

Keysight Technologies (KEYS)

\$102.14 (As of 01/28/20)

Price Target (6-12 Months): **\$110.00**

Long Term: 6-12 Months

Zacks Recommendation:

Neutral

(Since: 01/27/20)

Prior Recommendation: Outperform

Short Term: 1-3 Months

Zacks Rank: (1-5)

3-Hold

Zacks Style Scores:

VGM:B

Value: D

Growth: A

Momentum: B

Summary

Keysight is benefiting from solid demand of its electronic design and test instrumentation systems. The company's focus on launching new solutions for growth markets like 5G, IoT, next-generation wireless, high-speed datacenters and automotive & energy is a positive. Further, collaborations with Qualcomm, Xilinx and AT&T are expected to fortify presence in the 5G network emulation market. The acquisitions of Ixia, Anite and AT4 Wireless have enriched Keysight's 5G solutions portfolio. Notably, shares of the company have outperformed the industry in the past year. However, leveraged balance sheet and integration risks remain major concerns. Moreover, Keysight derives a significant portion of revenues from outside the United States rendering it susceptible to exchange rate volatility amid trade-war concerns.

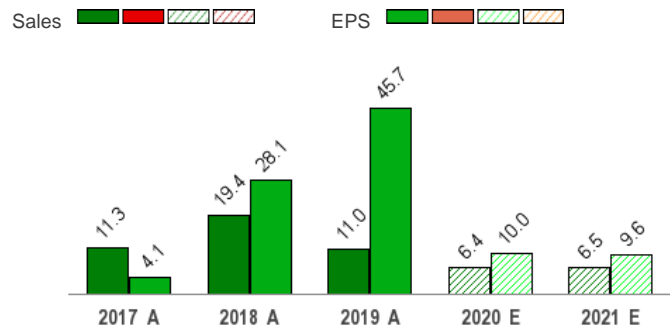
Price, Consensus & Surprise



Data Overview

52 Week High-Low	\$110.00 - \$71.03
20 Day Average Volume (sh)	1,270,505
Market Cap	\$19.2 B
YTD Price Change	-0.5%
Beta	1.24
Dividend / Div Yld	\$0.00 / 0.0%
Industry	Electronics - Measuring Instruments
Zacks Industry Rank	Top 31% (78 out of 255)

Sales and EPS Growth Rates (Y/Y %)



Last EPS Surprise	12.7%
Last Sales Surprise	2.1%
EPS F1 Est- 4 week change	0.0%
Expected Report Date	02/20/2020
Earnings ESP	0.0%
P/E TTM	21.6
P/E F1	19.7
PEG F1	2.0
P/S TTM	4.5

Sales Estimates (millions of \$)

	Q1	Q2	Q3	Q4	Annual*
2021	1,152 E	1,242 E	1,251 E	1,301 E	4,875 E
2020	1,061 E	1,150 E	1,159 E	1,207 E	4,577 E
2019	1,006 A	1,090 A	1,087 A	1,120 A	4,303 A

EPS Estimates

	Q1	Q2	Q3	Q4	Annual*
2021	\$1.24 E	\$1.45 E	\$1.46 E	\$1.54 E	\$5.69 E
2020	\$1.08 E	\$1.30 E	\$1.35 E	\$1.45 E	\$5.19 E
2019	\$0.93 A	\$1.22 A	\$1.25 A	\$1.33 A	\$4.72 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 01/28/2020. The reports text is as of 01/29/2020.

Overview

Based in Santa Rosa, CA, Keysight Technologies, Inc. is a provider of electronic design and test instrumentation systems. In 2013, Agilent Technologies announced that it will split into two independent companies. One of the company was named Keysight Technologies, which became a fully independent electronic measurement company on Nov 1, 2014 and got listed on the New York Stock Exchange on Nov 3, 2014, with ticker symbol KEYS.

In fiscal 2019, the company generated non-GAAP revenues of \$4.312 billion, up 10% over 2018 tally. In fourth-quarter fiscal 2019, the company generated non-GAAP revenues of \$1.122 billion, up 7% year over year.

KeySight reports under three operating segments namely Communications Solutions Group or CSG, Electronic Industrial Solutions Group or EISG and Ixia Solutions Group or ISG. In a bid to remove ambiguity in the reporting processes, Keysight removed Services Solutions Group or SSG as a discrete reportable segment, from first-quarter fiscal 2019.

Keysight restructured reporting segments as part of its go-to-market plan. Notably, SSG revenues will be reflected in CSG and EISG adjusted according to the respective services delivery.

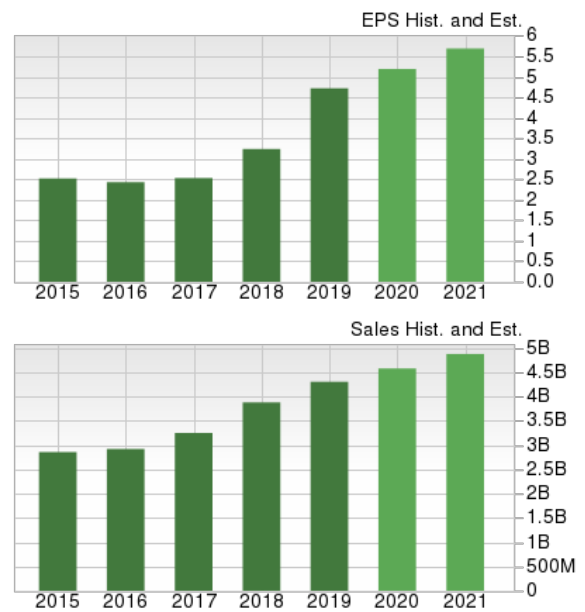
Under CSG segment (62.9% of the non-GAAP revenues in fourth-quarter fiscal 2019), the company offers radio frequency (RF) and microwave test instruments and allied software, and electronic design automation (EDA) software instruments, laser source products, optical amplifiers, and other software solutions.

EIS Group (25.3%) accounts for design verification devices; general purpose test and measurement equipments; end-to-end manufacturing systems, and material analysis devices.

ISG (11.8%) was formed after conclusion of Ixia buyout in Apr 18, 2017. Under the segment, Keysight offers test and visibility solutions, and software maintenance services.

Some of the key competitors of Keysight are Rohde & Schwarz GmbH & Co. KG, Anritsu Corporation, Tektronix and LeCroy Corporation, Anritsu Corporation, National Instruments Corporation, Teradyne, Inc. and Advantest, to name few.

The company generated 40.5% of non-GAAP revenues from Americas in fourth-quarter fiscal 2019. Meanwhile, revenues from Europe and Asia Pacific came in at 15.4% and 44.1%, respectively.



Reasons To Buy:

- ▲ Electronic devices form the very fulcrum of Internet of Things (IoT) services, wireless devices, data centers and 5G technologies. The rapid adoption of these devices is increasing demand for electronics testing equipments. Further, ongoing technical advancement in mobile communications, semiconductors and automotive markets are likely to drive growth. Moreover, rising demand for power management applications is a key catalyst. Sturdy efforts toward the ongoing modification of the Internet infrastructure, evolution of smart cars & autonomous-driving vehicles bode well. Additionally, medical devices and pharmaceutical markets hold immense potential, thanks to growing usage of electronics based testing equipments in these markets. In fact, per MarketsandMarkets data, test and measurement equipment market is projected to be \$32.3 billion by 2024 at a CAGR of 3.9% from the estimated valuation of approximately \$25.7 billion in 2018.
- ▲ Keysight is gaining from strong industry wide growth. The company is witnessing solid adoption of its electronic design and test solutions. Strong demand for its solutions has been a key catalyst behind robust top-line growth. The company boasts a solid clientele comprising Alphabet, Amazon, Boeing, Facebook, MediaTek, Microsoft, Nvidia, Samsung, TSMC, and Tesla, to mention a few. Moreover, the company has a strong pipeline of new business bookings.
- ▲ Keysight boasts of a robust 5G portfolio. The company's 5G product design validation solutions ranging from Layer 1 to 7 enable telecom and semiconductor companies to accelerate their 5G initiatives. Further, Keysight's 5G network emulation solutions facilitate end-to-end processes from development to deployment, accelerating the 5G device architecture. The solutions offer cost-efficient test techniques with high flexibility and control capabilities, reducing time-to-market. Notably, over past three years, Keysight witnessed CAGR of more than 60% in order growth in 5G domain. Intensive infrastructure investments in 5G deployment and positive trial testing results hold promise. In fact, per ResearchAndMarkets data, global 5G market is expected to reach \$277 billion by 2025, witnessing a CAGR of around 111% between 2019 and 2025. Based on its portfolio strength, we believe that the company is well poised to gain from this robust growth prospect.
- ▲ Apart from strength in 5G domain, Keysight's efforts in other emerging growth markets like Internet of Things (IoT) and high-speed data centers, bodes well for the top line. Particularly, management's focus on Automotive and Energy, and Aerospace and Defence domains augur well in the long haul. In fact, growth in revenues from Aerospace, Defence and Government end-market deserves a special mention. In fourth-quarter fiscal 2019, the non-GAAP revenues from this vertical came in at \$263 million, up 3% year over year. Moreover, estimated higher spending on aerospace and defense globally in 2019 bodes well in this regard. The company is expected to benefit from the growing proliferation of electronic content in vehicles, momentum in space and satellite applications, and rising adoption of driver-assistance systems globally.
- ▲ The company has been active on the acquisition front. Keysight recently acquired Thales Calibration Services, a subsidiary of Thales Group. The buyout is likely to expand the company's current electrical portfolio, aiding Keysight in gaining foothold in the defense and security space. Similarly buyouts like Ixia (January 2017), Electroservices Enterprises and Anite (August 2015), and Eagleware-Elanix (August 2005) have aided growth by expanding product portfolio at various levels and adding competence and domain expertise.
- ▲ Keysight is also expanding its business through collaborations with established sector players. Notably, the company is extending Ixia's CloudLens visibility platform capabilities, enabling it to offer access to packet data in leading cloud platforms including Amazon Web Services ("AWS"), Microsoft Azure, Google Cloud Platform, Alibaba Cloud, among others. This move is expected to augment adoption of CloudLens, which in turn favors top-line growth. Furthermore, Keysight's collaborations with the likes of Softbank, OPPO, ASUS, Motorola, Verizon Communications and Qualcomm Technologies, are enabling it to achieve 5G commercialization related milestones. Additionally, tie-ups with fabless semiconductor companies engaged in providing 5G chipsets, like UNISOC, MediaTek, among others, enhances Keysight's prospects in the 5G domain, favoring top-line growth. Moreover, the company is also part of China-based Phase I Step 3 5G trials led by IMT-2020 Promotion Group. The extended collaborations augur well for the company in the long haul.

Robust adoption driven by high demand for 5G design and test solutions primarily from telecom vendors, and a strong pipeline for new business bookings are key catalysts.

Reasons To Sell:

- ▼ Keysight derives a significant proportion of its revenues from outside the United States (59.5% of total non-GAAP revenues in fourth-quarter fiscal 2019), subjecting the company to exchange rate volatility. Unfavorable movement in exchange rates of foreign currencies like renminbi, euro, pound sterling, Costa Rican colon, and yen related to the U.S. dollar can adversely impact results and undermine its growth potential to some extent.
- ▼ Keysight is considerably exposed particularly to the demand environment in China (18.3% of revenues in fiscal 2018), which is at present quite sluggish. Further, imposition of tariffs owing to trade war between the United States and China is anticipated to negatively impact growth prospects. The uncertainty over the recent trade war truce has impacted investors' confidence and is likely to remain an overhang on the company's performance.
- ▼ Keysight's frequent acquisitions have escalated integration risks. Moreover, we note that the buyouts negatively impacted the company's balance sheet in the form of high level of goodwill and net intangible assets, which comprised of 25.7% of total assets as of Oct 31, 2019.
- ▼ Acquisitions have also negatively impacted Keysight's balance sheet, as high indebtedness adds to the risk of investing in the company. At the end of fourth-quarter fiscal 2019, net debt amounted to \$190 million.
- ▼ Although, shares have outperformed the industry in the past year, the company is trading at premium in terms of Price/Book (P/B). Keysight currently has a trailing 12-month P/B ratio of 6.38. This level compares unfavorably with what the industry witnessed in the prior year. Additionally, the ratio is higher than the average level of 6.12 and is near the high end of the valuation range in this period. Consequently, the valuation looks slightly stretched from P/B perspective.

Exposure to foreign currency fluctuations, integration risks and a leveraged balance sheet remain major concerns.

Last Earnings Report

Keysight Q4 Earnings Surpass Estimates, Revenues Up Y/Y

Keysight Technologies delivered fourth-quarter fiscal 2019 non-GAAP earnings of \$1.33 per share, which surpassed the Zacks Consensus Estimate of \$1.18. The bottom-line figure rose from \$1.01 reported in the year-ago quarter and fell within management's prior guidance of \$1.14-\$1.2 per share.

Non-GAAP revenues increased 7% year over year to \$1.122 billion, exceeding management's guided range of \$1.08-\$1.1 billion.

Non-GAAP core revenues (excluding the impact of currency and revenues from acquisitions in a year's time) increased 7% year over year.

Meanwhile, GAAP revenues advanced 7% from the year-ago quarter to \$1.12 billion. The top line exceeded the Zacks Consensus Estimate of \$1.10 billion.

Robust performance in the quarter was mainly supported by the company's leading position across market such as 5G, aerospace defense, network visibility and general electronics.

Further, the company is well-positioned to sustain growth momentum, courtesy of its differentiated and broad portfolio of solutions across several end-markets

Quarter in Detail

Orders grew 6% year over year to approximately \$1,194 million during the reported quarter. Notably, core orders also improved 7%.

The company's financial reporting comprises three segments — Ixia Solutions Group (ISG), Electronic Industrial Solutions Group (EISG) and Communications Solutions Group (CSG).

CSG includes commercial communications (CC) and aerospace, defense & government (ADG) end markets. Non-GAAP CSG revenues climbed 7% to \$706 million.

CC revenues of \$443 million improved 9% year over year on the back of strong growth in the wireless ecosystem primarily triggered by advancement in 5G investment.

ADG revenues came in at \$263 million, increasing 5% year over year on a core basis. Higher government spending and investments in China supported the upside. These were partially offset by weakness in Europe and rest of Asia.

Non-GAAP EISG revenues increased 3% to \$284 million, primarily owing to portfolio strength in general electronics, investments in next-generation automotive and energy technologies as well as semiconductor solution demand.

ISG reported non-GAAP revenues of \$132 million, up 15% year over year, backed by double-digit revenue growth across network test and visibility solutions.

Management highlighted that ISG will be aligned with the CGS segment in first-quarter fiscal 2020.

Margin Highlights

Non-GAAP gross margin was 64% during the reported quarter.

CSG and EISG's gross margin of 63% and 72% expanded 280 bps and 370 bps, respectively, on a year-over-year basis.

Further, ISG gross margin increased 140 bps to 71.7%.

Non-GAAP operating margin for the quarter was 26%, reflecting substantial growth from 21.1% in the year-ago quarter.

Balance Sheet & Cash Flow

Keysight ended the fourth quarter with cash & cash equivalents of \$1.598 billion, up from the previous quarter's \$1.394 billion.

As on Oct 31, 2019, the company reported total debt (short-term plus long-term) of \$1.788 billion, down from \$1.792 billion in the previous quarter.

Cash flow from operations during the quarter came in at \$263 million compared with the previous quarter's \$274 million.

Free cash flow was \$233 million compared with the previous quarter's \$244 million.

During the reported quarter, the company repurchased approximately 300,000 shares for \$30 million.

In fiscal 2019, Keysight repurchased nearly 2.1 million shares for \$160 million.

Guidance

For the first quarter of fiscal 2020, the company expects GAAP revenues to be \$1.045-\$1.065 billion.

Quarter Ending **10/2019**

Report Date	Nov 26, 2019
Sales Surprise	2.11%
EPS Surprise	12.71%
Quarterly EPS	1.33
Annual EPS (TTM)	4.73

Non-GAAP earnings per share are projected to be \$1.04-\$1.10.

Management highlighted that fiscal 2020 performance is likely to be adversely impacted by trade restriction affecting a major customer in China. This is likely to lead to a five-point and three-point headwind during the first and second quarter of fiscal 2020, respectively. These unfavorable impacts are likely to show upon the performance of commercial communications end-market.

Recent News

On **Jan 23, 2020**, Keysight announced collaboration with Silicon Labs with an aim to simplify the validation of timing solutions to accelerate the design development of systems for high-speed digital, wireless communications, automotive and medical imaging applications.

On **Jan 8, 2020**, Keysight announced that it is enabling MediaTek in showcasing 8K video streaming in a smart TV in collaboration with the company, at CES 2020. The company's 5G emulation solutions will be utilized by MediaTek's 5G mobile SOC, Dimensity 1000, to validate and set up a 5G new radio (NR) connection.

On **Dec 18, 2019**, Keysight announced expanded collaboration with AAC Technologies for validation of new antenna designs in 5G new radio devices.

On **Dec 4, 2019**, Keysight declared that its 5G conformance test solutions will be utilized by Korea Testing Laboratory. It will help the latter in achieving 5G new radio (NR) device certification.

On **Nov 21, 2019**, Keysight declared that it has secured 3rd Generation Partnership Project (3GPP) validation of the industry's first C-V2X RF-based conformance test case. This is expected to aid companies in the automotive industry to enhance commercialization and deployment of autonomous vehicles and smart cars.

On **Nov 12, 2019**, Keysight unveiled the i3070 Series 6 In-Circuit Test (ICT) suite of solutions with an aim to aid electronics manufacturers in enhancing test throughput and operational efficiency of printed circuit board assembly (PCBA) manufacturing.

On **Oct 15, 2019**, Keysight announced a collaboration with Integrated Device Technologies, Inc., a subsidiary of Renesas Electronics Corporation, to accelerate the implementation of 5G New Radio (NR) base stations. This deal marks another milestone for the company in 5G NR solution based high-speed data transfer.

Valuation

Keysight's shares are up 12% in the past six-month period and 42.5% over the trailing 12-month period. Stocks in the Zacks sub-industry and the Zacks Computer & Technology sector are up 20.5% and 14.4% in the past six-month period, respectively. Over the past year, the Zacks sub-industry and sector are up 37.7% and 35.3%, respectively.

The S&P 500 index is up 10.3% in the past six-month period and 26% in the past year.

The stock is currently trading at 4.14X forward 12-month sales, which compares to 2.96X for the Zacks sub-industry, 3.69X for the Zacks sector and 3.49X for the S&P 500 index.

Over the past five years, the stock has traded as high as 4.51X and as low as 1.19X, with a 5-year median of 2.19X. Our Neutral recommendation indicates that the stock will perform in line with the market. Our \$110 price target reflects 4.46X forward 12-month sales.

The table below shows summary valuation data for KEYS

Valuation Multiples - KEYS					
		Stock	Sub-Industry	Sector	S&P 500
P/S F12M	Current	4.14	2.96	3.69	3.49
	5-Year High	4.51	2.99	3.69	3.49
	5-Year Low	1.19	0.98	2.3	2.54
	5-Year Median	2.19	1.64	3.01	3
P/B TTM	Current	6.38	5.51	5.56	4.48
	5-Year High	7.34	7.67	5.63	4.55
	5-Year Low	2.62	2.2	3.13	2.85
	5-Year Median	4.14	3.41	4.22	3.62
EV/Sales TTM	Current	4.5	3.26	4.36	3.28
	5-Year High	4.8	5.95	4.36	3.3
	5-Year Low	1.44	1.1	2.56	2.16
	5-Year Median	2.83	2.14	3.46	2.8

As of 01/28/2020

Industry Analysis Zacks Industry Rank: Top 31% (78 out of 255)



Top Peers

Garmin Ltd. (GRMN)	Outperform
AAON, Inc. (AAON)	Neutral
ASML Holding N.V. (ASML)	Neutral
Cadence Design Systems, Inc. (CDNS)	Neutral
Lam Research Corporation (LRCX)	Neutral
Nova Measuring Instruments Ltd. (NVMI)	Neutral
Amtech Systems, Inc. (ASYS)	Underperform
Canon, Inc. (CAJ)	Underperform

Industry Comparison Industry: Electronics - Measuring Instruments				Industry Peers		
	KEYS Neutral	X Industry	S&P 500	ASML Neutral	ASYS Underperform	CAJ Underperform
VGM Score	B	-	-	C	C	D
Market Cap	19.25 B	139.76 M	23.90 B	122.21 B	113.40 M	29.71 B
# of Analysts	5	1	13	3	2	2
Dividend Yield	0.00%	0.00%	1.8%	0.69%	0.00%	4.29%
Value Score	D	-	-	D	D	C
Cash/Price	0.08	0.11	0.04	0.04	0.48	0.14
EV/EBITDA	17.62	8.12	14.05	33.19	8.78	5.30
PEG Ratio	1.91	1.96	2.00	2.06	NA	4.17
Price/Book (P/B)	6.38	2.82	3.28	8.67	1.29	1.14
Price/Cash Flow (P/CF)	16.87	18.19	13.57	35.88	19.72	6.57
P/E (F1)	19.10	19.26	18.76	33.18	788.00	18.75
Price/Sales (P/S)	4.47	2.13	2.63	9.21	1.24	0.88
Earnings Yield	5.08%	5.08%	5.33%	3.02%	0.13%	5.33%
Debt/Equity	0.60	0.06	0.72	0.25	0.06	0.16
Cash Flow (\$/share)	6.05	0.66	6.89	8.09	0.40	4.25
Growth Score	A	-	-	A	B	D
Hist. EPS Growth (3-5 yrs)	14.35%	43.29%	10.68%	22.07%	NA	2.52%
Proj. EPS Growth (F1/F0)	10.00%	17.43%	7.63%	26.95%	-96.43%	24.17%
Curr. Cash Flow Growth	-28.59%	-19.71%	13.04%	-4.32%	-45.26%	-1.63%
Hist. Cash Flow Growth (3-5 yrs)	15.69%	12.97%	8.78%	14.58%	20.49%	-1.80%
Current Ratio	3.21	2.96	1.24	2.58	3.53	1.77
Debt/Capital	37.31%	8.38%	42.99%	19.80%	5.59%	13.74%
Net Margin	14.43%	1.23%	11.47%	23.36%	-5.66%	4.41%
Return on Equity	29.25%	8.03%	17.21%	22.93%	1.42%	5.56%
Sales/Assets	0.68	0.98	0.54	0.56	0.69	0.76
Proj. Sales Growth (F1/F0)	6.36%	1.06%	4.10%	10.78%	-17.82%	1.71%
Momentum Score	B	-	-	F	A	B
Daily Price Chg	2.13%	0.82%	0.90%	2.08%	1.81%	1.27%
1 Week Price Chg	-2.27%	0.19%	-1.09%	-1.40%	3.05%	-0.71%
4 Week Price Chg	-0.48%	0.38%	0.46%	-1.95%	10.06%	2.12%
12 Week Price Chg	-1.90%	9.96%	4.15%	6.76%	35.86%	1.42%
52 Week Price Chg	42.55%	51.52%	18.27%	66.19%	65.20%	-2.07%
20 Day Average Volume	1,270,505	29,938	1,730,811	617,732	54,999	151,961
(F1) EPS Est 1 week change	0.00%	0.00%	0.00%	-6.72%	0.00%	0.00%
(F1) EPS Est 4 week change	0.00%	0.00%	0.00%	-6.32%	0.00%	-8.87%
(F1) EPS Est 12 week change	4.55%	4.55%	-0.13%	-5.10%	-96.23%	-12.09%
(Q1) EPS Est Mthly Chg	0.00%	0.00%	0.00%	-29.50%	0.00%	NA

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	B
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

This report contains independent commentary to be used for informational purposes only. The analysts contributing to this report do not hold any shares of this stock. The analysts contributing to this report do not serve on the board of the company that issued this stock. The EPS and revenue forecasts are the Zacks Consensus estimates, unless indicated otherwise on the reports first page. Additionally, the analysts contributing to this report certify that the views expressed herein accurately reflect the analysts personal views as to the subject securities and issuers. ZIR certifies that no part of the analysts compensation was, is, or will be, directly or indirectly, related to the specific recommendation or views expressed by the analyst in the report.

Additional information on the securities mentioned in this report is available upon request. This report is based on data obtained from sources we believe to be reliable, but is not guaranteed as to accuracy and does not purport to be complete. Any opinions expressed herein are subject to change.

ZIR is not an investment advisor and the report should not be construed as advice designed to meet the particular investment needs of any investor. Prior to making any investment decision, you are advised to consult with your broker, investment advisor, or other appropriate tax or financial professional to determine the suitability of any investment. This report and others like it are published regularly and not in response to episodic market activity or events affecting the securities industry.

This report is not to be construed as an offer or the solicitation of an offer to buy or sell the securities herein mentioned. ZIR or its officers, employees or customers may have a position long or short in the securities mentioned and buy or sell the securities from time to time. ZIR is not a broker-dealer. ZIR may enter into arms-length agreements with broker-dealers to provide this research to their clients. Zacks and its staff are not involved in investment banking activities for the stock issuer covered in this report.

ZIR uses the following rating system for the securities it covers. **Outperform-** ZIR expects that the subject company will outperform the broader U.S. equities markets over the next six to twelve months. **Neutral-** ZIR expects that the company will perform in line with the broader U.S. equities markets over the next six to twelve months. **Underperform-** ZIR expects the company will underperform the broader U.S. equities markets over the next six to twelve months.

No part of this report can be reprinted, republished or transmitted electronically without the prior written authorization of ZIR.