

AMBARELLA:

Long Idea



Ambarella®

AI envisioned™

Macro view

- Leading indicators:** Leading indicators are strong, particularly so in the US even though building permits saw a drawback. Mixed comments with problems in the supply chain, labor shortage and **inflation** with **higher commodity prices** seem to be common themes across many industries as demand increases.

ISM Manufacturing	mar-21		abr-21		may-21		jun-21		jul-21		ago-21	
Furniture & Related Products	Growth	12	Growth	16	Growth	16	Growth	17	Growth	17	Growth	15
Computer & Electronic Products	Growth	14	Growth	8	Growth	11	Growth	14	Growth	13	Growth	14
Machinery	Growth	15	Growth	15	Growth	7	Growth	16	Growth	11	Growth	13
Primary Metals	Growth	9	Growth	13	Growth	12	Growth	6	Growth	6	Growth	12
Electrical Equipment, Appliances & Comp	Growth	16	Growth	18	Growth	10	Growth	15	Growth	3	Growth	11
Fabricated Metal Products	Growth	11	Growth	14	Growth	9	Growth	11	Growth	10	Growth	10
Plastics & Rubber Products	Growth	8	Growth	10	Growth	14	Growth	13	Growth	5	Growth	9
Chemical Products	Growth	5	Growth	11	Growth	6	Growth	12	Growth	8	Growth	8
Miscellaneous Manufacturing	Growth	3	Growth	12	Growth	5	Growth	9	Growth	14	Growth	7
Food, Beverage & Tobacco Products	Growth	10	Growth	9	Growth	8	Growth	5	Growth	7	Growth	6
Transportation Equipment	Growth	6	Growth	5	Growth	4	Growth	10	Growth	4	Growth	5
Wood Products	Neutral	0	Growth	1	Growth	3	Growth	2	Growth	2	Growth	4
Printing & Related Support Activities	Growth	2	Growth	2	Contraction	-1	Growth	3	Growth	16	Growth	3
Paper Products	Growth	7	Growth	4	Growth	2	Growth	4	Growth	9	Growth	2
Petroleum & Coal Products	Growth	1	Growth	3	Growth	1	Growth	1	Growth	1	Growth	1
Apparel, Leather & Allied Products	Growth	13	Growth	6	Neutral	0	Neutral	0	Growth	15	Neutral	0
Nonmetallic Mineral Products	Growth	4	Growth	7	Growth	15	Growth	8	Growth	12	Contraction	-1
Textile Mills	Growth	17	Growth	17	Growth	13	Growth	7	Contraction	-1	Contraction	-2

Industry Top-Down

- It's trading at a **high premium** to the semiconductor (small/mid market cap) sector, with above average earnings and revenue growth. Also, **highest positive change in estimates**.

Ticker	Company Name	EG F1	EG F2	EG F3	PE FY1	PE FY2	PE FY3	PEG F1	PEG F2	PEG F3	Percent Change in FY1 EPS Estimates (Prev 60 Days)	Percent Change in FY2 EPS Estimates (Prev 60 Days)
RUN	Sunrun Inc	66.98%	7.26%	15.78%	-135.38	-145.97	-173.32	-2.02	-20.11	-10.99	-24.53	9.55
DQ	Daqo New Energy Corp	472.23%	-8.82%	-20.30%	6.55	7.18	9.01	0.01	-0.81	-0.44	21.61	11.48
VSH	Vishay Intertechnology Inc	155.87%	-4.76%	4.82%	9.23	9.69	9.25	0.06	-2.04	1.92	9.35	2.07
JBL	Jabil Inc	91.51%	7.94%	5.72%	11.07	10.26	9.70	0.12	1.29	1.70	0.00	0.00
AMKR	Amkor Technology Inc	71.21%	8.55%	5.80%	11.78	10.85	10.25	0.17	1.27	1.77	19.61	23.85
CRUS	Cirrus Logic Inc	10.01%	9.60%	-2.76%	16.71	15.24	15.67	1.67	1.59	-5.68	9.02	6.25
NVT	nVent Electric PLC	26.00%	13.00%	11.79%	18.12	16.04	14.35	0.70	1.23	1.22	8.21	10.03
REZI	Resideo Technologies Inc	480.46%	25.54%	10.88%	19.22	15.31	13.81	0.04	0.60	1.27	18.82	14.65
FN	Fabrinet	16.63%	6.90%	10.95%	19.30	18.05	16.27	1.16	2.62	1.49	7.64	9.04
DIOD	Diodes Inc	103.39%	11.65%	8.50%	20.43	18.30	16.87	0.20	1.57	1.99	12.05	16.34
TSEM	Tower Semiconductor Ltd	52.15%	26.15%	19.33%	20.52	16.26	13.63	0.39	0.62	0.71	5.40	3.03
MTSI	MACOM Technology Solutions Holdings Inc	116.60%	16.03%	10.25%	30.05	25.90	23.49	0.26	1.62	2.29	3.64	5.46
SMTC	Semtech Corp	46.08%	19.46%	10.09%	30.79	25.77	23.41	0.67	1.32	2.32	5.21	6.63
IPGP	IPG Photonics Corp	73.48%	19.73%	12.64%	33.65	28.10	24.95	0.46	1.42	1.97	-6.35	-5.98
POWI	Power Integrations Inc	79.12%	4.16%	7.20%	36.18	34.73	32.40	0.46	8.35	4.50	15.20	19.24
ALGM	Allegro Microsystems Inc	58.75%	18.93%	NaN	42.03	35.34	NaN	0.72	1.87	NaN	12.02	4.73
OLED	Universal Display Corp	47.53%	31.05%	19.23%	50.50	38.53	32.32	1.06	1.24	1.68	-1.40	-0.23
SPWR	SunPower Corp	594.16%	77.64%	37.28%	64.32	36.21	26.38	0.11	0.47	0.71	-8.42	-5.71
LSCC	Lattice Semiconductor Corp	37.38%	18.42%	NaN	66.27	55.96	NaN	1.77	3.04	NaN	9.66	4.26
AMBA	Ambarella Inc	347.25%	27.33%	16.00%	89.89	70.59	60.86	0.26	2.58	3.80	56.94	49.13
-	Industry Average	147.34%	16.79%	10.18%	23.06	17.12	9.96	0.41	0.49	0.68	8.68	9.19

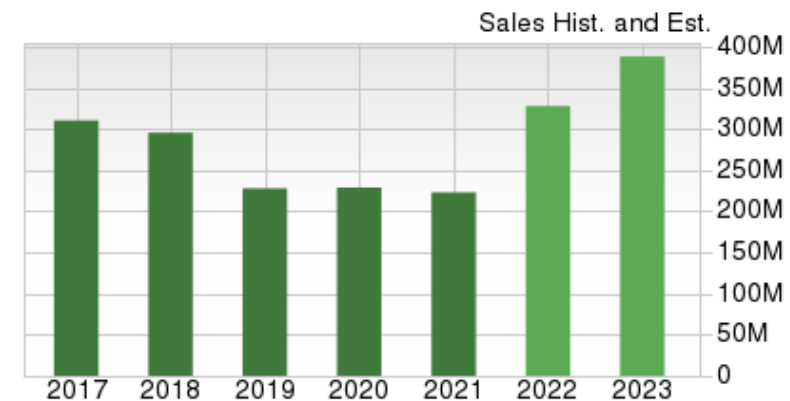
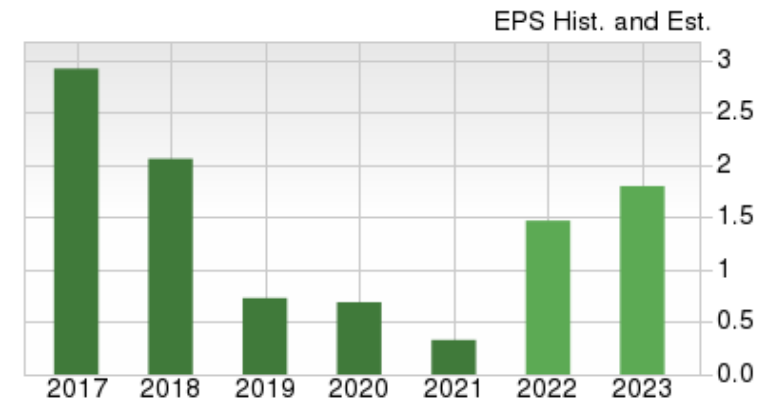
Industry Top-Down

- Historical EPS suggest some kind of **turnaround story** in this stock. Not entirely since it is already trading at a premium.

Valuation Multiples - AMBA					
		Stock	Sub-Industry	Sector	S&P 500
P/S F12M	Current	14.57	8.58	5.06	4.61
	5-Year High	17.96	8.89	5.09	4.64
	5-Year Low	3.97	4.82	2.79	3.12
	5-Year Median	6.36	6.11	3.54	3.72
P/B TTM	Current	10.81	11.40	9.94	7.05
	5-Year High	10.81	11.76	10.34	7.08
	5-Year Low	2.46	4.58	4.59	3.67
	5-Year Median	3.91	6.31	5.88	4.94
EV/Sales TTM	Current	18.16	7.91	5.71	4.77
	5-Year High	18.23	8.59	5.82	4.79
	5-Year Low	2.47	3.95	3.13	2.57
	5-Year Median	5.02	5.67	4.01	3.60

As of 09/09/2021

Source: Zacks Investment Research



Company Overview

Ambarella, Inc. NasdaqGS

[Add to My Watchlists](#) [My Notes](#) [Quotebox](#)

AMBA **148.32** USD **+1.98 (+1.35%)** **147.50** USD **-0.82 (-0.55%)** **Tue Nov 23rd 2021** **Information Technology** **Semiconductors and Semiconductor Equipment** **\$5.44b** **85.0x** **1,064,231** **54.07%** **211.86%**
 Last Updated • Fri Sep 10 4:00PM EDT After Market • Fri Sep 10 5:23PM EDT Next Earnings Date Sector Industry Market Cap Forward P/E Volume Total Return (3M) Total Return (1Y)

SNAPSHOT CHART

1D 5D MTD 1M QTD 3M 6M YTD 1Y **3Y** 5Y 10Y 20Y ALL



KEY DATA

Dividend Yield	-	Avg Volume (10D)	1.37M
Beta (5Y Monthly)	1.40	Volatility (1Y)	59.15
Shares Outstanding	36.66M	Short Interest %	3.75%
Industry	Semiconductors and Semiconductor Equipment		
Competitors	MXL SMTC MPWR SLAB LSCC		

PERFORMANCE RETURNS

	1M	3M	YTD	1Y
Price	44.22%	54.07%	61.53%	211.86%
Total	44.22%	54.07%	61.53%	211.86%

VALUATION

	LTM	NTM
P/E	-	85.0x
EV/Sales	18.7x	13.7x
EV/EBITDA	-	61.6x
Price/Book	10.8x	

CAPITAL STRUCTURE

Market Cap	\$5.44B
Total Debt	\$10.65M
Cash & Inv.	\$449.16M
Enterprise Value	\$5.00B

ANALYST ESTIMATES

	FY 2022	FY 2023	FY 2024
Sales	\$327.60M	\$389.01M	\$465.54M
YoY Chg	46.91%	18.75%	19.67%
EPS	1.48	1.88	2.44
YoY Chg	347.16%	27.36%	29.68%

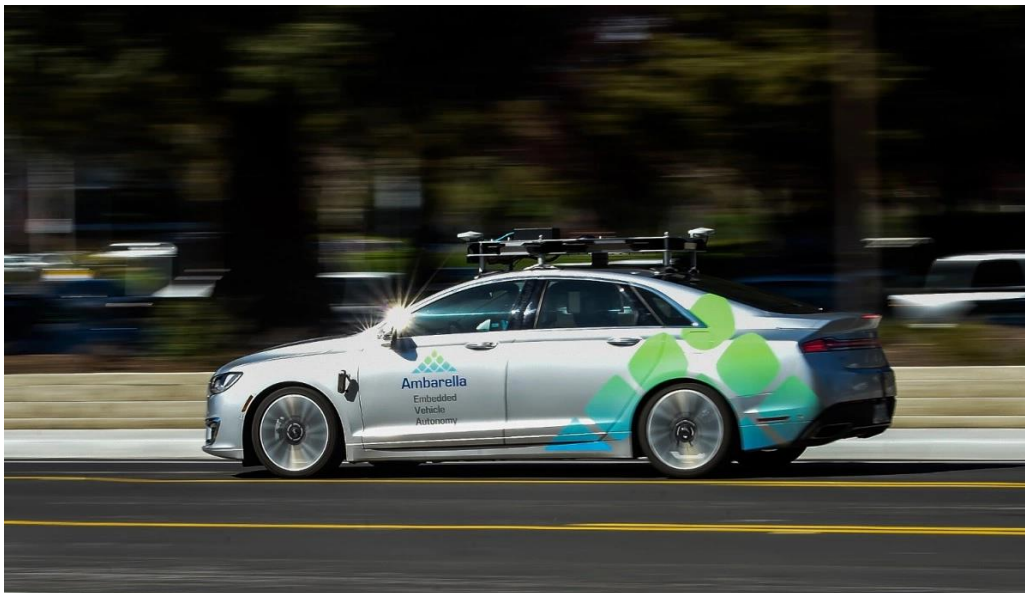
NEWS

- Ambarella promotes Chan Lee to COO SeekingAlpha • Sep 09 21
- Ambarella Takes Off In More Ways Than One SeekingAlpha • Sep 09 21
- Ambarella (AMBA) Just Flashed Golden Cross Signal: Do You Buy? Zacks Investment Research • Sep 08 21
- Is Ambarella Stock a Buy? Yahoo • Sep 05 21
- Here's Why Ambarella Stock Jumped This Week Yahoo • Sep 03 21

Company Overview

DESCRIPTION:

Ambarella, Inc. develops semiconductor solutions for video that enable high-definition (HD) and ultra-HD compression, image processing, and deep neural network processing worldwide. Its solutions enable the creation of video content for wearable cameras; automotive cameras; drones; etc. Important note: **Ambarella's foundry of choice is Samsung**



Company Overview

- **Very low short interest and no anomalies in institutional holdings**

Short Interest %



Shareholders

Name	Equities	%
The Vanguard Group, Inc.	3,245,806	8.95%
Blue Ridge Capital LLC (New York)	1,633,000	4.50%
Eagle Asset Management, Inc.	1,152,405	3.18%
Wellington Management Co. LLP	1,093,380	3.01%
SSgA Funds Management, Inc.	1,073,532	2.96%
Invesco Advisers, Inc.	1,059,040	2.92%
BlackRock Fund Advisors	917,146	2.53%
AllianceBernstein LP	886,220	2.44%
Leslie Kohn	866,907	2.39%
Coatue Management LLC	866,400	2.39%

Quantitative analysis- Top-line

- Their sales momentum started increasing since late 2020 and is **accelerating**.

	FY 2021	FY 2022	FY 2023	FY 2024
1Q Apr	\$54.65M	\$70.13M	\$89.42M	\$105.65M
2Q Jul	\$50.11M	\$79.33M	\$96.00M	\$113.15M
3Q Oct	\$56.09M	\$90.35M	\$105.35M	-
4Q Jan	\$62.14M	\$88.22M	\$102.57M	-
Year	\$222.99M	\$327.60M	\$389.01M	\$465.54M
Growth	16.44%	46.91%	18.75%	19.67%



Quantitative analysis - Bottom-line

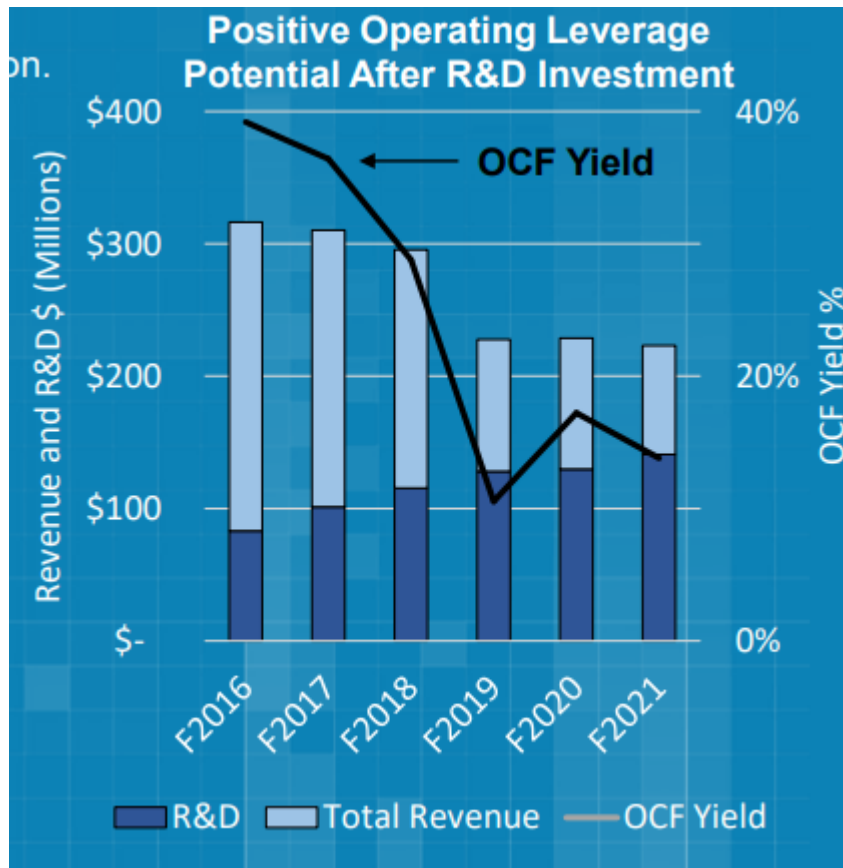
- EPS also accelerating, but with operational leverage.

	FY 2021	FY 2022	FY 2023	FY 2024
1Q Apr	0.04	0.23	0.39	0.47
2Q Jul	0.06	0.35	0.46	0.55
3Q Oct	0.09	0.49	0.55	-
4Q Jan	0.14	0.41	0.50	-
Year	0.33	1.48	1.88	2.44
Growth	44.64%	347.16%	27.36%	29.68%



Quantitative analysis - R&D and focus on operational leverage

- Significant R&D investments they made in the past are starting to yield results, recent momentum can be partially explained by this dynamic.

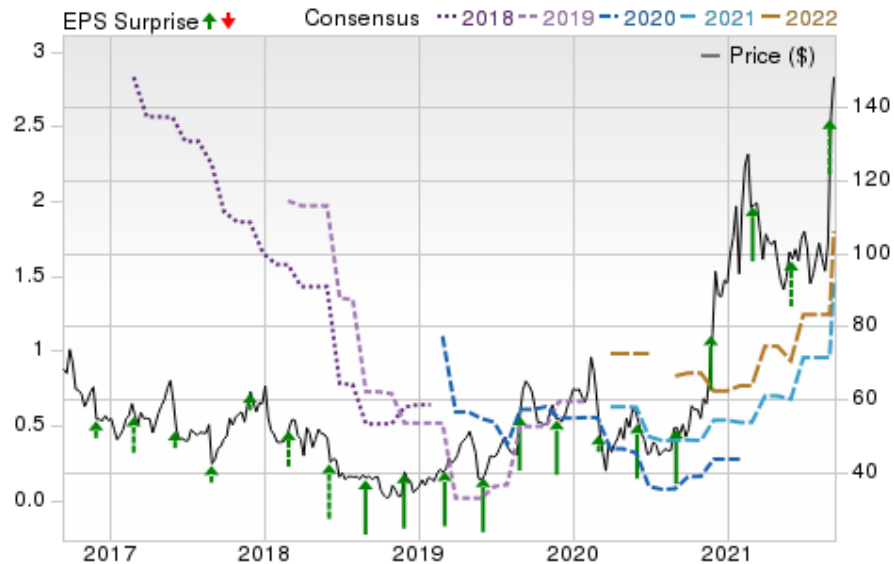


"Just fast forward in 5 years from when we made the initial investment in CV2, most recently reported quarter, we're now showing significant momentum on the revenue line with our computer vision products. We've said there'll be at least 25% of revenue this year, given that they carry 2x ASP that translates into -- it will be about 10% or 12% of our units this year.

*And most importantly, the **operating leverage** from this incremental TV revenue is now starting to drive our operating margins, which reached **16.9%** in the last quarter and consensus has them advancing around **20%** in the next quarter." - Deutsche Bank Technology Conference 2021, September 9th*

Quantitative analysis - Last Quarter and Estimates

Price, Consensus & Surprise



LAST QUARTER

- Last quarter was **really strong**, enough to propel the stock in an almost 50% upward move.
- Ambarella reported **second-quarter earnings, handily outpacing the consensus estimate by 40%..**
- **Revenues** of \$79.3 million beat the consensus mark of \$75.8 million and **increased 58% year over year**. Ambarella's top-line growth was mainly **driven by improvement in the automotive and security camera businesses**.
- **Non-GAAP gross margin** was 62.8%, **up 40 basis points (bps) year over year** in the second quarter.
- They **have never missed estimates**

GUIDANCE

- Revenue is expected to be between \$88.0 million and \$92.0 million. **(Up 10-15%)**
- Gross margin on a non-GAAP basis is expected to be between **61.0% and 63.0%**.
- Earnings per diluted ordinary share of **\$0.35**. This compares with earnings per diluted ordinary share **of \$0.06, for the same period in fiscal 2021**.

Qualitative analysis - Revenue (Taiwan and concentration risks)

- The Company **operates in one reportable segment** related to the development and sales of **low-power, high-definition (HD), Ultra HD video compression, image processing and computer vision solution**.
- Geographically speaking, **62.5%** of their revenues come from Taiwan, **25%** from Asia Pacific, **5%** from Europe and **7%** from North America.

Geographic Revenue

The following table sets forth the Company's revenue by geographic region based on bill-to location for the periods indicated:

	Three Months Ended July 31,		Six Months Ended July 31,	
	2021	2020	2021	2020
	(in thousands)			
Taiwan	\$ 49,136	\$ 27,313	\$ 93,723	\$ 61,773
Asia Pacific	20,162	14,965	38,799	28,993
Europe	4,387	2,633	7,405	4,886
North America other than United States	4,443	3,343	7,133	6,016
United States	1,199	1,859	2,400	3,090
Total revenue	<u>\$ 79,327</u>	<u>\$ 50,113</u>	<u>\$ 149,460</u>	<u>\$ 104,758</u>

- CLIENT CONCENTRATION: Wintech** and **Chicony**, which accounted for approximately **61.6%** and **15.8%** of total revenue for the three months ended July 31, 2021, respectively, and accounted for approximately **62.4%** and **15.8%** of total revenue for the six months ended July 31, 2021, respectively

Qualitative analysis – Revenue – Expansion to new clients

- Just as they have **scaled their business with their main clients**, there is no reason to think this will not also be the case with the **new customers** they have acquired because of the disruptive quality of their AI driven technology.

*“**Motorola's** video security portfolio now includes IP camera makers of digital, telecom and **IndigoVision** as well as [indiscernible] of U.K.-based police body-worn camera supplier and **WatchGuard**, a **supplier of police vehicle cameras**. **All of these companies are Ambarella customers**. Ambarella's CV4 AI Vision SoC continue to gain share in a professional IoT security camera market, with most major manufacturers have chosen our CV SoCs. During the quarter, European giant **Bosch** introduced its first 3 families of cameras based on Ambarella's CV SoCs. Bosch introduced the 5000i based on our CV22 and the 7000i and 8000i based on our CV2 SoCs.”*

*“**Last quarter**, we announced 4 examples from the **Shanghai Auto Show**. And this quarter, we are pleased to announce 3 additional wins; **KeepTruckin, Yandex** and **Solera**.”*

Qualitative analysis - Inventories

- **Inventories continue to rise.** Inventory increased by 27.2% QoQ to \$42.1M in Q2, up from \$33.1M at the end of Q1. Inventory has now increased by 61.3% since the start of the fiscal when it stood at \$26.1M. While some consider the big increase in inventory a potential sign of trouble, AMBA believes it needs to build inventory in order to meet the increase in demand, while also hedging against supply chain disruptions that are still out there. Cash flow improved as well.
- From the Q2 earnings call:

"On a sequential basis, work in progress was up sequentially to support the rising demand, while the finished goods inventory was down and at two-year lows. Our Q2 operating cash flow was a positive 14.4 million or about 18% of revenue. This compares with an outflow of 4.5 million the prior quarter."

Qualitative analysis – Supply Chain

- Some of the disruptions they had are easing in the second half of the year.

*“On the supply side, **Texas foundry was a problem in Q1 and Q2**, but we will recover from the second half, like Louis said, and that **will become less impact**”*

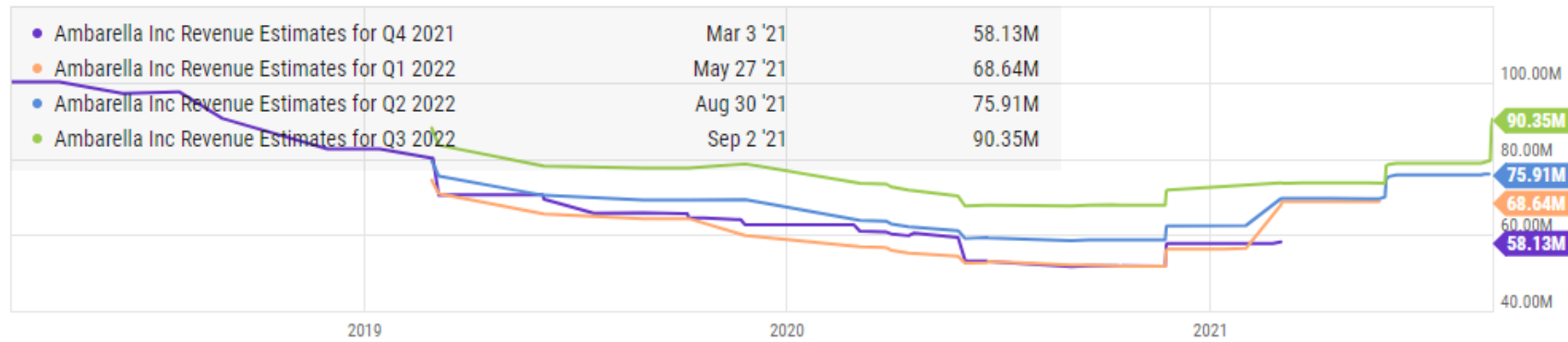
- Emergence of supply chain disruptions (specifically those affecting **Samsung**) were concerning, but earnings reports released earlier in the year made it clear **growth was on the upswing regardless**.

*“Our **largest competitor** in the security camera SoC market, **HiSilicon**, a unit of Huawei, is **facing headwinds of their own**”*

Qualitative analysis - Estimate Revisions

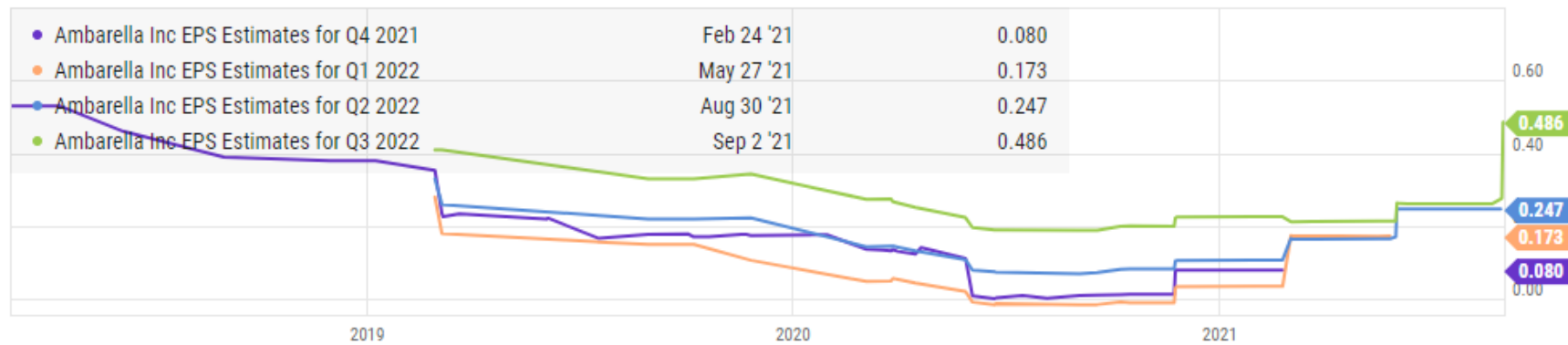
• Revenue

Long Term Revision Trends



• Earnings

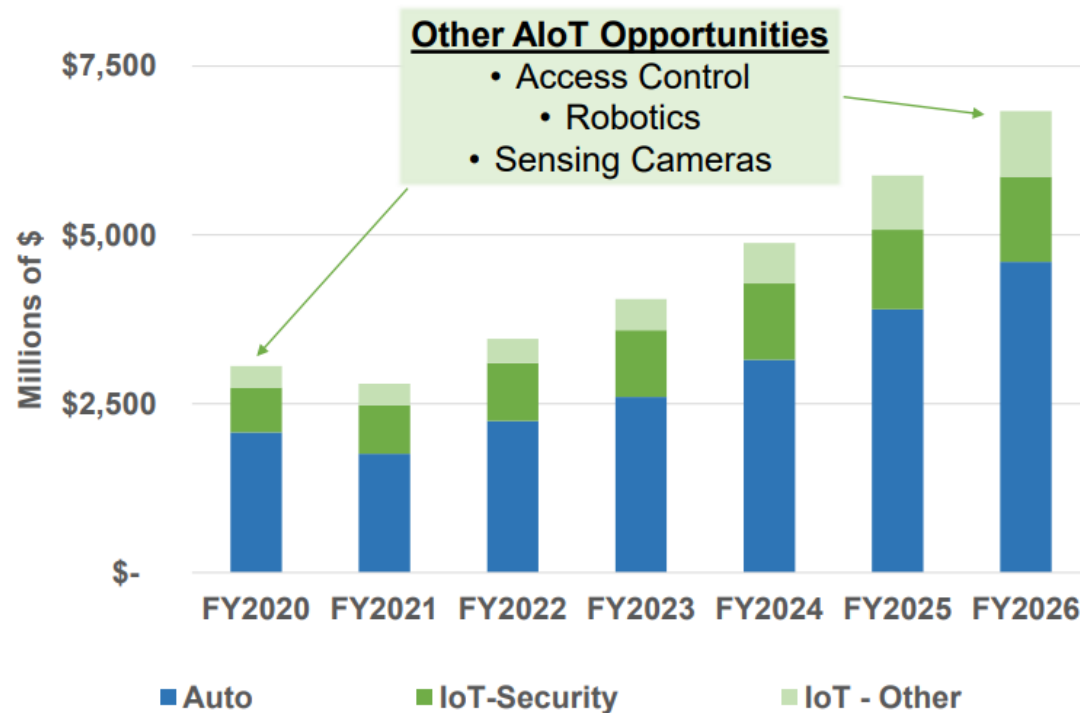
Long Term Revision Trends



Qualitative analysis - Growth prospects: TAM

- There is a huge opportunity in this large and growing market, led by **Automotive Driverless** tech market.

Large and Growing SAM – Led by Automotive



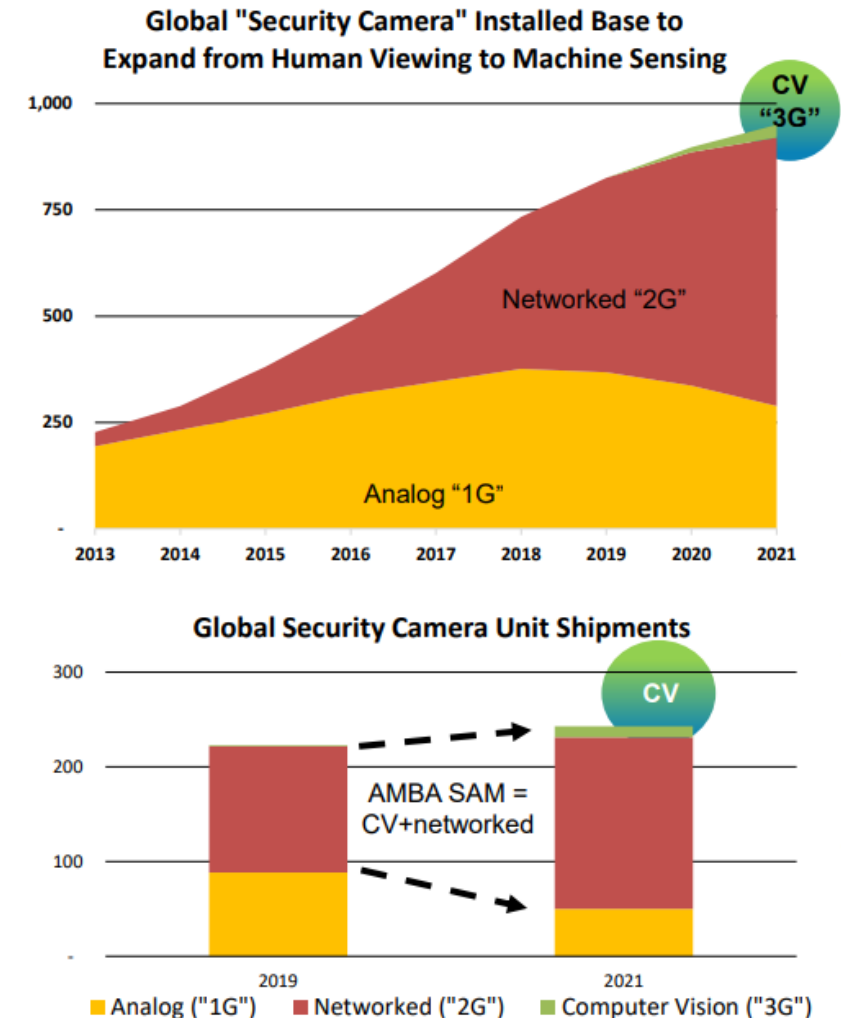
- **Automotive** the largest SAM opportunity (15%-20% revenue in FY21)
- **IoT-Security** with the highest Ambarella market share (~60% revenue FY21)
- **IoT-Other** offers the highest CAGR

Qualitative analysis - Growth prospects: TAM

IoT Camera Market

~60% fiscal 2021 total revenue

- **“Security camera” market transformation**
 - The security camera market is the largest AIoT market today
 - CV enabled cameras collect and process data for a machine's perception and can simultaneously generate an image for human viewing
 - Addressable market expands from humans to include machines
 - Customer software on our CV SoCs enables new data driven camera applications and new business models for our customers
 - Machines can take advantage of video innovations that human eyes can't
- **~900M “security camera” installed base C2020**
 - Installed base today is almost all human viewing (“2G”) primarily deployed for security applications
 - The human viewing installed base is expected to continue to grow while the installed base for machine perception is just beginning
 - Installed base replacement rate estimated between 4 to 6 years
- **Annual Unit Shipments ~260 million in C2020**
 - ~75% professional (enterprise and public) and ~25% smart home
 - “3G” CV SoCs command a ~2x ASP versus a similar 2G video processor
 - “1G” analog camera market expected to continue to shrink – Ambarella does not serve this market



Qualitative analysis - Growth prospects: TAM

Vehicle Sensor Suite Trends

Cameras expected to generate a vast majority of the data in a 3D point cloud - at all levels of autonomy

	Manufacturer	Model	System	Level of Autonomy	PERCEPTION SENSOR SUITES				
					Camera	Long-Range Radar	Mid-Range Radar	LiDAR	Ultrasonic
Industry Examples PRODUCTION VEHICLES	Tesla (2017)	Model S, X	Autopilot 2.0	2	8	1	0	0	12
	MBZ (2016)	E Class	DRIVE Pilot	2	2 (Stereo)	1	4	0	4
	Audi (2018)	A8	AI Traffic Pilot	3	5	1	4	1	4
	Nissan (2016)	Rogue, Serena	ProPILOT	2	1		0	0	0
	Nissan (2019)	Skyline, Q50	ProPILOT 2.0	2+	7	5	0	0	12
	Tesla (2019)	Model 3	Autopilot 3.0	2+	8	1	0	0	12
	GM (2017/18)	CT6	Super Cruise	2	5	1	0	0	0
FUTURE VEHICLES	Mobileye (2021)	Geely Models	SuperVision	2+	11		0	0	0
	GM (2021+)	Cruise	Cruise	5	16	11	10	5	0
	Amazon/Zoox		Full-stack	5	14		10	8	0
	Mobileye (2025-)		Full-stack	5	11		6	1	0
	Uber (2019+)	Ford Fusion	Driverless System	5	20		7	7	0

In comparison, in CY2020 there was an average of ~1.5 cameras per new vehicle manufactured globally


Ambarella's current opportunity is to provide the processing for the cameras in the perception layer. In the future, Ambarella expects to provide the processing for the fusion, planning and control layers in a partially or fully autonomous vehicle

Qualitative analysis - Growth prospects: Market fragmentation

Competitive Landscape is Fragmented

Ambarella's visual AI processing expertise scales across multiple markets


Access to leading edge manufacturing technology suspended
9/15/2021

	Security Cameras			Automotive Cameras				
	Professional	Home	Recorders	Forward-Facing ADAS	eMirror	In-Cabin	L2+	PT/FT Autonomous
 Ambarella	✓	✓	✓	✓	✓	✓	✓	✓
HiSilicon (Huawei)	✓	✓ China only	✓ Aftermarket					
Mobileye (Intel)				✓ (SW from Mobileye+SoC from STM="black box")			✓ DNN begins with EyeQ5	✓
Movidius (Intel)	✓							
Nvidia	(Server based architectures not IoT end point)						✓ Mostly planning & control processing	✓
NXP						✓		
Qualcomm	✓	✓	✓	✓ Reselling T1 Veoneer's IP		✓		
Renesas				✓	✓	✓	✓	✓
SigmaStar	✓	✓						
Texas Instruments				✓	✓	✓	✓	✓
Xilinx				✓	✓	✓	✓	✓
(IP Cores) Cadence, CEVA, etc.	✓	✓		✓		PLDs utilized early in a product life cycle		✓
(Others)	AMLogic, Fullhan, Ingenic, Novatek, Socionext, Will (Custom ASICs)		AIT, Novatek, iCatch	Horizon Robotics (Socionext), (Custom ASICs)			(Custom ASICs)	(Custom ASICs)

Catalysts

- Earnings Call Nov 23rd (estimated)

CATALYSTS EXCLUDING EARNINGS:

- **Analyst revisions:** there seems to be momentum in this regard and analysts are starting to upgrade this stock already. With the operational leverage this company is showing it is likely this trend will continue.
- **Landing new clients:** This has certainly been a catalyst for last quarter and there also seems to be a positive trend regarding the acquisition of new customers.
 - Announced Q2 F2022: KeepTruckin, Yandex, Solera/Omnitracs
 - Announced Q1 F2022: Autocruis, Momenta
- **More joint venture announcements:**

Motional:

- AD joint venture between **Hyundai** and **Aptiv**
- Among the first to put driverless vehicles on public roads
- Announced the largest deployment of Robo-Taxi with **Lyft**

Catalysts

- **ACQUISITION:**

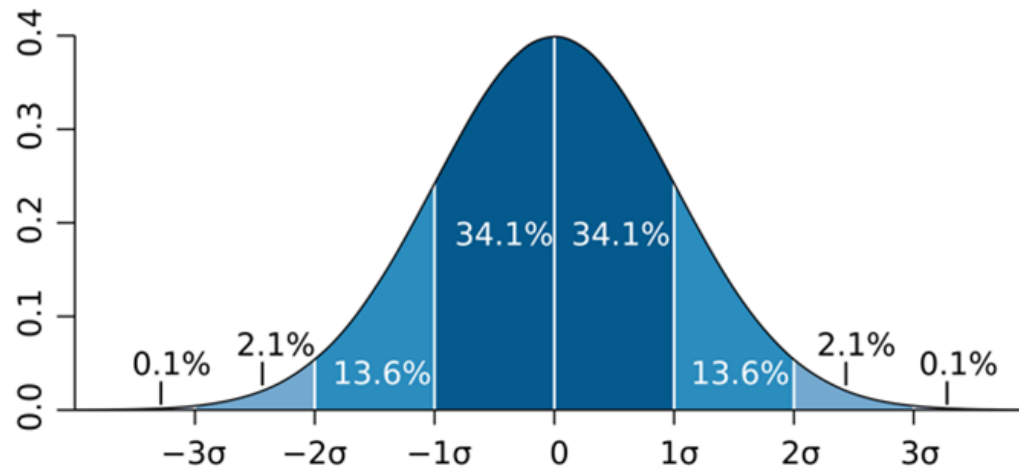
This is more of a stretch and not the base case of the idea, but the size and disruptive nature of this company certainly allow for it.

Volatility Assessment and Price target

- Using the implied volatility calculation, we can get to a realistic price target of 200, which equals a 35% move in the underlying.

Stock Price: 147.5

Implied Volatility Assessment		1 Std Dev = 68%		2 Std Dev = 95%	
Timeframe	Implied Volatility	Lower Bound	Upper Bound	Lower Bound	Upper Bound
Annual	55.73%	65.30	229.70	-16.89	311.89
Monthly	16.09%	123.77	171.23	100.04	194.96
Weekly	7.73%	136.10	158.90	124.70	170.30
Daily	2.92%	143.20	151.80	138.90	156.10
Option Time Horizon	28.43%	105.57	189.43	63.63	231.37



Trade Structure

- As next earnings is likely to be the really strong catalyst, the preferred structure here is a calendar spread (about 10% OTM).

	Strategy	Calendar	Calendar
	Expiry	Oct and Dec	Oct and Dec
	strikes	160	160
	prices	4 and 11.8	4 and 11.8
	contracts	(1) and 2	(1) and 2
	Calc Date	Oct	Dec
	cost	\$ (1,960.00)	\$ (1,960.00)
	\$ 130.00	\$ (1,247.00)	\$ (1,960.00)
	\$ 140.00	\$ (700.00)	\$ (1,960.00)
Price Points	\$ 150.00	\$ 70.00	\$ (1,960.00)
Profit and Loss	\$ 160.00	\$ 1,055.00	\$ (1,960.00)
	\$ 165.00	\$ 1,128.00	\$ (960.00)
	\$ 170.00	\$ 1,250.00	\$ 40.00
	\$ 175.00	\$ 1,419.00	\$ 1,040.00
	\$ 180.00	\$ 1,630.00	\$ 2,040.00
	\$ 185.00	\$ 1,880.00	\$ 3,040.00
	\$ 190.00	\$ 2,164.00	\$ 4,040.00
	\$ 195.00	\$ 2,480.00	\$ 5,040.00
	\$ 200.00	\$ 2,823.00	\$ 6,040.00
	\$ 205.00	\$ 3,190.00	\$ 8,040.00

If we are right in our timing, we get 3:1 ratio