues from outside the United States (74% in 2019), subjecting the company to exchange rate volatility.
- ▼ 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 30.68X. This level compares unfavorably with what the industry witnessed in the last year. Additionally, the ratio is higher than the average level of 19.7X 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, and customer concentration remain headwinds.

Last Earnings Report

AMD Q2 Earnings Match Estimates, Revenues Up Y/Y

Advanced Micro Devices (AMD) reported second-quarter 2020 non-GAAP earnings of 18 cents per share, which surpassed the Zacks Consensus Estimate by 12.5%. Notably, the bottom line soared 125% year over year but remained flat sequentially.

Revenues of \$1.93 billion outpaced the Zacks Consensus Estimate by 4.3% and surged 26% year over year. On a quarter-over-quarter basis, the top line improved 8%.

Strength in Computing and Graphics segment drove year-over-year improvement. Markedly, Datacenter products contributed more than 20% to total second-quarter revenues.

Segmental Details

Computing and Graphics segment's (70.8% of total revenues) revenues of \$1.37 billion, improved 45% year over year. This can be attributed to robust adoption of Ryzen processors. The figure declined 5% sequentially thanks to sluggish graphics processor sales.

Client processor average selling price (ASP) improved year over year on higher Ryzen processor sales. Client processor ASP declined sequentially owing to higher Ryzen mobile processor sales.

Coronavirus crisis-induced work-from-home and online learning wave drove PC market strength, which led to robust growth in client processor revenues. Management noted that growth was also backed by "11th straight quarter of market share gains."

Nevertheless, desktop processor sales fell on a quarter-over-quarter basis, as was anticipated. Meanwhile, revenues in ASP improved year over year, driven by higher mix and solid demand for high-end Ryzen processors.

In mobile domain, growth in notebook processor unit shipments and revenues was driven by increasing traction of Ryzen 4000 mobile processors.

Management also remains optimistic regarding growing clout of Ryzen 4000 mobile processors families across leading OEMs. Markedly, Ryzen PRO 4000 Series processors are powering "more than 30 ultrathin premium and gaming consumer notebooks launch for multiple OEMs."

AMD's latest series of notebook processors — Ryzen 4000 — offer superior performance and longer battery life. This has been enabling company to strengthen mobile processor business.

Markedly, latest Ryzen 4,000 Series processors sales surged significantly in the second quarter, which led to strong double-digit percentage growth in mobile revenues. Besides on a year-over-year basis, revenues more than doubled courtesy of significant increase in unit shipments and ASP.

The latest AMD Ryzen PRO 4000 Series mobile processors are witnessing traction across leading commercial OEMs. Lenovo is leveraging the processors in its ThinkPad T series, X series and L series of business notebooks, while HP has rolled out new "enterprise-ready" ProBooks. ASUS and Acer have already launched notebooks based on the AMD Ryzen 4000 Series mobile processors.

In graphics domain, revenues fell year over year as decline in desktop channel sales offset the robust double-digit growth in mobile GPU sales.

Desktop GPU shipments declined on a year-over-year basis, while channel sellout improved in the second quarter. Higher sales of Radeon RX 5000 M series mobile GPUs based on RDNA architecture on deal wins from Apple and Dell, remained noteworthy. However, GPU ASP declined on a year-over-year basis and sequentially owing to lower channel sales.

The company noted that Data Center GPU business decreased on a year-over-year basis. Management is optimistic on new deal wins in cloud gaming and VDI verticals.

Enterprise, Embedded and Semi-Custom segment's (29.2% of total revenues) revenues of \$565 million were down 4% year over year but up 62% sequentially.

The year-over-year decline can primarily be attributed to lower semi-custom product revenues, partially offset by higher EPYC server processor sales. Improvement on a quarter-over-quarter basis was led by robust uptake of EPYC processors and growth in semi-custom product sales.

In semi-custom space, AMD commenced initial production and shipments of next generation game console SOCs during the second quarter.

In server domain, strength in AMD' latest EPYC processors are enabling the company to win new deals from major enterprise, cloud, and HPC companies.

In cloud vertical, AMD's second gen EYPC processors witnessed traction across Amazon Web Services, Tencent, and Microsoft Azure. Moreover, major cloud players utilized server processors to meet accelerated demand for collaboration services induced by coronavirus-led work-from-home wave and increased use of online schooling solutions.

AMD's focus on introducing new high-performance processors to support complex applications, advanced modeling, database and hyper-converged workloads is driving growth. In enterprise domain, Dell, Lenovo and HPE have selected EPYC processors to power their respective next gen platforms.

Considering HPC vertical, AMD's second Gen EPYC processors wins across Indiana University, Purdue and CERN, remain noteworthy.

Quarter Ending 06/2020

Report Date	Jul 28, 2020
Sales Surprise	4.29%
EPS Surprise	12.50%
Quarterly EPS	0.18
Annual EPS (TTM)	0.86

Moreover, the processors have been selected by Amazon, Oracle, Microsoft and IBM to power their respective cloud based HPC offerings.

Further, management is optimistic on increasing utilization of AMD CPUs and GPUs across supercomputing systems.

Operating Details

Non-GAAP gross margin expanded 300 basis points (bps) on a year-over-year basis to 44%, driven by strong adoption of client and server processors.

Non-GAAP operating expenses increased 20.5% year over year to \$617 million, due to higher investments in Research & development (R&D) and go-to-market initiatives.

R&D expenses rose 23.3% year over year to \$460 million. Marketing, general and administrative expenses climbed 13.8% year over year to \$215 million.

As a percentage of revenues, non-GAAP operating expenses were 32%, contracting 100 bps from the year-ago quarter.

Adjusted EBITDA soared 87.1% year over year to \$305 million. The increase can be attributed to earnings growth.

Non-GAAP operating income came in at \$233 million, up 109.9% year over year. Growth in revenue base drove year-over-year improvement.

Non-GAAP operating margin of 12% expanded 500 bps year over year.

Segment wise, Computing and Graphics operating income was \$200 million, compared with \$22 million reported in the year-ago quarter courtesy of higher revenues. Enterprise, Embedded and Semi-Custom operating income was \$33 million compared with \$89 million reported in the year-ago quarter. The decline can be attributed to higher operating expenses and lower revenue base.

Balance Sheet & Cash Flow

As of Jun 27, 2020, AMD had cash and cash equivalents (including marketable securities) of \$1.78 billion compared with \$1.39 billion as of Mar 28, 2020. As of Jun 27, 2020, total debt (long-term plus short-term) was \$690 million, up from \$488 million as of Mar 28, 2020.

Operating cash flow was reported at \$243 million, against operating cash outflow of \$65 million in the first quarter. Free cash flow was \$152 million in the second quarter against free cash flow outflow of \$120 million in the prior quarter.

Guidance

AMD expects third-quarter 2020 revenues of \$2.55 billion (+/- \$100 million), indicating year-over-year and quarter-over-quarter growth of 42% and 32%, respectively.

For third-quarter 2020, AMD expects robust sales from Ryzen, EPYC processors and next-gen semi-custom products to drive year-over-year and sequential increase in revenues.

Semi-custom revenues are projected for strong growth, driven by gains from production increase to support the launch of the latest Xbox Series X and PlayStation 5 gaming consoles scheduled for holiday season of 2020.

Non-GAAP gross margin is anticipated to be 44%.

For 2020, AMD now projects revenues to grow 32% over 2019 backed by momentum in PC, gaming and data center products. Previously, AMD had projected growth 25% (+/- 5%) over 2019.

The company expects to “deliver strong growth in the second half” backed by strength in current product portfolio. Also, initial shipments of latest next generation ZEN 3 CPUs and RDNA GPUs, set to launch in late 2020, are projected to drive growth.

For 2020, management continues to expect non-GAAP gross margin of 45%.

Recent News

On Aug 4, AMD announced availability of latest Radeon Pro 5000 series GPUs for Apple's new 27-inch iMac. The new GPUs offer high-performance, leverage 7 nm process technology and AMD RDNA architecture to aid consumer and professional users to enhance productivity.

On Jul 21, AMD unveiled 7 nm based x86 Ryzen 4000 Series Desktop Processors and Athlon 3000 Series Desktop Processors, processors embedded with advanced Radeon graphics for commercial and consumer PC markets.

On Jul 14, AMD announced that Google Cloud is expanding its use of second-gen EPYC processors to provide enhanced security features to customers. Google Cloud's latest Confidential Virtual Machines ("VMs") will leverage second-gen EPYC processors' Secure Encrypted Virtualization feature to help customers encrypt sensitive data not only when it is at rest but also while it is being processed.

On Jul 14, AMD expanded Ryzen Threadripper PRO Processor family of processors with up to 64 cores and enhanced bandwidth performance integrated with enterprise-grade AMD PRO technologies.

On Jun 22, AMD announced that the AMD EPYC processors have been adopted by multiple high-performance computers that include seventh fastest supercomputer in the world and four of the 50 highest-performance systems on the bi-annual TOP500 list. The processors are witnessing adoption in advanced science and health research with new installations at Purdue University, Indiana University and CERN.

On Jun 16, AMD expanded third generation Ryzen desktop processor family with Ryzen 9 3900XT, Ryzen 7 3800XT and Ryzen 5 3600XT processors to aid users maximize performance of complex workloads and higher boost frequencies to enhance gaming experience.

On Jun 15, AMD launched new AMD Radeon Pro 5600M Mobile GPU for Apple's 16-inch MacBook Pro laptops. The GPU leverages 7 nm process technology and AMD RDNA architecture.

On Jun 8, AMD announced that its second-generation EPYC processors will help NVIDIA in delivering high-performance computing capabilities to customers to support diverse AI workloads.

On Jun 4, AMD announced that its second-generation EPYC processors will help AWS deliver higher compute power and optimized performance to customers. Notably, AWS' Amazon Elastic Compute Cloud (EC2) C5a instances leverage the EPYC processor's high core count to deliver optimal performance to customers, which will help them handle compute intensive workloads including distributed analytics, web applications and video game development.

Valuation

Advanced Micro Devices shares are up 88.3% in the year-to-date period and 185.2% over the trailing 12-month period. Stocks in the Zacks sub-industry and the Zacks Computer & Technology sector are up 25% and 25.6% in the year-to-date period, respectively. Over the past year, the Zacks sub-industry and sector are up 56.5% and 43.1%, respectively.

The S&P 500 index is up 6.9% in the year-to-date period and 19.9% in the past year.

The stock is currently trading at 10.09X forward 12-month sales, which compares to 7.79X for the Zacks sub-industry, 4.24X for the Zacks sector and 3.77X for the S&P 500 index.

Over the past five years, the stock has traded as high as 10.24X and as low as 0.32X, with a 5-year median of 2.38X. Our Neutral recommendation indicates that the stock will perform in line with the market. Our \$92 price target reflects 10.75X 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	10.09	7.79	4.24	3.77
	5-Year High	10.24	7.79	4.24	3.77
	5-Year Low	0.32	4.68	2.32	2.53
	5-Year Median	2.38	5.74	3.14	3.05
EV/Sales TTM	Current	13.09	7.45	4.94	3.38
	5-Year High	13.15	7.52	4.94	3.46
	5-Year Low	0.54	2.74	2.59	2.15
	5-Year Median	2.69	5.39	3.64	2.88

As of 08/25/2020

Industry Analysis Zacks Industry Rank: Top 25% (64 out of 252)



Top Peers

Company (Ticker)	Rec	Rank
Cirrus Logic, Inc. (CRUS)	Outperform	2
DIALOG SEMICON (DLGNF)	Outperform	1
Synaptics Incorporated (SYNA)	Outperform	1
Amkor Technology, Inc. (AMKR)	Neutral	2
Intel Corporation (INTC)	Neutral	3
Microchip Technology Incorporated (MCHP)	Neutral	3
NVIDIA Corporation (NVDA)	Neutral	3
SemiconductorManufacturing International Corporation (SMICY)	Neutral	3

Industry Comparison Industry: Electronics - Semiconductors				Industry Peers		
	AMD	X Industry	S&P 500	AMKR	INTC	NVDA
Zacks Recommendation (Long Term)	Neutral	-	-	Neutral	Neutral	Neutral
Zacks Rank (Short Term)	3	-	-	2	3	3
VGM Score	B	-	-	A	A	C
Market Cap	101.38 B	865.33 M	23.77 B	3.10 B	210.23 B	314.67 B
# of Analysts	12	3	14	1	13	13
Dividend Yield	0.00%	0.00%	1.65%	0.00%	2.67%	0.13%
Value Score	D	-	-	A	A	F
Cash/Price	0.02	0.22	0.07	0.36	0.12	0.04
EV/EBITDA	132.75	5.71	13.35	4.61	6.32	91.47
PEG Ratio	1.95	1.71	3.03	NA	1.36	3.15
Price/Book (P/B)	30.67	2.34	3.17	1.47	2.56	22.61
Price/Cash Flow (P/CF)	113.53	13.80	12.81	4.66	6.50	97.08
P/E (F1)	78.50	20.61	21.72	12.85	10.18	56.94
Price/Sales (P/S)	13.26	2.87	2.47	0.68	2.66	24.08
Earnings Yield	1.27%	2.56%	4.45%	7.78%	9.81%	1.76%
Debt/Equity	0.15	0.15	0.75	0.70	0.44	0.54
Cash Flow (\$/share)	0.76	0.57	6.93	2.76	7.60	5.25
Growth Score	A	-	-	A	A	A
Hist. EPS Growth (3-5 yrs)	80.17%	3.53%	10.41%	12.54%	22.01%	37.24%
Proj. EPS Growth (F1/F0)	72.27%	10.91%	-4.92%	78.57%	-0.33%	54.68%
Curr. Cash Flow Growth	44.79%	-0.89%	5.20%	-5.49%	6.53%	-20.70%
Hist. Cash Flow Growth (3-5 yrs)	27.24%	10.34%	8.50%	-0.41%	9.99%	28.68%
Current Ratio	2.10	3.24	1.33	1.83	1.97	6.09
Debt/Capital	12.91%	13.17%	44.20%	41.21%	30.56%	35.24%
Net Margin	7.96%	2.01%	10.25%	5.94%	29.97%	25.93%
Return on Equity	28.66%	3.22%	14.66%	13.54%	31.55%	30.41%
Sales/Assets	1.29	0.63	0.51	0.96	0.55	0.64
Proj. Sales Growth (F1/F0)	32.03%	0.39%	-1.45%	18.47%	4.34%	44.80%
Momentum Score	C	-	-	B	C	C
Daily Price Chg	3.94%	0.64%	-0.03%	0.55%	0.59%	0.23%
1 Week Price Chg	3.09%	-3.14%	-1.45%	-6.46%	0.80%	9.68%
4 Week Price Chg	27.72%	1.32%	3.76%	-10.33%	0.39%	24.81%
12 Week Price Chg	61.28%	14.09%	5.99%	21.34%	-20.43%	44.47%
52 Week Price Chg	185.93%	28.57%	4.07%	51.00%	7.95%	215.20%
20 Day Average Volume	64,231,576	249,630	1,880,903	1,147,735	33,963,812	11,219,819
(F1) EPS Est 1 week change	0.00%	0.00%	0.00%	0.00%	0.00%	2.18%
(F1) EPS Est 4 week change	9.71%	0.87%	1.03%	42.86%	0.00%	2.15%
(F1) EPS Est 12 week change	10.51%	7.31%	3.40%	42.86%	0.97%	3.95%
(Q1) EPS Est Mthly Chg	16.78%	0.00%	0.00%	44.44%	0.00%	7.79%

Zacks Stock Rating System

We offer two rating systems that take into account investors' holding horizons: Zacks Rank and Zacks Recommendation. Each provides valuable insights into the future profitability of the stock and can be used separately or in combination with each other depending on your investment style.

Zacks Recommendation

The Zacks Recommendation aims to predict performance over the next 6 to 12 months. The foundation for the quantitatively determined Zacks Recommendation is trends in the company's estimate revisions and earnings outlook. The Zacks Recommendation is broken down into 3 Levels; Outperform, Neutral and Underperform. Unlike many Wall Street firms, we have an excellent balance between the number of Outperform and Neutral recommendations. Our team of 70 analysts are fully versed in the benefits of earnings estimate revisions and how that is harnessed through the Zacks quantitative rating system. But we have given our analysts the ability to override the Zacks Recommendation for the 1200 stocks that they follow. The reason for the analyst over-rides is that there are often factors such as valuation, industry conditions and management effectiveness that a trained investment professional can spot better than a quantitative model.

Zacks Rank

The Zacks Rank is our short-term rating system that is most effective over the one- to three-month holding horizon. The underlying driver for the quantitatively-determined Zacks Rank is the same as the Zacks Recommendation, and reflects trends in earnings estimate revisions.

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	D
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.

Disclosures

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