

Q2 2016 Public PAE Report

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Introduction

Publicly traded patent assertion entities (“PAEs”) are a relatively recent phenomenon. Over the past few years, the proliferation of public PAEs has cast some light on the ways in which PAEs seek to earn revenue based on their primary factors of production—capital and patents.

Over the past four quarters alone, the public PAEs detailed in this report have raised over \$66 million in the debt and equity markets while spending more than \$98 million on ten patent portfolios. The acquired patents, which relate to a variety of sectors, will likely be enforced by the PAEs.

Even with all of this activity, the public PAE industry is still considered too niche to have widespread, comprehensive coverage by sell-side equity analysts who independently research and analyze companies to generate investment recommendations. The dearth of insight into these companies has enabled a contingent of speculators and day traders who opine—often incorrectly—on what legal developments will mean for the prospects of future settlements or revenue for these companies.

In addition to the lack of sell-side coverage of PAEs, the art of analyzing public equity markets and SEC filings is generally not a core strength of many IP professionals, putting them at a disadvantage when encountering public PAEs as counterparties in patent transactions and/or as potential courtroom adversaries.

Since its inception in 2008, RPX has striven to increase transparency in the patent markets. To that end, this RPX Public PAE Report offers analysis of public PAEs and provides summary statistics for a variety of metrics relevant to the public market, including financial performance and enforcement activity. The goal of this report is to deliver comprehensive information that gives IP professionals unique perspective on public PAEs.

Key Findings

Note: Aggregate figures and counts are relative to the 25 public PAEs detailed in this report.

- Taken as an index, public PAEs have underperformed the NASDAQ over the past quarter, at (4.6%) versus (1.5%), and underperformed the NASDAQ over the last twelve months at (13.7%) versus (2.9%). The majority of public PAEs had a positive stock price performance in the second quarter of 2016. Please see charts 1, 2, and 3.
- Public PAEs tend to be small—only four public PAEs have market capitalizations greater than \$1 billion as of June 30, 2016. Please see chart 4.
- Aggregate royalty revenue for public PAEs was \$448 million in the second quarter of 2016, yet only seven PAEs had royalty revenue above \$30 million. Please see charts 5 and 6.
- Despite underperforming the NASDAQ, PAEs have raised more than \$66 million across 16 transactions over the past 12 months. Please see charts 10 and 11.
- Only seven public PAEs have more than \$50 million in cash, and eight have less than \$5 million as of June 30, 2016. Please see chart 14.
- Public PAEs are decreasingly active acquirers of patent portfolios, with ten disclosed purchases over the past 12 months. Please see charts 15 and 16.
- Cash has been the most prevalent form of consideration in public PAE acquisitions. Please see charts 17 and 18.
- Public PAEs are active plaintiffs, accounting for 15 new litigation campaigns over the past 12 months, representing more than 230 active defendants as of June 30, 2016. Please see charts 20-26.

Methodology

RPX continuously strives to improve the accuracy and scope of its data and may make minor changes to methodology and underlying data presented in future analyses and reports. In addition, certain aspects of RPX's methodology may result in slight changes as time passes.

Timing

- This report reflects available financial information as of September 12, 2016, which encompasses Q2 2016 reports and filings for all but one company. Data are collected when the selected public PAEs report financial data, which can take two to three months after the close of a fiscal quarter or year, thus contributing to the time-gap between the availability of this report and the end of the quarter.
- For companies with off-cycle financials that do not coincide with standard quarter- and year-ends of March 31, June 30, September 30, and December 31, financial data were taken from the quarter with the closest associated end-date.

Public PAE Definition

- For purposes of this report, a public PAE is a publicly traded entity with revenue, activities, or market valuation largely related to patent assertion.

Public PAE Identification

- RPX identifies public PAEs through a manual review process performed by experienced employees with knowledge of the patent industry.

- The process includes, among other things, reviewing public filings; searching for evidence of operating or patent monetization activities on the Internet, including company websites; reviewing complaints, with a focus on accused products and allegations regarding products and/or services sold by the patent owner; considering the outside counsel employed by the entity (e.g. whether outside counsel has a history of representing public PAEs); reviewing corporate disclosure statements filed in litigation; and soliciting market intelligence from patent professionals.
- The public PAEs for this particular report represent the largest, most established public PAEs as well as several recently formed public PAEs that have become public via reverse mergers.
- While there are elements of subjectivity in this approach, RPX believes that the process is robust based on feedback from other patent professionals.

Data Set

- This report uses data from publicly available sources (public filings, press releases, company websites, etc.) and from RPX's proprietary litigation database.

Primary Market Sector

- RPX patent professionals classify portfolios into proprietary market sectors. Each portfolio offered may be classified into multiple market sectors. For purposes of this report, only the most relevant or "primary market sector" is used.

Cases Filed

- “Cases filed” refers to filed actions. A single case filed may include multiple defendants. The date for a case filed is the date on which it was originally filed.

Campaign, New Campaigns Filed, Total Campaign Defendants, and Unique Campaign Defendants

- “Campaign” refers to all cases filed by the same plaintiff (inclusive of all members in the corporate family) where each case has at least one patent or family member of a patent in common with another case in the campaign.
- “Campaigns filed” refers to unique campaigns. The date for a campaign filed is the filing date of the first case filed in the campaign. For example, if a campaign includes ten cases, there will be only one new campaign filed; the filing date for the campaign is established by the filing date of the first case filed in the campaign.

Litigation Identification

- RPX excludes false marking cases, misfiles, and ownership disputes. Unless otherwise noted, litigation data are based on campaigns, as opposed to cases.

PAE Related Entities

- RPX’s proprietary litigation database rolls up certain related PAEs into a single public PAE entity. RPX has manually identified these relationships by, among other things, reviewing corporate disclosures, patent assignment records, and RPX market intelligence. For example, Acacia has numerous subsidiaries that RPX has identified. These entities are all represented as Acacia in this report’s analyses.

Small Cap and Large Cap PAEs

- A small cap PAE is a public PAE with a market cap of less than \$300 million, and a large cap PAE is a public PAE with a market cap greater than or equal to \$300 million, as of the end of the reporting quarter.

Patent Transaction Identification

- This report notes patent acquisitions and patent sales that any PAE on the selected list has disclosed in public filings, press releases, or any other publicly available and credible source.

PAE Financings Classification

- Financings classified as Equity deals are deals publicly identified as Bought Deals, Follow-ons, PIPEs, Private Placements, Registered Directs, Rights Offerings, or Warrant Sale.
- Financings classified as Debt deals are deals publicly identified as Debt, Loan Facilities, or Secured Notes.
- Financings classified as Hybrid deals are deals publicly identified as Convertible Debentures, Convertible Notes, Convertible Senior Notes, or Senior Convertible Notes.

Historical Data

- For the purpose of consistency, historical PAE data are not adjusted quarter over quarter if the PAE list is modified due to various reasons (bankruptcy, acquisition, discontinuation of PAE activity, etc.). Historical data may change to reflect differences in public disclosure over time.

Market Data

The following pages feature charts and highlights relating to PAE market performance.

Public PAE Overview

Large Cap Companies	Ticker	Stock Price (As of 6/30/16)	Market Cap (\$USD M)	Q2 2016			Last 12 Months		
				High	Low	Stock Performance (% change)	High	Low	Stock Performance (% change)
InterDigital	IDCC	55.68	1,925.0	59.83	51.97	0.5	76.28	41.01	54.5
Tessera	TSRA	30.64	1,501.7	33.40	28.57	(0.9)	37.87	26.21	(2.6)
Rambus	RMBS	12.08	1,329.7	13.97	11.13	(12.8)	14.50	9.86	11.3
TiVo	TIVO	15.64	1,283.9	20.88	15.06	(10.1)	23.70	8.01	83.4
Straight Path	STRP	27.67	315.2	34.10	7.62	(12.6)	50.00	7.62	(28.3)
WiLAN	WILN	2.53	301.7	3.03	2.12	11.2	3.03	0.94	(21.0)
Small Cap Companies									
VirnetX	VHC	4.00	222.7	6.50	3.83	(12.3)	9.64	1.95	(34.7)
Acacia	ACTG	4.40	221.8	5.64	3.75	11.4	10.63	2.82	(29.7)
Pendrell	PCO	0.50	108.2	0.72	0.48	(3.3)	1.65	0.45	(52.6)
Great Elm	GEC	6.59	62.2	13.20	8.10	(33.0)	13.20	4.10	(55.3)
SITO Mobile	SITO	3.62	62.1	3.79	1.55	36.6	6.08	1.55	(14.1)
Network-1 Technologies	NTIP	2.66	62.0	2.96	1.90	40.0	3.29	1.70	14.4
Finjan Holdings	FNJN	1.82	41.4	2.35	0.87	100.0	2.35	0.81	(1.7)
Marathon Patent	MARA	2.74	41.0	2.93	1.41	39.1	3.44	1.29	37.9
ParkerVision	PRKR	3.14	36.7	3.90	2.19	(0.6)	8.18	1.46	114.0
Form Holdings	FH	1.89	28.3	2.47	1.48	17.4	6.67	1.18	(59.5)
ITUS	ITUS	3.14	27.4	3.31	1.88	6.6	6.00	1.88	(45.2)
Walker Innovation	WLKR	0.53	10.9	0.70	0.21	64.8	0.70	0.13	31.7
DSS	DSS	0.80	10.4	1.20	0.64	11.8	1.20	0.45	(1.3)
Spherix	SPEX	2.38	7.6	4.69	1.80	20.2	13.11	1.27	(87.8)
Inventergy	INVT	1.49	7.3	3.30	1.27	(18.6)	4.30	0.71	(57.2)
Crossroads Systems	CRDS	4.09	5.0	20.00	3.00	2.3	30.00	3.00	(85.0)
Patriot Scientific	PTSC	0.00	1.2	0.01	0.01	(41.5)	0.04	0.00	(71.8)
Quest Patent Research	QPRC	0.00	1.1	0.01	0.00	(60.8)	0.02	0.00	(45.1)
Endeavor IP	ENIP	0.00	0.2	0.00	0.00	0.0	0.00	0.00	(80.0)

Note: Last 12 months data through end of Q2 2016.

Public PAEs Outperformed the Market in Q2 2016

Chart 1: Q2 2016 Index Chart

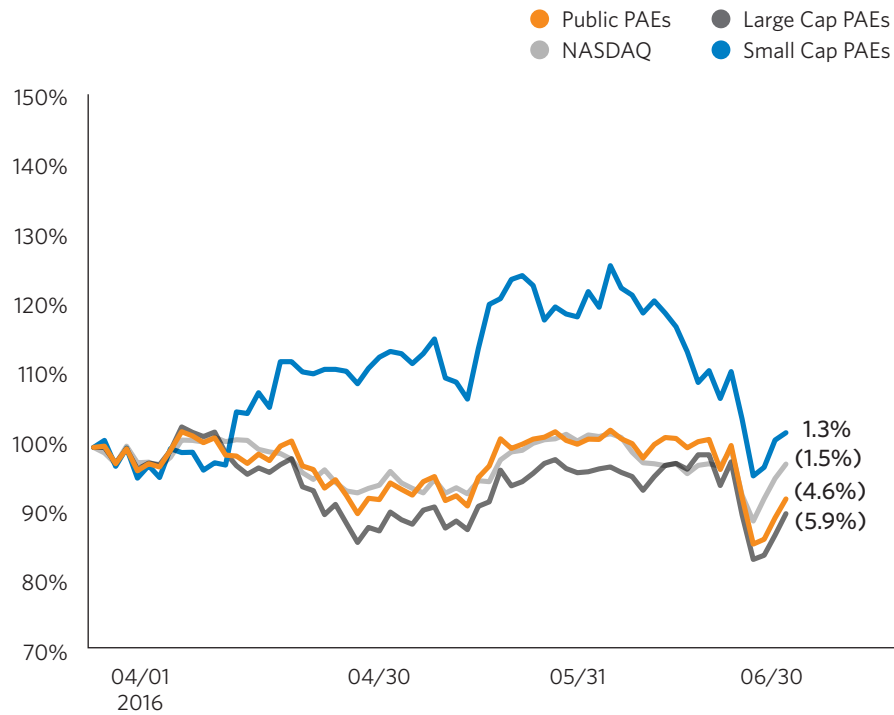
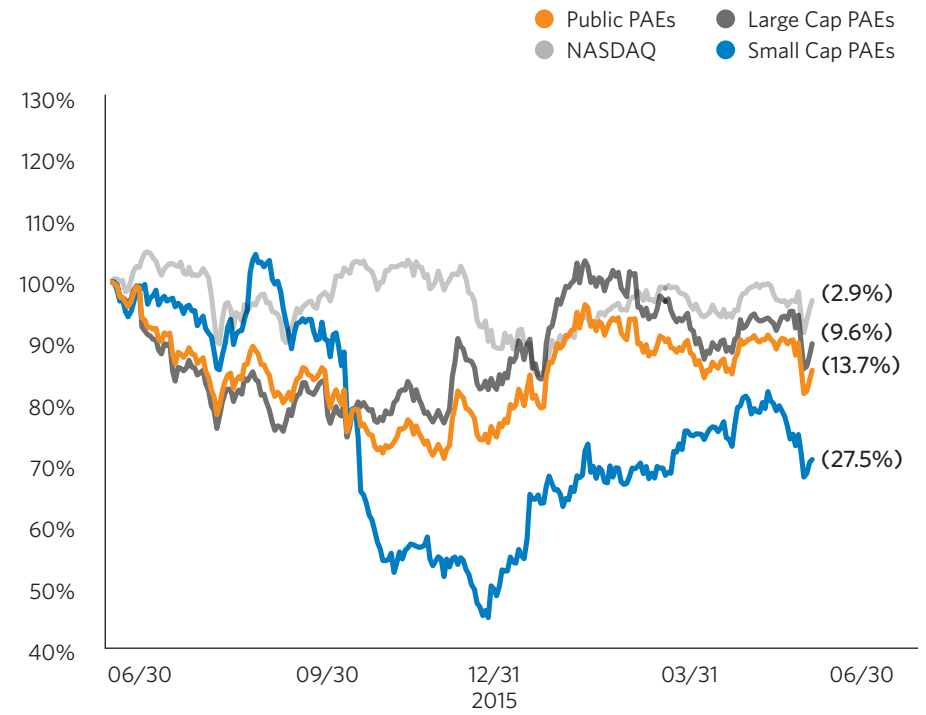


Chart 2: Last 12 Months Index Chart as of 6/30/2016



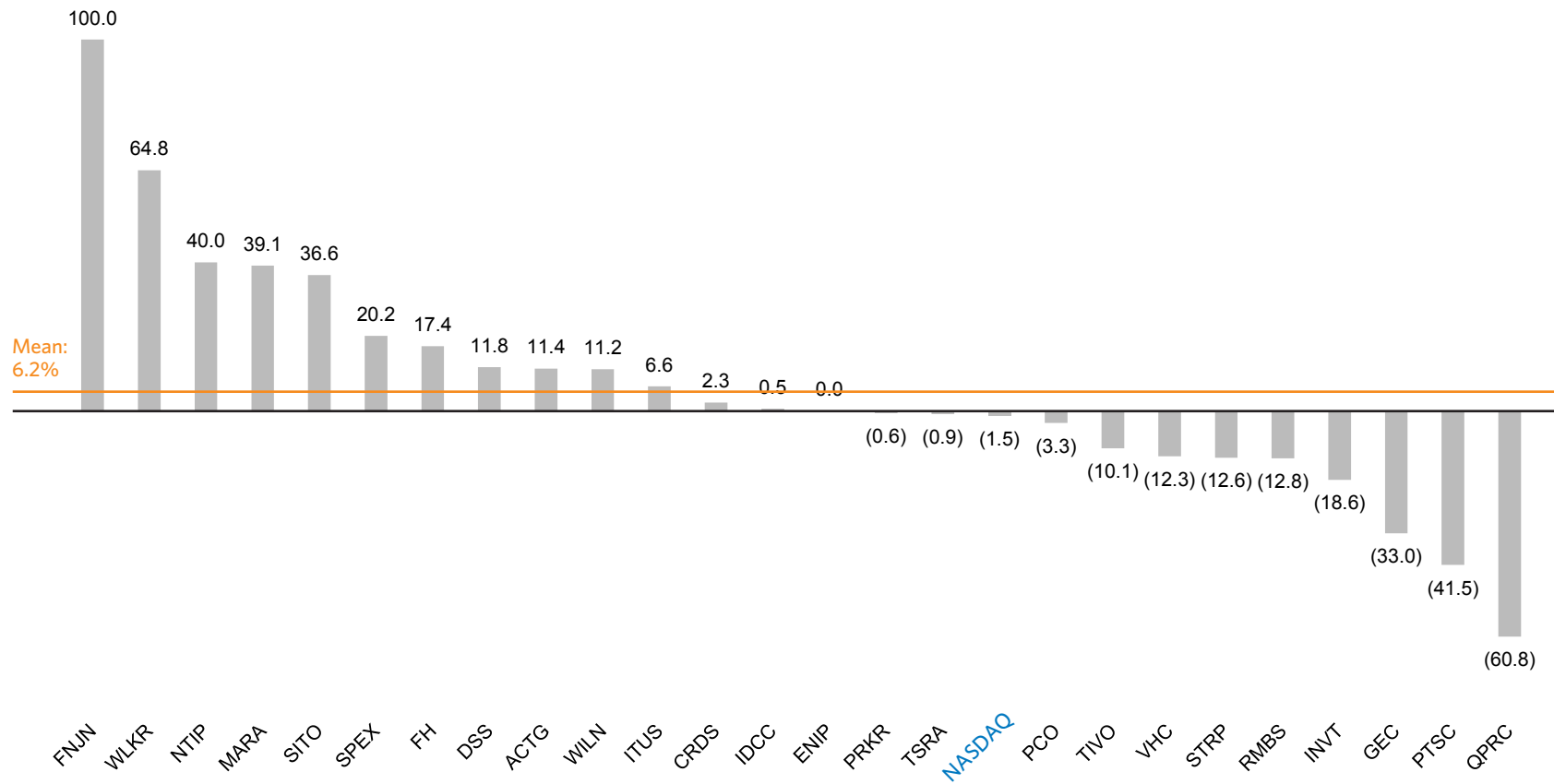
Methodology Note:

The "Public PAEs", "Large Cap PAEs", and "Small Cap PAEs" indices are market cap weighted—each stock is weighted based on its market capitalization, with larger companies carrying a larger percentage weighting of the index.

Stock Performance Has Picked Up in 2016

Chart 3: Q2 2016 Stock Performance Percentage

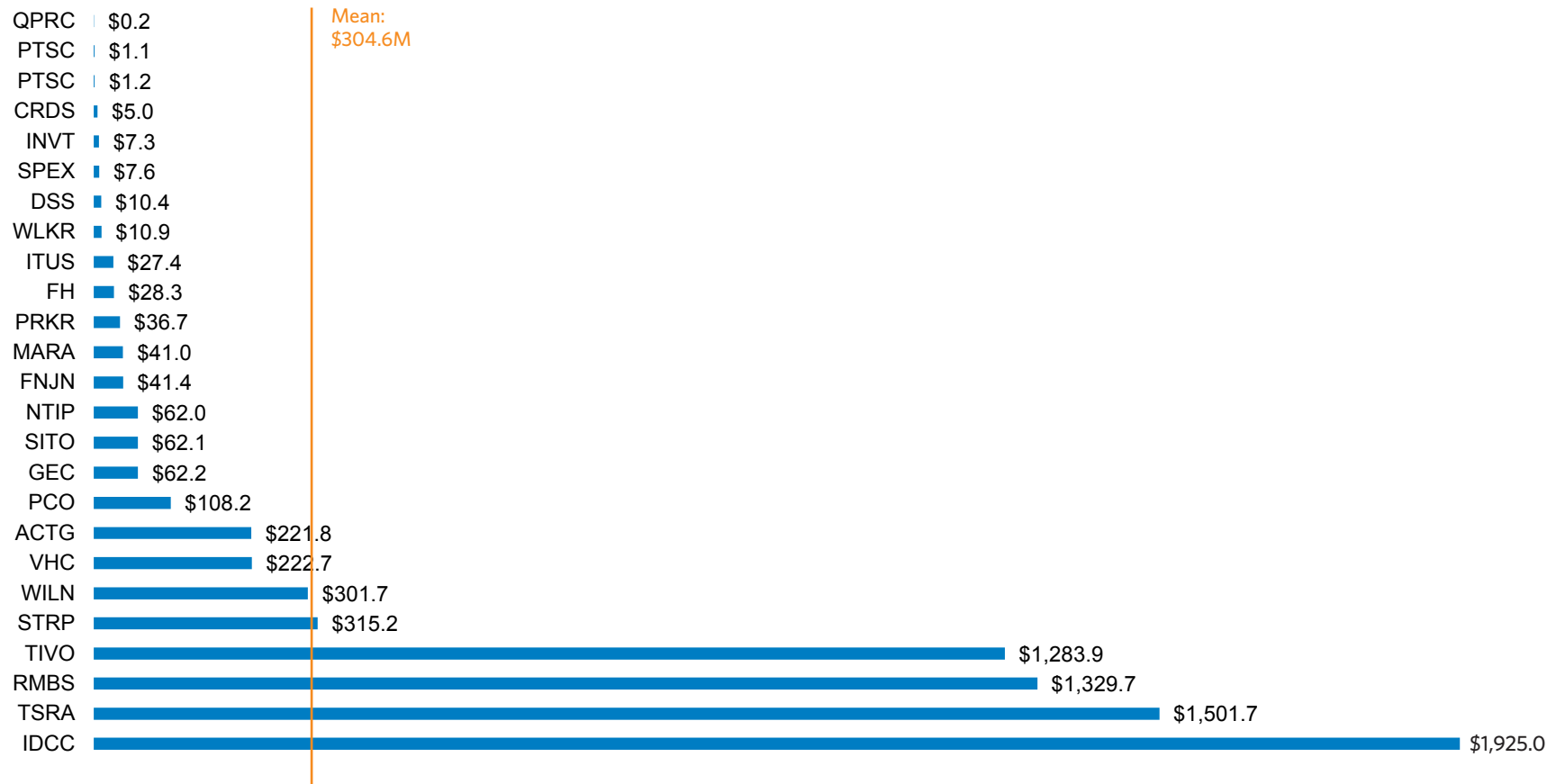
The majority of PAEs outperformed the market in Q2 2016.



Public PAE Market Cap Summary as of Q2 2016

Chart 4: Public PAE Market Cap (\$USD M)

There are only four public PAEs with a market cap over \$1 billion, with the majority of public PAEs under a market cap of \$100 million.



Financial Data

The following pages feature charts and highlights relating to key financial data for public PAEs.

Royalty Revenue Is Above the Two-year Average

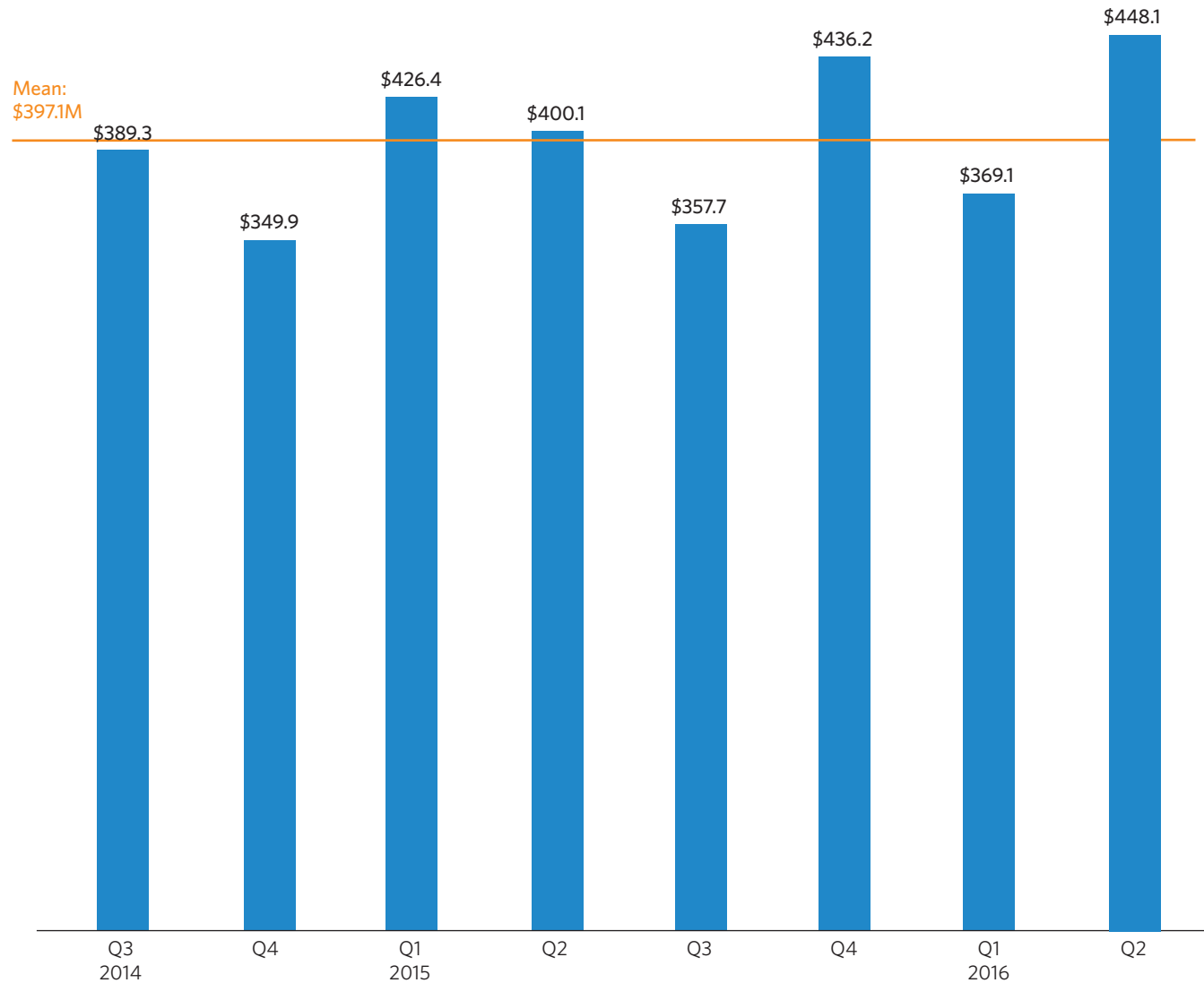
Chart 5: Total Royalty Revenue (\$USD M)

Royalty revenue has been inconsistent since Q3 2014.

Methodology Note:

Revenue is considered "royalty revenue":

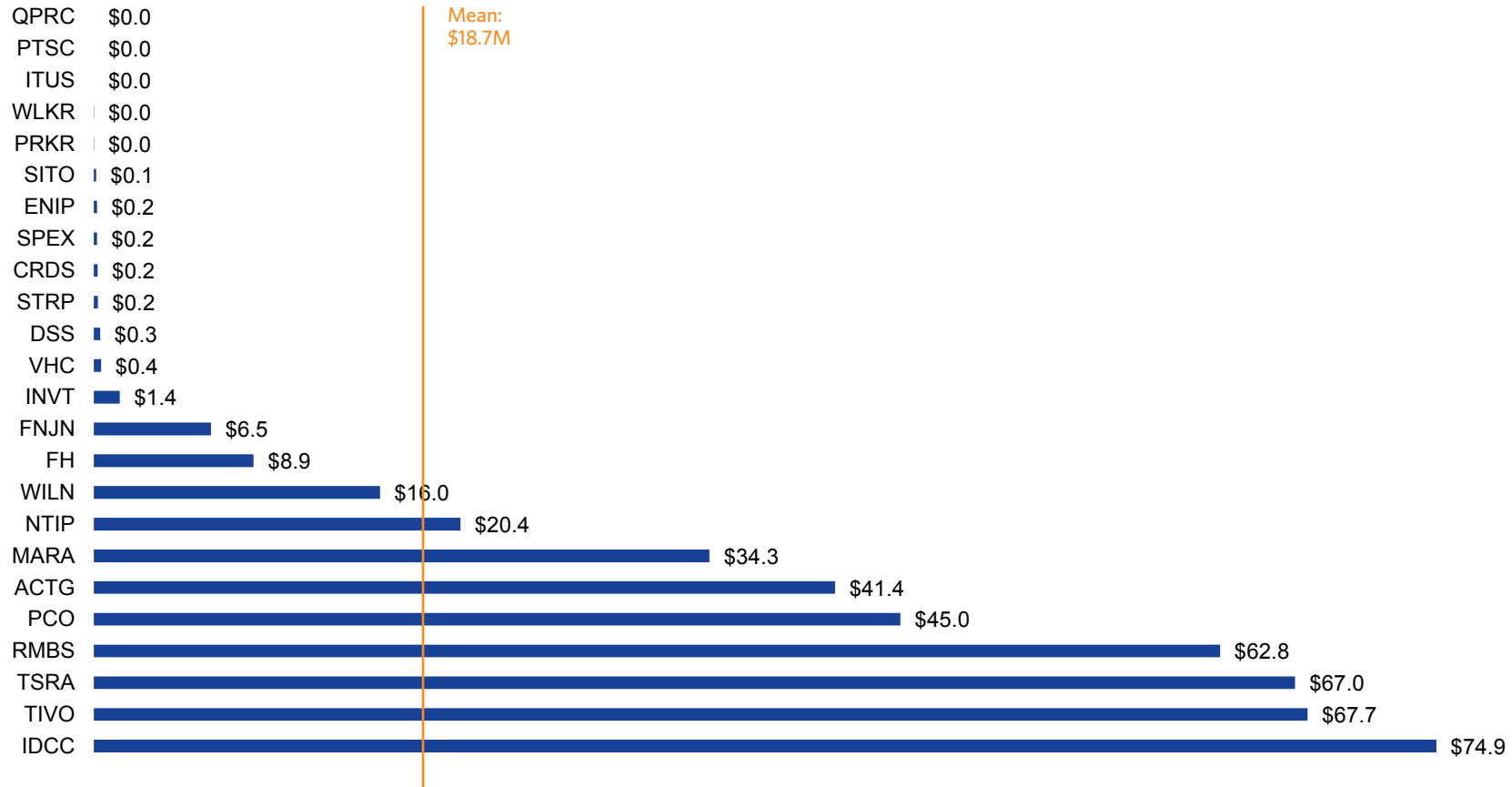
- If it is specifically classified or broken out as royalty or licensing revenue
- If the public PAE's only source of revenue is from licensing its patents



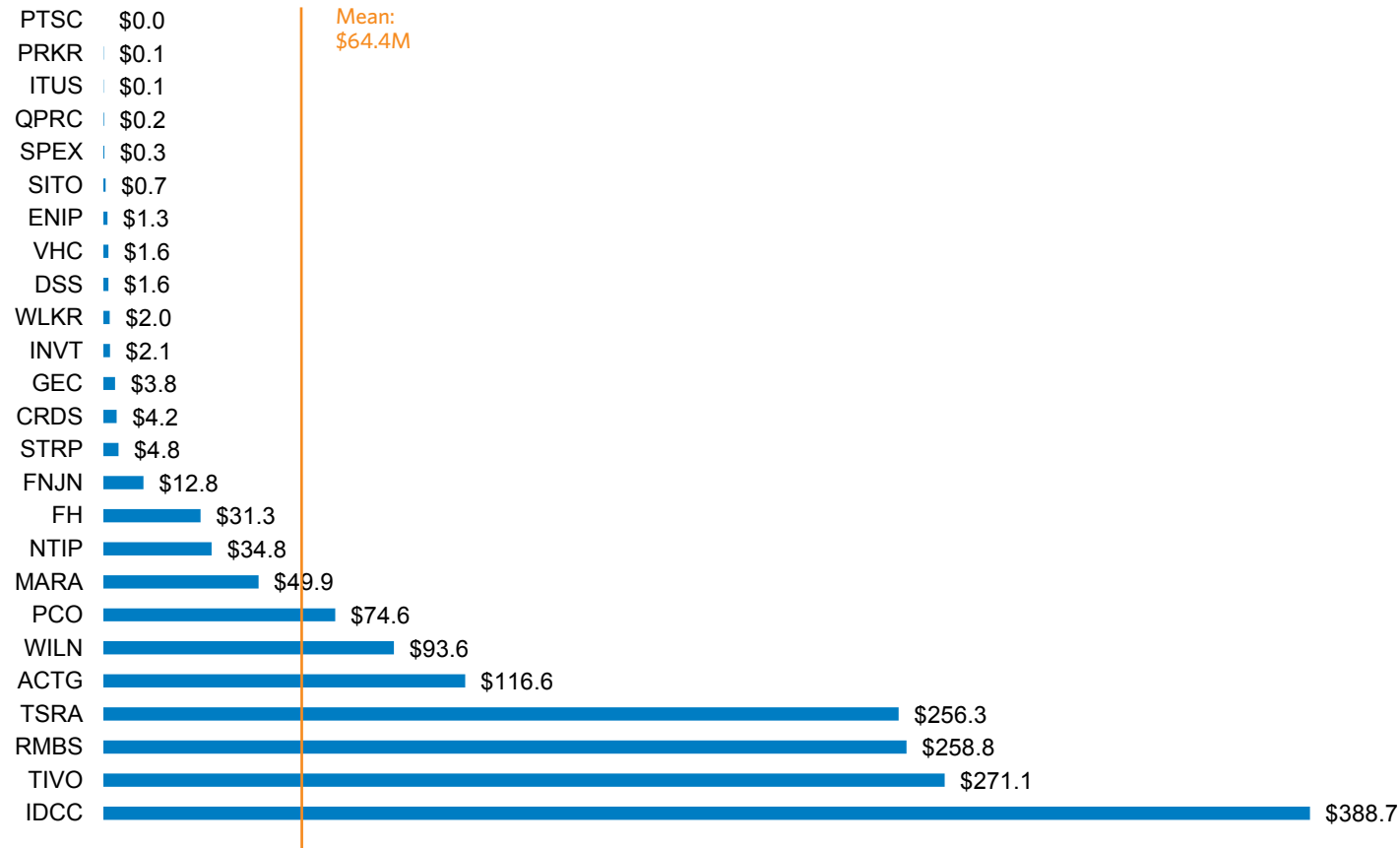
Royalty Revenue Was Largely Driven by Seven PAEs in Q2 2016

Chart 6: Total Q2 2016 Royalty Revenue (\$USD M)

Seven public PAEs accounted for 88% of total royalty revenue of all selected public PAEs for Q2 2016.



...and over the Last 12 Months



Pattern of Net Losses for Public PAEs

Chart 8: Total Net Income/ Loss per Quarter (\$USD M)

Public PAEs have experienced net losses over the past two years, with the exception of Q3 2015 and Q2 2016.

Methodology Note:

Net income/loss reflects the operations of the whole company and not specifically the operations related to patent assertion, as most public PAEs do not publicly disclose segmented profit/loss information for their patent assertion businesses.

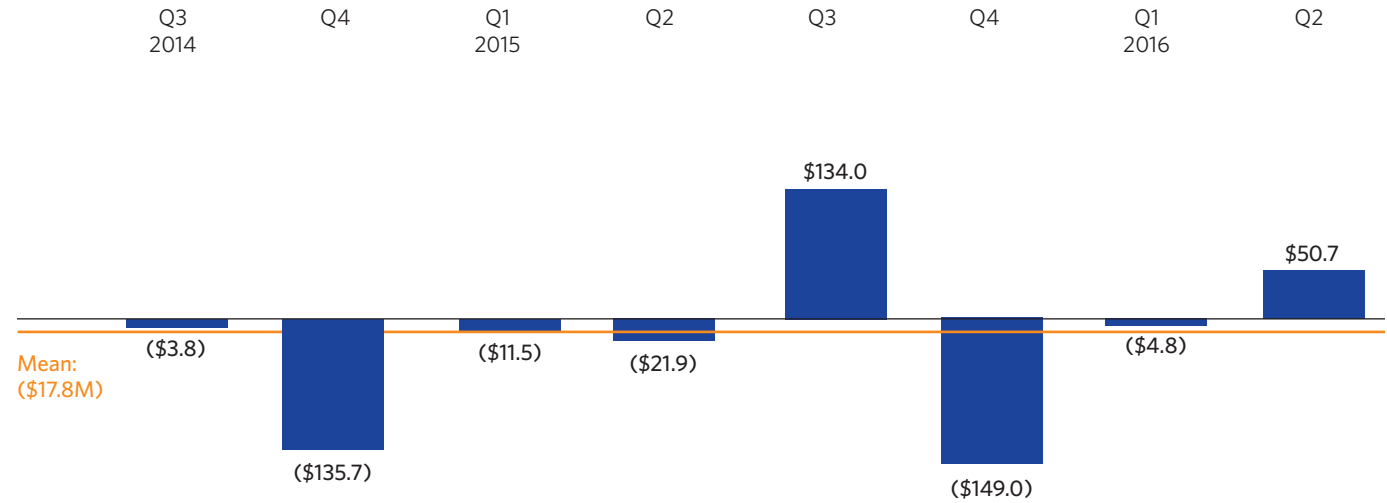
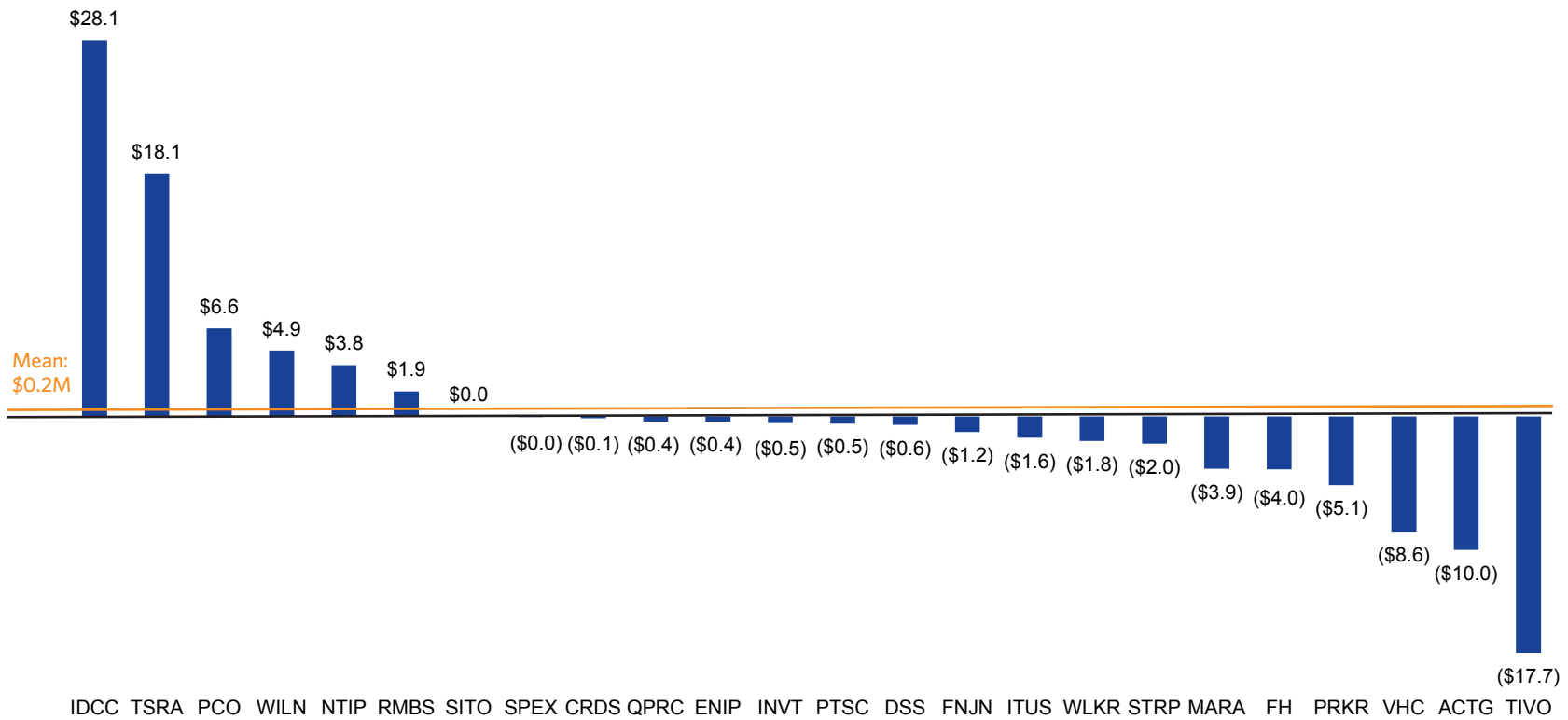


Chart 9: Total Q2 2016 Net Income/Loss (\$USD M)

The majority of public PAEs had a net loss in Q2 2016.



Detailed List of Public PAE Financings— Last 12 Months as of Q2 2016

During the last twelve months as of Q2 2016, there were 13 equity deals totaling \$45 million, two debt deals of \$20 million, and one hybrid deal totaling \$2 million, with a total amount raised of \$66 million.

Close Date	Issuer	Type	Amount Raised (\$USD M)
6/30/16	VirnetX	Equity	\$6.9
5/31/16	ParkerVision	Equity	\$2.0
5/17/16	Inventergy	Equity	\$1.3
5/06/16	Finjan	Equity	\$10.2
3/31/16	VirnetX	Equity	\$6.8
2/26/16	ParkerVision	Debt	\$10.0
1/25/16	ParkerVision	Equity	\$1.0
1/22/16	Inventergy	Equity	\$2.5
12/23/15	ParkerVision	Equity	\$2.1
12/23/15	Document Security Systems	Equity	\$1.5
12/07/15	Spherix	Equity	\$3.4
11/02/15	Crossroads Systems	Debt	\$10.0
10/22/15	Quest Patent Research	Hybrid	\$1.5
09/01/15	Document Security Systems	Equity	\$1.0
07/28/15	Crossroads Systems	Equity	\$4.9
07/21/15	Spherix	Equity	\$1.3

Financings Down in the Past Two Years

Chart 10: Total Amount Raised by Type (\$USD M)

Financings are typically hybrid transactions, with an average of \$204 million raised per quarter.

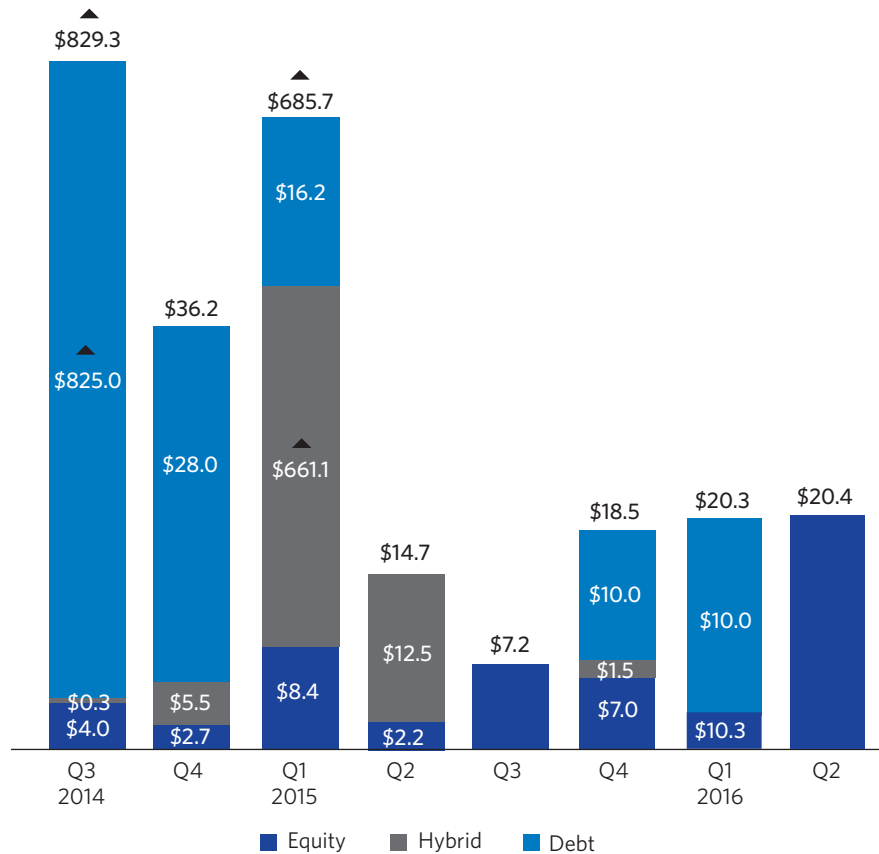
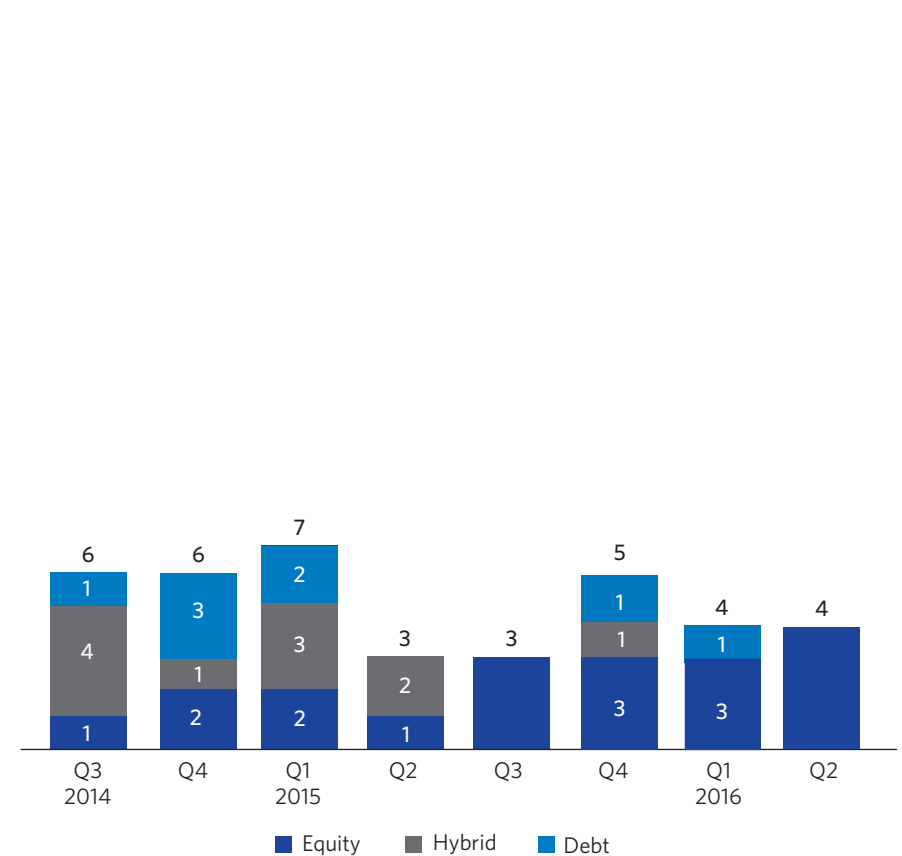


Chart 11: Number of Financings by Type

On average, public PAEs have executed five financings (typically equity transactions) per quarter.



Public PAE Cash Sees Slight Bump in Q2 2016

Chart 12: Total Public PAE Cash Balance per Quarter (\$USD M)

Cash levels had been trending down since Q3 2014, but picked back up in Q2 2016.

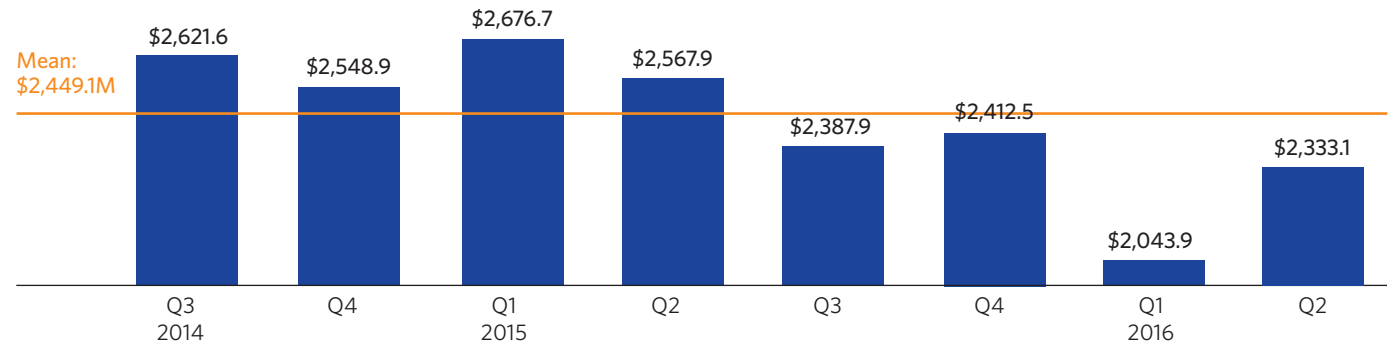
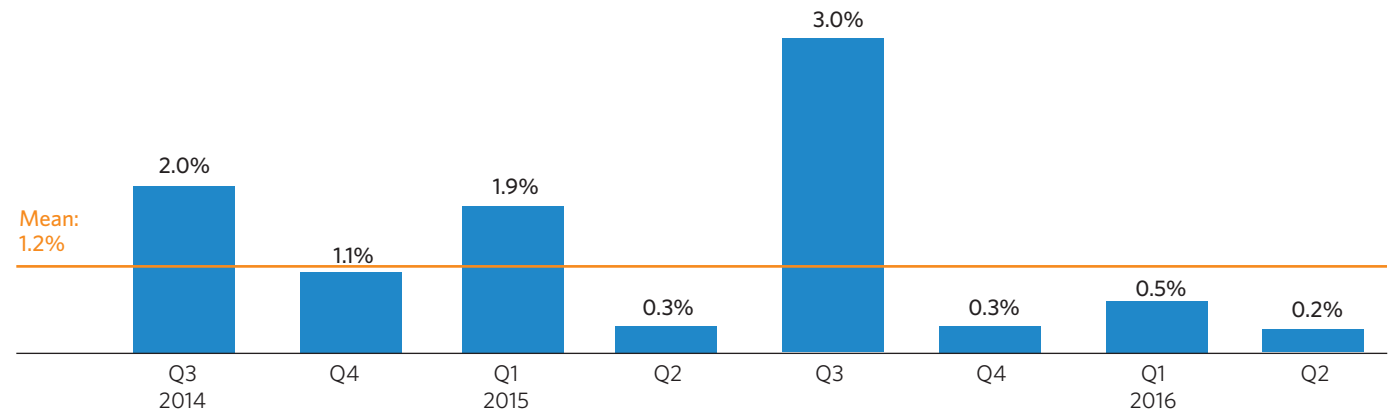


Chart 13: Cash Spent to Acquire Patents as a Percentage of Total Public PAE Cash Balance

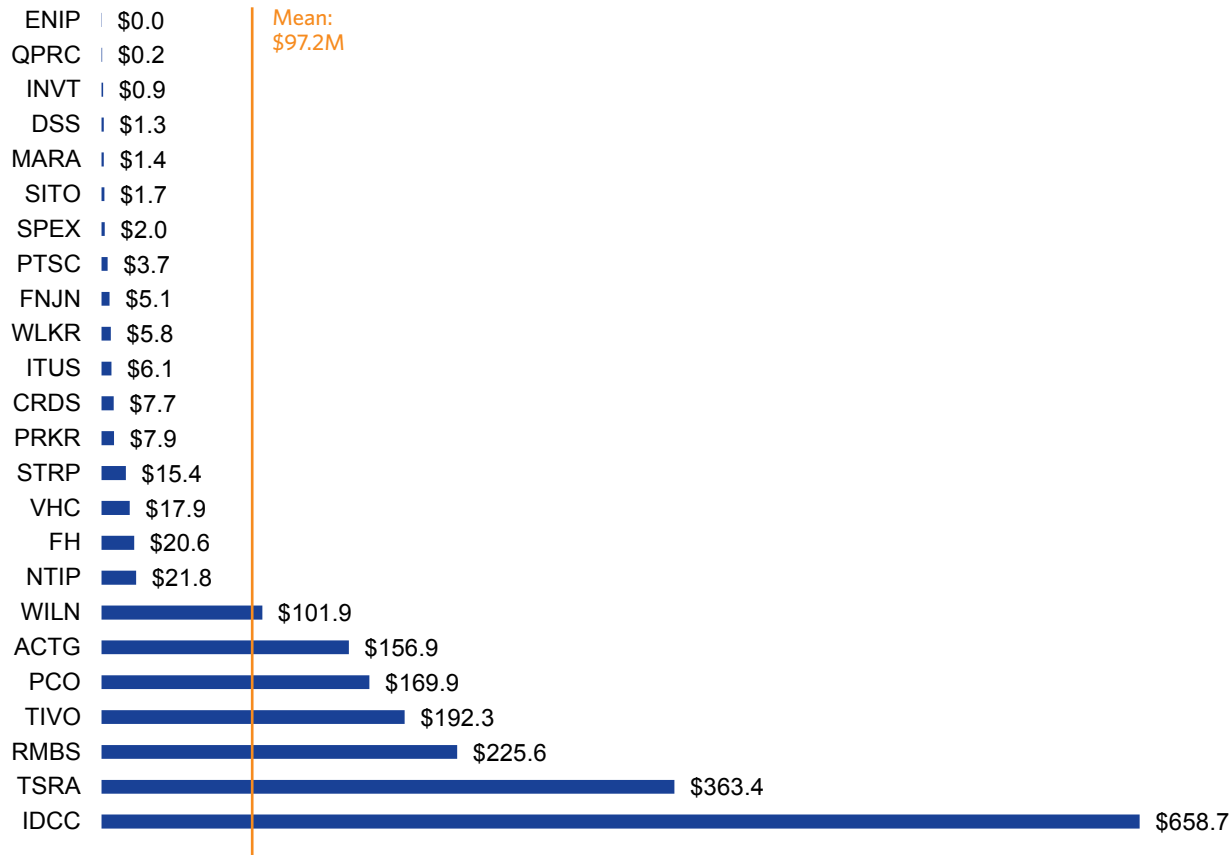
Cash spent on patents has been erratic quarter over quarter, with a high of 3.0% in Q3 2015.



Cash Is Mostly Concentrated Among a Few Public PAEs

Chart 14: Total Q2 2016 Cash Balance (\$USD M)

The top six public PAEs accounted for 89% of the total cash balance of all selected public PAEs in Q2 2016.



Patent Transactions

The following pages feature charts and highlights relating to public PAE patent acquisitions and sales.

Disclosed Patent Transactions— Last 12 Months as of Q2 2016

Patent Transaction Identification

This report notes patent acquisitions and patent sales that any PAE on the selected list has disclosed in public filings, press releases, or any other publicly available and credible source.

Date of Transaction	Acquirer	Seller	Portfolio Description	Purchase Price (\$USD M)	Number of Assets
6/27/2016	MARA	Siemens	W-CDMA and GSM cellular technology	\$1.2	221 patents
5/9/2016	WILN	SRI International	Intelligent personal assistants	Not disclosed	9 patents
4/29/2016	ROVI	TiVo	Media and entertainment discovery	\$1,100.0	Not disclosed
4/1/2016	Not disclosed	DSS	Not disclosed	\$0.5	Not disclosed
4/1/2016	TSMC	WILN	Semiconductor	Not disclosed	Up to 400 patents
2/23/2016	Dominion Harbor Group	WILN	Not disclosed	Not disclosed	Fewer than 100 patent families
1/31/2016	ROVI	Not disclosed	Not disclosed	\$2.5	Not disclosed
11/4/2015	WILN	Freescale	Processors, memory, semiconductor packaging, wireless, and the Internet of Things	Not disclosed	3,300 patents
8/27/2015	TSRA	Ziptronix	Low-temperature wafer bonding technology	\$32.3	Not disclosed
8/10/2015	ACTG	Not disclosed	Multi-zonal completion of horizontal wells	Not Disclosed	Not disclosed
7/21/2015	ACTG	Not disclosed	Efficient operation of websites on the Internet	Not Disclosed	Not disclosed
7/8/2015	SITO	Hipcricket	Mobile advertising	\$3.8	Not disclosed

Patent Acquisitions See a Slight Uptick in Q2 2016

Chart 15: Number of Disclosed Patent Acquisitions by Sector

Patent acquisitions have been spread out relatively evenly between the named sectors, with an average of four total acquisitions per quarter.

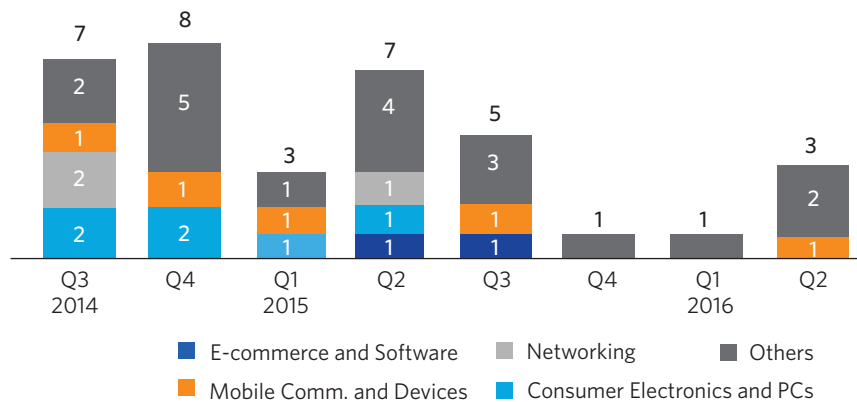
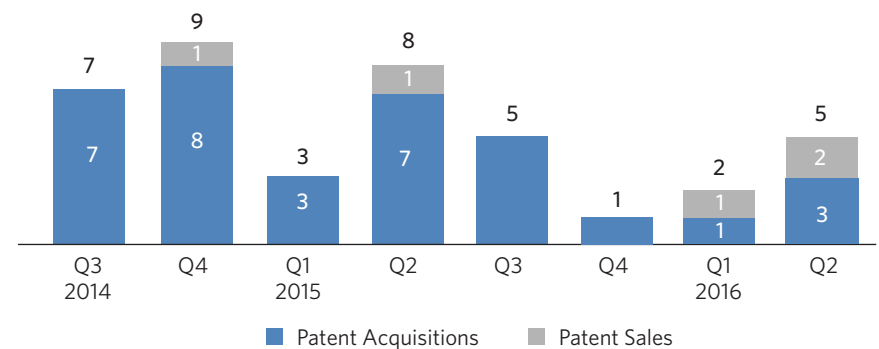


Chart 16: Number of Patent Transactions by Type

Public PAEs generally buy patents rather than sell them, with an average of five total transactions per quarter.



Methodology Note:

Differences between Charts 17 and 18 as they relate to stock transactions are a result of company acquisitions wherein patents are included but are not the focus of the acquisition. They are given a value based on the allocation of the purchase price, but are not counted as an individual patent transaction.

Most Deals Funded by Cash

Chart 17: Capital Spent on Patents by Type—Total \$ Amount (\$USD M)

Public PAEs typically use cash to finance patent transactions. Since Q3 2014, public PAEs have spent an average of \$30 million per quarter on patents.

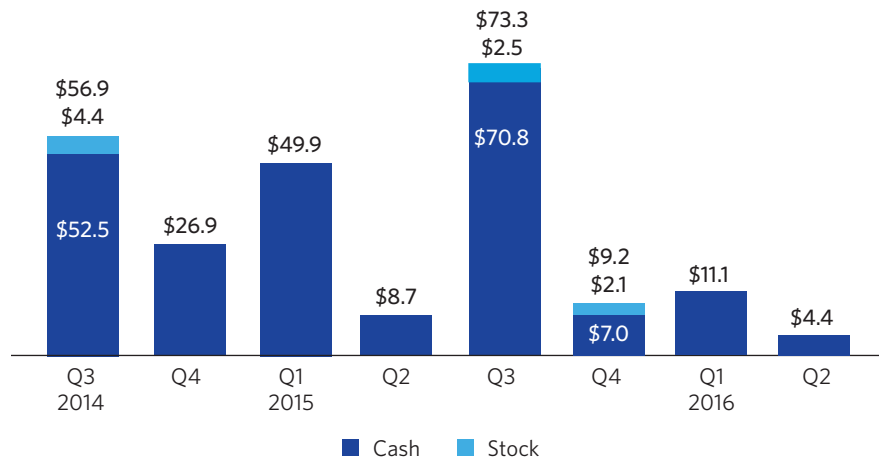
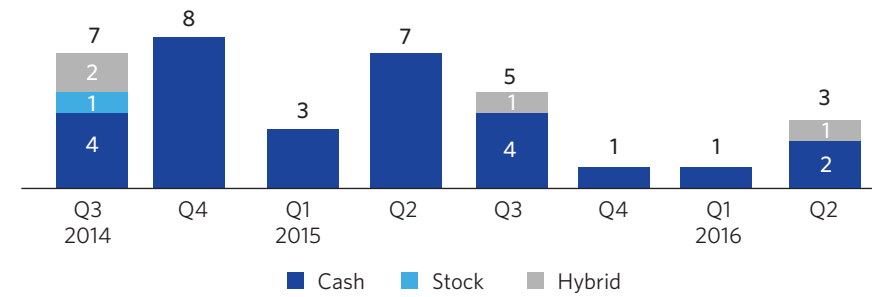


Chart 18: Capital Spent on Patents by Type—Total Count

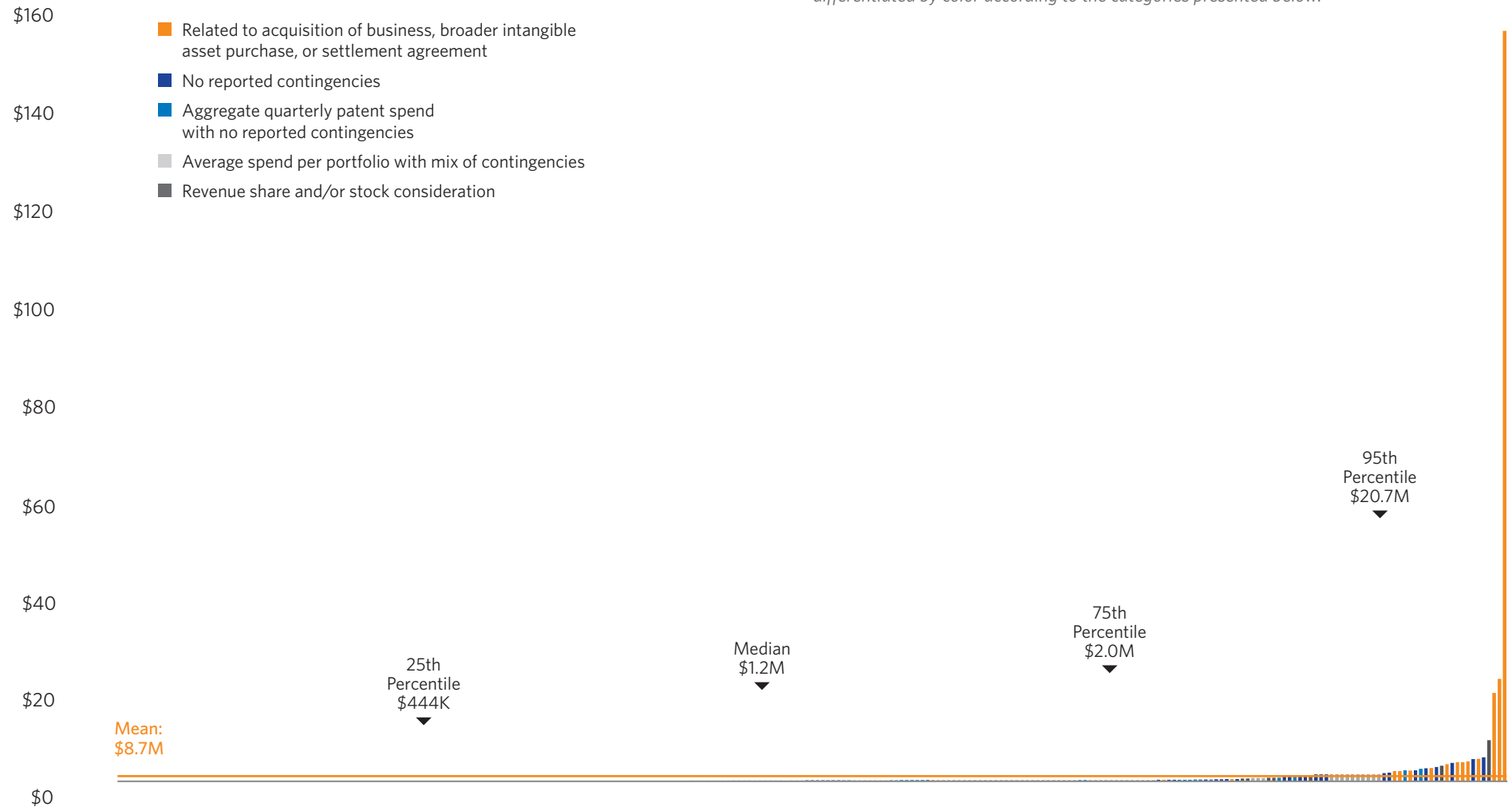
The majority of patent acquisitions have been funded with cash.



Guaranteed Purchase Prices of Public PAE Portfolio Acquisitions

Chart 19: Guaranteed Purchase Prices of Public PAE Portfolio Acquisitions (\$USD M)

Though there have been sizeable purchase prices for patent portfolios, the majority of recent purchase prices have been modest, hovering around \$1 million.



Litigation Data

The following pages feature charts and highlights relating to public PAE litigation data.

New Public PAE Campaigns Initiated in Q2 2016

Public PAE	Campaign Name	Campaign Summary	Defendant(s) Named in Q2 2016	Number of Patents
Quest Patent Research Corporation	Mariner IC Inc. (5,560,666)	<p>In April 2016, Mariner IC Inc., a subsidiary of Quest Patent Research Corporation, launched a campaign asserting two patents received from Intellectual Ventures in October 2015. The patents-in-suit generally relate to anchoring a semiconductor die to prevent cracking; the defendants' chips made from semiconductor dies allegedly manufactured using the purported inventions, as well as products that contain such chips, are the accused products.</p> <p>Mariner has filed three total complaints against Funai as of September 2016, two of which were quickly dismissed and followed by slightly revised complaints. All of Mariner's cases have since been consolidated with the case against Funai as the lead action (2:16-cv-00525), and all defendants remain active as of the date of this report.</p>	Funai, LG Electronics, MediaTek, Panasonic, Texas Instruments, Toshiba	2
Quest Patent Research Corporation	Semcon IP (5,978,876)	<p>Quest Patent Research's Semcon IP Inc. initiated its first litigation campaign in April 2016, suing four companies over four patents generally concerning power management through on-chip logic and clock frequency generators. On the same day, Semcond filed complaints against STMicroelectronics and Texas Instruments, asserting the same four patents as well as a fifth patent that generally relates to controlling subsystem communications. Semcon IP received all five patents-in-campaign from Intellectual Ventures in October 2015.</p> <p>As of September 2016, the five campaign defendants remain active, and each has moved to dismiss Semcon's complaints for lack of subject matter jurisdiction, failure to join a party under Rule 19, and failure to state a claim. The court has not yet heard the defendants' motions as of the date of this report.</p>	Huawei, MediaTek, STMicroelectronics, Texas Instruments, ZTE	5

New Public PAE Campaigns Initiated in Q2 2016, Continued

Public PAE	Campaign Name	Campaign Summary	Defendant(s) Named in Q2 2016	Number of Patents
Tessera, Inc.	Tessera, Inc. (6,133,136)	<p>Tessera Inc. and Invensas Corporation (subsidiaries of Tessera Technologies, Inc.) sued Broadcom (1:16-cv-00379) in May 2016, accusing the company of infringing three patents through various semiconductor devices, including PCI-E mini cards, WiFi transceivers, and Ethernet switches. On the same day, all three Tessera entities jointly filed a complaint with the ITC (337-TA-3150), seeking cease-and-desist orders against Broadcom and nine OEMs (Avago, Arista, ARRIS, ASUS, Comcast, HTC, NETGEAR, Pace, and Technicolor SA) and accusing the companies of directly infringing the same three patents.</p> <p>One of the patents-in-campaign originated with Cypress Semiconductor, one with IBM, and the third with Tessera. The patents generally relate to semiconductor fabrication and packaging.</p> <p>In July 2016, Broadcom moved to transfer the case against it to the Northern District of California in light of the fact that all parties involved have headquarters in San Jose, California, and stay the case in view of the pending proceedings before the ITC. As of the date of this report, that motion has not yet been heard. As of August 2016, all respondents in the ITC investigation had answered the NPE's complaint, and Tessera had also filed a motion to amend to add a recently issued certificate of correction to the '136 patent, changing "capping layer" to "layer of isolation" in the claims.</p>	Avago, Arista, ARRIS, ASUS, Broadcom, Comcast, HTC, NETGEAR, Pace, Technicolor SA	3

New Public PAE Campaigns Initiated in Q2 2016, Continued

Public PAE	Campaign Name	Campaign Summary	Defendant(s) Named in Q2 2016	Number of Patents
WiLAN	Polaris Innovations Limited (6,532,505)	<p>In May 2016, Polaris Innovations Limited, a subsidiary of Wi-LAN, Inc. (WiLAN), sued NVIDIA (5:16-cv-00451) over six patents, further accusing Dell, in the same complaint, of infringing two of those six patents. The products at issue are NVIDIA graphics processors used in combination with GDDR (“graphics double data rate”) memory, and the Dell and NVIDIA computing devices that incorporate them.</p> <p>The patents-in-suit each issued either to Infineon (a spinoff of Siemens) or to Qimonda (a spinoff of Infineon) and generally relate to circuit design (the '976 patent), controlling access to chip resources (e.g. memory) (the '505 and '993 patents), using clock signals in a memory device (the '122 patent), trimming interfaces on a semiconductor device (the '325 patent), and coding errors in data transmission (the '344 patent). As of the date of this report, the case—which is Polaris’s second infringement suit to date—is active in initial pleadings in the Western District of Texas.</p> <p>Polaris filed its first patent suit in February 2016, accusing Kingston Technology (8:16-cv-00300) of infringing another six former Infineon patents. The NPE appears to have been created for the sole purpose of asserting patents acquired by WiLAN from Infineon in June 2015. That transaction reportedly involved over 7,000 patent assets, for which WiLAN disclosed paying \$33M.</p>	Dell, NVIDIA	6

Active Public PAE Campaigns Trending Down

Chart 20: Total New Campaigns per Quarter

On average, five new campaigns have been initiated every quarter since Q3 2014.

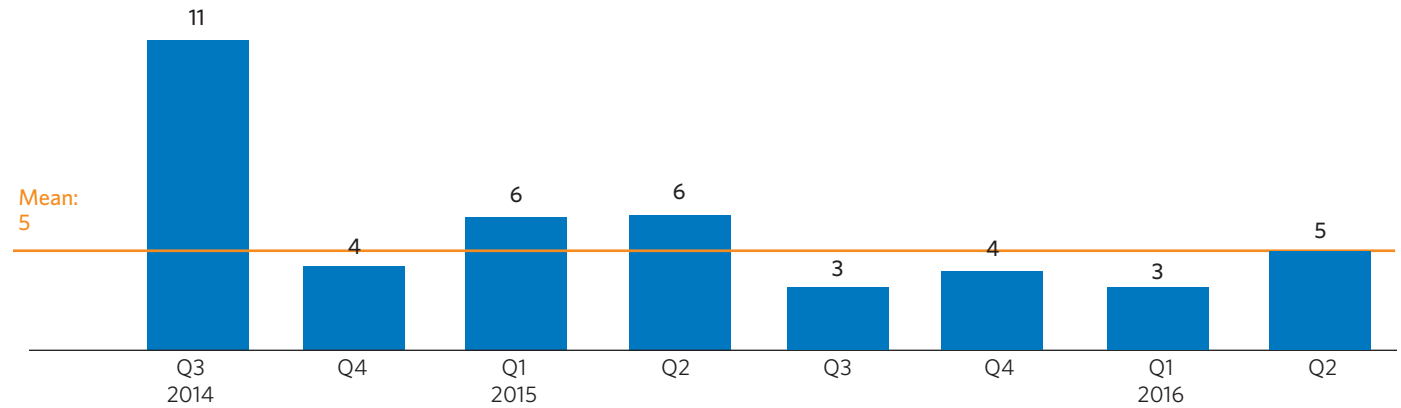
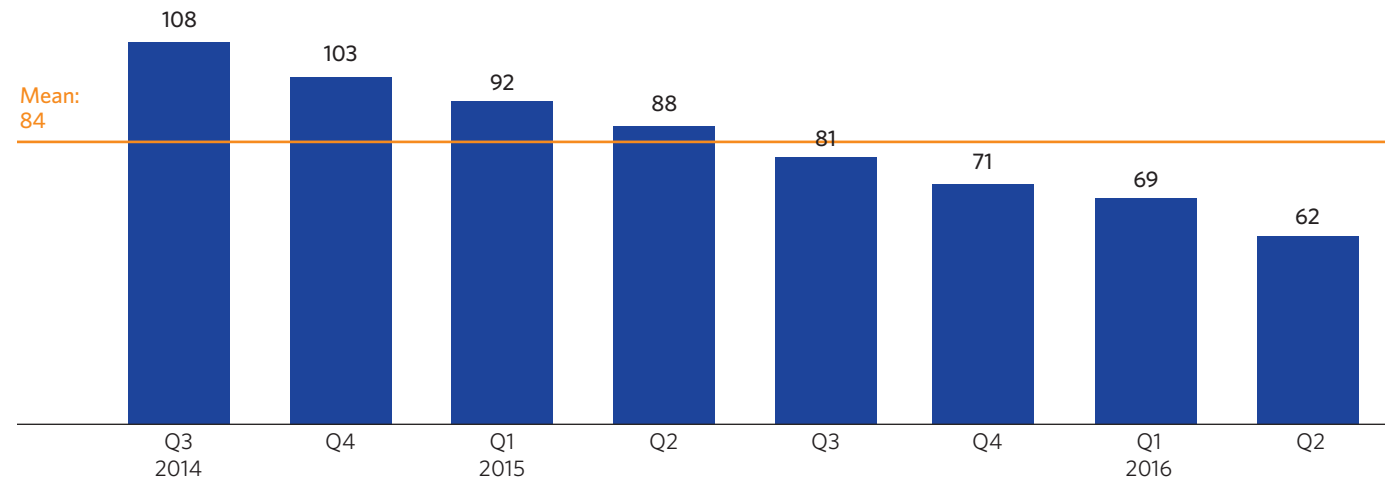


Chart 21: Total Active Campaigns per Quarter

The number of active campaigns has been trending down in recent quarters.



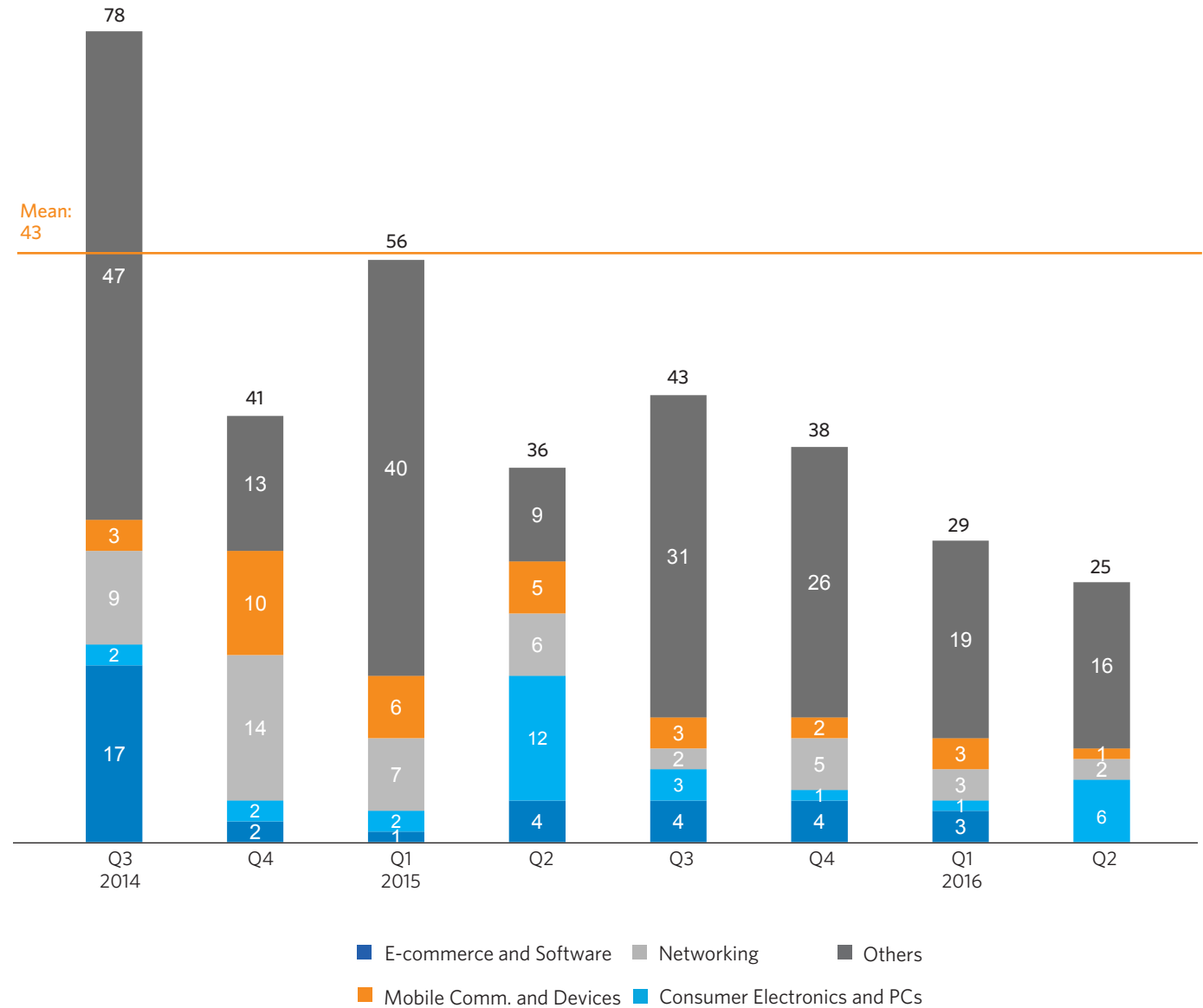
Public PAE Defendants Added at Two-year Low

Chart 22: Total Public PAE Defendants Added per Quarter

The number of total public PAE defendants added has been inconsistent quarter over quarter, with a high of 78 in Q3 2014. Recent quarters have been well below the historical mean.

Total Public PAE Defendants Added per Quarter by Sector

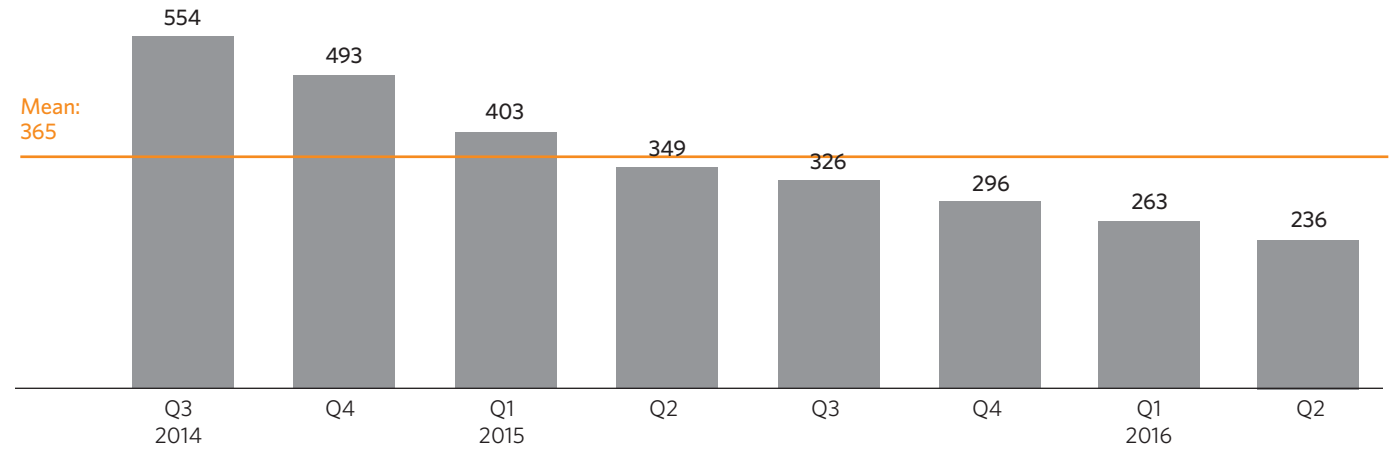
PAE litigation activity has been spread out across all sectors over the past two years.



Number of Active Defendants in Public PAE Litigation Has Been Decreasing

Chart 23: Total Active Defendants per Quarter

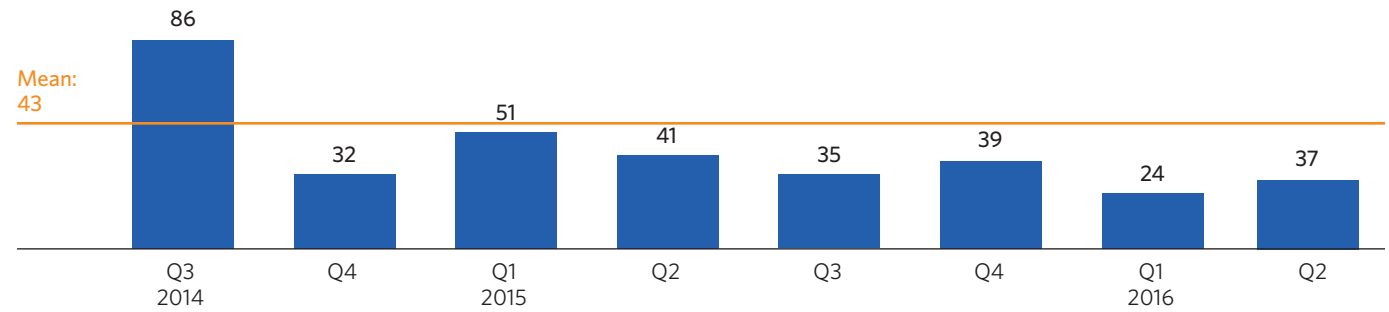
The average number of active defendants in public PAE litigation, per quarter and since Q3 2014, is 365. Recent quarters have seen slight declines.



Small Increase in the Number of PAE Cases Filed in Q2 2016

Chart 24: Public PAE Cases Filed per Quarter

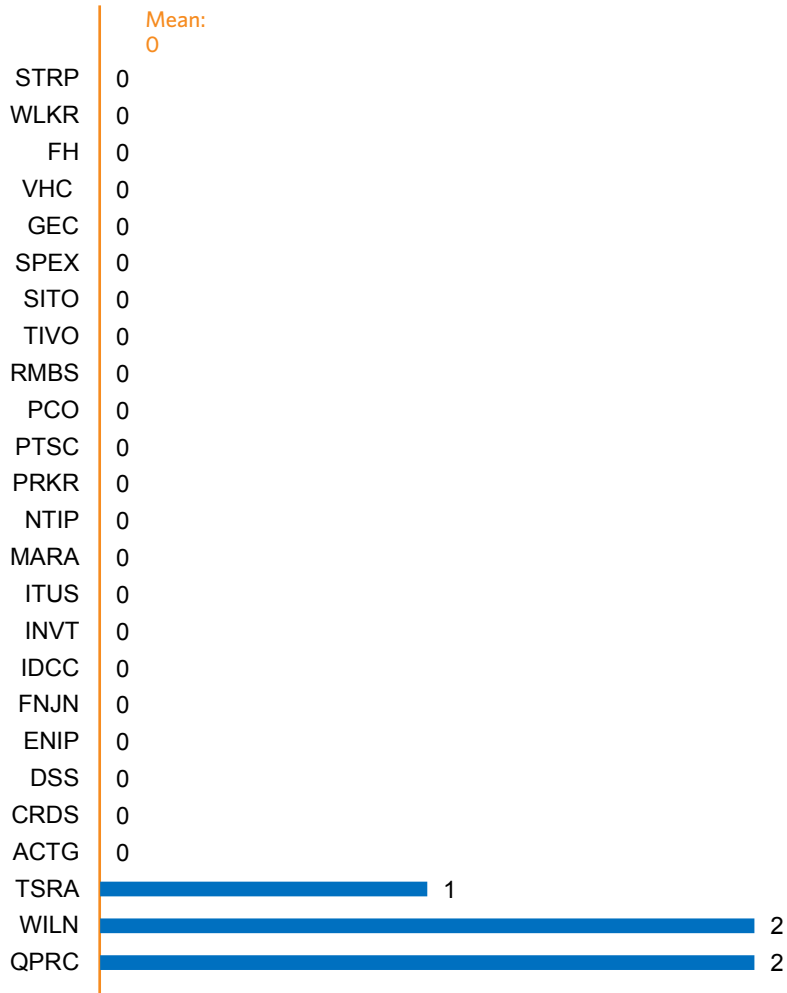
Public PAE cases filed per quarter is sporadic, with a high of 86 in Q3 2014 and a low of 24 in Q1 2016.



Low Campaign Activity in Q2 2016

Chart 25: Total Campaigns Filed in Q2 2016

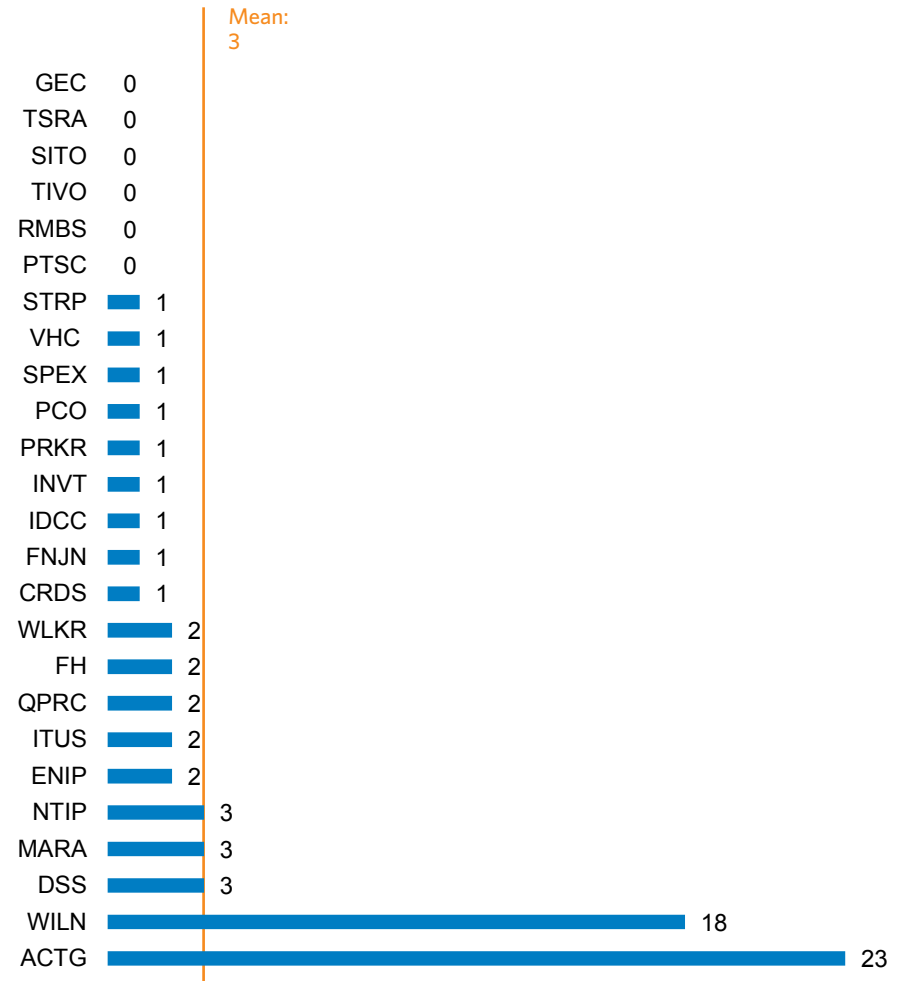
Quest Patent Research, Tessera, and WiLAN were the only public PAEs to initiate new litigation campaigns in the second quarter of 2016.



Acacia and WiLAN Have the Highest Number of Active Campaigns

Chart 26: Total Active Campaigns in Q2 2016

Acacia and WiLAN continue to be the most active public PAEs in litigation, with a total of 41 ongoing campaigns.



Profiles

The following pages feature overview information and detailed summaries of public PAEs studied in this report.

Overview

Company Name	Formation Type and Description	Primary Technologies
Acacia	Initial public offering in 1995	Consumer Electronics and PCs, E-commerce and Software, Media Content and Distribution, Medical, Mobile Communications and Devices, Networking
Crossroads Systems	First patent infringement case in September 2013	E-commerce and Software, Networking
Document Security Systems	Reverse merger (announced 10/2/12)	E-commerce and Software, Media Content and Distribution, Networking
Endeavor IP	Reverse merger (announced 5/13/13)	Mobile Communications and Devices
Finjan	Reverse merger (announced 6/3/13)	Web and Network Security
Form Holdings	Formerly known as Vringo; reverse merger (announced 3/14/12)	
Great Elm Capital	Formerly known as Unwired Planet; began focusing on PAE activity in May 2012	Mobile Communications, Devices , E-commerce, and Software
InterDigital	Initial public offering in 1981	Mobile Communications and Devices, Networking
Inventergy Global	Reverse merger (announced 12/13/13)	Consumer Electronics and PCs, Mobile Communications and Devices, Networking
ITUS	Began focusing on PAE activity in Q1 2013 (previously an operating company)	Consumer Electronics and PCs, E-commerce and Software, Mobile Communications and Devices
Marathon Patent Group	Reverse merger (announced 11/20/12)	E-commerce and Software, Mobile Communications and Devices, Networking
Network-1	Operating company with PAE activity (first PAE litigation in August 2005)	Networking, Consumer Electronics and PCs, Media Content and Distribution, E-commerce and Software
ParkerVision	First patent infringement case in July 2011 against Qualcomm	Mobile Communications and Devices, Semiconductors
Patriot Scientific	Entered into a joint venture agreement with Technology Properties Limited in June 2005 to commercialize its patented technologies	Consumer Electronics and PCs, Media Content and Distribution, Mobile Communications and Devices, Networking, Semiconductors

Company Name	Formation Type and Description	Primary Technologies
Pendrell	Began focusing on patent monetization in the second half of 2011 (previously an operating company)	Mobile Communications and Devices, E-commerce and Software
Quest Patent Research	Began as a maker of a smoking cessation product and shifted to patent monetization in 2008	Consumer Electronics and PCs, Semiconductors, Mobile Communications and Devices, E-commerce and Software, Financial Services
Rambus	Initial public offering in 1997 with core focus on product licensing	Semiconductors
SITO	Operating company with PAE activity (first PAE litigation in February 2012)	Mobile search, commerce, advertising and streaming media
Straight Path	Spinoff from IDT Corporation, with first PAE activity in 2014	Mobile Communications and Devices, Networking
Spherix	Reverse merger (announced 2/22/13)	Mobile Communications and Devices
Tessera Technologies	Initial public offering in 2004	Semiconductors
TiVo	Formerly known as Rovi; initial PAE litigation filed in 2007	Digital entertainment
VirnetX	Reverse merger (announced 1/19/07)	Consumer Electronics and PCs, E-commerce and Software, Media Content and Distribution, Mobile Communications and Devices, Networking
Walker Innovation	Reverse merger (announced 7/15/13)	Consumer Electronics and PCs, E-commerce and Software, Media Content and Distribution, Mobile Communications and Devices, Networking
WiLAN	PAE activity since 2007	Consumer Electronics and PCs, Mobile Communications and Devices, Networking

Profiles

Methodology Note:

“Reported Patent Count” refers to the number of patents or portfolios the PAE claims to hold; this count may differ from the number of patent assignments the PAE has recorded with the USPTO.

Acacia Research Corporation

Consumer Electronics and PCs, E-commerce and Software, Media Content and Distribution, Medical, Mobile Communications and Devices, Networking

Stock Price (as of 6/30/16)	\$4.40	Acacia Research Corporation is headquartered in Newport Beach, California. It was founded in 1993, went public in 1995, and began asserting patents in litigation in 2000. The PAE has at least 230 subsidiaries and 30 affiliates. As of the date of this report, Acacia has taken nine cases to trial—only one of which ended in the PAE’s favor—and is slated for three more trials in the third and fourth quarters of 2016. (Defendants facing trial as of the date of this report include Apple, HTC, Lenovo (Motorola Mobility), LG, and ZTE.) The resignation of CEO Matthew Vella came shortly after a Texas jury found in December 2015 that Alcatel-Lucent, AT&T, Sprint, and Verizon (Cellco) did not infringe an Adaptix, Inc. patent related to OFDMA-based
Market Cap (\$USD M)	\$221.8	
52-week High	\$10.63	
52-week Low	\$2.82	
Cash (\$USD M)	\$186.1	
Debt (\$USD M)	\$0.0	
Employee Count	42	
Reported Patent Count	Over 200 portfolios	

broadband wireless networks. Under the PAE’s interim CEO, Marvin Key (a former investment banker), Acacia has reduced its headcount and purchased fewer patent portfolios as compared to previous years. During the second quarter of 2016, Australian NPE Uniloc Luxembourg S.A. made a \$189M cash offer to acquire Acacia, which the PAE declined. Also in Q2, Acacia disclosed license and settlement agreements with American Gem Society, Ericsson, and ViewSonic.

Crossroads Systems, Inc.

E-commerce and Software, Networking

Stock Price (as of 6/30/16)	\$4.09	Austin, Texas-based Crossroads Systems, Inc. is a former provider of data storage solutions and security. The PAE was founded in 1996 and filed its first patent infringement suit in 2000. In the fourth quarter of 2015, Crossroads announced that it had secured \$10M in financing to litigate its storage virtualization patent portfolio, an investment led by Techquity. In a press release, Crossroads reported that it used \$2.7M of the proceeds to retire its credit facility with Fortress Credit and added the remaining \$7.3M to its cash balance to fund litigation-related expenses. According to the same press release, Crossroads has licensed the 5,941,972 patent family to 51 companies for a total of \$60M. Six cases involving patents related to the ‘972 patent, filed against Cisco, Dot Hill, Huawei, Oracle, NetApp, and Quantum, are stayed pending <i>inter partes</i> review (IPR) of the patents-in-campaign. In the first quarter of
Market Cap (\$USD M)	\$5.0	
52-week High	\$30.00	
52-week Low	\$3.00	
Cash (\$USD M)	\$6.1	
Debt (\$USD M)	\$0.0	
Employee Count	6	
Reported Patent Count	Over 100	

2016, the Patent Trial and Appeal Board (PTAB) ruled that multiple claims of two of the patents asserted in those cases (7,051,147; 7,934,041) are invalid as obvious. Crossroads has since appealed those decisions to the Federal Circuit (consolidated under 2016-2017, -2026, -2027; active in briefing as of the date of this report). The PAE has not lodged any new patent cases since September 2014. In Q2 2016, Crossroads announced that Aqua Licensing, its patent broker, has initiated the sale of its non-‘972 patent portfolio. According to the PAE, the patents are owned by a “limited partnership controlled by an affiliate of Fortress Investment Group” and are divided into five families: “optimizing command processing, enabling interoperability, managing the network, enhancing tape libraries, and improving data systems”.

Document Security Systems, Inc.

E-commerce and Software, Media Content and Distribution, Networking

Stock Price (as of 6/30/16)	\$0.80	Document Security Systems, Inc. (DSS) operates through four segments, with DSS Technology Management, Inc. (DSS TM) primarily responsible for acquiring and/or developing patented technology for the purpose of monetizing those assets through various means, including litigation. DSS reportedly owns over 100 US patents, including former Bascom Research, BBN Corporation, Cypress, and Dongbu patents. Since October 2012, DSS has asserted a total of nine patents in litigation against more than 15 operating companies. In early 2015, a California judge tossed DSS's infringement suit against Facebook and LinkedIn and invalidated claims of four of its	Bascom patents, leading to a \$37M impairment charge and a reported overhaul of the PAE's patent monetization strategies. In the first quarter of 2016, DSS announced that it had defaulted on \$4.65M in debt to Fortress Credit, possibly allowing for Fortress to take full ownership and control of ten semiconductor patents. As of the date of this report, DSS has open district court cases against Apple, Intel, Samsung, SK Hynix, and Qualcomm; however, each of those cases is currently stayed pending IPR of the patents-in-campaign.
Market Cap (\$USD M)	\$10.4		
52-week High	\$1.20		
52-week Low	\$0.45		
Cash (\$USD M)	\$1.0		
Debt (\$USD M)	\$7.8		
Employee Count	104		
Reported Patent Count	Over 100		

Endeavor IP, Inc.

Mobile Communications and Devices

Stock Price (as of 6/30/16)	\$0.00	Endeavor IP, Inc. is a development stage company engaged in the commercialization of IP assets. It is a Nevada corporation currently located at a residential address in Half Moon Bay, California. Prior to June 2012, it operated as a workplace ergonomic consultancy under the name Finishing Touches Home Goods Inc. Endeavor reportedly owns at least six patents, purchasing wireless network patents from Mesh Comm, LLC and energy monitoring system patents from Solid Solar Energy, Inc. Endeavor incorporated two subsidiaries to assert these patents: Endeavor MeshTech, Inc. and Endeavor Energy, Inc. Endeavor appears to have just one employee—Interim CEO Peter Charles, who in August 2016 replaced	Franciscus Diaba (Endeavor's former CEO and general counsel) when he resigned during Q3 2016—and two directors: Andrew Uribe, an executive with no prior experience in intellectual property acquisition or enforcement, and David Waldman, an investor relations consultant. Charles has reportedly served as Principal Executive of Protext Mobility, Inc. and Director of Corporate Affairs of Lightbridge Corporation. Endeavor has filed nearly 30 infringement suits since July 2013, mostly through Endeavor MeshTech. Only three of those cases, filed against Ericsson, Firetide, and Strix, remain active as of the date of this report. The PAE did not disclose any licensing agreements during the second quarter of 2016, nor did it file any new patent suits.
Market Cap (\$USD M)	\$0.2		
52-week High	\$0.00		
52-week Low	\$0.00		
Cash (\$USD M)	\$0.0		
Debt (\$USD M)	\$0.2		
Employee Count	1		
Reported Patent Count	6		

Finjan Holdings, Inc.

Web and Network Security

Stock Price (as of 6/30/16)	\$1.82	Finjan Holdings, Inc. was formed in June 2013 as a result of a reverse merger of Finjan, Inc. with Converged Organics, a fertilizer company. The entity's primary business is to monetize the IP portfolio of Finjan, Inc., a former operating company that was founded in 1997 as an online security technology provider. M86 Security acquired Finjan, Inc.'s assets and business operations in 2009, but the company retained its IP portfolio. In 2013, Finjan appointed Phil Hartstein, formerly an IPNav vice president, as its CEO. Finjan and its subsidiaries have filed 13 infringement suits since 2006, mostly in 2013-2014. In August	2015, a jury in the Northern District of California awarded Finjan \$39.5M after a two-week patent infringement trial against Blue Coat. That decision has since been challenged and upheld, although Finjan's bid for over \$120M in enhanced damages, plus more than \$7M in attorney fees, was rejected in July 2016 by District Judge Beth Labson Freeman. During Q2 2016, Finjan announced that it had reached a \$10.9M settlement with Proofpoint, ending its three-year infringement litigation against the company.
Market Cap (\$USD M)	\$41.4		
52-week High	\$2.35		
52-week Low	\$0.81		
Cash (\$USD M)	\$17.2		
Debt (\$USD M)	\$0.0		
Employee Count	14		
Reported Patent Count	Over 600		

FORM Holdings, Inc.

Consumer Electronics and PCs, E-commerce and Software, Media Content and Distribution, Mobile Communications and Devices, Networking

Stock Price (as of 6/30/16)	\$1.89	FORM Holdings Corp. (formerly known as Vringo, Inc.) is a PAE that merged with Innovate/Protect, itself a privately held PAE, in July 2012. The reverse merger resulted in the acquisition of a portfolio of patents that originated with Lycos as well as Innovate/Protect subsidiary I/P Engine. In May 2016, Vringo announced that it was changing its name to FORM Holdings, thus “formalizing” the PAE’s “transformation into a diversified holding company”. As of September 2016, FORM has filed seven infringement suits in the United States, asserting a total of six patents. Only two of those cases—one filed by Iron Gate
Market Cap (\$USD M)	\$28.3	
52-week High	\$6.67	
52-week Low	\$1.18	
Cash (\$USD M)	\$27.4	
Debt (\$USD M)	\$3.2	
Employee Count	25	
Reported Patent Count	46	

Security, Inc., the other by Quantum Stream Inc., both lodged in late 2015—are active as of the date this report. In August 2014, the Federal Circuit invalidated claims of two FORM patents asserted against AOL, Gannet, Google, IAC, and Target, reversing a 2012 jury verdict that ordered the defendants to pay I/P Engine \$30M. In December 2014, the Federal Circuit denied FORM’s bid for an *en banc* rehearing of the case, and in October 2015, the Supreme Court denied the PAE’s petition for a *writ of certiorari*.

Great Elm Capital Group

Mobile Communications and Devices, E-commerce and Software

Stock Price (as of 6/30/16)	\$6.59	Great Elm Capital Group, previously known as Unwired Planet, Inc., is an operating company turned patent assertion entity. In 2012, the PAE (then named Openwave Systems) announced that it was changing its name to Unwired Planet and that it would begin focusing exclusively on the monetization and enforcement of its patent portfolio. The entity changed its name to Great Elm in June 2016, the same month that it announced a potential acquisition by Leslie Ware’s Optis UP of its entire patent portfolio. During the second quarter of 2016, Great Elm announced that intends to merge with Full Circle
Market Cap (\$USD M)	\$62.2	
52-week High	\$13.20	
52-week Low	\$4.10	
Cash (\$USD M)	\$80.7	
Debt (\$USD M)	\$34.6	
Employee Count	7	
Reported Patent Count	Over 2,000	

Capital Group, creating a business development company with a reported net asset value of over \$190M. The PAE (as Unwired Planet) has filed six infringement suits since 2009, asserting over 30 patents against defendants including Apple, Google, and Square. In the fourth quarter of 2015, Unwired Planet won a trial in the UK against Huawei and Samsung. The PAE has no active cases in the US as of the date of this report.

InterDigital, Inc.

Mobile Communications and Devices, Networking

Stock Price (as of 6/30/16)	\$55.68	InterDigital, Inc. was founded in 1972 and went public in 1981. The NPE has at least 30 subsidiaries and a large patent portfolio, including over 200 US patents issued in 2014 alone; the patents primarily relate to mobile and networking technologies. Only one of InterDigital’s US cases, filed against ZTE in 2013, remains active. Two trials have been held in that case: in one (held in October 2014, covering three patents), a jury found in favor of InterDigital. In a second trial covering a fourth patent (held in April 2015), a different jury sided with ZTE. In mid-March 2016, District Judge Richard Andrews denied ZTE’s motion for judgment as a matter of law, or, in the
Market Cap (\$USD M)	\$1,925.0	
52-week High	\$76.28	
52-week Low	\$41.01	
Cash (\$USD M)	\$813.9	
Debt (\$USD M)	\$486.8	
Employee Count	330	
Reported Patent Count	20,400	

alternative, a new trial with respect to two of the patents-in-suit. A decision on the motion with respect to a third patent has been postponed pending InterDigital’s appeal of a 2015 decision issued by the International Trade Commission (ITC), ruling that a set of related patents were either not infringed or invalid. During the second quarter of 2016, InterDigital announced that it had amended its worldwide, non-exclusive patent license agreement with NEC, reportedly amending it “to add coverage for 4G technologies”.

Inventergy Global

Consumer Electronics and PCs, Mobile Communications and Devices, Networking

Stock Price (as of 6/30/16)	\$1.49	Inventergy Global launched in June 2013 and became a public entity through a reverse merger with eOn Communications Corp. on December 18, 2013. CEO Joe Beyers was formerly the head of IP licensing for HP; Paul Roberts, the vice president of IP licensing, was formerly at patent assertion entity Rovi; and general counsel Wayne Sobon was previously at Rambus.
Market Cap (\$USD M)	\$7.3	Beyers has repeatedly loaned Inventergy money since 2013, and in April 2015, the entity replaced its full-time CFO with a contract CFO to cut costs. According to USPTO records, Inventergy has received patent assignments from a number of operating companies, including Alcatel-Lucent, Huawei, Matsushita Electric Industrial Company, Nokia, and Panasonic. As of the date of this report, the PAE does not have any active
52-week High	\$4.30	
52-week Low	\$0.71	
Cash (\$USD M)	\$0.6	
Debt (\$USD M)	\$8.6	
Employee Count	8	
Reported Patent Count	718	

infringement cases and has not filed any new actions since February 2016. During Q2 2016, Inventergy announced a new commercialization initiative, called Inventergy Innovations LLC, led by Ken Cannizzaro (formerly of Hewlett-Packard and IP Value), and executed in partnership with four companies: Pabellon Power, Inoue Office Co., GTX Corp (GTXO), and Lopoco. The terms of its revenue sharing agreements with those companies were not disclosed. Also in the second quarter, Inventergy signed a license and settlement agreement with Sonus, resolving litigation between the parties. According to a press release, the agreement "provides Sonus with a license to two of Inventergy's portfolios purchased from Nokia and Huawei", comprising over 250 patent assets.

ITUS Corporation

Consumer Electronics and PCs, E-commerce and Software, Mobile Communications and Devices

Stock Price (as of 6/30/16)	\$3.14	Formed in 1982, ITUS Corporation was originally an operating company called Copytele, Inc. offering a line of encryption products. It began significant patent enforcement activity in early 2013, changing its name to ITUS in September 2014. In June 2015, ITUS announced the formation of a new subsidiary, Anixa Diagnostics, to "develop non-invasive blood tests for the early detection of solid tumor based cancers"; however, in recent filings with the SEC, ITUS has claimed that its fewer than ten employees will be focused on the cancer diagnostics business of Anixa. Any continuing "limited patent licensing activities in the areas of encryption, and advanced materials" will not be "a significant part of the Company's ongoing operations". Despite its claimed focus on cancer diagnostics, in
Market Cap (\$USD M)	\$27.4	
52-week High	\$6.00	
52-week Low	\$1.88	
Cash (\$USD M)	\$4.8	
Debt (\$USD M)	\$0.0	
Employee Count	6	
Reported Patent Count	8 portfolios	

September 2016, ITUS (through its Meetrix IP, LLC subsidiary) initiated a new litigation campaign, suing Citrix, LogMein, and Polycom. Meetrix's new campaign follows on the heels of a previous ITUS litigation effort asserting a former Meetrix patent, which ran from 2014-2016 against AT&T and NTT (Dimension Data). The case against NTT was dismissed without prejudice in June 2015, and the action against AT&T was dismissed with prejudice, apparently following a settlement, in early September 2016.

Marathon Patent Group, Inc.

E-commerce and Software, Mobile Communications and Devices, Networking

Stock Price (as of 6/30/16)	\$2.74	American Strategic Minerals Corporation changed its name to Marathon Patent Group, Inc. in February 2013. It was incorporated in 2010 and is based in Alexandria, Virginia.
Market Cap (\$USD M)	\$41.0	
52-week High	\$3.44	Marathon reports holding over 320 patents from various sources, including from individual inventors to Fortune 500 companies. Since 2008, the NPE has filed hundreds of cases against operating companies. In August 2015, Marathon and Uniloc Luxembourg SA announced an agreement to merge, reportedly bringing the combined total of active defendants to 119, trials on calendar through 2017 to 101, and portfolio of patents to 662. The deal (valuated at \$91M) fell through in
52-week Low	\$1.29	
Cash (\$USD M)	\$7.2	
Debt (\$USD M)	\$22.6	
Employee Count	6	
Reported Patent Count	614	

February 2016. Near the end of the second quarter of 2016, Marathon reportedly entered into a “strategic relationship” with an undisclosed “large fund” and “Fortune Global 50 company” to commercialize and monetize over 10,000 patents in a “particular industry vertical”. Marathon also disclosed entering into an agreement in Q2 with Siemens AG to acquire more than 300 patents, many of which it believes to be standard essential. Also during Q2 2016, Erich Spangenberg joined Marathon as Director of Acquisitions, Licensing, and Strategy; according to the PAE, Spangenberg’s focus will include Marathon’s “expansion into Asia and Europe”.

Network-1 Technologies, Inc.

Networking, Consumer Electronics and PCs, Media Content and Distribution, and E-commerce and Software

Stock Price (as of 6/30/16)	\$2.66	Network-1 Technologies, Inc. is a patent licensing firm, founded in 1990, that has filed almost 20 suits, together with subsidiary Mirror Worlds Technologies, LLC, since 2004. Network-1’s two most active campaigns assert power-over-Ethernet and document streaming patents. The entity reportedly owns over 25 patents, all acquired from other sources, including some developed by Mirror Worlds prior to its acquisition. Network-1 has asserted only a handful of patents in litigation; it has not taken any case to trial. Most of Network-1’s operating income comes from licensing the 6,218,930 patent, which has purportedly generated \$70M since 2007. In May 2014, claims of the ‘930 patent emerged unscathed from an IPR initiated by Avaya, Dell, Sony, and HP. On appeal, the Federal Circuit upheld that ruling. The majority of Network-1’s active cases are in the
Market Cap (\$USD M)	\$62.0	
52-week High	\$3.29	
52-week Low	\$1.70	
Cash (\$USD M)	\$36.5	
Debt (\$USD M)	\$0.0	
Employee Count	3	
Reported Patent Count	28	

‘930 litigation campaign, which targets products that utilize the Power over Ethernet standard. Active defendants as of the date of this report include Avaya, Canon, Dell, Juniper, and Hewlett-Packard Enterprise. During the second quarter of 2016, Network-1 disclosed a settlement and license agreement with Sony, resolving litigation against the company over the ‘930 patent. Also in Q2, the PAE announced that it had entered into an agreement pursuant to which it would receive \$17.5M “in connection with a settlement of a professional liability claim relating to services rendered in 2008 - 2010”. The April press release announcing the agreement reported that the PAE had “acquired the claim in May 2013 as part of its acquisition of the patent portfolio of Mirror Worlds, LLC”. No other details were disclosed. Not long after the close of Q2 2016, Network-1 announced a \$25M settlement with Apple, ending litigation asserting the 6,006,227 patent.

ParkerVision, Inc.

Mobile Communications and Devices, Semiconductors

Stock Price (as of 6/30/16)	\$3.14	ParkerVision, Inc. claims that it designs, develops, and markets proprietary radio frequency (RF) technologies and products for use in semiconductor circuits for wireless communication products in the US. Current CEO Jeffrey L. Parker is a named inventor on several of ParkerVision's patents, which reportedly total over 1,200. The PTAB has instituted IPRs of several ParkerVision patents based on petitions filed by RPX, leading to the cancellation of multiple patent claims. In July 2015, the Federal Circuit denied ParkerVision's attempt to reinstate a \$173M trial win against Qualcomm, which a district court judge had vacated in June 2014. The appeals court also denied a subsequent request for an <i>en banc</i> rehearing. In February 2016, ParkerVision filed a petition for a writ of certiorari, which the Supreme Court denied the following month. During the second
Market Cap (\$USD M)	\$36.7	
52-week High	\$8.18	
52-week Low	\$1.46	
Cash (\$USD M)	\$6.8	
Debt (\$USD M)	\$0.0	
Employee Count	23	
Reported Patent Count	Over 1,200	

quarter of 2016, ParkerVision announced that it had received \$2M in funding from Juridica Asset Management, half of which the PAE said would be restricted for use in certain future patent infringement actions. This latest round of funding brings the total amount received from Juridica (through its special purpose fund called Brickell Key Investments LP) to \$13M. In January 2016, ParkerVision filed a complaint with the ITC against Apple, LG Electronics, Qualcomm, and Samsung, asserting four patents generally related to direct conversion of RF signals. Documents filed in that case reference a July 2016 settlement with Samsung; the other respondents are still active as of the date of this report. A number of ParkerVision's district court cases are stayed pending that ITC investigation.

Patriot Scientific

Consumer Electronics and PCs, Media Content and Distribution, Media Content and Distribution, Mobile Communications and Devices, Networking, Semiconductors

Stock Price (as of 6/30/16)	\$0.00	Patriot Scientific Corporation is based in Carlsbad, California and currently has only three employees, including a CFO who is also serving as an interim CEO. (The other two employees are directors.) Patriot, together with its subsidiaries Technology Property Limited LLC and Phoenix Digital Solutions LLC, has filed over 20 patent infringement suits since 2003; past defendants include Acer, Amazon, ASUS, Barnes & Noble, HTC, Huawei, Kyocera, NEC, Fujitsu, Samsung, Toshiba, and ZTE. In October 2013, a jury in the Northern District of California found that HTC infringed multiple claims of the PAE's 5,809,336
Market Cap (\$USD M)	\$1.2	
52-week High	\$0.04	
52-week Low	\$0.00	
Cash (\$USD M)	\$3.1	
Debt (\$USD M)	\$0.0	
Employee Count	2	
Reported Patent Holding	320	

patent and awarded Patriot \$959K in damages. In October 2014, Patriot announced that it had retained Dominion Harbor Group to license its Moore Microprocessing patent portfolio, which includes the '336 patent. Patriot has not filed any new infringement litigation since 2012, and all of its cases have either terminated or been stayed for various reasons, including an ongoing ITC investigation related to the '336 patent. The PAE did not disclose any new licensees during the second quarter of 2016.

Pendrell Corporation

Mobile Communications and Devices, E-commerce and Software

Stock Price (as of 6/30/16)	\$0.50	Pendrell Corporation is a patent investment company that acquires both patents and patent holding entities. It has at least 25 known subsidiaries, several of which hold patents in their own names. The PAE began as an operating company named ICO Global and was involved in satellite communication through the 1990s and 2000s. In June 2011, the company renamed itself and began licensing efforts. Pendrell reports holding 1,200 patents and applications; its largest portfolio, held by ContentGuard Holdings, Inc., includes patents related to digital rights management (DRM). Others relate to media content, networking, semiconductors, data storage/security, and wireless communication. ContentGuard Holdings is the only Pendrell subsidiary that has filed any patent infringement suits; the NPE has six cases to date, all in a single litigation
Market Cap (\$USD M)	\$108.2	
52-week High	\$1.65	
52-week Low	\$0.45	
Cash (\$USD M)	\$169.2	
Debt (\$USD M)	\$0.0	
Employee Count	16	
Reported Patent Holding	1,200	

campaign targeting devices that offer access to content distribution services utilizing DRM. Active defendants in the campaign include Apple, Huawei, HTC, Lenovo (Motorola Mobility), and Samsung. In September 2015, a Texas jury found that Google and Samsung did not infringe a group of ContentGuard's DRM patents, resulting in a \$103.5M impairment charge in the fourth quarter of 2015. While the jury found in favor of the defendants with respect to infringement, it upheld the validity of the patents-in-suit. During the second quarter of 2016, Pendrell disclosed a license agreement with Toshiba covering "embedded memory technologies and secure digital memory cards". The PAE has not filed any new patent suits since 2014.

Quest Patent Research Corporation

Consumer Electronics and PCs, Semiconductors, Mobile Communications and Devices, E-commerce and Software, Financial Services

Stock Price (as of 6/30/16)	\$0.00	Quest Patent Research Corporation (QPRC) (incorporated as Phase-Out of America, renamed Quest Products Corporation, and renamed again to Quest Patent Research Corporation in 2007) began as a maker of a smoking cessation product and shifted to patent monetization in 2008. Jon C. Scahill has been an executive of QPRC since May 2007 and is currently the NPE's president and CEO. Scahill holds himself out as a patent attorney with a BS in chemical engineering, an MBA, and a JD. QPRC also identifies Tim Scahill as CTO (since 2007) and Peter LaFauci as CFO (since July 2014), LaFauci apparently providing financial services through his own separate consultancy (cfsolutions2go.com). QPRC appears to have organized its patent holdings into at least seven portfolios, three of which
Market Cap (\$USD M)	\$1.1	
52-week High	\$0.02	
52-week Low	\$0.00	
Cash (\$USD M)	\$0.1	
Debt (\$USD M)	\$0.7	
Employee Count	2	
Reported Patent Count	8 portfolios	

were acquired from Intellectual Ventures LLC (IV) in October 2015. Since that acquisition, the PAE has ramped up its litigation activity, filing over 20 patent infringement suits in the first half of 2016 alone, compared to eleven in 2015 and fifteen in 2014. The majority of QPRC's 2016 suits have been filed by its Mariner IC Inc. and Semcon IP Inc. subsidiaries, which appear to have been created specifically to assert patents received from IV. As of September 2016, QPRC has filed over 60 patent infringement suits; all of its cases filed prior to 2016 have terminated, and the majority of its 2016 suits are active, all in the early stages of litigation.

Rambus, Inc.

Semiconductors

Stock Price (as of 6/30/16)	\$12.08	Rambus, Inc. is a technology development and licensing company that was founded in 1990. Since 2000, Rambus has filed almost 30 suits involving more than 50 patents. The entity reportedly owns a portfolio of over 1,800 US patent assets, all of which relate to various aspects of semiconductor technology.
Market Cap (\$USD M)	\$1,329.7	Rambus also has an active licensing program for the technology that it develops. Rambus has secured substantial revenues from its patent enforcement programs, including a \$397M damages award against Hynix Semiconductor in March 2009 and a \$900M settlement with Samsung in January 2010. It has not filed new litigation since 2010, but it sold a portfolio of patents
52-week High	\$14.50	
52-week Low	\$9.86	
Cash (\$USD M)	\$259.3	
Debt (\$USD M)	\$159.5	
Employee Count	495	
Reported Patent Count	2,510	

to Acacia Research Corporation in 2013, some of which are now involved in an active campaign. In August 2015, Rambus announced that it would become, at least in part, a fabless chip company, hiring third parties to manufacture the chips that it designs. Rambus announced in Q2 2016 that it would acquire the assets of Semtech's Snowbush IP for \$32.5M and Inphi Corporation's Memory Interconnect Business for \$90M in cash. The PAE did not disclose any new licenses in the quarter.

SITO Mobile, Ltd.

Mobile Search, Commerce, Advertising and Streaming Media

Stock Price (as of 6/30/16)	\$3.62	SITO Mobile, Ltd., formerly Single Touch Systems, Inc., is an operating company that began monetizing its patents in 2012. SITO's mobile platform purportedly enables clients to send personalized messages and ads to customers based on their user preferences and purchase histories. SITO made a series of announcements in late 2014 that signaled a shift in its business model, including a \$10M credit facility and a \$1M equity investment received from Fortress Investment Group. The loan is secured by SITO's patent portfolio. In July 2015, SITO acquired the mobile advertising business from Hipcricket, which filed for bankruptcy, and in August 2015, SITO
Market Cap (\$USD M)	\$62.1	
52-week High	\$6.08	
52-week Low	\$1.55	
Cash (\$USD M)	\$1.7	
Debt (\$USD M)	\$9.3	
Employee Count	49	
Reported Patent Count	Over 330	

announced that its stock would begin trading on the NASDAQ exchange. The company has asserted only three of its patents in litigation, in 2012 cases against Zoove (which settled following less than a year of litigation) and Hulu (dismissed without prejudice within four months of filing). According to a SITO press release, under an amended patent license agreement signed in the fourth quarter of 2015, SITO received a payment of \$550K from Zoove. SITO has not filed any new litigation since 2012 and did not disclose any new license agreements during the first quarter of 2016.

Spherix, Inc.

Mobile Communications and Devices

Stock Price (as of 6/30/16)	\$2.38	Spherix, Inc. began as a research company in 1967 and owns more than 300 patents and applications, including a portfolio acquired from Rockstar Consortium in July 2013. Many of its patents relate to various aspects of wireless communication and networking. Spherix began asserting patents in litigation in 2011, filing most of its cases in 2013 and 2014. During the first quarter of 2016, the PTAB invalidated claims of a cordless telephone patent that the Spherix had asserted against Uniden and VTech. Also in Q1 2016, Spherix announced that it had entered into a collaborative agreement with Equitable IP Corporation to monetize Spherix's CompuFill patent portfolio,
Market Cap (\$USD M)	\$7.6	
52-week High	\$13.11	
52-week Low	\$1.27	
Cash (\$USD M)	\$6.1	
Debt (\$USD M)	\$0.00	
Employee Count	4	
Reported Patent Count	Over 300	

which it says is related to telephonic refilling of patient prescriptions. Erik Stamell has recently become the president of Equitable IP, a Nevada company established in June 2015 by John T. Meli, Jr., a former partner at Fish & Richardson who once served as the chief patent counsel of Rembrandt IP Management, LLC. Since November 2015, a group of 18 NPEs created by Stamell have filed over 40 patent infringement suits.

Straight Path Communications Inc.

Mobile Communications and Devices, Networking

Stock Price (as of 6/30/16)	\$27.67	Straight Path Communications Inc. is a spinoff of IDT Corporation, a New Jersey-based telecommunications company. When still an IDT subsidiary, Straight Path was known as Innovative Communications Technologies, Inc. (ICTI), changing its name in July 2013 with the launch of the new company. Davidi Jonas, a former vice president at IDT (and current rabbi at a temple in New York City), serves as Straight Path's CEO. Jonas is the only employee listed on Straight Path's website. The PAE's directors include two law firm partners—one from Kellog, Huber, Hansen, Todd, Evans & Figel, the other Mintz Levin. Through its Straight Path IP, Inc. subsidiary,
Market Cap (\$USD M)	\$315.2	
52-week High	\$50.00	
52-week Low	\$7.62	
Cash (\$USD M)	\$13.2	
Debt (\$USD M)	\$0.0	
Employee Count	7	
Reported Patent Count	Over 5,500	

Straight Path has lodged over 20 patent infringement suits since August 2013, all filed in a single campaign involving six patents generally related to point-to-point communications over a network (acquired by IDT with a 2006 purchase of Net2Phone). Nearly 20 companies have been sued by Straight Path, including Amazon, Apple, Avaya, Cisco, Huawei, LG Electronics, Panasonic, Samsung, Sharp, Sony, Verizon, and ZTE. The PAE reports \$18M accrued in fiscal 2014-2015 from confidential settlements and license agreements, including from BlackBerry, Huawei, Netflix, Vonage, and ZTE, among others.

Tessera Technologies, Inc.

Semiconductors

Stock Price (as of 6/30/16)	\$30.64	Tessera Technologies, Inc. is an operating company that began asserting its patents in litigation in 2000. The former designer of semiconductor miniaturization technologies underwent a "turnaround campaign", or shareholder intervention, led by Starboard Value LP in 2013, resulting in a new focus on patent monetization. As of September 2016, Tessera has at least 40 related entities and 11 affiliates. In August 2015, Tessera acquired Ziptronix, Inc., a semiconductor company with patent holdings of its own, as well as an ongoing patent case against OmniVision and TSMC. Tessera reports holding over 4,000 US patents, more than 25 of which have been asserted by Tessera in litigation (mostly against chip manufacturers and companies
Market Cap (\$USD M)	\$1,501.7	
52-week High	\$37.87	
52-week Low	\$26.21	
Cash (\$USD M)	\$371.8	
Debt (\$USD M)	\$0.0	
Employee Count	264	
Reported Patent Count	4,036	

that make and/or sell electronics that include semiconductor chips). Defendants have included Acer, AMD, Freescale, Hitachi, Motorola Mobility, Qualcomm, Spansion, and STMicro. In August 2015, a California state court confirmed an arbitration award of over \$125M to Tessera by Amkor for violation of a license agreement. Following disappointing earnings in Q1 2016, Tessera filed its first infringement actions since 2012, suing Broadcom in two district court suits and in a complaint lodged with the ITC. Those cases remain active as of the date of this report. During the second quarter of 2016, Tessera disclosed a license agreement with Advanced Semiconductor Engineering and a partnership with Kyocera "to develop advanced, intelligent, vision solutions for automotive applications".

TiVo Corporation
Digital Entertainment

Stock Price (as of 6/30/16)	\$15.64	Rovi Corporation, formerly known as Macrovision Solutions Corporation, and now named TiVo Corporation, began as an operating company selling digital entertainment services.
Market Cap (\$USD M)	\$1,283.9	Following a rebranding in 2009, Rovi primarily focused on licensing its patent portfolio. In July 2015, in a declaratory judgment action brought by Netflix, a judge in the Northern District of California invalidated five of the PAE's patents under <i>Alice</i> ; Rovi's appeal of the trial court's decision to the Federal Circuit is mid-briefing. In Q2 2016, Rovi initiated its first new litigation in years (against Comcast, in district court and with the ITC) and also announced that it intended to acquire TiVo in
52-week High	\$23.70	
52-week Low	\$8.01	
Cash (\$USD M)	\$273.9	
Debt (\$USD M)	\$967.2	
Employee Count	1,100	
Reported Patent Count	Over 5,000	

a \$1.1B deal. The merger was completed in September 2016, with the surviving entity renamed TiVo Corporation.

VirnetX, Inc.
Consumer Electronics and PCs, E-commerce and Software, Media Content and Distribution, Mobile Communications and Devices, Networking

Stock Price (as of 6/30/16)	\$4.00	VirnetX, Inc. develops and asserts security technology patents. At least 20 of VirnetX's patents originated with Science Application International Corporation, a defense contractor that formerly employed VirnetX's founders as well as its current CTO and Chief Scientist. Kendall Larsen is President and CEO; his prior experience includes a senior position at CIA contractor Phoenix Technologies. On the basis of regulatory filings, it appears that Larsen has used VirnetX shares as collateral for personal lines of credit. VirnetX has filed ten infringement suits since 2007 against companies including Apple, Cisco, and Microsoft. In February 2016, a Texas jury handed down a \$625.6M verdict in VirnetX's 2012 lawsuit
Market Cap (\$USD M)	\$222.7	
52-week High	\$9.64	
52-week Low	\$1.95	
Cash (\$USD M)	\$18.2	
Debt (\$USD M)	\$0.0	
Employee Count	20	
Reported Patent Count	190	

against Apple, finding that the company's FaceTime and iMessage features infringe two secure networking patents (7,418,504; 7,921,211) and that the latest version of its VPN On Demand feature infringes two other patents from the same family (6,502,135; 7,490,151). In August 2016, Judge Robert Schroeder III overturned that decision, accepting Apple's arguments that the consolidation of two cases involving different versions of the same accused features had resulted in undue prejudice and confusion to the jury. Judge Schroeder has reversed the court's consolidation order, bifurcated the issue of willfulness in both cases, and scheduled jury selection in September 2016 for the retrial of the first-filed case.

Walker Innovation Inc.

Consumer Electronics and PCs, E-commerce and Software, Media Content and Distribution,
Mobile Communications and Devices, Networking

Stock Price (as of 6/30/16)	\$0.53	Walker Innovation Inc. is an inventor-controlled entity that formed in 2013 as a result of a reverse merger of Global Options Group with Walker Digital, LLC. Walker Innovation changed its name from Patent Properties, effective July 31, 2015. The entity is controlled by inventor and entrepreneur Jay Walker, the founder of Priceline. Walker Innovation reports holding nearly 500 patents, many, if not all of which, name Jay Walker as an inventor. They relate to a range of technologies, including authentication techniques, Internet searches and advertising, and online transactions. As of September 2016,
Market Cap (\$USD M)	\$10.9	
52-week High	\$0.70	
52-week Low	\$0.13	
Cash (\$USD M)	\$5.2	
Debt (\$USD M)	\$0.0	
Employee Count	N/A	
Reported Patent Count	Over 15,000	

Walker Innovation itself has not filed any patent litigation; however, two of its subsidiaries, Walker Digital LLC and Inventor Holdings LLC, have collectively sued over 150 companies in more than 60 infringement suits, none of which is now active. None of Walker's subsidiaries has filed any new litigation since 2014. On the same day Walker Innovation announced its Q1 2016 earnings (including total revenue of \$1.2M and a net loss of \$1.8M), it announced that it had ceased operations of its Haystack IQ product. The PAE did not report any new licenses in the second quarter of 2016.

Wi-LAN Inc.

Consumer Electronics and PCs, Mobile Communications and Devices, Networking

Stock Price (as of 6/30/16)	\$2.53	Wi-LAN Inc. (WiLAN) is a Canadian PAE that began litigating its patents in 2007. It was established in 1992 as an operating company selling products and licensing its inventions. In 2006, after years of stagnant stock valuation, it became an assertion-only entity. Both WiLAN's CEO, Jim Skippen, and its COO, Michael Vladescu, came from MOSAID (now Conversant IP). WiLAN reportedly made several bids to purchase MOSAID—an effort that eventually fell through in 2011. In June 2015, Skippen announced plans to retire, though he continues to hold the positions of president and CEO as of the date of this report. WiLAN has over 55 known related entities, one of which (Polaris Innovations Limited) launched a new litigation
Market Cap (\$USD M)	\$301.7	
52-week High	\$3.03	
52-week Low	\$0.94	
Cash (\$USD M)	\$103.7	
Debt (\$USD M)	\$28.0	
Employee Count	47	
Reported Patent Count	Over 6,000	

campaign in the second quarter of 2016. The majority of WiLAN's 2016 cases have been filed by its North Star Innovations, Inc. subsidiary, which was apparently created to assert patents acquired from Freescale (before its acquisition by NXP Semiconductors) in an October 2015 deal that involved over 3,300 patent assets. (Also in 2015, WiLAN acquired more than 7,000 Qimonda patents from Infineon Technologies.) During the second quarter of 2016, WiLAN disclosed a patent license agreement and patent acquisition agreement with Taiwan Semiconductor Manufacturing Company; a portfolio acquisition from SRI International, license agreements with Carl Zeiss, Siliconware Precision Industries Co., Roundtripping Ltd., TCL, and Winners Industry Co.; and new privateering partnerships with PhysioKinematics and two Canadian universities.

About RPX

RPX Corporation (NASDAQ: RPXC) provides market-based and technology solutions to help corporate legal departments reduce the risk and costs associated with both patent litigation and legal discovery services. Our patent risk management services address NPE (non-practicing entity) patent litigation. Members of the RPX client network pay an annual fee that is calculated based on their net operating incomes. We then use this aggregated capital to acquire potentially problematic patents and rights from the pre-litigation market and out of active litigations before they can become a costly problem for our clients. RPX promises never to litigate or assert the patent assets it purchases.

In addition to our defensive patent acquisition service, RPX also facilitates syndicated transactions that include contributions from participating clients in addition to their annual subscription fees. Similar to other acquisitions, these syndicated deals are designed to efficiently share resources and collectively reduce litigation risk. And we offer unique NPE litigation insurance, written on A rated paper and backed by a Lloyd's underwriting syndicate. Further, RPX provides clients with in-depth industry data, market intelligence, and patent advisory services.

RPX subsidiary Inventus is a leading international discovery management provider focused on reducing the costs and risks associated with the discovery process through the effective use of technology solutions. Inventus has been providing litigation support services to corporate legal departments, law firms, and government agencies since 1991.

RPX has invested over \$2 billion to acquire more than 15,500 US and international patent assets and rights, achieved more than 1,000 litigation dismissals, and prevented more than 4,000 NPE litigations from occurring. Since our founding in 2008, we have saved our clients more than \$3.3 billion in avoided NPE legal and settlement costs.

The RPX network comprises about 320 clients in sectors including automotive, consumer electronics and personal computing, E-commerce and software, financial services, media content and distribution, mobile communications, networking, and semiconductors.

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