

## Cadence Design Systems (CDNS)

**\$132.75** (As of 04/27/21)

Price Target (6-12 Months): **\$139.00**

Long Term: 6-12 Months

**Zacks Recommendation:**

**Neutral**

(Since: 04/26/21)

Prior Recommendation: Outperform

Short Term: 1-3 Months

**Zacks Rank:** (1-5)

**4-Sell**

Zacks Style Scores:

VGM:C

Value: D

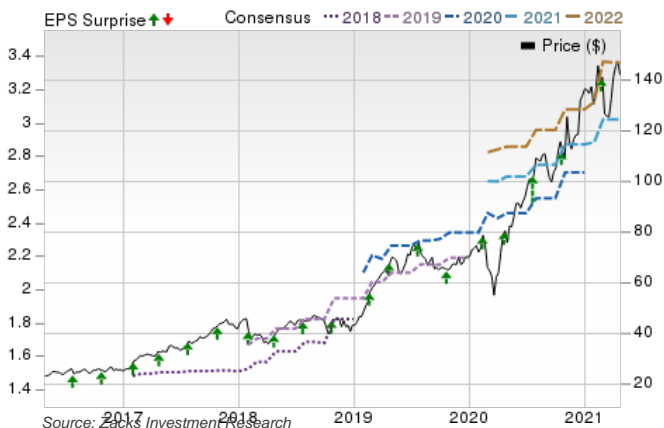
Growth: B

Momentum: B

### Summary

Cadence's Q1 results gained from robust adoption of digital & signoff solutions and functional verification suite. The company is well poised to benefit from higher investments on emerging trends like Internet of Things (IoT), and autonomous vehicle sub-systems along with strength in semiconductor end-market. Frequent product launches are expected to help the company sustain top-line growth, going ahead. The company raised 2021 revenue guidance on strong performance in the first quarter despite COVID-19 related headwinds. Nonetheless, increasing costs related to research & development and headcount additions are likely to be a drag on margins at least in the near term. Stiff competition in simulation market and significant forex volatility are other concerns. Shares of the company have underperformed the industry year to date.

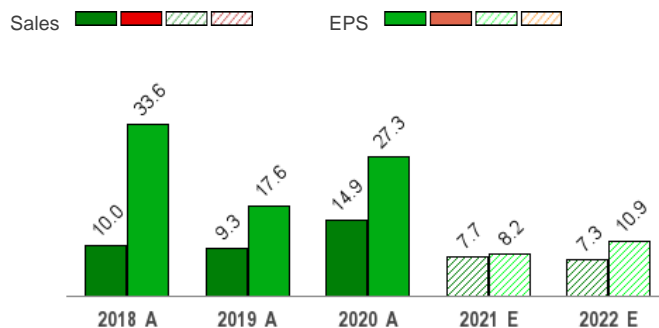
### Price, Consensus & Surprise



### Data Overview

52-Week High-Low	<b>\$149.08 - \$75.27</b>
20-Day Average Volume (Shares)	<b>1,756,489</b>
Market Cap	<b>\$36.9 B</b>
Year-To-Date Price Change	<b>-2.7%</b>
Beta	<b>1.04</b>
Dividend / Dividend Yield	<b>\$0.00 / 0.0%</b>
Industry	<b>Computer - Software</b>
Zacks Industry Rank	<b>Top 46% (114 out of 250)</b>

### Sales and EPS Growth Rates (Y/Y %)



Last EPS Surprise	<b>12.2%</b>
Last Sales Surprise	<b>2.4%</b>
EPS F1 Estimate 4-Week Change	<b>-4.4%</b>
Expected Report Date	<b>07/19/2021</b>
Earnings ESP	<b>1.9%</b>
P/E TTM	<b>44.0</b>
P/E F1	<b>43.8</b>
PEG F1	<b>3.5</b>
P/S TTM	<b>13.2</b>

### Sales Estimates (millions of \$)

	Q1	Q2	Q3	Q4	Annual*
2022	735 E	756 E	778 E	821 E	3,102 E
2021	736 A	715 E	713 E	740 E	2,890 E
2020	618 A	638 A	667 A	760 A	2,683 A

### EPS Estimates

	Q1	Q2	Q3	Q4	Annual*
2022	\$0.76 E	\$0.80 E	\$0.85 E	\$0.93 E	\$3.36 E
2021	\$0.83 A	\$0.75 E	\$0.75 E	\$0.79 E	\$3.03 E
2020	\$0.60 A	\$0.66 A	\$0.70 A	\$0.83 A	\$2.80 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 04/27/2021. The report's text and the analyst-provided price target are as of 04/28/2021.

## Overview

Based in San Jose, CA, Cadence Design Systems Inc. (CDNS) offers products and tools that help customers to design electronic products. Through System Design Enablement (SDE) strategy the company offers software, hardware, services and reusable IC design blocks (IPs) to electronic systems and semiconductor customers.

Cadence's core electronic design automation (EDA) software and services enable engineers to develop different types of ICs. Its design IP's are directly integrated into the ICs.

Moreover, System Connect tools and services are used for the design, analysis and verification of PCBs. Further, System Integration solutions aid in designing and analyzing systems as well as verifying system functionality.

Cadence reported revenues of \$2.683 billion in 2020.

The major product lines are as follows:

Functional verification products (22% of total 2020 revenues) comprise four primary verification engines – JasperGold formal verification platform, Xcelium parallel simulation platform, Palladium Z1 enterprise emulation platform and Protium S1 FPGA-based prototyping platform.

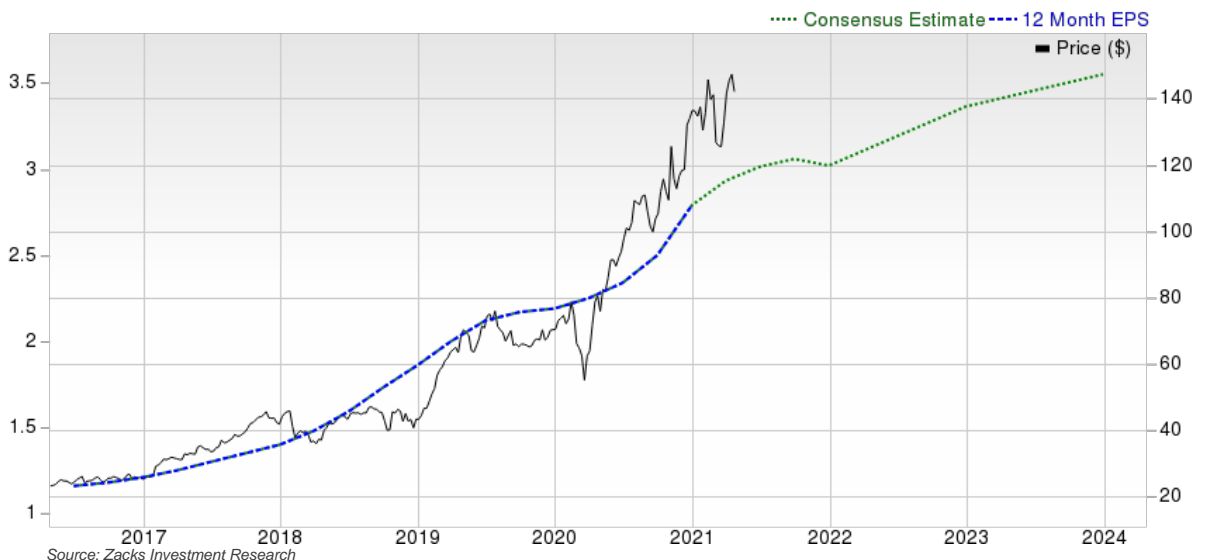
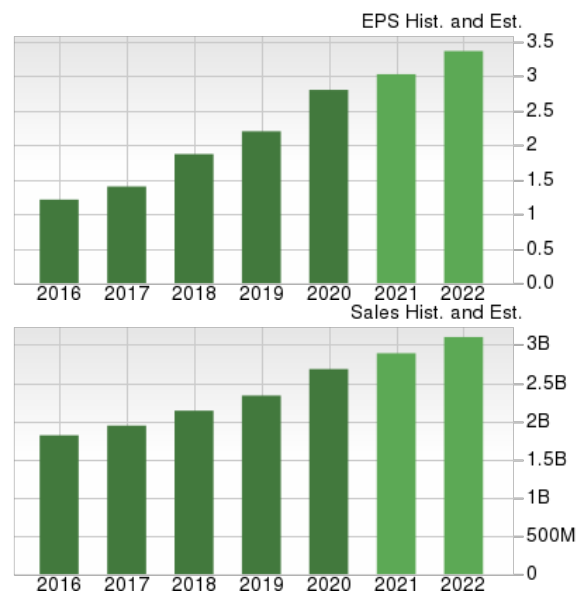
Digital IC Design and Signoff (29%) offerings include Genus synthesis, Stratus high-level synthesis, Joules RTL power and Modus test solutions. Innovus implementation system is the company's physical implementation offering. Tempus timing and Voltus power analysis, Quantus QRC extraction solutions, Physical Verification System and DFM are the signoff solutions.

Custom IC Design and Simulation (25%) includes the Virtuoso custom design platform. Virtuoso Advanced Node, Virtuoso Electrically Aware Design (EAD) and Spectre XPS FastSPICE Simulator are new products in the segment.

Systems Design & Analysis segment (10%) offers Allegro system interconnect design platform, Sigrity analysis tools and OrCAD solution.

Under the IP segment (14%), Cadence offers Tensilica DSPs, vertically targeted subsystems for audio/voice, baseband and vision/imaging applications, controllers and physical interfaces (PHYs) for standard protocols and analog IP.

In 2020, the company derived 41% of revenues from Americas, while the balance 59% came from its international operations.



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## Reasons To Buy:

- ▲ Expanding product portfolio as well as frequent product launches is a key catalyst. The company is focusing on providing end-to-end solutions, which rapidly reduces the time required to introduce a semiconductor product in the market. The company is experiencing strong demand for its software – particularly verification and digital design products – from customers providing datacenter servers, networking products and smartphones that continuous to invest in new design concepts and projects. We also believe that increasing investments on emerging trends like Internet-of-things (IoT), augmented and virtual reality (AR/VR) and autonomous vehicle sub-systems presents significant growth opportunity for the company in the long haul.
- ▲ Cadence ended first quarter 2021 with backlog of \$3.6 billion. The company continues to invest heavily in verification and digital design products, which is helping it to launch products that address the ever-growing needs of electronics and semiconductor companies. Solid adoption continues for Palladium Z1 on the back of strong demand for growing hardware capacity is notable. For 2020, Palladium Z1 witnessed robust traction with 24 new customer wins and 34 expansions. Similarly, Protium X1 had 14 expansions and 13 new customers in 2020. Recently, the company unveiled that Cadence Palladium Z2 Enterprise Emulation and Protium X2 Enterprise Prototyping systems, provide two times more capacity and offer 1.5 times improved performance than the prior generation — Palladium Z1 and Protium X1. In August 2020, Cadence unveiled Xcelium ML that provides five-times faster verification for randomized regressions. The solution is expected gain incremental adoption among semiconductor manufacturers. We believe that the launch of new products like Protium X2 and Palladium Z2, which have already been selected by new customers like NVIDIA, and AMD, will boost top-line growth.
- ▲ We believe that increasing spending by enterprises on emerging categories like IoT and AR/VR presents significant growth opportunity for Cadence. Per data from Fortune Business Insights, global IoT spending is likely to witness a CAGR of 24.9% between 2020 and 2027. Moreover, a Prescient & Strategic Intelligence research report projects AR/VR spending to see a CAGR of 42.9% over 2020-2030. This presents significant growth opportunity for semiconductor chip makers as well as electronics sensor developers. We note that these two industries comprise the majority of customer base for Cadence. We believe that the company's expanding product portfolio will help it to win frequent orders as well as new customers from these emerging markets going ahead. Autonomous vehicle is a notable growth market for Cadence. The company has won orders from well-known companies like Intel's MobilEye and Infineon who are developing advanced driver assistance systems (ADAS) related technologies. The company has placed a dedicated team to look after automotive ventures, which reflects the growing importance of the end-market for Cadence. This is a prudent step considering the significant growth prospect of the ADAS market, which is projected to witness a CAGR of 21% between 2020 and 2027 and reach \$146.54 billion by 2027, according to data from Verified Market Research. We also note that the company is focused on developing its footprint in the aerospace and defense segment. Apart from having a dedicated team for the sector, Cadence has expanded systems business through partnerships with established sector players like Northrop Grumman, BAE Systems and GE Aviation. We believe that these partnerships will help in driving the company's market position in the long run.
- ▲ Cadence had a cash and cash equivalents of approximately \$743 million while the company's long-term debt came in at \$347 million as of, Apr 3, 2021. Moreover, total debt to total capital of 12% is lower than the prior quarter's figure of 12.2%. The strong cash balance can help the company pursue strategic acquisitions and other investments in growth initiatives. In the first quarter, the company generated \$208 million in cash from operations compared with \$136 million in the previous quarter. Free cash flow for first quarter was \$191 million compared with \$105 million reported in prior quarter. The increasing liquidity trends reflect that the company is making investments in the right direction. Also, strong cash flows help Cadence to continue shareholder friendly initiatives of share repurchase. Notably, lower number of outstanding shares helps the bottom line. In the first quarter of 2021, the company repurchased shares worth approximately \$172 million. Total share buyback for 2020 stood at \$380 million. In the third quarter of 2020, Cadence also announced increases in share buyback authorization by \$750 million. The company had \$566 million worth of shares under its buyback authorization at the end of first-quarter 2021.

Cadence is well positioned for growth driven by expanding product portfolio, strong demand for products from existing and emerging markets, and solid recurring revenues that enhances visibility.

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## Reasons To Sell:

- ▼ Semiconductor research & development budgets have contracted in recent years and may continue reducing the amount spent on EDA software. Moreover, the EDA industry faces pricing problems from direct discounting, extension of payment terms, and/or the lowered value of a deal. Further, the coronavirus outbreak has led to global supply chain disruptions and shutdown of factories, which is impacting the demand for EDA software and tools. These are significant headwinds for Cadence in the long haul.
- ▼ Cadence faces stiff competition from other EDA companies like Synopsys, ANSYS and Siemens AG (post the acquisition of Mentor Graphics). Intensifying competition negatively impacts pricing power, which keeps margins under pressure. Moreover, in order to remain competitive the company has increased spending on research & development (particularly on verification and digital design products) in the last 12-months, which is likely to limit operating margin expansion.
- ▼ The company generates a significant portion of its revenues (59% in 2020) from the International market. Hence, we expect adverse foreign currency exchange rates to impede revenue growth in the near term owing to fluctuation in the U.S. dollar as against the Japanese Yen, Euro and other foreign currencies.
- ▼ Acquisitions have affected its balance sheet, as a high level of goodwill and intangible assets adds to the risk of investing in the company. Notably, the company's goodwill and intangible assets totaled \$1.18 billion or 29.4% of total assets as of Apr 3, 2021.

Reducing semiconductor budgets on EDA software, intensifying competition, headwinds pertaining to currency exposure and high indebtedness are major headwinds for Cadence.

## Last Earnings Report

### Cadence Earnings and Revenues Beat Estimates in Q1

Cadence Design Systems posted first-quarter 2021 non-GAAP earnings of 83 cents per share, which topped the Zacks Consensus Estimate by 12.2%. Also, the bottom line increased 38.33% year over year.

Revenues of \$736 million surpassed the Zacks Consensus Estimate by 2.4% and increased 19% on a year-over-year basis.

Revenue growth was benefitted by continued strength across all segments as well as some earlier-than-expected hardware sales.

### Performance in Details

Product & Maintenance revenues (95% of total revenues) of \$699 million increased 20% year over year.

Services revenues (5%) of \$37 million increased 2.8% from the year-ago quarter's figure.

Geographically, Americas, China, Other Asia, Europe, Middle East and Africa (EMEA) and Japan contributed 46%, 12%, 18%, 18% and 6%, respectively, to total revenues.

Product-wise, Custom IC Design & Simulation, Digital IC Design & Signoff, Functional Verification, IP and Systems Design & Analysis contributed 23%, 27%, 26%, 14% and 10% to total revenues, respectively.

Cadence Digital Full Flow saw robust traction in the first quarter along with Palladium Z1 and Protium X1.

In the first quarter, the company unveiled that Cadence Palladium Z2 Enterprise Emulation and Protium X2 Enterprise Prototyping systems provide two times more capacity and offer 1.5 times improved performance than the prior generation — Palladium Z1 and Protium X1. These solutions are embedded with next-generation emulation processors and Xilinx UltraScale+ VU19P FPGAs.

In April 2021, Cadence acquired Pointwise, which specializes in mesh generation for computational fluid dynamics (CFD). The company's solutions are being leveraged by firms in the aerospace sector. Pointwise complements Cadence's earlier buyout of NUMECA International.

Cadence also rolled out Sigrity-X solutions in the quarter under review. Sigrity-X is the company's next-generation signal and power integrity solution that deploys simulation engines and an enormous parallel architecture. Consequently, these solutions offer up to 10 times improved performance for system level simulations for applications across hyperscale, 5G, automotive and aerospace domains.

Synergies from Integrand and AWR acquisition are boosting adoption of Cadence's System Analysis portfolio offerings. In the first quarter conference call, the company added that Qualcomm expanded usage of Virtuoso and AWR products for advanced RFIC design as well as Clarity solutions for systems analysis in the quarter under review.

Meanwhile, total non-GAAP costs and expenses increased 8.8% year over year to \$456 million.

Non-GAAP gross margin expanded 50 basis points (bps) to 90.4%, while non-GAAP operating margin was 38.1%, up 590 bps on a year-over-year basis.

### Balance Sheet & Cash Flow

As of Apr 3, 2021, the company had cash and cash equivalents of approximately \$743 million compared with \$928 million as of Jan 2, 2021.

Moreover, the company's long-term debt came in at \$347 million as of Apr 3, 2021 compared with \$346.8 million as of Jan 2, 2021.

The company generated operating cash flow of \$208 million in the reported quarter compared with prior-quarter's figure of \$136 million. Free cash flow for the quarter under review was \$191 million compared with \$105 million reported in fourth-quarter 2020.

The company repurchased shares worth approximately \$172 million in the first quarter. The company had \$566 million worth of shares under its buyback authorization as of Apr 3, 2021.

### Guidance

Driven by better-than-expected first-quarter results, management raised revenue outlook for 2021. However, it anticipates chip supply constraint along with alarming COVID-19 situation in India to negatively impact revenues in the IP segment in 2021. Also, Cadence projects increase in expenses in second half 2021 due to headcount additions. The guidance also includes impact of the Pointwise acquisition.

For 2021, revenues are now projected in the range of \$2.88-\$2.93 billion compared with the previous guidance of \$2.86-\$2.92 billion.

Non-GAAP earnings are now expected in the range of \$2.99-\$3.07 per share compared with \$2.95-\$3.05 per share guided previously.

For 2021, non-GAAP operating margin is now forecast in the range of 35-36% compared with 34.5-36% anticipated previously.

Operating cash flow is anticipated in the range of \$900-\$950 million for 2021. Management expects to utilize of 50% of free cash flow generated

Quarter Ending	03/2021
Report Date	Apr 26, 2021
Sales Surprise	2.42%
EPS Surprise	12.16%
Quarterly EPS	0.83
Annual EPS (TTM)	3.02

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to buy back shares for the year.

For the second quarter of 2021, revenues are projected in the range of \$705-\$725 million.

Non-GAAP earnings are expected in the range of 74-78 cents per share.

Further, non-GAAP operating margin is forecast to be around 36% for the second quarter.

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## Recent News

On Apr 27, Cadence teamed up with Arm Holdings to ramp development of 5G communications and hyperscale computing system-on-chip (SoC).

On Apr 22, Cadence unveiled two new offerings — Vision Q8 DSP and Vision P1 DSP — to its Tensilica Vision DSP product portfolio.

On Apr 15, Cadence completed the acquisition of Pointwise, which specializes in mesh generation for computational fluid dynamics (CFD). The company's solutions are being leveraged by firms in the aerospace sector. Pointwise complements Cadence's earlier buyout of NUMECA International.

On Apr 8, Cadence revealed that it has optimized its Cadence digital 20.1 full flow for Samsung Foundry's advanced-process technologies to aid in achieving optimal power, performance, and area (PPA) along with delivering precise and first-pass silicon for applications in the hyperscale computing domain.

On Apr 5, 2021, Cadence unveiled Cadence Palladium Z2 Enterprise Emulation and Protium X2 Enterprise Prototyping systems. These solutions are embedded with next-generation emulation processors and Xilinx UltraScale+ VU19P FPGAs.

On Mar 24, 2021, Cadence announced a collaboration with GLOBALFOUNDRIES (GF) with an aim to roll out Tensilica test chip on GF's 22FDX platform.

On Mar 23, 2021, Cadence announced a collaboration with GLOBALFOUNDRIES (GF) in a bid to facilitate design for manufacturing (DFM) signoff with robust ML-driven prediction capabilities. Per the terms of the collaboration, Cadence's Litho Physical Analyzer, a DFM-based pattern analysis tool integrated with GF-developed ML models, has been assessed compatible for GF's 12LP and 12LP+ solutions.

On Mar 16, 2021, Cadence unveiled Sigrity X signal and power integrity (SI/PI) solutions, featuring advanced simulation capabilities for system-level analysis.

On Feb 24, 2021, Cadence concluded the earlier announced buyout of NUMECA International. With NUMECA buyout, the company is looking forward to addressing the high-growth computational fluid dynamics (CFD) market segment, with estimated TAM of \$1.6 billion.

On Jan 20, 2021, Cadence inked deal to acquire NUMECA International, with an aim to enhance CFD, mesh generation, multi-physics simulation and optimization capabilities.

## Valuation

Cadence Design Systems' shares are down 2.7% in the year-to-date period but up 61.9% over the trailing 12-month period. Stocks in the Zacks sub-industry and the Zacks Computer & Technology sector are up 13.6% and 14.9% in the year-to-date period, respectively. In the past year, the Zacks sub-industry and sector are up 46.5% and 63.9%, respectively.

The S&P 500 index is up 12.4% in the year-to-date period, and 45.3% in the past year.

The stock is currently trading at 42.4X forward 12-month earnings compared with 34.2X for the Zacks sub-industry, 29.84X for the Zacks sector and 22.98X for the S&P 500 index.

Over the past five years, the stock has traded as high as 72.92X and as low as 26.74X, with a five-year median of 42.11X. Our Neutral recommendation indicates that the stock will perform in line with the market. Our \$139 price target reflects 44.4X forward 12-month earnings.

The table below shows summary valuation data for CDNS

Valuation Multiples - CDNS					
		Stock	Sub-Industry	Sector	S&P 500
P/E F12M	Current	42.4	34.2	29.84	22.98
	5-Year High	72.92	35.41	29.84	23.83
	5-Year Low	26.74	19.83	16.95	15.3
	5-Year Median	42.11	26.05	20.08	18.01
P/S F12M	Current	12.52	8.86	5.07	4.82
	5-Year High	14.43	8.86	5.07	4.82
	5-Year Low	3.59	4.26	2.8	3.21
	5-Year Median	6.01	6.16	3.5	3.71
EV/Sales TTM	Current	13.09	9.58	5.87	5
	5-Year High	15.14	9.58	5.87	5
	5-Year Low	3.84	3.81	3.08	2.63
	5-Year Median	6.28	6.24	3.97	3.61

As of 04/27/2021

Source: Zacks Investment Research

## Industry Analysis Zacks Industry Rank: Top 46% (114 out of 250)



## Top Peers

Company (Ticker)	Rec	Rank
ANSYS, Inc. (ANSS)	Neutral	3
Aspen Technology, Inc. (AZPN)	Neutral	3
Citrix Systems, Inc. (CTXS)	Neutral	2
Microsoft Corporation (MSFT)	Neutral	2
Nuance Communications, Inc. (NUAN)	Neutral	3
Open Text Corporation (OTEX)	Neutral	3
Synopsys, Inc. (SNPS)	Neutral	4
Autodesk, Inc. (ADSK)	Underperform	4

The positions listed should not be deemed a recommendation to buy, hold or sell.

Industry Comparison Industry: Computer - Software				Industry Peers		
	CDNS	X Industry	S&P 500	ADSK	ANSS	SNPS
Zacks Recommendation (Long Term)	Neutral	-	-	Underperform	Neutral	Neutral
Zacks Rank (Short Term)	4	-	-	4	3	4
VGM Score	C	-	-	B	D	C
Market Cap	36.94 B	2.96 B	30.14 B	65.41 B	32.55 B	38.35 B
# of Analysts	6	4	12	9	7	6
Dividend Yield	0.00%	0.00%	1.27%	0.00%	0.00%	0.00%
Value Score	D	-	-	D	D	C
Cash/Price	0.02	0.06	0.05	0.03	0.03	0.03
EV/EBITDA	45.44	26.71	17.03	86.59	53.06	41.08
PEG F1	3.50	2.77	2.36	1.71	4.48	3.48
P/B	14.53	8.00	4.18	67.84	7.83	7.85
P/CF	50.22	34.42	17.33	92.54	58.83	40.83
P/E F1	43.65	40.96	22.20	59.79	54.84	40.01
P/S TTM	13.19	5.67	3.42	17.26	19.36	10.04
Earnings Yield	2.28%	2.34%	4.44%	1.67%	1.82%	2.50%
Debt/Equity	0.14	0.23	0.66	1.70	0.19	0.01
Cash Flow (\$/share)	2.64	1.37	6.78	3.22	6.35	6.16
Growth Score	B	-	-	A	C	C
Historical EPS Growth (3-5 Years)	39.63%	12.16%	9.70%	NA	13.44%	23.23%
Projected EPS Growth (F1/F0)	8.15%	8.30%	17.01%	23.02%	1.66%	13.36%
Current Cash Flow Growth	-33.74%	6.99%	0.72%	53.13%	-1.26%	17.41%
Historical Cash Flow Growth (3-5 Years)	13.16%	9.85%	7.37%	37.75%	8.12%	9.51%
Current Ratio	1.70	1.70	1.38	0.83	2.36	1.10
Debt/Capital	12.01%	19.60%	41.19%	62.90%	16.30%	0.52%
Net Margin	23.34%	7.09%	11.20%	31.88%	25.81%	18.91%
Return on Equity	27.00%	13.33%	15.33%	232.44%	12.86%	15.47%
Sales/Assets	0.70	0.53	0.51	0.62	0.34	0.49
Projected Sales Growth (F1/F0)	7.71%	6.43%	7.74%	13.83%	9.70%	9.42%
Momentum Score	B	-	-	B	D	A
Daily Price Change	-7.96%	0.00%	0.13%	-0.49%	-0.89%	-2.02%
1-Week Price Change	-3.52%	0.00%	0.47%	-1.63%	-0.59%	-3.57%
4-Week Price Change	1.44%	5.51%	4.43%	10.97%	12.54%	5.05%
12-Week Price Change	-2.19%	5.20%	13.70%	1.11%	-0.43%	-6.69%
52-Week Price Change	69.17%	54.19%	52.18%	67.99%	45.14%	65.78%
20-Day Average Volume (Shares)	1,756,489	141,844	1,759,028	1,023,511	360,370	791,258
EPS F1 Estimate 1-Week Change	-4.43%	0.00%	0.00%	0.00%	0.00%	0.00%
EPS F1 Estimate 4-Week Change	-4.43%	0.00%	0.17%	0.00%	0.00%	0.00%
EPS F1 Estimate 12-Week Change	3.80%	2.04%	1.95%	-14.82%	-10.81%	-1.59%
EPS Q1 Estimate Monthly Change	-11.54%	0.00%	0.07%	0.00%	0.00%	0.00%

Source: Zacks Investment Research



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## 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 maintain a 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	<b>D</b>
Growth Score	<b>B</b>
Momentum Score	<b>B</b>
VGM Score	<b>C</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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## Disclosures

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## Additional Disclosure

This material represents an assessment of the market and economic environment at a specific point in time and is not intended to be a forecast of future events, or a guarantee of future results. Forward-looking statements are subject to certain risks and uncertainties. Any statements that refer to expectations, projections or characterizations of future events or circumstances, including any underlying assumptions, are forward-looking statements. Actual results, performance, or achievements may differ materially from those expressed or implied.

**Returns quoted represent past performance which is no guarantee of future results.** Investment returns and principal value will fluctuate so that when shares are redeemed, they may be worth more or less than their original cost. Current performance may be higher or lower than the performance shown.

Investing involves risk; principal loss is possible. There is no guarantee that companies that can issue dividends will declare, continue to pay or increase dividends.

## Glossary of Terms and Definitions

**52-Week High-Low:** The range of the highest and lowest prices at which a stock has traded during the past year. This range is determined based on the stock's daily closing price which may differ from the intra-day high or low. Many investors use it as a technical indicator to determine a stock's current value and future price movement. The idea here is that if price breaks out from the 52-week range, in either direction, the momentum may continue in the same direction.

**20-Day Average Volume (Shares):** The average number of shares of a company traded in a day over the last 20 days. It is a direct indication of a security's overall liquidity. The higher the average daily trading volume, the easier it is to enter or exit the stock at a desired price with more buyers and sellers being available.

**Daily Price Change:** This is the percentage difference between a trading day's closing price and the prior trading day's closing price. This item is updated at 9 p.m. EST each day.

**1-Week Price Change:** This is the percentage change in a stock's closing price over the last 5 trading days. This change reflects the collective buying and selling sentiment over the 1-week period.

A strong weekly price increase for the stock, especially when accompanied by increased volume, is an indication of it gaining momentum.

**4-Week Price Change:** This is the percentage change in a stock's closing price over the last 20 trading days or past 4 weeks. This is a medium-term price change metric and an indication of the stock gaining momentum.

**12-Week Price Change:** This is the percentage change of a stock's closing price over the last 60 trading days or past 12 weeks. Similar to 4-week price change, this is a medium-term price change metric. It shows whether a stock has been enjoying strong investor demand, or if it has been in consolidation, or distress over this period.

**52-Week Price Change:** This is the percentage change in a stock's closing price over the last 260 trading days or past 52 weeks. This long-term price change metric is a good reference point for investors. Some investors seek stocks with the best percentage price change over the last 52 weeks, expecting the momentum to continue.

**Market Cap:** The number of outstanding common shares of a company times its latest price per share. This figure represents a company's size, which indicates various characteristics, including price stability and risk, in which investors could be interested.

**Year-To-Date Price Change:** Change in a stock's daily closing price in the period of time beginning the first day of the current calendar year through to the previous trading day.

**# of Analysts:** Number of EPS estimates used in calculating the current-quarter consensus. These estimates come from the brokerage analysts tracking this stock. However, the number of such analysts tracking this stock may not match the number of estimates, as all brokerage analysts may not come up with an estimate or provide it to us.

**Beta:** A measure of risk commonly used to compare the volatility of a stock to the overall market. The S&P 500 Index is the base for calculating beta and carries a value of 1. A stock with beta below 1 is less risky than the market as a whole. And a stock with beta above 1 is riskier.

**Dividend:** The portion of earnings a company is expected to distribute to its common shareholders in the next 12 months for each share they own. Dividends are usually paid quarterly. Dividend payments reflect positively on a company and help maintain investors' trust. Investors typically find dividend-paying stocks appealing because the dividend adds to any market price appreciation to result in higher return on investment (ROI). Moreover, a steady or increasing dividend payment provides investors a cushion in a down market.

**Dividend Yield:** The ratio of a company's annual dividend to its share price. The annual dividend used in the ratio is calculated based on the most recent dividend paid by the company. Dividend yield is an estimate of the dividend-only return from a stock in the next 12 months. Since dividend itself doesn't change frequently, dividend yield usually changes with a stock's price movement. As a result, often an unusually high dividend yield is a result of weak stock price.

**S&P 500 Index:** The Standard & Poor's 500 (S&P 500) Index is an unmanaged group of securities considered to be representative of the stock market in general. It is a market-capitalization-weighted index of stocks of the 500 largest U.S. companies. Each stock's weight in the index is proportionate to its market value.

**Industry:** One of the 250+ groups that Zacks classifies all stocks into based on the nature of business. These groups are termed as expanded (aka "X") industries and map to their respective (economic) sectors; Zacks has 16 sectors.

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**Zacks Industry Rank:** The Zacks Industry Rank is determined by calculating the average Zacks Rank for all stocks in the industry and then assigning an ordinal rank to it. For example, an industry with an average Zacks Rank of 1.6 is better than an industry with an average Zacks Rank of 2.3. So, the industry with the better average Zacks Rank would get a better Zacks Industry Rank. If an industry has the best average Zacks Rank, it would be considered the top industry (1 out of 250+), which would place it at the top 1% of Zacks-ranked industries. Studies have shown that roughly half of a stock's price movement can be attributed to the industry group it belongs to. In fact, the top 50% of Zacks-ranked industries outperforms the bottom 50% by a factor of more than 2 to 1.

**Last EPS Surprise:** The percentage deviation of a company's last reported earnings per share from the Zacks Consensus Estimate. Companies with a positive earnings surprise are more likely to surprise again in the future (or miss again if they recently missed).

**Last Sales Surprise:** The percentage deviation of a company's last reported sales from the Zacks Consensus Estimate.

**Expected Report Date:** This is an estimated date of a company's next earnings release. The information originated or gathered by Zacks Investment Research from its information providers or publicly available sources is the basis of this estimate.

**Earnings ESP:** The Zacks Earnings ESP compares the Most Accurate Estimate to the Zacks Consensus Estimate for the yet-to-be reported quarter. The Most Accurate Estimate is the most recent version of the Zacks Consensus EPS Estimate. The idea here is that analysts revising their estimates closer to an earnings release have the latest information, which could potentially be more accurate than what they and others contributing to the consensus had predicted earlier. Thus, a positive or negative Earnings ESP reading theoretically indicates the likely deviation of the actual earnings from the consensus estimate. However, the model's predictive power is significant for positive ESP readings only. A positive Earnings ESP is a strong predictor of an earnings beat, particularly when combined with a Zacks Rank #1 (Strong Buy), #2 (Buy) or #3 (Hold). Our research shows that stocks with this combination produce a positive surprise nearly 70% of the time.

**Periods:**

**TTM:** Trailing 12 months. Using TTM figures is an effective way of analyzing the most-recent financial data in an annualized format that helps neutralize the effects of seasonality and other quarter-to-quarter variation.

**F1:** Current fiscal year. This period is used to analyze the estimates for the ongoing full fiscal year.

**F2:** Next fiscal year. This period is used to analyze the estimates for the next full fiscal year.

**F12M:** Forward 12 months. Using F12M figures is an effective way of analyzing the near-term (the following four unreported quarters) estimates in an annualized manner. Instead of typically representing estimates for the full fiscal year, which may not represent the nitty-gritty of each quarter, F12M figures suggest an all-inclusive annualized estimate for the following four quarters. The annualization helps neutralize the potential effects of seasonality and other quarter-to-quarter variations.

**P/E Ratio:** The price-to-earnings ratio measures a company's current market price per share relative to its earnings per share (EPS). Usually, the trailing-12-month (TTM) EPS, current-fiscal-year (F1) EPS estimate, or forward-12-month (F12M) EPS estimate is used as the denominator. In essence, this ratio shows what the market is willing to pay today for each dollar of EPS. In other words, this ratio gives a sense of what the relative value of the company is at the already reported level of earnings or at a future level of earnings.

It is one of the most widely-used multiples for determining the value of a company and helps comparing its valuation with that of a competitor, the industry group or a benchmark.

**PEG Ratio:** The price/earnings to growth ratio is a stock's P/E ratio using current fiscal year (F1) EPS estimate divided by its expected EPS growth rate over the coming 3 to 5 years. This ratio essentially determines a stock's value by factoring in the company's expected earnings growth and is thus believed to provide a more complete picture than just the P/E ratio, particularly for faster-growing companies.

**P/S Ratio:** The price-to-sales ratio is calculated as a company's current price per share divided by trailing 12 months (TTM) sales or revenues per share. This ratio shows what the market is willing to pay today for each dollar of TTM sales per share. The P/S ratio is at times the only valuation metric when the company has yet to become profitable.

**Cash/Price Ratio:** The cash-to-price ratio or Cash Yield is calculated as cash and marketable securities per share divided by the company's current share price. Like the earnings yield, which shows the anticipated yield (or return) on a stock from earnings for each dollar invested, the cash yield does the same, with cash being the source of return instead of earnings. For example, a cash/price ratio of 0.08 suggests a return of 8% or 8 cents for every \$1 investment.

**EV/EBITDA Ratio:** The EV/EBITDA ratio, also known as Enterprise Multiple, is calculated as a company's enterprise value (market capitalization + value of total long-term debt + book value of preferred shares - cash and marketable securities) divided by EBITDA (earnings before interest, taxes, depreciation and amortization). Usually, trailing-12-month (TTM) or forward-12-month (F12M) EBITDA is used as the denominator.

**EV/Sales Ratio:** The enterprise value-to-sales ratio is calculated as a company's enterprise value (market capitalization + value of total long-term debt + book value of preferred shares - cash and marketable securities) divided by annual sales. It is an expansion of the P/S valuation, which uses market value instead of enterprise value. The EV/Sales ratio is perceived as more accurate than P/S, in part, because the market capitalization does not take a company's debt into account when valuing it.

**EV/CF Ratio:** The enterprise value-to-cash flow ratio is calculated as a company's enterprise value (market capitalization + value of total long-term debt + book value of preferred shares - cash and marketable securities) divided by the trailing-12-month (TTM) operating cash flow. It's a measure of how long it would take to buy the entire business if you were able to use all the company's operating cash flow.

The EV/CF ratio is perceived as more accurate than the P/CF ratio, in part, because the market price does not take a company's debt into account when valuing it.

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**EV/FCF Ratio:** The enterprise value-to-free cash flow metric compares a company's enterprise value to its trailing-12-month (TTM) free cash flow (FCF). This metric is very similar to the EV/CF ratio, but is considered a more exact measure owing to the fact that it uses free cash flow, which subtracts capital expenditures (CAPEX) from a company's total operating cash flow, thereby reflecting the actual cash flow available for funding growth activities and payments to shareholders.

**P/EBITDA Ratio:** The P/EBITDA ratio is calculated as a company's per share market value divided by EBITDA (earnings before interest, taxes, depreciation, and amortization). This metric is very similar to the EV/EBITDA ratio, but is considered a little less exact measure as it uses market price, which does not take a company's debt into account. However, since EBITDA is often considered a proxy for cash income, the metric is used as a measure of what the market is willing to pay today for each dollar of the company's cash profitability in the trailing 12 months (TTM) or forward 12 months (F12M).

**P/B Ratio:** The price-to-book ratio is calculated as a company's current price per share divided by its book value (total assets – liabilities – preferred stocks) per share. In short, the book value is how much a company is worth. In other words, it reflects the total value of a company's assets that its common shareholders would receive if it were to be liquidated. So, the P/B ratio indicates whether you're paying higher or lower than what would remain if the company went bankrupt immediately. Investors typically use this metric to determine how a company's stock price stacks up to its intrinsic value.

**P/TB Ratio:** The price-to-tangible-book value ratio is calculated as a the per share market value of a company divided by the value of its tangible assets (total assets – liabilities – preferred stocks – intangible assets) per share. Tangible book value is the same thing as book value except it excludes the value of intangible assets to get a step closer to the baseline value of the company.

**P/CF Ratio:** The price-to-cash flow ratio measures a company's per share market price relative to its trailing-12-month (TTM) operating cash flow per share. This metric is used to determine whether a company is undervalued or overvalued relative to another stock, industry or sector. And like the P/E ratio, a lower number is typically considered better from the value perspective.

One of the reasons why P/CF ratio is often preferred over P/E ratio is the fact that operating cash flow adds back non-cash expenses such as depreciation and amortization to net income. This feature helps valuing stocks that have positive cash flow but are not profitable because of large noncash charges.

**P/FCF Ratio:** The price-to-free cash flow ratio is an extension of P/CF ratio, which uses trailing-12-month (TTM) free cash flow per share instead of operating cash flow per share. This metric is considered a more exact measure than P/CF ratio, as free cash flow subtracts capital expenditures (CAPEX) from a company's total operating cash flow, thereby reflecting the actual cash flow available for funding activities that generate additional revenues.

**Earnings Yield:** The earnings yield is calculated as current fiscal year (F1) EPS estimate divided by the company's current share price. The ratio, which is the inverse of the P/E ratio, measures the anticipated yield (or return) from earnings for each dollar invested in a stock today.

For example, earnings yield for a stock, which is trading at \$35 and expected to earn \$3 per share in the current fiscal year (F1), would be 0.0857 ( $3/35 = 0.0857$ ) or 8.57%. In other words, for \$1 invested in the stock today, the yield from earnings is anticipated to be 8.57 cents.

Investors most commonly compare the earnings yield of a stock to that of a broad market index (such as the S&P 500) and prevailing interest rates, such as the current 10-year Treasury yield. Since bonds and stocks compete for investors' dollars, stock investors typically demand a higher yield for the extra risk they assume compared to investors of U.S. Treasury-backed securities that offer virtually risk-free returns. This additional return is referred to as the risk premium.

**Debt/Equity Ratio:** The debt-to-equity ratio is calculated as a company's total liabilities divided by its shareholder equity. This metric is used to gauge a company's financial leverage. In other words, it is a measure of the degree to which a company is financing its operations through debt versus its own funds. The higher the ratio, the higher the risk for shareholders.

However, this ratio is difficult to compare across industry groups where ideal amounts of debt vary. Some businesses are more capital intensive than others and typically require higher debt to finance their operations. So, a company's debt-to-equity ratio should be compared with other companies in the same industry.

**Cash Flow (\$/share):** Cash flow per share is calculated as operating cash flow (after-tax earnings + depreciation + other non-cash charges) divided by common shares outstanding. It is used by many investors as a measure of a company's financial strength. Since cash flow per share takes into consideration a company's ability to generate cash by adding back non-cash expenses, it is regarded by some as a more accurate measure of a company's financial situation than earnings per share, which could be artificially deflated.

**Current Ratio:** The current ratio or liquidity ratio is a company's current assets divided by its current liabilities. It measures a company's ability to pay short-term obligations. A current ratio that is in line with the industry average or slightly higher is generally considered acceptable. A current ratio that is lower than the industry average would indicate a higher risk of distress or default. A higher number is usually better. However, a very high current ratio compared to the industry average could be an indication of inefficient use of assets by management.

**Debt/Capital Ratio:** Debt-to-capital ratio is a company's total debt (interest-bearing debt + both short- and long-term liabilities) divided its total capital (interest-bearing debt + shareholders' equity). It is a measure of a company's financial leverage. All else being equal, the higher the debt-to-capital ratio, the riskier the stock.

However, this ratio can vary widely from industry to industry, the ideal amount of required debt being different. Some businesses are more capital intensive than others and typically require higher debt to finance their operations. So, a company's debt-to-capital ratio should be compared with the same for its industry.

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**Net Margin:** Net margin is calculated as net income divided by sales. It shows how much of each dollar in sales generated by a company translates into profit. For example, if a company's net margin is 15%, its net income is 15 cents for every \$1 of sales it makes.

A change in margin can reflect either a change in business conditions, or a company's cost controls, or both. If a company's expenses are growing faster than sales, its net margin will decline. However, different net margin rates are considered good for different industries, so it's better to compare net margin rates of companies in the same industry group.

**Return on Equity:** Return on equity (ROE) is calculated as trailing-12-month net income divided by trailing-12-month average shareholder equity (including reinvested earnings). This metric is considered a measure of how effectively management is using a company's assets to generate profits. For example, if a company's ROE is 10%, it creates 10 cents profits for every \$1 shareholder equity, which is basically the company's assets minus debt. A company's ROE deemed good or bad depends on what's normal for its peers or industry group.

**Sales/Assets Ratio:** The sales-to-assets ratio or asset utilization ratio or asset turnover ratio is calculated as a company's annual sales divided by average assets (average of assets at the beginning of the year and at the year's end). This metric helps investors understand how effectively a company is using its assets to generate sales. For example, a sales-to-assets ratio of 2.5 indicates that the company generated \$2.50 in sales for every \$1 of assets on its books.

The higher the sales-to-assets ratio, the better the company is performing. However, similar to many other ratios, the asset turnover ratio tends to be higher for companies in certain industries/sectors than in others. So, a company's sales-to-assets ratio should be compared with the same for its industry/sector.

**Historical EPS Growth (3-5 Years):** This is the average annual (trailing-12-month) EPS growth rate over the last 3-5 years. This metric helps investors see how a company's EPS has grown from a long-term perspective.

Note: There are many factors that can influence short-term numbers — a recession will reduce this number, while a recovery will inflate it. The longterm perspective helps smooth out short-term events.

**Projected EPS Growth (F1/F0):** This is the estimated EPS growth rate for the current financial year. It is calculated as the consensus estimate for the current fiscal year (F1) divided by the reported EPS for the last completed fiscal year (F0).

**Current Cash Flow Growth:** It measures the latest year-over-year change in operating cash flow. Cash flow growth tells an investor how quickly a company is generating inflows of cash from operations. A positive change in the cash flow is desired and shows that more 'cash' is coming in than going out.

**Historical Cash Flow Growth (3-5 Years):** This is the annualized change in cash flow over the last 3-5 years. The change in a longer period helps put the current reading into proper perspective. By looking at the rate, rather than the actual dollar value, the comparison across the industry and peers becomes easier.

**Projected Sales Growth (F1/F0):** This metric looks at the estimated sales growth for the current year. It is calculated as sales estimate for the current fiscal year (F1) divided by the reported sales for the last completed fiscal year (F0).

Like EPS growth, a higher rate is better for sales growth. A look at a company's projected sales growth instantly tells you what the outlook is for their products and services. However, different sales growth rates are considered good for different industries, so it's better to compare sales growth rates of companies in the same industry group.

**EPS F1 Estimate 1-Week Change:** The percentage change in the Zacks Consensus EPS estimate for the current fiscal year over the past week. The change in a company's consensus EPS estimate (or earnings estimate revision) has proven to be strongly correlated with the near-term price movement of its shares. It is an integral part of the Zacks Rank.

If a stock's consensus EPS estimate is \$1.10 now versus \$1.00 a week ago, that will be reflected as a 10% upward revision. If, on the other hand, it went from \$1.00 to 90 cents, that would be a 10% downward revision.

**EPS F1 Estimate 4-Week Change:** The percentage change in the Zacks Consensus EPS estimate for the current fiscal year over the past four weeks.

A stock's earnings estimate revision in a 1-week period is important. But it's more meaningful to look at the longer-term revision. And, of course, the 4-week change helps put the 1-week change into proper perspective.

**EPS F1 Estimate 12-Week Change:** The percentage change in the Zacks Consensus EPS estimate for the current fiscal year over the past 12 weeks.

This metric essentially shows how the consensus EPS estimate has changed over a period longer than 1 week or 4 weeks.

**EPS Q1 Estimate Monthly Change:** The percentage change in the Zacks Consensus EPS estimate for the current fiscal quarter over the past four weeks.

While the revision in consensus EPS estimate for the current fiscal year is strongly correlated with the near-term price movement of its shares, the estimate revision for the current fiscal quarter is an important metric as well, especially over the short term, and particularly as a stock approaches its earnings date. If a stock's Q1 EPS estimate decreases ahead of its earnings release, it's usually a negative sign, whereas an increase is a positive sign.