

# **THE REED REPORT**

**COMPANY SPOTLIGHT – NVIDIA**

**10/08/2016**



## **Business Overview**

NVIDIA (NASDAQ: NVDA) is a computer technology company that has pioneered GPU-accelerated computing (GPU = Graphic Processing Units). It targets the world's most demanding users -- gamers, designers, and scientists - with products, services and software that power amazing experiences in virtual reality, professional visualization, datacenter, and autonomous cars. Nvidia's two reportable segments are GPU and Tegra Processor.

## **Previous Quarter**

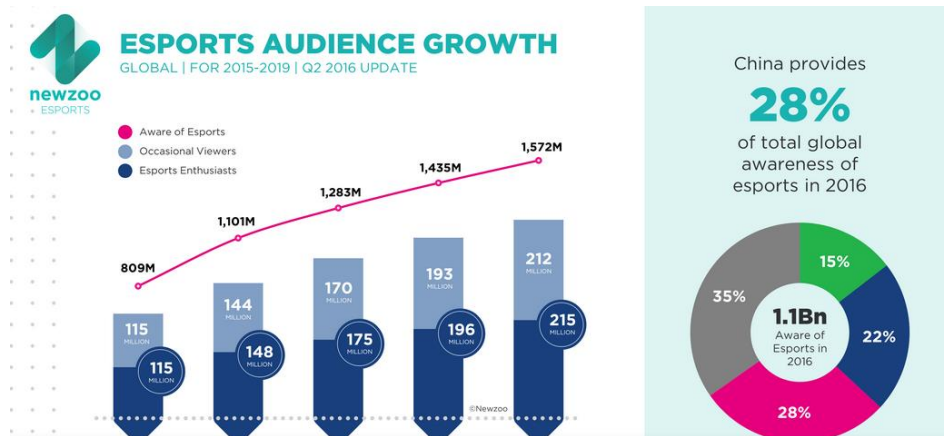
On August 11, 2016, Nvidia reported revenue of \$1.43 billion which was up 24% from last year and beat analysts' estimates by \$80 million. They reported EPS of \$0.53 which beat analysts' estimates by \$0.16. The GPU business was up 25% from last year to \$1.2 billion. The Tegra Processor business was up 30% from last year to \$166 million. Gaming revenue increased 18% from last year to \$781 million driven by sales their latest gaming GPU's. Professional visualization increased 22% from last year to \$222 million driven by the high end market for real time rendering tools and mobile workstations. Datacenter revenue more than doubled from last year to \$151 million driven by strong growth in supercomputing, hyperscale datacenters and grid virtualization. All are components needed for artificial intelligence. Automotive was up 68% from last year to \$119 million driven by premium car infotainment (audio and video entertainment in cars i.e. radio and navigation) and digital cockpit features in cars. Finally, GAAP gross margin was a record 57.9% and non GAAP gross margin was 58.1% for the quarter.

## **Growth Opportunities**

During the Q2 2016 conference call, Co-Founder/CEO Jen-Hsun Huang talked about gaming, VR (virtual reality), deep learning and self-driving cars as the keys to driving future growth for the company. These are all markets where GPU's are vital for the development of each product.

Nvidia is the world leader in PC gaming. Their GPUs enhance the gaming experience by improving the visual quality of graphics, increasing the frame rate for smoother gameplay, and improving realism by replicating the behavior of light and physical objects. Their products for the gaming market include GeForce GTX GPUs for PC gaming, the SHIELD family of tablet and portable devices for mobile gaming, GRID for cloud-based streaming on gaming devices, and development services for gaming platforms.

Computer gaming is one of the largest entertainment industries. Helping to propel it are the rise of eSports (competitive online gaming) and virtual reality. The market research firm Newzoo projects that the Esports audience will double from 2015 – 2019. Refer to the chart below for more details.



Newzoo isn't the only one who has taken notice. In the past year, Yahoo and ESPN have created new online channels dedicated to the coverage of eSports. Arby's, Credit Karma, and Buffalo Wild Wings joined together as sponsors of a brand new league called ELEague. It is focused on video games and catering to Millennials. ELEAGUE broadcasts across digital platforms and airs on TBS.

During their investor day on April 5, 2016, Nvidia reported that their installed base for their gaming products is 100 million users. Nvidia will have an opportunity to add to that number as broadband upgrades and internet availability take place in emerging markets. Also, the developers of new gaming titles have increased their GPU power recommendations. This is similar to what happens when a new gaming console like PS4 or Xbox One is released. The developers can add more features to a game and the only way to get everything is to upgrade your system. Nvidia estimates that 80% of their user base are below the updated recommendations which creates a tremendous opportunity to sale to their installed base.

In the last year, there has been multiple releases of virtual reality headsets. Facebook released Oculus Rift, Google released Daydream, and Sony released Playstation VR. Virtual reality is not being used just for entertainment but for business as well. In Q1 2016, 38 companies highlighted virtual reality as a part of their business plan which is up from 8 last year. Ikea has a VR app where you can design your room and see it. Six Flags is considering using VR on some older rides to market them as new without the cost of building new rides. Stubhub is testing VR so people can see the view from a seat before they buy it. The CEO of Facebook, Mark Zuckerberg, made the following comments about VR "Eventually we believe that VR is going to be the next big computing platform and we're making the investments necessary to lead the way there". Nvidia is betting that as virtual reality market grows and the technology develops similar to gaming (Nintendo, Super Nintendo, Dreamcast, Playstation, etc.) you will need more powerful GPU's which leads to increased revenue.

When Jen-Hsun Huang was asked which area does he expect the most growth going forward he mentioned deep learning. Deep learning has been introduced with the objective of moving machine learning closer to one of its original goals: Artificial Intelligence. Basically, companies want to take huge amounts of data and use it to discover insight that isn't possible otherwise. For example, Amazon uses this technology to determine what you would want and make recommendations before you actually ask for it. Today, Nvidia's GPUs accelerate every major deep learning framework in the world. They power IBM Watson and Facebook's Big Sur server for AI. They are in AI platforms at hyperscale companies such as Microsoft, Amazon, Alibaba, and Baidu for both training and real time. Twitter uses Nvidia's GPUs to help discover the right content among the millions of images and videos shared every day. Refer to the slides below for a listing of everyone who uses Nvidia's products for deep learning.

## ACCELERATED DATACENTER VALUE PROPOSITION

Leading to rapid customer adoption in HPC market

Higher Education	HARVARD UNIVERSITY	Stanford University	ETH	UNIVERSITY OF CAMBRIDGE
National Labs	CSCS	Lawrence Livermore National Laboratory	OAK RIDGE National Lab	
Weather				
Energy	Schlumberger	Siemens	Eni	STATOIL
Finance	AON	BARCLAYS	ING BANK	JPMorgan
Manufacturing	ZEISS	Raytheon	Rolls-Royce	TOYOTA
NVIDIA TESLA PLATFORM				

INVESTOR DAY 2014 NVIDIA

## ACCELERATED DATACENTER VALUE PROPOSITION

Leading to rapid customer adoption in HYPERSCALE market

CSP	amazon WEBCLOUDS	Google	Microsoft Azure	SOFTLAYER an IBM Company
China CSP	阿里云 aliyun.com	Baidu 百度	Sogou 搜狗	360 360.com
Communication	Flytek	orange	skype	
Community	facebook	Pinterest	yelp	
Media	flickr	iQIYI 爱奇艺	SHAZAM	
Retail	amazon.com	ebay	JD.COM	
NVIDIA TESLA PLATFORM				

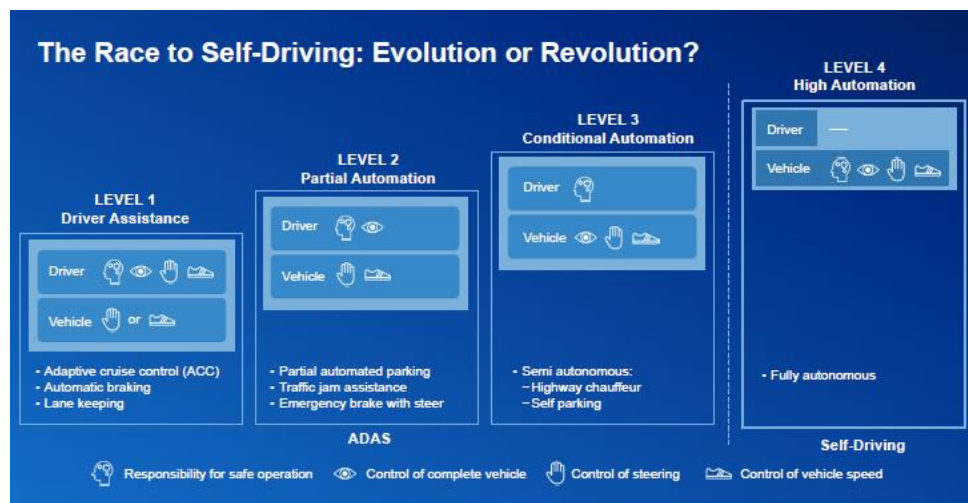
INVESTOR DAY 2014 NVIDIA

Deep learning was first adopted by technology companies but now is finding its way to different industries. For example, Massachusetts General Hospital is using deep learning to improve detection, diagnosis, treatment, and management of diseases using their database of 10 billion medical images. Nvidia believes in the future almost all transactions on the Internet will include deep learning. Every recommendation of a movie, purchase, search, text, will go through some sort of deep learning algorithm so that companies can make it more useful to you. We are already seeing this now with Netflix recommendations, Facebook and Instagram News Feeds, and Amazon recommendations. I believe this is just the tip of the iceberg. As time goes on, I believe companies will use this technology for most if not all of their business decisions. They will use deep learning to figure out what their customers want, see what is and isn't selling so they can have the correct inventory at all times and cut down on waste, determine the level of store traffic at different times to ensure they are properly staffed, and use it to discover a new trend and roll out a new product or service. If this is the case, Nvidia will see incredible growth in this industry for years to come.

During this year's GPU Technology conference in April 2016, Nvidia, demonstrated the world's first self-driving car trained using deep learning and showed its ability to navigate on roads without lane markings even in bad weather. The car was equipped with Nvidia's DRIVE PX2 system which is the first

AI supercomputer for self-driving cars. They are working with around 80 companies that include OEM's, direct suppliers to OEM's, and startup companies to build autonomous driving cars.

There are 4 different levels of advanced driver assistance systems. The first level is driver assistance. The second level is partial automation. The third level is conditional automation. The fourth level is full automation. The Tesla Model S and BMW 750i models have up to level 3 on their newest models. Right now there are no vehicles with level 4 ADAS on the market. Refer to the table below for more details on the levels.



The auto industry's current goal is to achieve level 3 ADAS. They see it as another way to decrease the number of accidents involving distracted drivers by giving them another set of eyes to keep them safe. Toyota plans to make automatic emergency braking a standard feature by 2017. Level 4 vehicles may be used in a different business model other than traditional car sales such as ride sharing companies using these cars to eliminate drivers. Uber is currently testing level 4 cars in Pittsburgh. The auto industry is determined to put more level 3 ADAS vehicles on the road which gives Nvidia an opportunity to grow its automotive business. Level 3 vehicles would still need Nvidia's DRIVE P2X system. Level 4 would be a bonus as it would need a more advanced system from Nvidia.

## Sector Review

The semiconductor sector has been on fire this year. As of October 7, 2016, The S&P Semiconductor ETF (XSD) is up 22% for the year while the S&P is up 7%. Instead of focusing on parts for personal computers, certain semiconductor manufacturers have turned their attention to the production of new data centers used for cloud computing. In Q2 Intel, an industry giant, had 5% growth in their data center division. Other companies are seeing an increase in demand thanks to the need for chips for Internet of Things. The Internet of Things are items embedded with sensors, software, and network connectivity that enable these devices to collect and exchange data. According to Gartner, Inc. (a technology research and advisory corporation), there will be nearly 20.8 billion devices on the internet of things by 2020. Some of today's examples are Amazon's Alexa, smart home devices like lighting, thermostats, and appliances that you can monitor remotely, and wearables such as Apple Watches and Fitbits. Other companies are ramping up efforts to gain access to the automotive industry as carmakers turn to self-driving technology.

Another reason for the positive performance of the semiconductor industry in 2015 marked the beginning of a consolidation period for the semiconductor industry. Several major deals took place during the year, with the total deal value reaching an all-time high of \$103.8 billion, according to IC Insights. This trend continued in 2016. So far, \$55.3 billion worth of M&A (mergers and acquisitions) deals have taken place in 2016. The latest possible deal involves Qualcomm working with NXP to buy them for around \$40 billion including debt (I know this because I was writing about NXP right before the possible deal was announced☺). Many industry executives have stated that the key factor driving consolidation is the rising cost of product development. Research and development costs are very high in the semiconductor industry and internal product development entails the risk of product failure. KPMG's global semiconductor leader, Lincoln Clark, stated that companies can mitigate the risk of product failures by acquiring already established products. The M&A activity has decreased industry competition giving the remaining companies a chance to gain more market share aka a bigger slice of the pie. The result is the growth in revenue and market value we've seen in the industry this year.

## Technical Analysis

Below is the chart for Nvidia for 2016.



As of October 7, 2016, the stock is \$66.85, up 102% this year and is 4% from its all-time high of 69.70 which it hit on October 4, 2016. The recent sell off is due to Nvidia's executives selling stock which can be a sign that the company is fully valued or overvalued. Another hint is the stock is right around the average analyst price target estimate of \$67.34. Usually analyst will raise their price targets at this point but they could be waiting for the third quarter report before they do so. Also, since the stock has run up so much this year, investors could start to sell the stock to lock in profits. The relative strength indicator (RSI) is a technical indicator that shows the historical strength or weakness of a stock based on the closing prices during a trading period. The RSI is most typically used on a 14-day timeframe and measured on a scale from 0 to 100. Anything over 70 is considered overbought and anything under 30 is considered oversold. As of October 7, 2016 the relative strength indicator for Nvidia is 61.48.

When reviewing an income statement, I primarily focus on the year over year change in revenue and margins. For the first 6 months of Nvidia's fiscal year, revenues increased 18.6% and gross margins increased by 190 basis points (or 1.9%). This is a good sign that the company is executing well as they are able to grow sales and cut product costs. Refer to the income statement below for more details.

	Three Months Ended		Six Months Ended	
	July 31, 2016	July 26, 2015	July 31, 2016	July 26, 2015
Revenue	\$ 1,428	\$ 1,153	\$ 2,733	\$ 2,304
Cost of revenue	602	519	1,156	1,018
Gross profit	826	634	1,577	1,286
Operating expenses				
Research and development	350	320	697	658
Sales, general and administrative	157	149	316	289
Restructuring and other charges	2	89	3	89
Total operating expenses	509	558	1,016	1,036
Income from operations	317	76	561	250
Interest income	12	9	23	18
Interest expense	(12)	(12)	(23)	(22)
Other income (expense), net	-	(1)	(3)	(2)
Income before income tax expense	317	72	558	244
Income tax expense	64	46	109	84
Net income	\$ 253	\$ 26	\$ 449	\$ 160
Net income per share:				
Basic	\$ 0.47	\$ 0.05	\$ 0.84	\$ 0.29
Diluted	\$ 0.40	\$ 0.05	\$ 0.73	\$ 0.28
Weighted average shares used in per share computation:				
Basic	534	541	536	545
Diluted	631	556	617	563

Nvidia's balance sheet is a thing of beauty. They have enough cash and securities to pay off all of their liabilities. Currently, they use this excess cash for dividends which are payments to shareholders and share repurchases where the company buys their own stock. Share repurchases to some degree provide a floor for the stock as the company will start buying the stock when it goes down. Refer to the balance sheet below for more details.

	July 31, 2016	January 31, 2016
<b>ASSETS</b>		
Current assets:		
Cash, cash equivalents and marketable securities	\$ 4,879	\$ 5,037
Accounts receivable, net	644	505
Inventories	521	418
Prepaid expenses and other current assets	112	93
Total current assets	6,156	6,053
Property and equipment, net	485	466
Goodwill	618	618
Intangible assets, net	138	166
Other assets	64	67
Total assets	\$ 7,461	\$ 7,370
<b>LIABILITIES, CONVERTIBLE DEBT CONVERSION OBLIGATION AND SHAREHOLDERS' EQUITY</b>		
Current liabilities:		
Accounts payable	\$ 423	\$ 296
Accrued and other current liabilities	556	642
Convertible short-term debt	1,428	1,413
Total current liabilities	2,407	2,351
Other long-term liabilities	494	453
Capital lease obligations, long-term	8	10
Total liabilities	2,909	2,814
Convertible debt conversion obligation	72	87
Shareholders' equity	4,480	4,469
Total liabilities, convertible debt conversion obligation and shareholders' equity	\$ 7,461	\$ 7,370

## Recommendation

I think Nvidia is a great company with many growth opportunities in the future as they are on the cutting edge of the next wave of technology. However, I do not like to buy stocks so close to their all-time highs as the downside risks outweighs the upside rewards. If I was an owner of the stock I would sell some of it now and wait for a better buying opportunity. The stock could go lower if there is a market wide sell off or a bad quarterly report by Nvidia or another company in the semiconductor industry.

So if you like the company when should you buy it? When the market sold off on June 24, 2016 due to Brexit, (The United Kingdom voted to leave the European Union which came as a surprise to the market), Nvidia went from \$48.49 to \$44.57 before bouncing back. This was an 8% drop. When the market sold off on September 9, 2016 due to comments from Boston Federal Reserve President Eric Rosengren about raising interest rates (speaking hawkish) when everyone expected him to talk about leaving interest rates unchanged (speaking dovish) as he has in the past. Nvidia went from \$62.64 to \$57.32 before bouncing back. This was an 8.5% drop. For me to buy the stock, I would wait for another market sell off unrelated to Nvidia where to stock decreases 8%. From the high of \$69.70, an 8% drop would bring the stock down to \$64.12 so my purchase price would be \$64. With the upcoming quarterly report, I would buy half of my position at \$64 and wait until after the report to buy more.