

**BROADCOM®**



## Broadcom

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Broadcom Inc. (NASDAQ: AVGO)  
Technology

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Georgia Tech  
Student Foundation  

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Investments Committee

# Investment Thesis and Pitch Summary

## Investment Thesis

- Takes advantage of increasing 5G and LTE implementation
- Growth in Infrastructure Software segment (73% vs 47% operating margins)
- High dividend yield (3.45%)
- Adds exposure to semiconductors in technology portfolio

## Strong Financials

- Great operating margins
  - Semiconductor Solutions 47%
  - Infrastructure Software 73%
- Increasing FCF and FCF Margin
  - Free Cash Flow \$9.3B
  - Free Cash Flow Margin 41%
- Great contracted revenue sources
  - \$15B deal with Apple (2020-2023)

## Debt Issuance Concerns

- Substantial increase in total debt since 2018
  - Total debt is nearly 3x (\$17B to \$44B)
  - Net issuance is greater than FCF
- Debt stays long term or dividend is cut
  - 50% of FCF goes to dividends
  - \$30B to pay down with \$10B annual FCF
- Increase in debt is mostly from acquisition of CA technologies
  - \$18.9B deal

## Topics in the Presentation

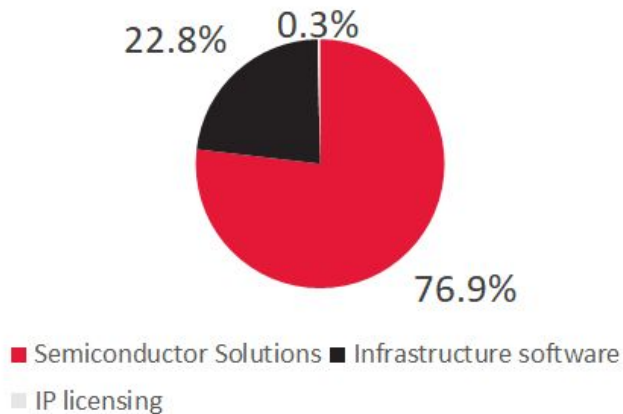
- Positioning
- Acquisitions
- Infrastructure Software
- Debt Issuance
- R&D spend
- Current Contracts
- Valuations

# Company Overview

## Summary

<b>Headquarters</b>	San Jose, CA
<b>Founding</b>	1961 (as Avago Technologies)
<b>IPO Date</b>	2008 (as Avago Technologies)
<b>Employees</b>	19,000
<b>Business Description</b>	Broadcom provides semiconductor solutions and infrastructure software in data center, telecom, and enterprise networking applications.
<b>Geographic Revenue Mix</b>	China (36%), United States (19%), Singapore (11%), Others (35%)
<b>Full GICS Sector Breakdown</b>	Information Technology - Semiconductors & Semiconductor Equipment

## Segment Revenue Breakdown



## 3 Year Annotated Stock Performance



## Last Earnings Call Summary 9/11/2020

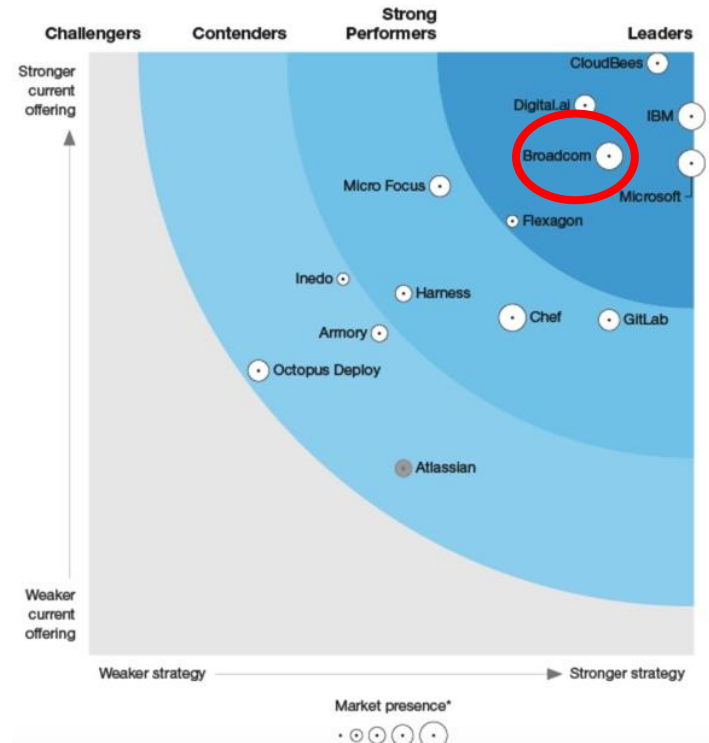
- Net Revenue increased 6% YoY and 1% QoQ to \$5.8B
- Infrastructure Software Revenue up 41% YoY to \$1.6B
- Quarterly FCF at \$3.1B, 53% of revenue
- Ended the quarter with \$44B in total debt, \$800M short term

# Positioning

## Agile Software Development



## Delivery and Release Automation



## Product Mix

(Networking, switching, routing hardware)

**Wired Infrastructure**  
(37%)

(Storage hardware)

**Enterprise Storage**  
(11%)

(Business security and operations software)

**Infrastructure Software**  
(28%)

(Mobile phone semiconductors)

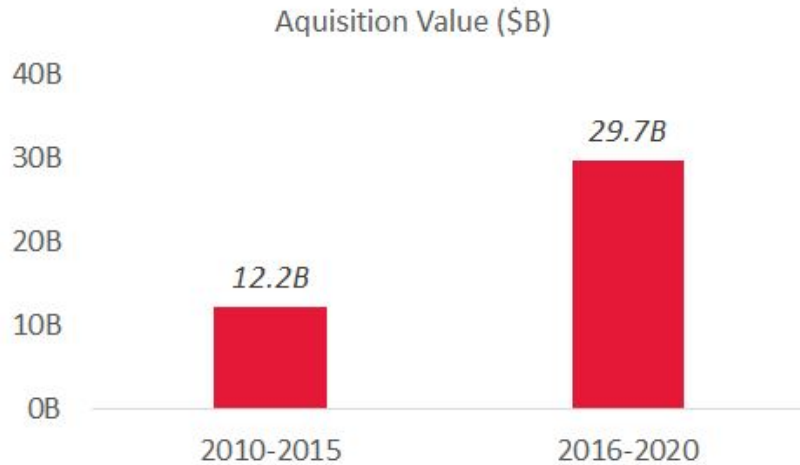
**Wireless Communications**  
(20%)

**Industrial**  
(5%)

# Acquisitions

## History

- Broadcom has 56 past acquisitions collectively valued at over \$50B
- Recent Software deals
  - Symantec (\$10.7B) - Enterprise Security Space
  - CA Technologies (\$18.9B) - Cloud and Traditional Enterprise Software Segment
- Recent Semiconductor deals
  - Brocade Communications (\$5.5B) - Storage Product Networking Products

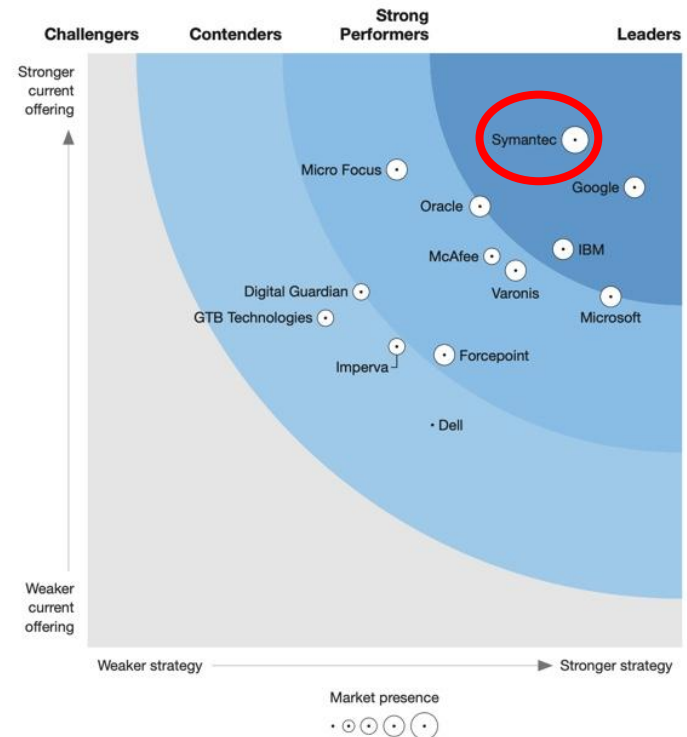


143% increase over previous 5 years (value basis)

## Comparison

- Broadcom is highly active in the acquisition space compared to its peers
  - Qualcomm: 47 Acquisitions
  - Marvell: 11 Acquisitions
  - Skyworks: 6 Acquisitions

### Data Security Portfolio Vendors



# Infrastructure Software

## Analysis

- Network Software Segment created primarily through acquisitions of Symantec and CA Technologies
  - Divided between Enterprise Security and Operations
  - Accounts for \$1.6B in revenue (2.5x smaller than Semiconductor Solutions Segment)
  - Higher Operating Margin (73% compared to Semiconductor Solutions' 47%)
  - Greatly aids FCF Growth

## Outlook

- Digital Transformation
  - COVID has fueled such recent robust growth as business switch to Digital Functions (40% YOY). Growth expected to continue at healthy rate.

## Historical FCF



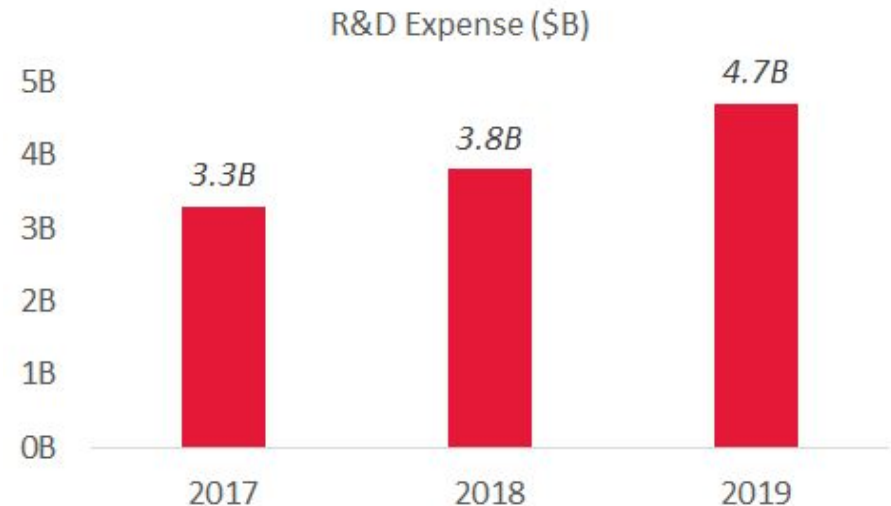
# Cause for total debt increase

## Acquisitions

- Brocade Communicates in 2017 for \$5.5B
- CA Technologies in 2018 for \$18.9B
  - Focused on software: Systems Management, Anti-virus, and Security Improvements
- Symantec Technologies in 2019 for \$10.7B
  - Cybersecurity Software Infrastructure Improvement

## R&D

- Broadcom has focused on R&D over the past four years
  - 21,000 new IP patents
  - Over \$4.5B invested into R&D last year
  - Over 50 acquisitions to improve Infrastructure and Software



# Impact to Financial Health

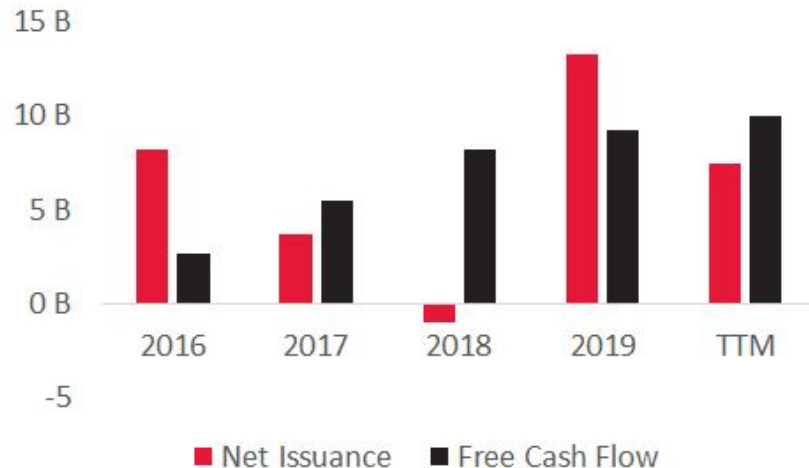
## Debt Levels

- Broadcom has publicly explained they will prioritize Free Cash Flow to decrease debt
- Cash surplus will likely decrease as more and more of FCF will be allocated towards debt management

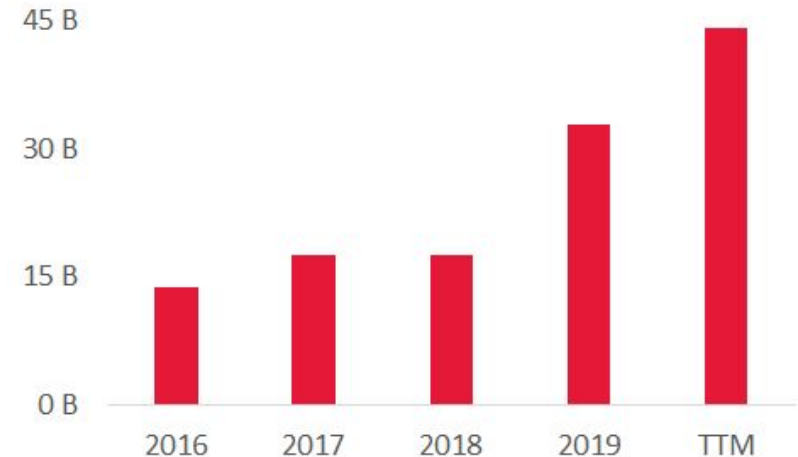
## Dividend Payments

- Broadcom's dividends have increased the past 10 years even with aggressive M&A
  - 3.48% dividend yield
- Amount of increasing Free Cash Flow means that it is extremely unlikely for a cut to happen

## Net Debt Issuance and Free Cash Flow



## Total Debt





## Impact to Financial Health (cont.)

### Competitive Edge

- Broadcom sought after more ground on the Infrastructure Software front
- Aggressive M&A strategy left Broadcom with substantial debt

### Quick Ratio

<b>Broadcom</b>	<b>1.72x</b>
Qualcomm	1.57x
Texas Instruments	3.16x
Marvell	1.07x
Skyworks Solutions	3.70x

*Measures the ability for a company to use quick assets to take care of liabilities -- Higher is better*

### Debt to Equity

<b>Broadcom</b>	<b>1.87x</b>
Qualcomm	4.82x
Texas Instruments	0.82x
Marvell	0.19x
Skyworks Solutions	0.04x

*Measure of how leveraged a company is -- Lower is better*

### Interest Coverage

<b>Broadcom</b>	<b>2.19x</b>
Qualcomm	6.17x
Texas Instruments	29.59x
Marvell	9.28x
Skyworks Solutions	n/a

*Measure of company's ability to pay interest payments -- Higher is better*

# Contracts and Purchaser Relationships

## Major Customers

- Top 5 Customers account for 30%+ of revenue in 2019, 43% in 2018
- Apple
  - 20% in 2019, 24% in 2018, 20% in 2017
- Foxconn
  - 9% in 2018, 14% in 2017
- Other Major Customers
  - Huawei Technologies
  - Arris
  - Samsung
  - Hewlett-Packard

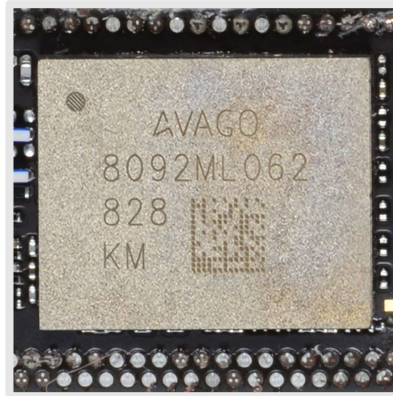
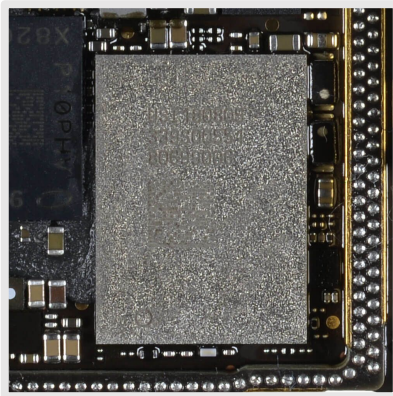
## Switching Costs / “Stickiness”

- Each Semiconductor Company specializes in specific chips/parts
  - Likely because R&D is such a large expense (hard to “catch-up”)
- Broadcom specializes in Wi-Fi and Bluetooth Modules and RF Front Ends
- Apple and others keep suppliers long-term
  - Texas Instruments since 2013
    - Charging Chips/Parts
  - Skyworks since 2013
    - Part of RF Front End
  - Sony since 2011
    - Camera Modules

# Apple Relationship

## Contents and Value

- Broadcom supplies two main networking chips
  - Wi-Fi/Bluetooth Modules
  - Part of the RF Front End (Antenna and associated parts)
- Parts are in both iPhones and MacBooks
- Current contract worth \$15B over 3.5 years
  - 1/2020 - 7/2023 (\$4.3B/yr)
- Apple accounted for 20% of Revenue in 2019, 24% in 2018, and 20% in 2017
- Supplying parts since iPhone 3GS (2009)



## Could Apple bring this In-House?

- Apple would likely buy Broadcom's RF Business Unit
- Broadcom "listed" business unit in December
  - Valuation about \$10B
  - Decided not to sell in March after getting new Apple contract
- Apple already bought Intel's Mobile Business Unit
  - \$1B for "majority" in July 2019

WSJ Wall Street Journal

### Broadcom Looks to Sell Unit That Could Fetch \$10 Billion

Broadcom Looks to Sell Unit That Could Fetch \$10 Billion ... a buyer for its radio-frequency, or RF, unit, a segment of its wireless-chip business ...

Dec 18, 2019



CRN CRN

### Broadcom Changes Mind, Opts Not To Sell RF Wireless Chip ...

Broadcom Changes Mind, Opts Not To Sell RF Wireless Chip Business.

'After careful consideration, we have come to the conclusion that ...

Mar 12, 2020



# Relative Valuation

Company	Market Cap	5Y Rev CAGR	Forward EV/EBITDA	Forward PEG	Operating Margin	FCF Margin	Dividend Yield
Broadcom	\$150.6B	27.39%	12.39x	1.54x	16%	46%	3.48%
Marvell	\$27.5B	0.47%	23.48x	1.71x	-9%	15%	0.58%
Qualcomm	\$144.3B	-3.45%	13.97x	0.97x	18%	20%	1.98%
Skyworks	\$25.0B	-1.88%	14.58x	1.58x	27%	31%	1.22%
Texas Instruments	\$137.7B	2.17%	18.91x	2.45x	40%	38%	2.75%
Median	\$137.7B	0.47%	14.58x	1.58x	18%	31%	1.98%

## Positives

- Revenue Growth
- EV/EBITDA
- PEG
- FCF Margin
- Dividend Yield

## Negatives

- Operating Margin
- Interest Coverage

# DCF

## Semiconductor Solutions

### Assumptions

Tax Rate	21%
Exit Multiple (EBITDA)	16.1x

### WACC Calculation

Risk Free Rate	1.46%
Beta	1.14
Market Risk Premium	6.00%
Cost of Equity	8.3%
Pre-Tax Cost of Debt	3.86%
Equity-to-Value	77.14%
Debt-to-Value	22.86%
<b>WACC</b>	<b>7.11%</b>

Firm Value	<b>109,784.5</b>
Contribution to Price	\$ 221.90

## Infrastructure Software

### Assumptions

Tax Rate	21%
Exit Multiple (EBITDA)	18.8x

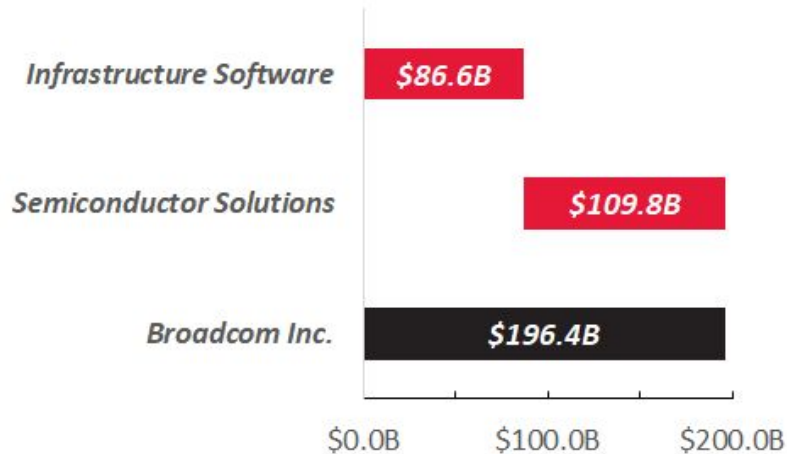
### WACC Calculation

Risk Free Rate	1.46%
Beta	1.10
Market Risk Premium	6.00%
Cost of Equity	8.1%
Pre-Tax Cost of Debt	3.86%
Equity-to-Value	77.1%
Debt-to-Value	22.9%
<b>WACC</b>	<b>6.93%</b>

Firm Value	<b>86,622.4</b>
Contribution to Price	\$ 175.08

# Valuation Spread

## Enterprise Value DCF



## RV Share Price

### EBITDA Multiple

FY 2020E EBITDA/Shares	\$37.01
Current Forward EV/EBITDA	12.39x
Fair Value Forward EV/EBITDA	14.58x

**Implied Price Target** **\$458.54**

## Share Price DCF

\$300    \$350    \$400    \$450    \$500

Share Price

**\$396.98**

## Weights and Price Target

### Model #1: Relative Valuation (35%)

Implied Price Target **\$458.54**

### Model #2: Discounted Cash Flow (65%)

Implied Price Target **\$396.98**

**Weighted Price Target** **\$415.45**

*15.3% premium over current price*

# Investment Thesis

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## Buy AVGO at 1.5% Allocation with a Price Target of \$415.45

- Takes advantage of increasing 5G and LTE implementation
- Growth in Infrastructure Software segment (73% vs 47% operating margins)
- High dividend yield (3.45%)
- Adds exposure to semiconductors in technology portfolio



# Questions?

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