

Qorvo Inc. (QRVO)

\$165.37 (As of 03/10/21)

Price Target (6-12 Months): **\$189.00**

Long Term: 6-12 Months

Zacks Recommendation: Outperform

(Since: 02/09/21)

Prior Recommendation: Neutral

Short Term: 1-3 Months

Zacks Rank: (1-5)

2-Buy

Zacks Style Scores:

VGM:B

Value: C

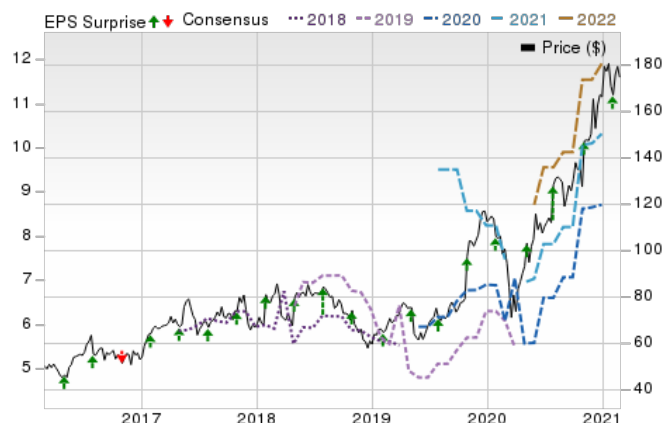
Growth: B

Momentum: D

Summary

Qorvo is benefiting from robust improvement in the Infrastructure and Defense Products business. Moreover, expanding portfolio of 5G base solutions amid accelerated deployment of 5G nodes well. Besides, growing momentum for Qorvo's Gallium Nitride (GaN) technology-based solutions is a positive. Solid uptake of Bulk Acoustic Wave (BAW) antenna-plexers, as economies started to reopen, is expected to boost top line growth. The company's efforts to reward shareholders through buybacks is noteworthy. Notably, shares of the company have outperformed the industry in the past one year. However, intensifying competition from Skyworks and susceptibility to forex volatility due to substantial international presence are persistent overhangs. Significant customer concentration risk and business impacts pertaining to Huawei-ban remain concerns.

Price, Consensus & Surprise

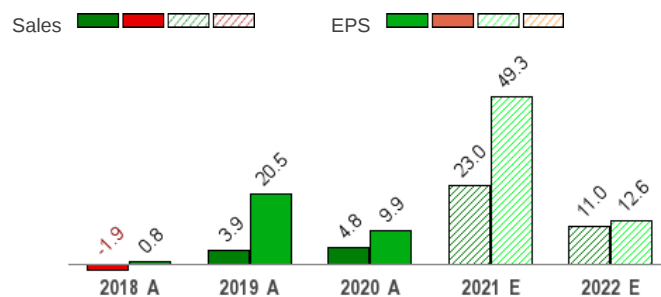


Source: Zacks Investment Research

Data Overview

52-Week High-Low	\$191.83 - \$67.54
20-Day Average Volume (Shares)	1,382,012
Market Cap	\$18.7 B
Year-To-Date Price Change	-0.5%
Beta	1.43
Dividend / Dividend Yield	\$0.00 / 0.0%
Industry	Semiconductors - Radio Frequency
Zacks Industry Rank	Top 32% (81 out of 253)

Sales and EPS Growth Rates (Y/Y %)



Last EPS Surprise	15.4%
Last Sales Surprise	2.0%
EPS F1 Estimate 4-Week Change	0.0%
Expected Report Date	05/06/2021
Earnings ESP	0.0%
P/E TTM	19.3
P/E F1	17.5
PEG F1	2.1
P/S TTM	5.0

Sales Estimates (millions of \$)

	Q1	Q2	Q3	Q4	Annual*
2022	999 E	1,135 E	1,198 E	1,064 E	4,424 E
2021	787 A	1,060 A	1,095 A	1,041 E	3,984 E
2020	776 A	807 A	869 A	788 A	3,239 A

EPS Estimates

	Q1	Q2	Q3	Q4	Annual*
2022	\$2.18 E	\$2.88 E	\$3.18 E	\$2.55 E	\$10.64 E
2021	\$1.50 A	\$2.43 A	\$3.08 A	\$2.44 E	\$9.45 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 03/10/2021. The report's text and the analyst-provided price target are as of 03/11/2021.

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).

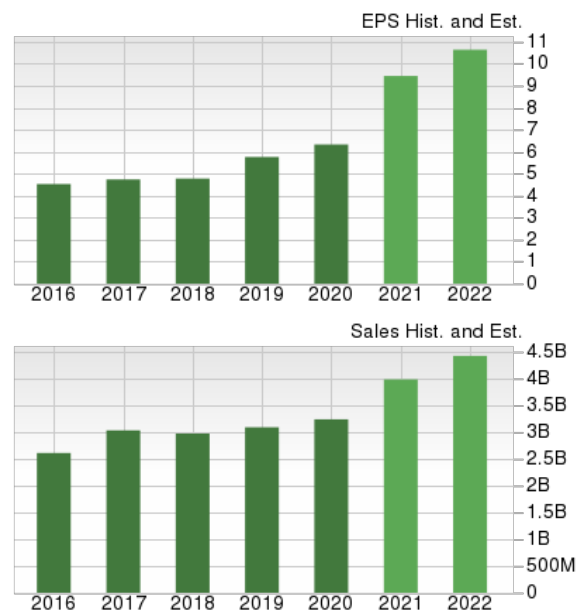
IDP's (34.3% of fiscal 2020 revenues) products are used in high performance defense systems such as radar, electronic warfare and communication systems, WiFi customer premises equipment for home and work, high speed connectivity in Long-Term Evolution ("LTE") and 5G base stations, cloud connectivity 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. For instance, in medical space, the company was recently selected by the National Institutes of Health (NIH), with focus on its Rapid Acceleration of Diagnostics initiative (RADxSM) to bolster COVID-19 antigen testing capacity, leveraging Qorvo's Omnia test platform based on its high-frequency BAW technology.
- ▲ 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 Jan 2, 2021, cash and cash equivalents were \$1.234 billion compared with \$2 billion reported as of Oct 3, 2020. As of Jan 2, 2021, long-term debt was \$1.744 billion compared with \$2.67 billion as of Oct 3, 2020. During the quarter, Qorvo undertook several deleveraging steps to improve financial flexibility. Management noted that the proceeds and cash on hand were utilized to pay down notes slated to mature in 2026 and the remaining 2025 notes. Also, the company stated that the "revolver is untapped." Moreover, total debt to total capital stands at 28%, compared with the prior quarter's figure of 37.7%. Further, times interest earned of 8.4X is higher than the prior quarter's figure of 8X. Markedly, Qorvo had concluded the fiscal second 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, net cash provided by operating activities in the fiscal third quarter was \$403.7 million, compared with \$281 million in the prior quarter. Free cash flow during the fiscal third quarter amounted to \$367.6 million, compared with \$237.4 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 \$160 million were repurchased in the fiscal third 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 at present quite sluggish.
 - 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 \$3.31 billion or 47% of total assets as of Jan 2, 2021.
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Last Earnings Report

Qorvo Q3 Earnings Beat Estimates, Revenues Rise Y/Y

Qorvo Inc. reported third-quarter fiscal 2021 non-GAAP earnings of \$3.08 per share, which improved 65.6% on a year-over-year basis. The figure exceeded the company's expectations of \$2.65 and surpassed the Zacks Consensus Estimate by 15.36%.

Revenues increased 3.3% year over year to \$1.095 billion. Further, the top line outpaced the consensus mark by 1.96%. Moreover, the figure was above the higher end of management's guided range of \$1.06 billion (+/- \$15 million).

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 devices and proximity awareness applications.

Accelerated deployment of 5G, the roll-out of Wi-Fi 6 and 6E technologies, and growing clout of precision location applications based on ultra-wideband (UWB) technology is favoring the company's prospects. Also, innovation in biotechnologies, is opening new avenues of business.

Quarter Details & Recent Business Highlights

Segment-wise, **MP** revenues of \$826 million exceeded the company's expectations of \$790 million, driven by seasonality uptick and higher 5G content in smartphones.

During the fiscal third 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 third-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 30% year over year to \$269 million. The year-over-year increase can primarily be attributed to robust growth across the company's defense, programmable power management and IoT end-markets, revenues of which doubled year over year. The improvement can also be attributed to momentum in deployment of Wi-Fi 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 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 communications applications and domestic airborne radars 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 5G/LTE, C-V2X and Wi-Fi automotive-qualified products capabilities aided it in clinching supply deals across OEMs including Audi, BMW and Volvo.

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.

Also, gains from buyout of ultra-wideband (UWB) software and system solution pioneer, 7Hugs Labs S.A.S., remains noteworthy. It is enabling the acquirer to boost UWB system solutions capabilities and bolster design expertise with focus on mobile, IoT and automotive end-markets.

The company's multi-protocol SOC with low power capabilities and custom software facilitating solar-charging remote controls were selected by a leading television manufacturer.

Margins in Detail

Quarter Ending 12/2020

Report Date	Feb 03, 2021
Sales Surprise	1.96%
EPS Surprise	15.36%
Quarterly EPS	3.08
Annual EPS (TTM)	8.58

Non-GAAP gross margin expanded 510 basis points (bps) from the year-ago quarter to 54.4%. Non-GAAP gross margin was anticipated to be 52.5%. This can be attributed to lower manufacturing and inventory costs, and strong end-market demand that led to revenue growth.

Non-GAAP operating expenses increased 10.6% year over year to \$194.2 million. As a percentage of revenues, the figure contracted 250 bps from the year-ago quarter to 17.7%.

Non-GAAP operating income surged 59% to \$203.7 million. Non-GAAP operating margin expanded 770 bps from the year-ago quarter to 36.7%. This can be attributed to gross margin expansion and lower operating expenses.

Balance Sheet & Cash Flow

As of Jan 2, 2021, cash and cash equivalents were \$1.234 billion compared with \$2 billion reported as of Oct 3, 2020. As of Jan 2, 2021, long-term debt was \$1.744 billion compared with \$2.67 billion as of Oct 3, 2020.

During the quarter, Qorvo undertook several deleveraging steps to improve financial flexibility. Management noted that the proceeds and cash on hand were utilized to pay down notes slated to mature in 2026 and the remaining 2025 notes.

Also, the company stated that the “revolver is untapped.” Markedly, Qorvo had concluded the fiscal second 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 \$403.7 million, compared with \$281 million in the prior quarter. Free cash flow during the reported quarter amounted to \$367.6 million, compared with \$237.4 million in the prior quarter.

During the fiscal third quarter, the company repurchased shares worth \$160 million.

Q4 View

For fourth-quarter fiscal 2021, Qorvo anticipates revenues between \$1.025 billion and \$1.055 billion, with MP and IDP contributing \$770 million and \$270 million, respectively.

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

Management noted that the company had suspended shipments to Huawei in mid-September 2020 in compliance with Department of Commerce guidelines. The company has received license for certain mobile products.

Non-GAAP earnings are projected to be \$2.42 per share (at the mid-point of the revenue guidance). Non-GAAP gross margin is anticipated in the range of 50.5% to 51%.

Recent News

On Jan 12, 2021, Qorvo unveiled two Wi-Fi 6E front end modules (FEMs). These modules are aimed at boosting throughput and range for high-bandwidth applications like online gaming, 8K video streaming and virtual reality.

On Jan 11, 2021, Qorvo rolled out an integrated broadband antenna routing switch. The routing switch is designed to facilitate Emergency Calling (eCall) for automobiles.

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 34.7% in the past six-month period and 85.2% in the trailing 12-month period. Stocks in the Zacks sub-industry and the Zacks Computer & Technology sector are up 24.5% and 17.6%, in the past six-month period, respectively. Over the past year, the Zacks sub-industry and sector are up 72.7% and 60.5%, respectively.

The S&P 500 index is up 16.2% in the past six-month period and 44.7% in the past year.

The stock is currently trading at 15.64X forward 12-month earnings compared with 16.98X for the Zacks sub-industry, 26.64X for the Zacks sector and 22.36X for the S&P 500 index.

In the past five years, the stock has traded as high as 70.9X and as low as 9.56X, with a 5-year median of 14.13X. Our Outperform recommendation indicates that the stock will perform better than the market. Our \$189 price target reflects 17.87X forward 12-month earnings.

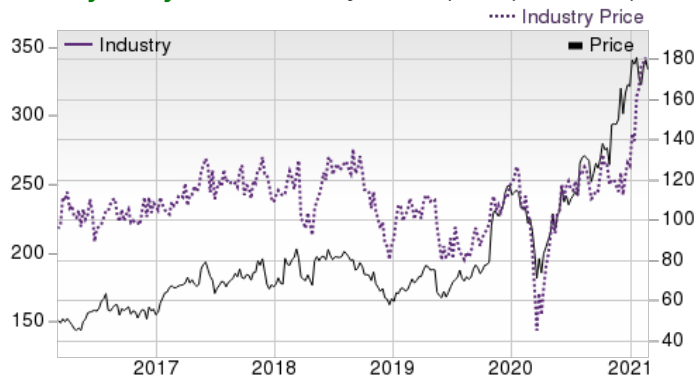
The table below shows summary valuation data for QRVO

Valuation Multiples - QRVO					
		Stock	Sub-Industry	Sector	S&P 500
P/E F12M	Current	15.64	16.98	26.64	22.36
	5-Year High	70.9	24.12	28.38	23.8
	5-Year Low	9.56	10.01	16.95	15.3
	5-Year Median	14.13	13.55	20.04	17.9
P/S F12M	Current	4.26	4.21	4.61	4.53
	5-Year High	5.08	4.86	4.68	4.53
	5-Year Low	1.66	2.15	2.78	3.21
	5-Year Median	2.8	3.17	3.5	3.69
EV/Sales TTM	Current	5.16	4.55	5.25	4.63
	5-Year High	5.79	5.25	5.48	4.67
	5-Year Low	2.24	1.99	3.07	2.64
	5-Year Median	3.11	3.26	3.92	3.61

As of 03/10/2021

Source: Zacks Investment Research

Industry Analysis Zacks Industry Rank: Top 32% (81 out of 253)



Top Peers

Company (Ticker)	Rec	Rank
Skyworks Solutions, Inc. (SWKS)	Outperform	1
Analog Devices, Inc. (ADI)	Neutral	2
Broadcom Inc. (AVGO)	Neutral	3
Cirrus Logic, Inc. (CRUS)	Neutral	2
MACOM Technology Solutions Holdings, Inc. (MTSI)	Neutral	3
QUALCOMM Incorporated (QCOM)	Neutral	3
Resonant Inc. (RESN)	Neutral	4
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)	2	-	-	3	3	1
VGM Score	B	-	-	A	F	B
Market Cap	18.73 B	175.01 M	28.02 B	178.63 B	59.09 M	27.65 B
# of Analysts	7	3	13	13	1	9
Dividend Yield	0.00%	0.00%	1.38%	3.29%	0.00%	1.19%
Value Score	C	-	-	B	C	D
Cash/Price	0.06	0.09	0.06	0.05	0.28	0.04
EV/EBITDA	20.81	6.36	15.89	18.89	78.41	21.20
PEG F1	2.09	1.06	2.34	0.74	NA	0.86
P/B	4.16	6.26	3.87	7.45	1.83	6.26
P/CF	16.63	22.42	16.08	11.60	50.59	22.42
P/E F1	17.50	17.51	20.92	16.26	20.00	16.33
P/S TTM	5.02	44.94	3.28	7.24	1.37	6.96
Earnings Yield	5.71%	5.00%	4.64%	6.15%	5.00%	6.13%
Debt/Equity	0.39	0.00	0.67	1.71	0.03	0.00
Cash Flow (\$/share)	9.95	-0.12	6.78	37.71	0.12	7.48
Growth Score	B	-	-	B	F	A
Historical EPS Growth (3-5 Years)	16.02%	16.02%	9.34%	16.58%	21.57%	1.74%
Projected EPS Growth (F1/F0)	49.22%	60.11%	14.41%	21.43%	328.57%	67.52%
Current Cash Flow Growth	-13.56%	-13.56%	0.74%	13.51%	-71.62%	-8.71%
Historical Cash Flow Growth (3-5 Years)	22.73%	10.02%	7.37%	35.33%	-9.68%	2.14%
Current Ratio	3.78	3.34	1.39	2.14	4.63	5.07
Debt/Capital	27.91%	14.06%	41.42%	63.16%	3.28%	0.00%
Net Margin	13.01%	-0.19%	10.59%	16.01%	-0.19%	26.88%
Return on Equity	21.03%	-37.99%	14.75%	38.32%	0.45%	27.21%
Sales/Assets	0.53	0.53	0.51	0.31	1.07	0.77
Projected Sales Growth (F1/F0)	22.99%	46.80%	6.93%	12.80%	24.24%	46.80%
Momentum Score	D	-	-	A	F	C
Daily Price Change	-3.24%	0.00%	1.04%	-1.35%	0.84%	-2.76%
1-Week Price Change	-1.89%	-4.27%	2.46%	-4.20%	-0.86%	-2.46%
4-Week Price Change	-1.67%	-12.93%	3.55%	-6.91%	-5.51%	-9.51%
12-Week Price Change	4.01%	15.75%	7.58%	2.99%	1.01%	13.64%
52-Week Price Change	85.25%	85.93%	45.24%	77.90%	12.99%	86.62%
20-Day Average Volume (Shares)	1,382,012	477,698	2,199,326	2,205,370	40,649	2,400,041
EPS F1 Estimate 1-Week Change	0.00%	0.00%	0.00%	1.26%	0.00%	0.00%
EPS F1 Estimate 4-Week Change	0.00%	0.00%	0.00%	1.26%	0.00%	0.00%
EPS F1 Estimate 12-Week Change	10.82%	0.00%	2.02%	3.07%	0.00%	42.47%
EPS Q1 Estimate Monthly Change	0.00%	0.00%	0.00%	1.64%	0.00%	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	C
Growth Score	B
Momentum Score	D
VGM Score	B

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

Disclosures

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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 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.