

Qorvo Inc. (QRVO)

\$154.40 (As of 12/11/20)

Price Target (6-12 Months): **\$170.00**

Long Term: 6-12 Months

Zacks Recommendation:

Outperform

(Since: 08/19/20)

Prior Recommendation: Neutral

Short Term: 1-3 Months

Zacks Rank: (1-5)

1-Strong Buy

Zacks Style Scores:

VGM:C

Value: D

Growth: D

Momentum: B

Summary

Qorvo is witnessing robust improvement in the Infrastructure and Defense Products business. Solid uptake of Bulk Acoustic Wave (BAW) antenna-plexers, as economies started to reopen, is expected to boost top line growth. Moreover, expanding portfolio of 5G base solutions amid accelerated deployment of 5G bodes well. Besides, growing momentum for Qorvo's Gallium Nitride (GaN) technology-based solutions is a positive. The company's efforts to reward shareholders through buybacks is noteworthy. Qorvo's performance in third-quarter fiscal 2021 is expected to benefit from strength in smartphone vertical, upgrades in 5G smartphones, and gains from consistent growth in 5G infrastructure, power management, 5G base stations, Wi-Fi 6 solutions and defense end-markets. Notably, shares of the company have outperformed the industry on a year-to-date.

Price, Consensus & Surprise



Data Overview

52-Week High-Low	\$170.90 - \$67.54
20-Day Average Volume (Shares)	1,046,476
Market Cap	\$17.4 B
Year-To-Date Price Change	31.3%
Beta	1.54
Dividend / Dividend Yield	\$0.00 / 0.0%
Industry	Semiconductors - Radio Frequency
Zacks Industry Rank	Top 14% (35 out of 254)

Sales and EPS Growth Rates (Y/Y %)



Last EPS Surprise	13.6%
Last Sales Surprise	4.9%
EPS F1 Estimate 4-Week Change	0.0%
Expected Report Date	02/03/2021
Earnings ESP	1.3%
P/E TTM	20.7
P/E F1	17.9
PEG F1	2.1
P/S TTM	5.0

Sales Estimates (millions of \$)

	Q1	Q2	Q3	Q4	Annual*
2022	966 E	1,107 E	1,144 E	1,011 E	4,233 E
2021	787 A	1,060 A	1,061 E	944 E	3,848 E
2020	776 A	807 A	869 A	788 A	3,239 A

EPS Estimates

	Q1	Q2	Q3	Q4	Annual*
2022	\$2.11 E	\$2.76 E	\$2.91 E	\$2.30 E	\$10.09 E
2021	\$1.50 A	\$2.43 A	\$2.65 E	\$2.06 E	\$8.64 E
2020	\$1.36 A	\$1.52 A	\$1.86 A	\$1.57 A	\$6.33 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 12/11/2020. The reports text is as of 12/14/2020.

Overview

Headquartered in Greensboro, North Carolina, Qorvo Inc. is a leading provider of core technologies and radio frequency (RF) solutions for mobile, infrastructure and aerospace/defense applications.

The company was formed with the merger of semiconductor manufacturing firms RF Micro Devices Inc. and TriQuint Semiconductor Inc. in an all-stock transaction. Qorvo went public in 2015.

Qorvo reported revenues of \$3.239 billion in fiscal 2020. As of Apr 1, 2017, the company's reportable segments are Mobile Products (MP) and Infrastructure & Defense Products (IDP).

MP (65.7% of fiscal 2020 revenues) supplies cellular RF and WiFi solutions into a variety of mobile devices, including smartphones, notebook computers, wearables, tablets, and cellular-based applications for the Internet of Things (IoT).

The segment's product offerings include Bulk Acoustic Wave (BAW) and surface acoustic wave (SAW) filters, power amplifiers (PAs), low noise amplifiers (LNAs), switches, multimode multi-band PAs and transmit modules, RF power management integrated circuits (ICs), diversity receive modules, antenna switch modules, antenna tuning and control solutions, modules incorporating PAs and duplexers (PADs) and modules incorporating switches, PAs and duplexers (S-PADs).

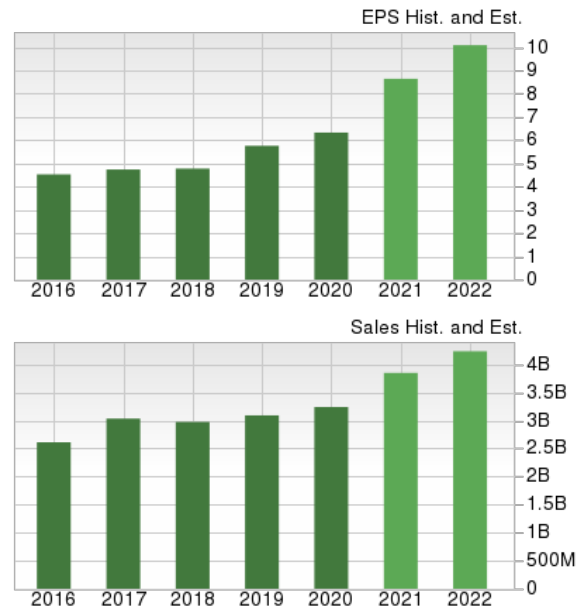
IDP's (34.3% of fiscal 2020 revenues) products are used in high performance defense systems such as radar, electronic warfare and communication systems, WiFi customer premises equipment for home and work, high speed connectivity in Long-Term Evolution ("LTE") and 5G base stations, cloud connectivity via data center communications and telecom transport, automotive connectivity and smart home solutions.

The products include high power GaAs and GaN PAs, LNAs, switches, CMOS system-on-a-chip (SoC) solutions, premium BAW and SAW filter solutions and various multi-chip and hybrid assemblies.

The company derived approximately 45.3% of revenues from the United States in fiscal 2020. Meanwhile, international sales came in at 54.7% in fiscal 2020, with China and Taiwan contributing 34.2% and 5.2%, respectively.

Apple and Huawei contributed 33% and 10% respectively to total revenues in fiscal 2020.

Qorvo primarily competes with Broadcom, Skyworks, Qualcomm, Analog Devices, and Cree, among others.



Source: Zacks Investment Research

Reasons To Buy:

- ▲ Qorvo is expected to leverage the core strengths of both the merged companies to rapidly translate research and development advances into large scale production. In addition, synergistic benefits from the merger is likely to increase profitability through economies of scale and mutual sharing of manufacturing expertise, research and development costs and adjustment of staffing expenses.
- ▲ With a broad product portfolio, Qorvo is likely to create new growth opportunities in three large global markets, namely, mobile devices, network infrastructure and aerospace/defense. This is expected to be a boon for the overall industry as a huge talent pool and combined resources will spearhead technological innovation. The combination will also offer higher data throughput for the overall benefit of carriers and consumers and reap synergistic benefits for the company.
- ▲ Qorvo has introduced highly integrated front-end solutions that simplify and accelerate the implementation of multimode, multi-band 4G smartphones and tablets. These new RF Fusion front-end solutions showcase the company's ability to help leading OEMs to quickly launch their next-generation flagship devices. Qorvo's RF Flex solutions have been selected to support multiple upcoming leading 4G reference designs. RF Flex delivers best-in-class current consumption to enable superior device performance and leading-edge design flexibility to simplify regional customization. Accelerating timeline for 5G deployment bodes well for Qorvo. It has participated in dozens of 5G field trials and demonstrations. We believe an expanding portfolio enabling 5G deployment augurs well for the long term growth of the company.
- ▲ Qorvo offers the most complete product portfolio, targeting the highest growth segments of its market including filters, switches and tuners. The company is well-positioned to win some of the industry's highest growth opportunities by leveraging its diversified product portfolio, systems-level expertise, R&D and manufacturing scale and internal assembly and test capabilities. The company is expected to improve its financial performance as it aims to invest in building a wider technology, supporting better-than-industry growth, greater diversification, a richer mix of new products and an expanding gross margin.
- ▲ Management execution has been good in recent times. As of Oct 3, 2020, cash and cash equivalents were \$2 billion compared with \$1.14 billion reported as of Jun 27, 2020. As of Oct 3, 2020, current portion of long-term debt was \$905.1 million. During the fiscal second quarter, Qorvo undertook several deleveraging steps to improve financial flexibility. The company renewed unsecured credit facility, extending it through 2025. The company also increased term loan to \$200 million. Further, Qorvo raised \$700 million through issuance of unsecured notes slated to mature in 2031. At the end of the quarter, the proceeds and cash on hand were utilized to pay down notes slated to mature in 2026. Management noted that the "revolver is untapped." Markedly, Qorvo had concluded the fiscal first quarter with unused \$300 million unsecured revolver. Also, the weighted average maturity of the company's debt is 2029, with "no material near-term maturities." This provides them the flexibility required to pursue any growth strategy, whether by way of acquisitions or otherwise.
- ▲ We believe efforts to reward shareholders through share buybacks deserves a special mention. Also, cash from operations in the fiscal second quarter was reported at \$281 million, compared with \$214.3 million in the prior quarter. Free cash flow during the fiscal second quarter came in at \$237.4 million, compared with \$184.4 million in the prior quarter. The strong cash flow balance indicates that Qorvo is making investments in the right direction and are expected to aid it in continuing shareholder friendly initiatives of share repurchase. Notably, lower number of outstanding shares favors the bottom line. The company repurchased \$515 million worth of shares in fiscal 2020. Moreover, shares worth \$105 million were repurchased in the fiscal second quarter. The company's ability to generate solid cash flow is also expected to help it sustain share buybacks, at least in the near term.

Qorvo is leveraging industry's most comprehensive product portfolio, advanced packaging technologies, and system-level expertise to gain unrivalled competitive advantage.

Risks

- Qorvo operates in a competitive landscape that is becoming more complex with low barriers to entry. As each player strives to win designs to have a greater pie in the market, the battle gets murkier. The increased competition is exerting pricing pressure, which remains a matter of concern for the company.
 - A significant portion of Qorvo's revenue comes from a handful of customers including Apple and Huawei which contributed 33% and 10% of its revenues, respectively, in fiscal 2020. Qorvo's top-line growth is significantly dependent on iPhone's growth trajectory. Additionally, the company is engaged in developing a custom product for Apple, which is pushing up Qorvo's R&D expense, thereby hurting its profitability. We also note that due to the significant exposure, Qorvo's share price movement depends heavily on Apple's results, which doesn't bode well for the investors. Furthermore, the US government's banning of Huawei remains a headwind.
 - Qorvo derives a significant proportion of its revenues from outside America, subjecting the company to exchange rate volatility. By geographical regions, bulk of the revenues in fiscal 2020 came from Asia (50%). 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. In fiscal 2020, Qorvo incurred a foreign currency loss of \$2.2 million as compared to a loss of \$2.1 million in fiscal 2019. Qorvo is also exposed to the demand environment in China (34.2% of revenues in fiscal 2020), which is a major concern.
 - Frequent acquisitions have escalated integration risks for Qorvo. Moreover, we also note that the frequent acquisitions negatively impact the company's balance sheet in the form of high level of goodwill and intangible assets, which totaled approximately \$3.35 billion or 42.9% of total assets as of Sep 30, 2020.
-

Last Earnings Report

Qorvo Q2 Earnings Beat Estimates, Revenues Rise Y/Y

Qorvo Inc. reported second-quarter fiscal 2021 non-GAAP earnings of \$2.43 per share, which improved 59.9% on a year-over-year basis. The figure surpassed the Zacks Consensus Estimate by 13.55%.

Revenues surged 31.4% year over year to \$1.06 billion. Further, the top line outpaced the consensus mark by 4.86%. Moreover, the figure was above the higher end of management's revised guided range of \$1 billion to \$1.03 billion.

Management noted that fiscal 2021 is a fiscal year with 53-weeks, with the reported quarter being a 14-week fiscal quarter.

Improvement in both Mobile Products (MP) and Infrastructure and Defense (IDP) contributed to the results. The company benefited from broad-based demand in 5G handsets, Wi-Fi 6 and IoT products.

Quarter Details & Business Highlights

Segment-wise, MP revenues of \$754 million, exceeded the company's expectations, driven by seasonality uptick in mobile and handset demand. Impact of global supply chain disruptions due to COVID-19 was less owing to strength in inventory management.

During the fiscal second quarter, the company witnessed robust traction for its chips utilized in 5G smartphones. These offerings are highly integrated and high-performance solutions, which enable customers to reduce product footprint and accelerate products to market.

Additionally, the company has extended shipments of low-band, mid-/high- and ultra-high-band modules, and BAW-based antenna-plexers which are witnessing accelerated adoption across leading smartphone OEMs.

Moreover, broad-based content gains across Wi-Fi 6 solutions, which are being implemented in leading tablets, smartphones, gateways, smart speakers, mesh networks, and virtual reality headsets, contributed to the fiscal second-quarter performance.

Further, synergies from Decawave acquisition have significantly expanded Qorvo's capabilities and positions it well to benefit from growing demand for proximity awareness applications, secure payments and secure access for smartphones, automotive and IoT.

IDP revenues grew "strongly" year over year to \$306 million. The year-over-year increase can primarily be attributed to robust growth in the company's wireless connectivity, revenues of which doubled year over year. The improvement was driven by momentum in deployment of WiFi 6 solutions and robust 5G infrastructure market demand on improving buildout of 5G networks.

Gains from rise in 5G base station deployments remained a tailwind.

In the connectivity and broadband business, the company increased shipments of Wi-Fi 6 solutions to cater to rising need for data to home owing to COVID-19 induced shelter-in-place guidelines. Notably, Qorvo expanded its global customer base for Wi-Fi 6 solutions, front-end modules (FEM) and BAW filters during the quarter under review.

The company also rolled out high-performance BAW filters for 5G small cells and repeaters to facilitate the coexistence of 5G band 41 and Wi-Fi.

Further, growth reflects strong demand for the Qorvo's solutions in defense (advanced radars and other electronic warfare products) and power management technologies. Rapid adoption of gallium nitride or GaN amplifiers for high-power applications also drove the defense top line.

Notably, uptick in GaN high-power amplifiers and small signal components improved during the reported quarter, driven by increasing deployment of 5G massive MIMO antennas.

In fact, the company clinched multiple design wins across 5G massive MIMO base stations and initiated shipments of GaN amplifiers, which are deployed in massive MIMO C-band base stations.

Also, Qorvo's advanced RF semiconductor packaging capabilities aided it in clinching a multi-year U.S. government State-of-the-Art Heterogeneous Integrated Packaging (SHIP) program.

In the programmable power management business, the company's programmable ICs and other products witnessed robust growth in solid state storage in client and enterprise computing, and solid momentum in brushless motor control applications.

Markedly, Qorvo has acquired ultra-wideband (UWB) software and system solution pioneer 7Hugs Labs S.A.S. to boost UWB system solutions capabilities and bolster design expertise with focus on mobile, IoT and automotive end-markets.

The company also inked partnership agreement with Sigma Connectivity, a notable design services company, to develop advanced UWB solutions with focus on the creation of advanced applications.

In automotive domain, the company commenced sampling of a second-generation automotive cellular V2X FEM in a bid to address vital system-level challenges.

Operational Details

Quarter Ending 09/2020

Report Date	Nov 04, 2020
Sales Surprise	4.86%
EPS Surprise	13.55%
Quarterly EPS	2.43
Annual EPS (TTM)	7.36

Non-GAAP gross margin expanded 520 basis points (bps) from the year-ago quarter to 51.7%. This can be attributed to lower manufacturing cost and favorable product mix.

Non-GAAP operating expenses increased 31.1% year over year to \$218.6 million.

As a percentage of revenues, the figure contracted 10 bps from the year-ago quarter to 20.6%.

Non-GAAP operating income improved 58.1% to \$203.7 million. Non-GAAP operating margin expanded 530 bps from the year-ago quarter to 31.1%. This can be attributed to gross margin expansion.

Balance Sheet & Cash Flow

As of Oct 3, 2020, cash and cash equivalents were \$2 billion compared with \$1.14 billion reported as of Jun 27, 2020. As of Oct 3, 2020, long-term debt was \$2.67 billion compared with \$1.87 billion as of Jun 27, 2020.

During the quarter, Qorvo undertook several deleveraging steps to improve financial flexibility. The company renewed unsecured credit facility, extending it through 2025. The company also increased term loan to \$200 million.

Further, Qorvo raised \$700 million through issuance of unsecured notes slated to mature in 2031. At the end of the quarter, the proceeds and cash on hand were utilized to pay down notes slated to mature in 2026.

Management noted that the "revolver is untapped." Markedly, Qorvo had concluded the fiscal first quarter with unused \$300 million unsecured revolver. Also, the weighted average maturity of the company's debt is 2029, with "no material near-term maturities."

Net cash provided by operating activities was \$281 million, compared with \$214.3 million in the prior quarter. Free cash flow during the reported quarter amounted to \$237.4 million, compared with \$184.4 million in the prior quarter.

During the fiscal second quarter, the company repurchased shares worth \$105 million.

Q3 View

For third-quarter fiscal 2021, Qorvo anticipates revenues of \$1.06 billion (+/- \$15 million), with MP and IDP contributing \$790 million and \$270 million, respectively.

Strength in smartphone vertical, upgrades in 5G smartphones, and gains from consistent growth in 5G infrastructure, power management, 5G base stations, Wi-Fi 6 solutions and defense end-markets is anticipated to drive performance in third-quarter fiscal 2021.

Management noted that the company had suspended shipments to Huawei in mid-September in compliance with Department of Commerce guidelines. Although the company has received license for certain mobile products, the fiscal third-quarter guidance assumes no sales to Huawei.

Non-GAAP earnings are projected to be \$2.65 per share (at the mid-point of the revenue guidance).

Non-GAAP gross margin is anticipated to be 52.5%.

Recent News

On Nov 5, Qorvo announced that it will be building a State-of-the-Art (SOTA) Heterogeneous Integrated Packaging (SHIP) RF production and prototyping center for the United States' government. The contract worth up to \$75 million was offered to Qorvo by Crane Division, Naval Surface Warfare Center (NSWC).

On Nov 5, Qorvo announced acquisition of ultra-wideband (UWB) software and system solution pioneer, 7Hugs Labs S.A.S., to boost UWB system solutions capabilities and bolster design expertise with focus on mobile, IoT and automotive end-markets.

On Oct 5, Qorvo announced that its wireless Ultra-Wideband (UWB) technology is witnessing rapid traction across device manufacturers on growing proliferation of proximity awareness applications. Qorvo's UWB technology embedded in contact tracing applications in wearable UWB devices, makes it ideal to aid employees return to workplace in a safe manner by ensuring social distancing measures.

On Sep 29, Qorvo concluded its offering of \$700 million principal amount of its senior notes due 2031. The notes, slated to mature on Apr 1, 2031, will pay interest semi-annually at a rate of 3.375%.

On Sep 15, Qorvo announced the pricing of its senior notes offering of \$700 million slated to mature in 2031. The notes will pay interest on a semi-annual basis at a rate of 3.375%.

Valuation

Qorvo's shares are up 31.3% in the year-to-date period and 32.7% in the trailing 12-month period. Stocks in the Zacks sub-industry and the Zacks Computer & Technology sector are up 11.7% and 35.8%, in the year-to-date period, respectively. Over the past year, the Zacks sub-industry and sector are up 14.8% and 36.8%, respectively.

The S&P 500 index is up 13.9% in the year-to-date period and 15% in the past year.

The stock is currently trading at 15.79X forward 12-month earnings compared with 19.17X for the Zacks sub-industry, 27.71X for the Zacks sector and 22.57X for the S&P 500 index.

In the past five years, the stock has traded as high as 70.9X and as low as 8.84X, with a 5-year median of 13.7X. Our Outperform recommendation indicates that the stock will perform better than the market. Our \$170 price target reflects 17.59X forward 12-month earnings.

The table below shows summary valuation data for QRVO

Valuation Multiples - QRVO					
		Stock	Sub-Industry	Sector	S&P 500
P/E F12M	Current	15.79	19.17	27.71	22.57
	5-Year High	70.9	24.12	28	23.47
	5-Year Low	8.84	10.01	16.94	15.27
	5-Year Median	13.7	13.14	19.95	17.77
P/S F12M	Current	4.23	3.86	4.43	4.25
	5-Year High	4.71	4.65	4.49	4.29
	5-Year Low	1.66	2.15	2.77	3.17
	5-Year Median	2.76	3.13	3.47	3.68
EV/Sales TTM	Current	4.9	4.69	5.26	4.27
	5-Year High	5.46	5.25	5.35	4.32
	5-Year Low	1.84	1.99	2.83	2.61
	5-Year Median	3.07	3.2	3.87	3.58

As of 12/11/2020

Source: Zacks Investment Research

Industry Analysis Zacks Industry Rank: Top 14% (35 out of 254)



Top Peers

Company (Ticker)	Rec	Rank
Cirrus Logic, Inc. (CRUS)	Outperform	1
MACOM Technology Solutions Holdings, Inc. (MTSI)	Outperform	1
Skyworks Solutions, Inc. (SWKS)	Outperform	2
Analog Devices, Inc. (ADI)	Neutral	3
Broadcom Inc. (AVGO)	Neutral	3
QUALCOMM Incorporated (QCOM)	Neutral	3
Resonant Inc. (RESN)	Neutral	3
RF Industries, Ltd. (RFIL)	Neutral	3

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

Industry Comparison Industry: Semiconductors - Radio Frequency				Industry Peers		
	QRVO	X Industry	S&P 500	AVGO	RFIL	SWKS
Zacks Recommendation (Long Term)	Outperform	-	-	Neutral	Neutral	Outperform
Zacks Rank (Short Term)	1	-	-	3	3	2
VGM Score	C	-	-	B	C	C
Market Cap	17.41 B	86.09 M	25.68 B	164.15 B	55.70 M	23.13 B
# of Analysts	7	3	14	13	1	9
Dividend Yield	0.00%	0.00%	1.51%	3.20%	0.00%	1.44%
Value Score	D	-	-	C	A	C
Cash/Price	0.11	0.12	0.06	0.05	0.29	0.04
EV/EBITDA	18.58	2.37	14.50	20.94	8.13	17.64
PEG F1	2.14	1.26	2.76	1.27	NA	1.40
P/B	3.95	5.59	3.60	6.97	1.75	5.59
P/CF	15.35	15.35	13.75	11.95	13.11	18.62
P/E F1	17.87	18.61	21.75	15.98	19.00	18.61
P/S TTM	4.97	22.78	2.82	6.87	1.16	6.89
Earnings Yield	5.66%	5.26%	4.40%	6.26%	5.26%	5.37%
Debt/Equity	0.40	0.00	0.70	1.83	0.05	0.00
Cash Flow (\$/share)	9.95	-0.12	6.94	33.97	0.43	7.48
Growth Score	D	-	-	B	D	C
Historical EPS Growth (3-5 Years)	14.36%	14.36%	9.69%	20.01%	47.16%	1.48%
Projected EPS Growth (F1/F0)	36.56%	44.39%	1.03%	14.58%	500.00%	22.06%
Current Cash Flow Growth	-13.56%	-25.18%	5.22%	8.07%	-37.54%	-8.71%
Historical Cash Flow Growth (3-5 Years)	22.73%	12.09%	8.33%	48.32%	16.22%	2.14%
Current Ratio	2.07	3.28	1.38	2.04	5.19	5.17
Debt/Capital	28.59%	16.62%	42.00%	64.73%	4.66%	0.00%
Net Margin	12.71%	1.13%	10.40%	12.39%	1.13%	24.28%
Return on Equity	18.08%	-35.24%	14.99%	35.20%	2.14%	21.36%
Sales/Assets	0.50	0.50	0.50	0.30	1.21	0.66
Projected Sales Growth (F1/F0)	18.79%	21.67%	0.35%	8.82%	24.55%	16.16%
Momentum Score	B	-	-	D	D	B
Daily Price Change	-3.59%	0.20%	-0.29%	-1.03%	3.83%	-4.33%
1-Week Price Change	10.15%	5.43%	1.73%	4.24%	15.99%	10.29%
4-Week Price Change	4.07%	1.29%	4.56%	9.62%	27.52%	-1.49%
12-Week Price Change	17.15%	11.93%	11.59%	10.90%	15.15%	0.64%
52-Week Price Change	32.33%	24.89%	5.88%	23.80%	-3.39%	24.89%
20-Day Average Volume (Shares)	1,046,476	402,489	1,937,653	1,442,171	63,374	1,901,863
EPS F1 Estimate 1-Week Change	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
EPS F1 Estimate 4-Week Change	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
EPS F1 Estimate 12-Week Change	24.30%	1.80%	3.80%	0.00%	0.00%	9.01%
EPS Q1 Estimate Monthly Change	0.00%	0.00%	0.00%	0.00%	NA	0.00%

Source: Zacks Investment Research

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	D
Growth Score	D
Momentum Score	B
VGM Score	C

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.

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.

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.

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.

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.