ZACKS | Our Research. Your Success. **Jun 28, 2021**

Micron Technology (MU)

$82.03 (As of 06/25/21)

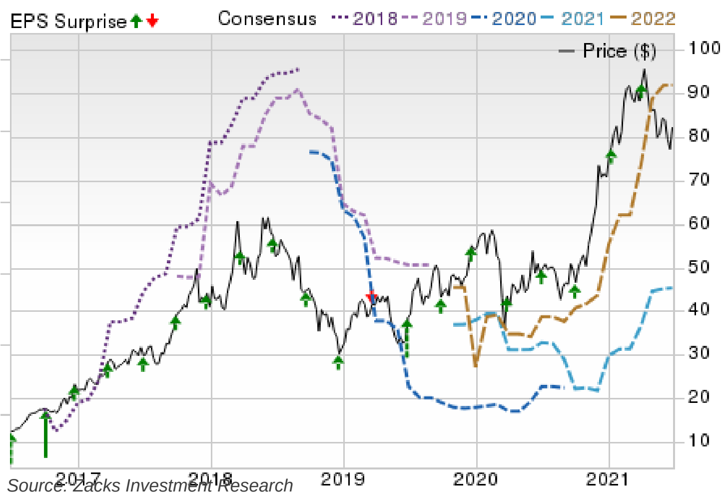
Price Target (6-12 Months): **$86.00**

Long Term: 6-12 Months	**Zacks Recommendation:** (Since: 05/03/21) Prior Recommendation: Outperform	**Neutral**
Short Term: 1-3 Months	**Zacks Rank:** (1-5) Zacks Style Scores: Value: B | Growth: B | Momentum: F	**2-Buy** VGM:B

Summary

Micron is witnessing growing demand for memory chips from cloud-computing providers and acceleration in 5G (fifth-generation) adoptions. Rising mix of high-value solutions, enhancement in customer engagement and improvement in cost structure are growth drivers as well. Further, 5G adoption beyond mobile is likely to spur demand for memory and storage, particularly in IoT (Internet of Things) devices and wireless infrastructure. Nonetheless, Micron's near-term profitability is likely to hurt by its planned salary hikes and additional pre-qualification related expenses during the second half of fiscal 2021. Additionally, higher level of customer inventory in the cloud, graphics and enterprise market is a key threat. Further, soft server demand from several enterprise OEM (original equipment manufacturer) customers is a concern.

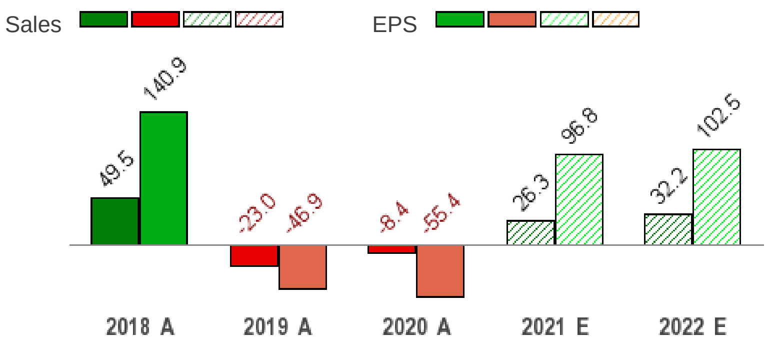
Price, Consensus & Surprise



Data Overview

52-Week High-Low	$96.96 - $42.25
20-Day Average Volume (Shares)	17,168,190
Market Cap	$92.0 B
Year-To-Date Price Change	9.1%
Beta	1.25
Dividend / Dividend Yield	$0.00 / 0.0%
Industry	Semiconductor Memory
Zacks Industry Rank	Top 4% (10 out of 252)
Last EPS Surprise	3.2%
Last Sales Surprise	0.1%
EPS F1 Estimate 4-Week Change	0.0%
Expected Report Date	06/30/2021
Earnings ESP	7.4%
P/E TTM	22.4
P/E F1	14.7
PEG F1	0.9
P/S TTM	3.9

Sales and EPS Growth Rates (Y/Y %)



Sales Estimates (millions of $)

	Q1	Q2	Q3	Q4	Annual*
2022	8,522 E	8,728 E	9,124 E	9,854 E	35,777 E
2021	5,773 A	6,236 A	7,208 E	7,946 E	27,070 E
2020	5,144 A	4,797 A	5,438 A	6,056 A	21,435 A

EPS Estimates

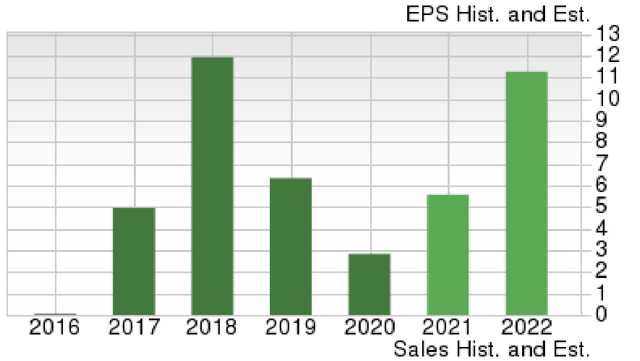
	Q1	Q2	Q3	Q4	Annual*
2022	$2.47 E	$2.59 E	$2.86 E	$3.21 E	$11.28 E
2021	$0.78 A	$0.98 A	$1.68 E	$2.13 E	$5.57 E
2020	$0.48 A	$0.45 A	$0.82 A	$1.08 A	$2.83 A

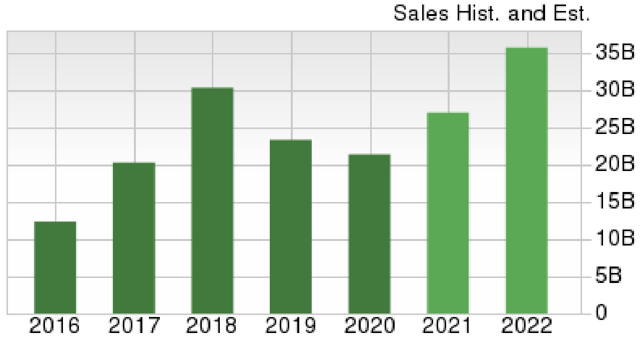
*Quarterly figures may not add up to annual.

The data in the charts and tables, including the Zacks Consensus EPS and sales estimates, is as of 06/25/2021. The report's text and the analyst-provided price target are as of 06/28/2021.

Overview

Idaho-based Micron Technology has established itself as one of the leading worldwide providers of semiconductor memory solutions.





Through global brands, namely Micron, Crucial and Ballistix, Micron manufactures and markets high-performance memory and storage technologies including Dynamic Random Access Memory (DRAM), NAND flash memory, NOR Flash, 3D XPoint memory and other technologies. Its solutions are used in leading-edge computing, consumer, networking and mobile products.

A major portion of the revenues is derived from DRAM sales. The company's mission is to be the most efficient and innovative global provider of semiconductor memory solutions.

Micron reported revenues of $23.4 billion in fiscal 2019. The company has four reportable segments:

Compute and Networking Business Unit (CNBU): The unit comprises of DRAM and NOR Flash products that are sold to the computer, networking, graphics, and cloud server markets, and NAND Flash products which are sold into the networking market. CNBU delivered revenues of $10 billion (43% of total revenues) in fiscal 2019.

Mobile Business Unit (MBU): The unit comprises Micron's discrete DRAM, discrete NAND and managed NAND (including eMMC and universal flash storage (UFS) solutions) products that are sold to smartphone and other mobile-device markets. MBU generated revenues of $6.4 billion (28%) in fiscal 2019.

Storage Business Unit (SBU): The unit accounts for solid state drives (SSDs) and component-level solutions sold into enterprise and cloud, client and consumer storage markets as well as other discrete storage products sold in component and wafer forms to the removable storage markets. SBU's revenues grossed $3.8 billion (16%) in fiscal 2019.

Embedded Business Unit (EBU): The unit includes Micron's discrete DRAM, discrete NAND, managed NAND and NOR products, which are sold to the automotive, industrial and consumer markets. EBU's revenues logged $3.1 billion (13%) in fiscal 2019.

The company struggles with intense competition from Intel, Samsung Electronics, SK Hynix, Toshiba Memory and Western Digital Corporation.

Source: Zacks Investment Research

Reasons To Buy:

Micron banks on revival in DRAM demand and increasing mix of high-value solutions in its portfolio.

- Micron's second-quarter fiscal 2021 results reflect that the company stood resilient to the coronavirus impact on global economic and business activities. Micron has been witnessing stronger memory-chip demand from PC manufacturers and data-center operators. Notably, the coronavirus-led global lockdown is spurring demand for PCs and notebooks as more and more workers and students work and learn from home. The work-and-learn-from home necessity is also driving demand for cloud storage. Furthermore, the lockdown has enhanced the usage of online services globally. Therefore, data-center operators are enhancing their cloud-storage capacities to accommodate the need of growing demand for cloud services. In addition, the company noted that it has ample inventory to counter the near-term supply-chain disruption caused by the pandemic and support the spike in memory-chip demand from PC manufacturers and data-center operators.

- Micron offers both DRAM and NAND products. While DRAM chips are key components of PCs and servers, NAND flash chips are crucial to smartphones and solid-state hard drives. Micron believes rapid 5G adoption, advent of foldable phones and upcoming innovations in AR/VR will shore up sustained content growth and augment smartphone unit sales this year. Further, 5G adoption beyond mobile is likely to foster demand for memory and storage, particularly in IoT devices, wireless infrastructure and data centers. Moreover, steep demand from PC, server and smartphone makers and any supply shortage will push prices up, thereby bolstering Micron's top- and bottom-line results.

- Micron's recent decision to sell its Utah factory as it quits from making 3D XPoint memory chips will help it shift the resources toward accelerating market introduction of Compute Express Link ("CXL")-enabled memory products. The technology maintains memory coherency between a host, such as the CPU memory space, and a device. This allows resource sharing for higher performance, while reduces software stack complexity and overall system costs. The CXL technology is expected to be used in heterogeneous computing systems, including artificial intelligence (AI), machine learning and data analytics. The shift in the portfolio strategy is likely to further strengthen Micron's focus on developing memory and storage products and solutions for the data center.

- Micron is expanding its foothold in the SSD storage market. The emergence of thinner laptops and tablets over the past few years has created ideal market conditions for SSDs, which are now entering the higher end of the market. Furthermore, secular growth of digital data, modest growth in TAM and higher demand for storage will drive growth in general, and especially for SSDs. Per MarketInsightsReports, the SSD market is expected to witness a CAGR of 5.5% between 2020 and 2025 and reach $16.98 billion by 2025. The SSD segment's growth potential is a major positive for Micron as this could offset the losses incurred from the sluggishness in the PC market, which does not necessarily use SSDs.

- Micron's focus on improving its cost structure and increasing the mix of high-value solutions in its portfolio is likely to boost margins. A strong execution of this strategy has improved the company's annualized profitability by more than $5 billion from fiscal 2016 to fiscal 2020. Further, Micron's EBITDA margin has improved 12 percentage points during the same time frame.

- Over the years, Micron has made several significant acquisitions to enhance its capabilities. Over the last two decades the company has acquired 13 businesses. A few notable among them were Elpida, Inotera, Numonyx, and Lexar Media. These buyouts have helped Micron in expanding its wafer manufacturing capacity, DRAM offerings and wafer testing and probe services.

- Micron is a cash rich company with a strong balance sheet. As of Mar 4, 2021, the company had cash, marketable investments, and restricted cash of nearly $8.6 billion, which is significantly higher than its debt (long-term including current maturities) of approximately $6.6 billion. Since it has net cash available on its balance sheet, the existing cash can be used for pursuing strategic acquisitions, investment in growth initiatives and distribution to shareholders.

- Micron has a strong cash-flow generating ability, which enables it to improve its cash balance and lower debt. Notably, in the last four fiscals, its cash balance has improved to $8.7 billion as of Sep 3, 2020 from $4.4 billion as of Aug 31, 2016. During the same time frame, it has managed to lower its debt to $6.37 billion from $10 billion. In fiscal 2020, the company generated $8.3 billion of operating cash flow and repaid nearly $4.4 billion of its debt. The company generated operating cash flow of $5.02 billion during the first-half of fiscal 2021 and free cash flow of $990 million. Strong cash flows also enable the company to enhance shareholders' wealth through share repurchases. In fiscal 2019, the company repurchased shares worth $2.7 billion (representing 65% of free cash flow) under the authorized buyback program and remains committed to allocating at least 50% of free cash flow toward repurchases. Moreover, it has bought back approximately $251 million worth of its common stocks in fiscal 2020.

Reasons To Sell:

Product mix, falling memory prices and minimal decline in manufacturing cost are key headwinds.

- Micron's fate is highly tied to DRAM and NAND flash pricing. Oversupply and lower-than-expected growth in end-market demand has been a dampener. Higher level of customer inventory in the cloud, graphics and enterprise market is a key threat. Moreover, soft server demand from several enterprise OEM customers is a concern. Additionally, Intel's CPU shortages coupled with macroeconomic uncertainties are likely to pose key challenges to the company.

- The United States and China's tit-for-tat trade war is a major threat to the company. This is because the United States is the largest semiconductor manufacturing country with China being its biggest importer. Micron's heavy dependence on China is anticipated to keep the company under pressure, at least in the near term. Further, in May 2019, the company suspended chip shipments to Huawei, in response to the export ban imposed by the U.S. government. During its fourth-quarter fiscal 2020 earnings conference call, Micron revealed that it has not obtained license from the U.S. government to sell its chips to China's Huawei Technologies. Therefore, the shipment ban is likely to erode its sales in fiscal 2021. Notably, chip sales to Huawei accounted for nearly 10% of the company's fourth-quarter fiscal 2020 total revenues. The company fears a worsening decline in sales to Huawei over the coming quarters in case it fails to secure the license to ship additional products to Huawei or if the trade ban is not removed.

- Micron faces competition from Samsung Electronics Co., Ltd., SK Hynix Inc., Spansion Inc. and Toshiba Corporation in the semiconductor memory market. Notably, wafer capacity increases from its competitors could disrupt DRAM and NAND supply dynamics affecting prices and the company's results. Moreover, heightening trade tension might compel many Chinese companies to buy chips from Samsung and other non-American chipmakers, consequently dumping Micron.

- Ramped-up production of domestic memory chips in China can also seriously jeopardize Micron's prospects going forward. Changxin Memory Technologies has recently unveiled China's first domestically designed DRAM chip. Moreover, Yangtze Memory Technologies is likely to start manufacturing NAND flash memory to challenge Samsung, Toshiba, Western Digital and Micron, per Nikkei.

- The merger between Western Digital and SanDisk has made it more challenging for Micron to capture share in the newer storage technology space – SSD. The companies will also be able to offer competitive solutions in cloud-based computing, which has overtaken digital storage solution space over the past couple of years. Therefore, it will be difficult for Micron to remain competitive in the storage business.

- Micron continues to acquire a large number of companies. While this improves revenue opportunities, business mix and profitability, it also adds to integration risks. Moreover, frequent acquisitions are a distraction for management, which could impact organic growth, going forward. Additionally, higher mix of NAND, which has lower gross margin, coupled with falling memory prices and minimal decline in manufacturing cost is likely to keep margins under pressure.

Last Earnings Report

Micron Q2 Earnings Top Estimates, Q3 Outlook Upbeat

Quarter Ending	02/2021
Report Date	Mar 31, 2021
Sales Surprise	0.12%
EPS Surprise	3.16%
Quarterly EPS	0.98
Annual EPS (TTM)	3.66

Micron reported stellar results for second-quarter fiscal 2021, wherein the top and bottom lines surpassed the respective Zacks Consensus Estimate and marked solid year-over-year improvements as well.

The company's fiscal second-quarter non-GAAP earnings per share of 98 cents beat the Zacks Consensus Estimate of 95 cents. Moreover, non-GAAP earnings registered year-over-year growth of a whopping 117.8%. Quarterly revenues of $6.24 billion outpaced the consensus mark of $6.23 billion and increased 30% from the year-ago quarter's $4.80 billion.

Revenue Details

DRAM revenues of $4.44 billion, accounting for 71% of total revenues in the fiscal second quarter, jumped 44% year over year and 10% sequentially. Bit shipments grew in the high-single-digit percentage range sequentially, while ASPs were up slightly on a quarter-on-quarter basis.

NAND revenues of $1.65 billion, representing 26% of the total top line, were up 9% on a year-over-year basis and 5% quarter on quarter. While NAND ASP decreased in the low-single-digit percentage band, bit shipments grew in the high-single-digit percentage range sequentially.

Business-unit wise, revenues of the computing and networking business (CNBU) unit jumped 34% from the year-ago quarter and 4% sequentially to $2.64 billion. The company noted that revenue growth was driven by increased pricing and volume across data center, networking and client.

Revenues of $1.81 billion from the Mobile Business Unit (MBU) climbed 44% on a year-over-year basis and 21% sequentially. This improvement was mainly backed by recovery in the mobile market from the impact of the COVID-19 pandemic and momentum in 5G-enabled devices.

The Embedded Business Unit (EBU) revenues logged $935 million, up 34% from the year-ago period and 16% from the previous quarter, primarily driven by record auto revenues and strong industrial demand. The company noted that the auto industry demand recovered from the pandemic-related shutdowns.

Revenues from the Storage Business Unit (SBU), comprising SSD NAND components, totaled $850 million, down 2% year on year and 7% sequentially. The company noted that SSD revenues and component revenues, both declined sequentially.
Margins

Micron's non-GAAP gross profit of $2.05 billion increased 46.9% year on year and 15.1% sequentially. Non-GAAP gross margin improved to 32.9% from 30.9% in the prior quarter and 29.1% in the year-ago quarter chiefly on increase in DRAM price and decline in costs.

Micron's non-GAAP operating income of $1.26 billion surged 131.9% year over year and 29.2% sequentially. Non-GAAP operating margin expanded to 20.2% from the year-ago quarter's 11.3% and the previous quarter's 16.9%, primarily on higher gross margin and lower operating expenses.

Non-GAAP operating expenses declined 6.9% year on year and 1.7% sequentially to $797 million. The company noted that operating expenses were lower than expected. Nonetheless, it continues to forecast rise in operating expenses during the second half of fiscal 2021 due to higher prequalification and labor expenses.

Balance Sheet and Cash Flow

The company exited the reported quarter with cash, marketable investments, and restricted cash of $8.6 billion compared with the $8.36 billion recorded at the end of the prior quarter.

Micron's long-term debt as of Mar 4, 2020 was $6.6 billion compared with the $6.36 billion witnessed at the end of the fiscal first quarter.

The company generated operating cash flow of $3.1 billion during the fiscal second quarter and free cash flow of $174 million.

Q3 Outlook

The company anticipates revenues of $7.1 billion (+/-$200 million) for the fiscal third quarter. For the fiscal third quarter, Micron expects non-GAAP gross margin of 41.5% (+/-100 bps). Operating expenses on a non-GAAP basis are likely to be $875 million (+/-$25 million). Adjusted earnings per share are anticipated to be $1.62 (+/-7 cents).

During the fiscal second-quarter conference call, the company noted that it continues to forecast rise in operating expenses during the second half of fiscal 2021 due to higher prequalification and labor expenses.

Notably, during its fiscal first-quarter conference call too, Micron had stated that it projects operating expenses to flare up in the second half of fiscal 2021. The previously-delayed fiscal 2021 salary hikes which will take effect at the beginning of the fiscal third quarter are expected to trigger this upswing in expenses.

During the earnings conference call, Micron also stated that it intends to incur additional pre-qualification related expenses during the second half of the fiscal year, which will further inflate operating expenses. Therefore, Micron expects operating expenses to flare up approximately 10% during the fiscal third quarter.

Recent News

On Jun 1, Micron unveiled memory and storage innovations across its portfolio based on its industry-leading 176-layer NAND and 1? (1-alpha) DRAM technology, as well as the industry's first Universal Flash Storage (UFS) 3.1 solution for automotive applications.

On May 18, Micron announced the successful closing of nearly $3.7 billion inaugural sustainability-linked credit facilities.

On May 5, Micron announced that 100% of its eligible sites have been recognized by Great Place to Work, the global authority on workplace culture.

On Apr 29, Micron announced the appointment of Sharawn Connors to the role of chief diversity and inclusion officer.

On Mar 22, Micron announced the appointment of Jeremy Werner to the role of corporate vice president and general manager of its Storage Business Unit.

On Mar 16, Micron announced that it has put its Utah factory up for sale as it quits from making 3D XPoint memory chips that it had developed in partnership with Intel Corporation.

On Mar 4, Micron announced the appointment of Raj Hazra to the role of senior vice president and general manager of Micron's Compute and Networking Business Unit.

On Mar 3, Micron raised second-quarter adjusted earnings forecast to 93-98 cents per share from 68-82 cents per share projected earlier. The memory chip maker now anticipates reporting revenues between $6.2 billion and $6.25 billion, up from previous guidance range of $5.6-$6 billion.

On Feb 24, Micron announced the commencement of sampling of the hardware-evaluated automotive low-power DDR5 DRAM (LPDDR5) memory, to meet the most rigorous Automotive Safety Integrity Level.

On Jan 26, Micron announced volume shipment of industry's first 1? (1-alpha) node DRAM products built using the world's most advanced DRAM process technology and offering major improvements in bit density, power and performance.

Valuation

Micron shares have gained 9.1% in the YTD period while gained 66.9% over the trailing 12-month period. Stocks in the Zacks sub-industry are up 9.1% in the YTD period, while the Zacks Computer & Technology sector has increased 17.5%. Over the past year, while the Zacks sub-industry increased 66.9%, the sector gained 51.1%.

The S&P 500 Index has increased 14.7% in the YTD period and gained 42.4% in the past year.

The stock is currently trading at 2.69X forward 12-month sales, which compares to 2.69X for the Zacks sub-industry, 4.97X for the Zacks sector and 4.75X for the S&P 500 index.

Over the past five years, the stock has traded as high as 3.80X and as low as 0.91X, with a 5-year median of 1.98X. Our Neutral recommendation indicates that the stock will perform in-line with the market. Our $86 price target reflects 2.82X forward 12-month sales.

The table below shows summary valuation data for MU

Valuation Multiples - MU

		Stock	Sub-Industry	Sector	S&P 500
P/S F12M	Current	2.69	2.69	4.97	4.75
	5-Year High	3.80	3.66	4.97	4.75
	5-Year Low	0.91	1.07	2.80	3.21
	5-Year Median	1.98	1.96	3.53	3.72
EV/Sales TTM	Current	3.88	3.88	5.74	4.91
	5-Year High	4.65	4.81	5.79	4.91
	5-Year Low	0.97	1.01	3.13	2.65
	5-Year Median	2.27	2.44	4.01	3.64
EV/EBITDA TTM	Current	8.86	8.86	16.74	17.59
	5-Year High	10.86	11.40	17.15	17.74
	5-Year Low	1.48	1.55	9.24	9.63
	5-Year Median	5.48	5.39	12.46	13.48

As of 06/25/2021 *Source: Zacks Investment Research*

Industry Analysis Zacks Industry Rank: Top 4% (10 out of 252)

Source: Zacks Investment Research

Top Peers

Company (Ticker)	Rec	Rank
Advanced Micro Devices, Inc. **(AMD)**	Outperform	3
NVIDIA Corporation **(NVDA)**	Outperform	2
Seagate Technology Holdings PLC **(STX)**	Outperform	2
Texas Instruments Incorporated **(TXN)**	Outperform	2
Western Digital Corporation **(WDC)**	Outperform	1
Ambarella, Inc. **(AMBA)**	Neutral	3
Intel Corporation **(INTC)**	Neutral	3
Taiwan Semiconductor Manufacturing Company Ltd. **(TSM)**	Neutral	3

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

Industry Comparison Industry: Semiconductor Memory

Industry Peers

	MU	X Industry	S&P 500	STX	TSM	WDC
Zacks Recommendation (Long Term)	Neutral	-	-	Outperform	Neutral	Outperform
Zacks Rank (Short Term)	2	-	-	2	3	1
VGM Score	B	-	-	B	A	F
Market Cap	91.99 B	91.99 B	30.37 B	19.80 B	604.33 B	21.68 B
# of Analysts	8	8	12	5	2	6
Dividend Yield	0.00%	0.00%	1.33%	3.10%	1.22%	0.00%
Value Score	B	-	-	B	C	D
Cash/Price	0.08	0.08	0.06	0.06	0.05	0.13
EV/EBITDA	10.29	10.29	17.25	14.57	17.92	14.00
PEG F1	0.94	0.94	2.09	13.04	1.80	NA
P/B	2.26	2.26	4.15	40.90	8.75	2.18
P/CF	10.62	10.62	17.53	13.97	20.55	9.31
P/E F1	14.73	14.72	21.20	15.77	28.63	18.50
P/S TTM	3.91	3.91	3.42	1.94	12.56	1.33
Earnings Yield	6.79%	6.79%	4.61%	6.34%	3.49%	5.41%
Debt/Equity	0.15	0.15	0.66	10.12	0.15	0.87
Cash Flow ($/share)	7.73	7.73	6.86	6.19	5.67	7.60
Growth Score	B	-	-	C	A	F
Historical EPS Growth (3-5 Years)	61.53%	61.53%	9.59%	8.80%	11.31%	-31.36%
Projected EPS Growth (F1/F0)	96.91%	110.52%	21.79%	10.79%	20.06%	25.82%
Current Cash Flow Growth	-31.58%	-31.58%	1.02%	-17.09%	41.62%	-23.42%
Historical Cash Flow Growth (3-5 Years)	7.44%	7.44%	7.28%	-7.56%	12.01%	-5.08%
Current Ratio	3.18	3.18	1.39	1.23	1.72	2.01
Debt/Capital	13.41%	13.41%	41.51%	91.00%	13.41%	46.59%
Net Margin	13.60%	13.60%	12.06%	9.80%	38.86%	2.13%
Return on Equity	9.81%	9.81%	16.59%	88.26%	29.55%	8.34%
Sales/Assets	0.44	0.44	0.51	1.15	0.51	0.64
Projected Sales Growth (F1/F0)	26.29%	26.29%	9.56%	0.76%	24.29%	-1.33%
Momentum Score	F	-	-	A	B	F
Daily Price Change	1.80%	-32.43%	0.33%	0.13%	-0.61%	1.38%
1-Week Price Change	6.60%	6.60%	2.74%	1.41%	0.64%	1.84%
4-Week Price Change	-2.51%	-2.51%	1.82%	-9.66%	-0.71%	-5.96%
12-Week Price Change	-11.23%	-11.23%	6.49%	10.20%	-6.63%	-0.87%
52-Week Price Change	69.17%	69.17%	42.26%	84.16%	106.87%	73.11%
20-Day Average Volume (Shares)	17,168,190	8,584,100	1,881,795	2,181,497	7,569,705	2,954,600
EPS F1 Estimate 1-Week Change	0.00%	0.00%	0.00%	1.31%	0.00%	0.00%
EPS F1 Estimate 4-Week Change	0.00%	0.00%	0.02%	3.94%	0.00%	-0.08%

EPS F1 Estimate 12-Week Change	25.66%	25.66%	3.59%	8.07%	2.01%	35.02%
EPS Q1 Estimate Monthly Change	0.00%	0.00%	0.00%	17.12%	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	B
Growth Score	B
Momentum Score	F
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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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 forwardlooking 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 mediumterm 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 mostrecent 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.