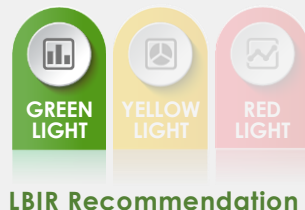




BROADCOM INC.
(Ticker: AVGO)



Stock Price: \$619.1 (01/07/2022)	Company Size: \$255.6B	Author: Garvit Bhandari
Company Rank: -	Sector: Technology	Industry: Semiconductors

Broadcom is a designer and manufacturer of semiconductor and infrastructure software products, used in applications such as data center, networking, broadband, and wireless.

IN THIS FIRST FOCUS WE'LL COVER:

► **Summary of the Business**

Broadcom Inc. is one of the leading providers of semiconductor devices and infrastructure software solutions.

► **Recent Developments**

The company reported Q4 earnings beat as revenue grew at double-digit pace led by high-teens percentage growth in semiconductor and high-single-digit growth in infrastructure software sales.

► **Competitive Environment**

The competitive intensity across its segments is high. However, Broadcom has been able to maintain dominant position in its market segments. The company's strong competitive positioning is characterized by its high margins (EBITDA margin of >60%).

► **Conclusions/Recommendations**

Broadcom is exposed to several technology secular growth trends and this gives us confidence about the direction and growth going forward. We believe the valuation is reasonable and the investors with a long-term view can enter the stock while collecting a 2.6% dividend yield.



Grab-and-Go™
THESIS

An investment in Broadcom is a play on the semiconductor and enterprise software market. The management's proven track record of superior capital allocation combined with the company's dominant market positioning should result in strong EPS and free cash flow growth into the foreseeable future. The shares are reasonably valued in our view and offers a good long-term investment opportunity.

Data as of 01/07/22 unless specified

Enterprise Value:	\$283.2B	Market Cap:	\$255.6B	Revenue Fwd (TTM):	\$30.6B (\$27.4B)
YTD Return:	-6.9%	Fwd (TTM) Price/Earnings:	18.7x (22.1x)	RSI:	46.2
Gross Margin (TTM):	73.9%	Revenue Growth (TTM, YoY):	14.9%	ROIC (TTM):	9.7%
52-Week High:	\$677.7	52-Week Low	\$419.1	200-day Moving Avg.	\$506.9
Adj. EBITDA	\$14.7B	CFO	\$13.7B	FCF	\$11.8B

Insider Transactions: Insiders sold 80.7k shares over the last 12-Months

SUMMARY OF BUSINESS

Broadcom Inc. is one of the leading providers of semiconductor devices and infrastructure software solutions. It operates through two segments: semiconductor solutions and infrastructure software. The semiconductor solutions segment includes semiconductor product lines such as data center switches, routers, filters and amplifiers, embedded processors, and custom chips. The company's semiconductor products are used in a wide range of applications including mobile phones, data network centers, telecom equipment, consumer electronics, set-top-box.

Its infrastructure software segment includes its mainframe, BizOps and cyber security software solutions, and its fiber channel storage area networking (FC SAN) business. The infrastructure software solutions enable customers to develop, manage and secure applications across mainframe, distributed, mobile and cloud platforms.

For fiscal year 2021, Semiconductor solutions business accounted for 74% of total revenue, while Infrastructure software segment accounted for the remaining 26%.



Source: [Annual Report - 10K](#)

The company distributes its products through a network of distributors, contract manufacturers, Original Equipment Manufacturers (OEMs), and a direct sales force. It operates through subsidiaries across North America, Asia, and Europe, the Middle East, and Africa (EMEA).

The company has one of the industry's broadest portfolios with more than 19,000 patents as of the end of 2021. We expect this to be a key competitive advantage given minimal near-term patent expiry.

Apple was the largest customer accounting for 20% of revenue in 2021, so product component decisions by Apple can have a material impact on

Broadcom revenue. Sales to top 5 customers accounted for 35% of total revenues.

Semiconductor solutions segment designs, manufactures and sells products to five end markets:

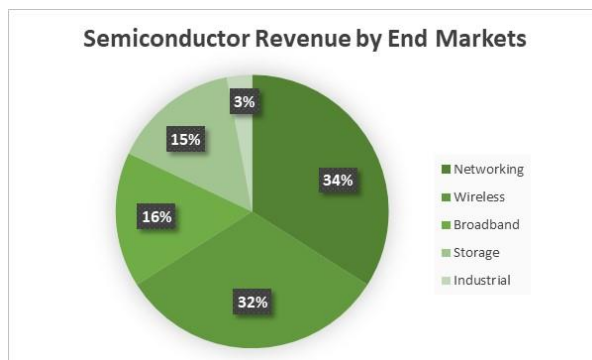
Networking: Broadcom offers a broad set of networking products that are used for data center, enterprise network and embedded network applications. The end market generated revenue of \$1.9 billion in Q4 2021 and represented 34% of semiconductor segment revenue.

Broadband (16% of total semiconductor revenue): Broadcom offers complete SoC solutions which are used in set-to-box and broadband access. Q4 2021 revenue for Broadband was \$872 million.

Wireless (32% of semiconductor revenue): Broadcom offers RF filters, amplifiers, Wi-Fi and Bluetooth SoCs and custom touch controllers for mobile handsets. The end market generated sales of \$1.8 billion in Q4.

Storage (15% of semiconductor revenue): Broadcom offers controllers, adapters, PCIe switches and preamplifiers for use in servers and storage systems as well as hard disk and solid-state drives.

Industrial (3% of semiconductor revenue): The company offers optocouplers, industrial fiber optics and motion encoders for the general industrial and automotive markets.



Source: [Annual Report - 10K](#)

Broadcom has been aggressive in its M&A strategy and we expect it to continue specially in the infrastructure software market which is more fragmented and has lower regulatory risk vis-à-vis the semiconductor market. This has allowed Broadcom to diversify beyond its core chip business into the lucrative software arena.

Its increasing revenue exposure in subscriptions and services, which was around 24% in fiscal 2021, is highly recurring and meaningfully offsets product-driven volatility associated with the semiconductor business.

Broadcom's profit margins are among the best in the industry. Gross margin was 75% in Q4 and operating margin was 59% during the same period. We expect margins to remain high as the mix of software revenue increases.

We expect strong near-term demand for Broadcom's radio frequency and wireless chips as telecom firms spend more to roll out 5G technology.

Broadcom is well positioned to benefit from higher demand for its data center and server chips, led by increase in remote working and a rapid shift to cloud by businesses during the pandemic.



LB•LOGIC Broadcom offers a pure-play way to benefit from the growth of several technology trends (5G, data center, cloud). The company's dominant market positioning, high margins and strong customer relationships gives us confidence about the growth going forward. The company relies heavily on M&A strategy for its growth.

 **RECENT DEVELOPMENTS**

In [Q4 2021](#), Broadcom reported revenue of \$7.4 billion, an increase of 15% YoY driven by higher growth across both its segments – Semiconductor Solutions (+17% YOY) and Infrastructure Software (+8% YOY). Semiconductor Solutions segment revenue was up 17% YoY to \$5.6 billion, representing 76% of total revenue. The increase were primarily attributable to growth across all its end markets – Networking (+13% YOY), Storage (+21% YOY), Broadband (29% YOY), and Wireless (21% YOY).

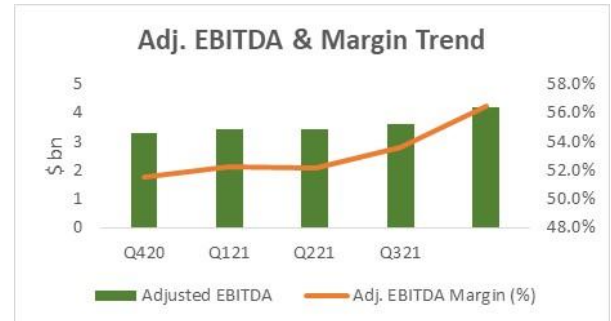
Infrastructure Software revenue was \$1.8 billion, up 8% YOY and represented 24% of total sales in Q4.

Consolidated gross margins were 75% in Q4, up 105 bps YOY driven by improvement in profitability across both Semiconductor Solutions and Infrastructure Software. Gross margins for Semiconductor Solutions segment were 70%, up 170 bps YOY, driven by favorable product mix. Gross margins for infrastructure software were 90% in Q4, up 19 bps YOY.



Source: Seeking Alpha

Higher revenue and improvement in gross margin drove a 20% increase in Broadcom’s operating income to \$4.4 billion in Q4. Operating margin was 59%, up 286 bps YOY. Adjusted EBITDA was \$4.5 billion or 61% of revenue.



Source: Seeking Alpha

Broadcom reported net income of \$1.9 billion or \$4.45 per share in Q4 2021, versus \$1.3 billion or \$2.93 per share in the prior year period. Free cash flow in the quarter was \$3.5 billion, representing 47% of revenue.

The company ended Q4 2021 with \$12.2 billion in cash and cash equivalents and debt of \$39.7 billion. The company paid cash dividend worth \$1.4 billion in Q4.

Outlook: The overall outlook for Q1 is solid with revenue growth expectation of 14% YOY. Semiconductor Solutions segment is expected to deliver growth of nearly 17% YOY, while Infrastructure Software is anticipated to grow in mid-single-digit. Total Q122 revenue is expected to be \$7.6 billion and adjusted EBITDA margin is guided to be around 61.5% in Q122.

LB•LOGIC Broadcom continues to see robust demand for its networking and storage products due to strength from the enterprise and cloud end markets. The Infrastructure Software segment continues to deliver revenue growth in mid-single-digit, while Semiconductor growth continues to track in high-teens YOY.

COMPANY MANAGEMENT

Founder, [Hock Tan](#) has been serving as the company's CEO since March 2006. He also served as Chairman of Integrated Device Technology from Sep 2005 to Jan 2008. Prior to Broadcom, Mr. Tan was the President and Chief Executive Officer of Integrated Circuit Systems from June 1999 to September 2005.

[Kirsten Spears](#) currently serves as the Chief Financial Officer and Chief Accounting Officer of the company. Prior to this position, she was the Vice President and Corporate Controller at Broadcom from May 2014 to December 2020. Prior to joining Broadcom, she worked at LSI, serving at various senior level positions including

Corporate Controller. Ms. Spears holds an MBA from Santa Clara University.

LB • LOGIC We like Mr. Tan's track record of integrating acquisitions successfully. Using this, he has been able to create one of the world's largest semiconductor companies. The bet is that he will continue to use his acquisition acumen to create value for shareholders.

INDUSTRY AND COMPETITION

The worldwide semiconductor sales are expected to reach \$680.6 billion by 2022, according to data from IC Insights. This represents an increase of 11% versus \$614 billion in 2021. Broadcom was estimated to be the 8th largest company by semiconductor sales in 2021. We expect Broadcom semiconductor sales growth in 2022 to outpace the industry growth rate.

Worldwide 5G network infrastructure revenue is set to grow 21% to reach \$23.2 billion in 2022, compared to \$19.1 billion in 2021, according to Statista. This will boost demand for Broadcom's radio frequency and wireless chips.

Broadcom's competitors vary by it segments. In the Semiconductor segment, Broadcom competes with Intel, NXP, Marvell, Mediatek, Qualcomm, Skyworks Solutions, Texas Instruments and Cisco. In the Infrastructure Software segment, it

competes with both large and small enterprise software providers. The main competitors include Atlassian Corp, IBM, Cisco, Oracle, CrowdStrike, New Relic, Splunk Inc.

The markets that Broadcom competes in have relatively high entry barriers. Broadcom is a dominant player in the semiconductor market and has strong relationship with customers. Its extensive portfolio of more than 19,000 patents is a big advantage. On the infrastructure software side, Broadcom focuses on large fortune 500 companies and typically has sticky long-term relationships with their customers. The company's strong competitive positioning is characterized by its high margins (EBITDA margin of >60%).

TREND ANALYSIS: VALUATION

The stock is trading at 15.5x fwd EBITDA and 18.6x fwd earnings. This is marginally higher

than the peer group average, but we think it is justified given its superior margin profile as

well as solid EPS growth outlook. The shares have corrected nearly 10% over the past few weeks and this could be good buying opportunity for longer-term oriented investors.

We also note that the stock offers an attractive dividend yield of 2.65%.

Company name	Revenue Growth FWD	Earnings Growth FWD	EBITDA Margin	EV-to-EBITDA FWD	Price-to-Earnings FWD
Broadcom Inc.	10.5%	17.6%	53.4%	15.5X	18.7X
Semiconductor Solutions					
Qualcomm	25.2%	40.4%	33.8%	13.3X	16.9X
NXP Semiconductors	11.2%	16.3%	33.6%	16.0X	20.8X
Skyworks Solutions	22.5%	27.9%	39.7%	10.6X	13.3X
Qorvo Inc.	15.9%	27.6%	36.9%	10.6X	13.0X
Infrastructure Software					
SolarWinds	-7.5%	-13.1%	16.4%	11.6X	12.8X
Cisco	3.9%	4.6%	31.2%	12.4X	17.8X
Oracle	4.1%	10.9%	44.4%	13.4X	18.1X

Source: Seeking Alpha

CONCLUSION / RECOMMENDATION

The company reported Q4 earnings beat as revenue grew at double-digit pace led by high-teens percentage growth in semiconductor and high-single-digit growth in infrastructure software sales. Broadcom is exposed to several technology secular growth trends and this gives

us confidence about the direction and growth going forward. We believe the valuation is reasonable and the investors with a long-term view can enter the stock while collecting a 2.6% dividend yield. Therefore, we assign a **“GREEN LIGHT”** rating to Broadcom Inc. (AVGO).

Stock Chart for Broadcom Inc. (AVGO)



Source: Tradingview

Performance Data

	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
RETURN ON INVESTED CAPITAL (%)	(6.6)	3.9	11.1	5.0	4.5	9.7
GROSS MARGIN (%)	44.7%	62.5%	66.3%	70.2%	72.7%	73.7%
ADJ. Net Income (BILLIONS USD)	4.6	7.2	9.3	9.4	9.9	12.5
Adj. EPS (\$)	11.45	16.02	20.82	21.29	22.15	28.05
REVENUE (MILLIONS USD)	13.2	17.6	20.8	22.5	23.8	27.4
YoY Revenue Growth (%)	94.1%	33.3%	18.2%	8.2%	5.8%	15.1%

Valuation Data

	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
SHARE PRICE (USD)	176.77	256.90	254.28	316.02	437.85	665.41
SHARES OUTSTANDING (MILLIONS)	383	421	431	419	421	429
MARKET CAP (BILLIONS USD)	67.7	108.1	109.5	132.4	184.3	285.4
PRICE/SALES RATIO	5.1	6.1	5.2	5.8	7.7	10.4

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