# **FOCUS** Telecom Technology and Services Group Carrier-Focused Telecom Technology narie

# Summer 2017 Report

Vol.7, No.3



Strategic, Personal, Dedicated

**Investment Banking** 

# Investment Banking and Advisory Services

FOCUS Investment Banking LLC is a leading investment bank with specialized telecom technology and services expertise, concentrating on providing highly tailored services to emerging middle market and larger organizations in this sector:

Mergers & Acquisition Advisory **Corporate Development Consulting** Strategic Partnering & Alliances Capital Financing, Debt & Equity **Corporate Valuations** 

#### In this Issue

- 2 Introduction / Sub Sector Definitions
- **3** Summary Comments: Public Markets
- 4 Public Market Summary Charts 1-6
- 6 Summary Comments: M&A
- 7 M&A Summary Charts 1-2
- 8 Announced Transactions

8 Announced Transactions with Revenue Multiples

9 Sub Sector Analysis: Large Cap Charts 1-6

10 Sub Sector Analysis: 0SS/BSS Charts 1-6

11 Sub Sector Analysis: IP Networking Charts 1-6

12 Sub Sector Analysis: Wireline Access and Transport Charts 1-6

13 Sub Sector Analysis: Cable and Video Charts 1-6

14 Sub Sector Analysis: Broadband Wireless Charts 1-6

15 Sub Sector Analysis: Test and Measurement Charts 1-6

16 FOCUS Telecom Technology and Services Team

# Carrier-Focused Telecom Technology Quarterly

By Richard Pierce, FOCUS Managing Director and Telecom Technology and Services Team Leader

The FOCUS Telecom Technology and Services group consists of four professionals with a mix of backgrounds that include both C-level operating expertise and experience at leading middle market investment banks. The FOCUS Telecom team is uniquely qualified to help middle market clients reach their strategic objectives because the group:

- Devotes significant senior level resources to executing transactions for lower middle market clients,
- Has a breadth of knowledge that covers most segments of the telecom industry,
- Has bankers with C-level operating experience in the telecom industry,
- Has a proven transaction methodology for delivering results,
- Is equally comfortable with buy side and sell side M&A,
- · Leverages an experienced team of research professionals,
- Has a national presence with coverage of both east and west coasts.

In 2017, members of the FOCUS Telecom team will be attending many conferences and meetings throughout the U.S. and are always delighted to receive introductions to innovative companies in the industry. We hope to see you at one of these events, and look forward to exploring your capital market needs as you continue to grow your enterprise.

#### Sub Sector Definitions

- Large Cap: Large, diversified companies with products across a variety of sub sectors
- **OSS/BSS Software:** Software systems that manage and bill the customer base and monitor and maintain tele-com networks
- IP Networking: Carrier Ethernet switching, routers and IP Multimedia Subsystem ("IMS") components
- Wireline Access and Transport: DSL equipment, PON equipment and WDM-based transport
- **Cable and Video:** Products such as headends and servers that support video delivery as well as broadband products for cable networks
- Broadband Wireless: High capacity, fixed wireless equipment
- **Test and Measurement:** Equipment used by both service providers and manufacturers to test and monitor networks and equipment

# Summary Comments

#### **Public Markets**

The FOCUS Carrier-Focused Telecom Technology Index (CFTTI) was relatively flat in our summer reporting period, dropping 0.3% in the past three months. This underperformed both the 2.0% gain in the S&P 500 and the 6.4% gain in the NASDAQ over the same time frame. The CFTTI also continued to underperform the broader indices for the full year period. While the CFTTI gained just shy of 10% in the past year, the S&P 500 and the NASDAQ were up 15.0% and 25.3%, respectively. Sector multiples closed out the period at 1.7x revenue and 10.3x EBITDA. Both of these were higher than sector multiples from a year ago of 1.5x revenue and 8.1x EBITDA.

#### Large Cap

After a big gain in our last report, the Large Cap sub sector experienced a slight decline of 0.4% in this current reporting period. Cisco proved to be the anchor for the sub sector, as the company dropped just shy of 8% over the past three months. On the bright side, all the other stocks in the sub sector enjoyed gains for the period, including double digit increases at Ericsson, Nokia and ZTE. For the full year period, the Large Cap sub sector was up 9.0%. Ericsson was the only company in the sub sector in negative territory over this time period with a drop of 6.3%. On the plus side, Juniper and ZTE delivered year-over-year returns of 25.3% and 41.7%, respectively. Sub sector multiples are higher than they were at this time last year. The sub sector revenue multiple increased from 1.5x to 1.7x, while the sub sector EBITDA multiple jumped from 7.5x to 9.8x

#### **OSS/BSS Software**

The 0.1% drop in the OSS/BSS Software sub sector made this the third straight reporting period where the sub sector suffered a decline. This was despite the fact that a majority of the stocks in the sub sector were in positive territory over the past three months. However, these increases were counterbalanced by losses at Synchronoss, which shed nearly half of its value. The picture looks better for the full-year period as the sub sector is up 9.4% over the past 12 months. This included particularly strong gains at Comptel, NetScout, and Radcom, all of which were up more than 50%. Unfortunately, steep losses at Synchronoss once again weighed down the sub sector, as did a more than 50% drop in value at Redknee. Sub sector multiples held relatively steady compared to this time last year. The sub sector revenue multiple ticked up from 2.2x a year ago to 2.3x currently, while the sub sector EBITDA multiple also inched up slightly from 12.4x to 12.5x.

#### **IP** Networking

The 2.0% gain in the IP Networking sub sector made it one of the three CFTTI sub sectors that was in positive territory this reporting period. The two companies that pushed the sub sector into the black were Sandvine (up 35.7%) and SONUS Networks (up 14.4%). Both of these companies were involved in M&A transactions, as Sandvine announced that it was being acquired in a take private transaction while SONUS reported its intention to merge with competitor GenBand. Even with the gain this period, the IP Networking sub sector remained in negative territory for the 12-month period as it fell 1.6%. Audiocodes and Sandvine were the sub sector's top performers, while SONUS Networks was still in steep negative territory even after its gains in this most recent period. Sub sector multiple performance was mixed. The sub sector revenue multiple dropped slightly from 1.9x to 1.8x in the past year. On the other hand, the sub sector EBITDA multiple increased from 28.6x to 48.8x over this same period.

#### Wireline Access and Transport

The Wireline Access and Transport sub sector was the CFTTI's worst performing sub sector this period, falling 8.4% in the past three months. Six of the 10 stocks in the sub sector suffered declines, including ADTRAN, CIENA, and Infinera. The sub sector still remains in positive territory for the 12-month period with an increase of 4.8%. The sub sector revenue multiple remained unchanged at 1.2x, while the sub sector EBITDA multiple went from 14.2x a year ago to 20.5x currently.

#### Cable and Video

The 7.9% gain in the Cable and Video sub sector was good enough to make it the second best performing sub sector in the CFTTI for the current reporting period. Arris was up nearly 9% for the period, while Amino and NetGem also enjoyed strong returns. Sub sector performance was also strong for the full-year period with an increase of nearly 20%. Even with this increase, sub sector multiples actually declined over the past year. The sub sector revenue multiple dropped from 1.2x to 1.0x while, the EBITDA multiple fell from 11.5x to 9.1x.

#### **Broadband Wireless**

The Broadband Wireless sub sector suffered a second straight period in the red as it dropped 5.0% in the past three months. Aviat Networks was the only company in the sub sector to turn in a positive return, while sub sector bellwether Ubiquiti Networks dropped 4.0%. Even with

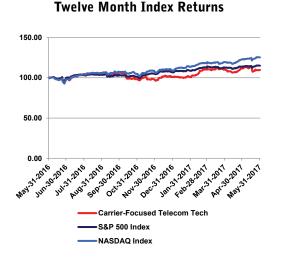
the losses over these past two periods, the sub sector still has a gain of more than 20% for the past year. Over this period, the sub sector revenue multiple expanded from 2.3x to 2.6x while, the EBITDA multiple declined from 15.0x to 12.8x.

#### Test and Measurement

The Test and Measurement sub sector was the CFTTI's top performing sub sector this period, jumping up slightly

more than 12% in the past three months. EXFO was the only sub sector stock in negative territory, and, in fact, the other sub sector stocks all enjoyed double digit gains. The sub sector also is the CFTTI's top year-over-year performer, gaining just under 50% over this time frame. Just as impressively, the sub sector revenue multiple doubled from 1.0x a year ago to 2.0x currently, and the sub sector EBITDA multiple also showed a meaningful increase from 11.0x a year ago to 19.4x currently.

#### Carrier-Focused Telecom Technology: Public Market Summary

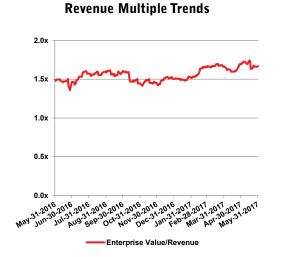


#### Sector and Sub Sector Returns

	12 Month	3 Month
Carrier-Focused Telecom Tech	9.8%	-0.3%
Large Cap	9.0%	-0.4%
OSS/BSS	9.4%	-0.1%
IP Networking	-1.6%	2.0%
Wireline Access and Transport	4.8%	-8.4%
Cable and Video	19.8%	7.9%
Broadband Wireless	20.7%	-5.0%
Test and Measurement	45.6%	12.2%
S&P 500	15.0%	2.0%
NASDAQ	25.3%	6.4%

Source: Capital IQ

# Carrier-Focused Telecom Technology: Public Market Summary (continued)



#### Sector and Sub Sector Revenue Multiples

	5/31/2017	5/31/2016
Carrier-Focused Telecom Tech	1.7x	1.5x
Large Cap	1.7x	1.5x
OSS/BSS	2.3x	2.2x
IP Networking	1.8x	1.9x
Wireline Access and Transport	1.2x	1.2x
Cable and Video	1.0x	1.2x
Broadband Wireless	2.6x	2.3x
Test and Measurement	2.0x	1.0x

**EBITDA Multiple Trends** 



#### Sector and Sub Sector EBITDA Multiples

	5/31/2017	5/31/2016
Carrier-Focused Telecom Tech	10.3x	8.1x
Large Cap	9.8x	7.5x
OSS/BSS	12.5x	12.4x
IP Networking	48.8x	28.6x
Wireline Access and Transport	20.5x	14.2x
Cable and Video	9.1x	11.5x
Broadband Wireless	12.8x	15.0x
Test and Measurement	19.4x	11.0x

Source: Capital IQ

# Carrier-Focused Telecom Technology: M&A Summary Carrier-Focused Telecom Technology Stocks

# M&A

This most recent three-month period saw 16 transactions in the Carrier-Focused Telecom Technology sector with a total announced transaction dollar volume of slightly more than \$1 billion. While the number of transactions was relatively low, it was encouraging to see dollar volume continue to remain higher than what we saw in 2016. Year-to-date, we now stand at 29 total transactions with a total announced dollar volume just shy of \$3 billion. It is interesting to note that after only five months, transaction dollar volume in 2017 already exceeds what we calculated for the full-year of 2016.

#### **OSS/BSS Software**

The OSS/BSS Software sub sector saw eight transactions in our summer reporting period. The largest of these was Hunan Tianrun Digital Entertainment's acquisition of Beijing United Efficient Billing Communication for nearly \$250 million. We also saw performance assurance vendor Accedian Networks get acquired by private equity firm Bridge Growth Partners for \$100.1 million. Publicly traded companies that made acquisitions this period included Evolving Systems (which acquired Business Logic Systems) and EXFO (which acquired Ontology Systems). Finally, the A2P messaging space remained active as serial acquirer CLX acquired Dialogue Group.

### **IP** Networking

The IP Networking sub sector had two particularly notable transactions this period. This included the period's largest transaction, the acquisition by SONUS Networks of competing switching and gateway vendor GenBand for \$412 million. In addition, the sub sector also boasted Vector Capital's take-private acquisition of Sandvine for \$238.4 million. Finally, Motorola Communications acquired push-to-talk specialist Kodiak Networks for an undisclosed amount.

### Wireline Access and Transport

The Wireline Access and Transport sub sector had a pair of transactions this reporting period. The first was private equity firm Maj Invest Equity's purchase of FTTH CPE provider Icotera. In the second transaction, Shah Capital acquired struggling access vendor UTStarcom.

### Cable and Video

The only Cable and Video transaction this reporting period was sMedio's acquisition of set top box software vendor MIX Technologies.

#### **Broadband Wireless**

There were no transactions in the Broadband Wireless sub sector this reporting period.

#### Test and Measurement

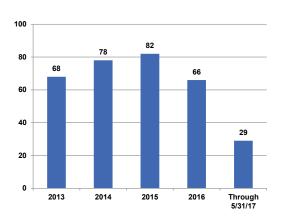
Enghouse Systems acquired software based test systems company Tollgrade Communications for \$23 million. While Enghouse historically has been an active acquirer of OSS/BSS software companies, this marks their first acquisition in the Test and Measurement space. In the sub sector's second transaction for the period, video content specialist Telestream purchased IneoQuest Technologies. IneoQuest provides solutions that quantify quality of experience for video customers.

#### Transactions with Multiples

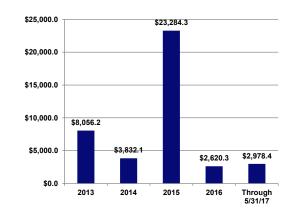
We counted three transactions with multiples this period. Two of these were in the IP Networking sub sector. The first of these, the SONUS Networks acquisition of Gen-Band, was done at 1.0x revenue. The second, Vector Capital's acquisition of Sandvine, went for a significantly higher revenue multiple of 2.0x, and the corresponding EBITDA multiple was 11.4x. In the period's final transaction with an announced multiple, Enghouse Systems paid 1.0x revenue for testing company Tollgrade Communications.

# Carrier-Focused Telecom Technology: M&A Summary

M&A Activity: Number of Transactions



M&A Activity (\$ Value of Transactions in Millions)



www.focusbankers.com/telecom Atlanta • Los Angeles • Washington, DC

# Announced Transactions (3/1/17 – 5/31/17)

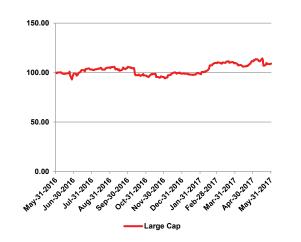
Acquiror	Target	Date Announced	Sector	Purchase Price	Description
Vector Capital	Sandvine	5/26/17	IP Networking	\$238.4	Network policy control solutions for fixed, mobile and converged communications service providers.
Hunan Tianrun Digital Entertainment	Beijing United Efficient Billing Communication	5/25/17	OSS/BSS Software	\$249.0	Provides billing software for telecommunications providers in China.
sMedio	MIX Technologies	5/23/17	Cable and Video	\$0.4	Develops software for set top boxes, digital AV and network processing media.
Sonus Networks	GenBand	5/23/17	IP Networking	\$412.0	Provides IP switching systems and gateways for businesses and telecom services providers globally.
Axiata Group	Suvitech	5/15/17	OSS/BSS Software	\$17.0	Systems used for billing, customer care and network management for telecoms in Thailand.
Evolving Systems	Business Logic Systems	5/11/17	OSS/BSS Software	\$1.6	Marketing automation CRM SaaS for telecommunications companies and brands.
CLX	Dialogue Group	5/10/17	OSS/BSS Software	NA	Provides A2P SMS messaging and security protection services and SaaS for businesses globally and mobile network operators.
Innovative Controls	Telsasoft	5/6/17	OSS/BSS Software	NA	Designs and develops operations support systems and service assurance software for telecommunications providers.
Motorola Solutions	Kodiak Networks	5/1/17	IP Networking	NA	Broadband push-to-talk communication SaaS to wireless carriers and operators.
Enghouse Systems	Tollgrade Communications	4/12/17	Test and Measurement	\$23.0	Centralized, software based test systems for broadband telecom access providers.
Maj Invest Equity	lcotera	3/31/17	Wireline Access and Transport	NA	Develops and manufactures Fiber-to-the-Home CPE solutions.
Shah Capital	UTStarcom	3/31/17	Wireline Access and Transport	NA	Broadband packet optical transport and wireless/fixed-line access products and solutions.
Bridge Growth Partners	Accedian	3/30/17	OSS/BSS Software	\$100.1	Performance assurance systems including network performance platforms, actuators, modules and elements.
CSF	Aerialink	3/21/17	OSS/BSS Software	NA	Provides mobile messaging and location-based SaaS for small to medium-sized telecom operators.
Telestream	IneoQuest Technologies	3/9/17	Test and Measurement	NA	Video network intelligence technologies and solutions to monitor, gather, aggregate and analyze video data across the video network.
EXF0	Ontology Systems	3/1/17	OSS/BSS Software	\$7.5	Real-time network topology discovery and service-chain mapping.

# Announced Transactions with Revenue Multiples (6/1/16-5/31/17)

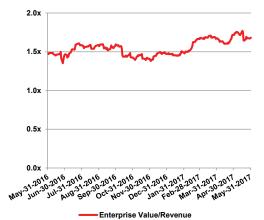
Acquiror	Target	Date Announced	Sector	Purchase Price	Revenue Multiple	EBITDA Multiple	Description
Vector Capital	Sandvine	5/26/17	IP Networking	\$238.4	2.0 x	11.4 x	Network policy control solutions for fixed, mobile and converged communications service providers.
Sonus Networks	GenBand	5/23/17	IP Networking	\$412.0	1.0 x	NA	Provides IP switching systems and gateways for businesses and telecom services providers globally.
Enghouse Systems	Tollgrade Communications	4/12/17	Test and Measurement	\$23.0	1.0 x	NA	Centralized, software based test systems for broadband telecom access providers.
Keysight Technologies	lxia	1/30/17	Test and Measurement	\$1,526.5	3.1 x	18.7 x	Provides application performance and security resilience solutions.
Nokia	Comptel Corporation (AXIOSS Assets)	2/9/17	OSS/BSS Software	\$366.9	3.2 x	25.3 x	Software to detect network anomalies, manage the customer experience and provide service fulfillment.
Sonus Networks	Taqua	9/26/16	IP Networking	\$20.0	0.7 x	NA	Fixed and mobile converged switching, gateway, media processing and backhaul solutions for wireline, cable and wireless carriers.
DHC Software	Cloud Vision Networks Technology Corporation	6/16/16	Cable and Video	\$89.3	2.3 x	NA	Cable network and digital TV related products including fiber-to- the business, fiber-to-the node and Ethernet over copper.

# Sub Sector Analysis: Large Cap

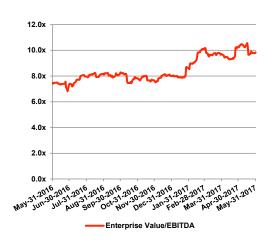
**Twelve Month Index Returns** 



#### **Revenue Multiple Trends**







Source: Capital IQ

#### **Company Returns**

	12 Month	3 Month
Large Cap Index	9.0%	-0.4%
Cisco	8.5%	-7.8%
Ericsson	-6.3%	12.2%
Juniper	25.3%	4.7%
Nokia	9.8%	16.7%
ZTE	41.7%	23.6%

#### **Company Revenue Multiples**

	5/31/2017	5/31/2016
Large Cap Index	1.7x	1.5x
Cisco	2.5x	2.2x
Ericsson	0.9x	0.7x
Juniper	2.0x	1.8x
Nokia	1.2x	1.5x
ZTE	0.7x	0.5x

#### **Company EBITDA Multiples**

	5/31/2017	5/31/2016
Large Cap Index	9.8x	7.5x
Cisco	8.1x	7.3x
Ericsson	18.2x	4.9x
Juniper	9.1x	8.1x
Nokia	11.9x	14.6x
ZTE	47.9x	27.0x

www.focusbankers.com/telecom Atlanta • Los Angeles • Washington, DC

9

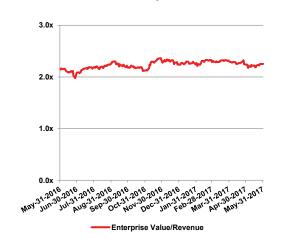
# Sub Sector Analysis: OSS/BSS Software



#### **Company Returns**

	12 Month	3 Month
OSS/BSS Index	9.4%	-0.1%
Amdocs	11.7%	6.8%
Astellia	-1.8%%	4.4%
Comptel	96.1%	0.3%
CSG Systems	-6.2%	1.2%
Evolving Systems	1.5%	15.1%
NetScout Systems	50.9%	-0.9%
Radcom	64.1%	11.1%
Redknee	-55.7%	-15.5%
Subex	8.8%	-7.2%
Synchronoss	-63.8%	-52.8%
Tecnotree	-6.3%	-2.8%

**Revenue Multiple Trends** 

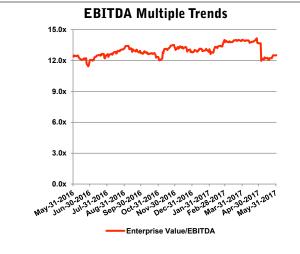


#### **Company Revenue Multiples**

	5/31/2017	5/31/2016
OSS/BSS Index	2.3x	2.2x
Amdocs	2.3x	2.0x
Astellia	0.4x	0.5x
Comptel	3.3x	1.7x
CSG Systems	1.9x	2.1x
Evolving Systems	2.7x	2.5x
NetScout Systems	2.8x	2.3x
Radcom	6.4x	5.8x
Redknee	0.7x	1.1x
Subex	1.3x	1.6x
Synchronoss	1.5x	3.0x
Tecnotree	0.6x	0.6x

#### **Company EBITDA Multiples**

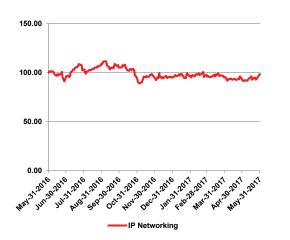
	5/31/2017	5/31/2016
OSS/BSS Index	12.5x	12.4x
Amdocs	11.9x	11.0x
Astellia	20.4x	NM
Comptel	35.9x	16.4x
CSG Systems	9.5x	9.9x
Evolving Systems	8.4x	11.5x
NetScout Systems	14.1x	15.0x
Radcom	564.8x	NM
Redknee	NM	32.6x
Subex	5.2x	7.3x
Synchronoss	13.2x	12.2x
Tecnotree	NM	4.7x



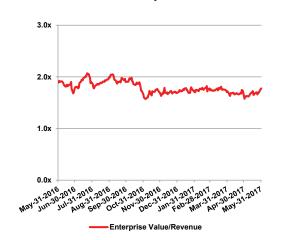
Source: Capital IQ

# Sub Sector Analysis: IP Networking

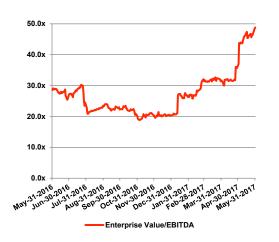
#### **Twelve Month Index Returns**



#### **Revenue Multiple Trends**



#### **EBITDA Multiple Trends**



#### **Company Returns**

	12 Month	3 Month
IP Networking Index	-1.6%	2.0%
Allot Communications	0.4%	2.9%
Audiocodes	74.2%	-2.5%
Broadsoft	-8.3%	-6.5%
Radisys	-15.3%	-1.3%
Sandvine	38.6%	35.7%
SONUS Networks	-26.3%	14.4%

#### **Company Revenue Multiples**

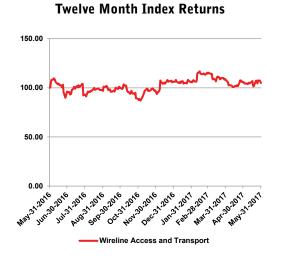
	5/31/2017	5/31/2016
IP Networking Index	1.8x	1.9x
Allot Communications	0.6x	0.5x
Audiocodes	1.3x	0.9x
Broadsoft	3.3x	4.2x
Radisys	0.8x	0.8x
Sandvine	2.7x	1.6x
SONUS Networks	1.0x	1.4x

#### **Company EBITDA Multiples**

	5/31/2017	5/31/2016
IP Networking Index	48.8x	28.6x
Allot Communications	NM	NM
Audiocodes	19.4x	23.3x
Broadsoft	43.4x	38.7x
Radisys	NM	68.7x
Sandvine	15.8x	4.5x
SONUS Networks	NM	NM

Source: Capital IQ

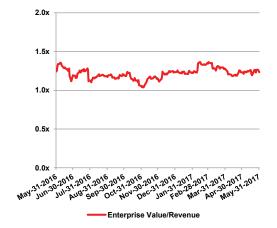
# Sub Sector Analysis: Wireline Access and Transport



#### **Company Returns**

	12 Month	3 Month
Wireline Access & Transport Index	4.8%	-8.4%
ADTRAN	-1.0%	-9.0%
ADVA	11.2%	0.9%
BATM	13.1%	-7.0%
Calix	-3.1%	-5.1%
CIENA	34.5%	-10.9%
Communications Systems	-33.9%	3.0%
Dasan Zhone Solutions	1.9%	11.4%
Infinera	-25.9%	-10.4%
MRV Communications	-17.3%	16.2%
Net Insight	-7.7%	-10.9%

**Revenue Multiple Trends** 





	5/31/2017	5/31/2016
Wireline Access & Transport Index	1.2x	1.2x
ADTRAN	1.3x	1.4x
ADVA	0.8x	0.9x
BATM	0.6x	0.6x
Calix	0.6x	0.6x
CIENA	1.3x	1.1x
Communications Systems	0.2x	0.4x
Dasan Zhone Solutions	0.6x	0.4x
Infinera	1.6x	1.8x
MRV Communications	0.5x	0.6x
Net Insight	4.6x	6.4x

#### **Company EBITDA Multiples**

	5/31/2017	5/31/2016
Wireline Access & Transport Index	20.5x	14.2x
ADTRAN	16.1x	27.8x
ADVA	12.7x	12.2x
BATM	NM	35.7x
Calix	NM	49.4x
CIENA	10.5x	10.1x
Communications Systems	NM	NM
Dasan Zhone Solutions	NM	NM
Infinera	NM	15.8x
MRV Communications	NM	NM
Net Insight	41.5x	126.4x

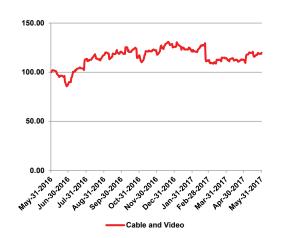
**EBITDA** Multiple Trends



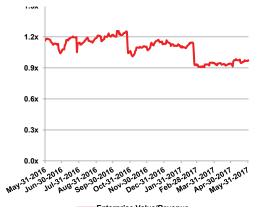
Source: Capital IQ

# Sub Sector Analysis: Cable and Video

#### **Twelve Month Index Returns**



#### **Revenue Multiple Trends**



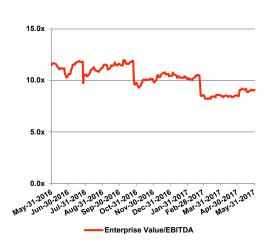
#### **Company Returns**

	12 Month	3 Month
Cable and Video Index	19.8%	7.9%
Amino	106.9%	6.9%
Arris	16.3%	8.7%
Harmonic	76.6%	-6.5%
NetGem	26.9%	27.5%
SeaChange	-26.0%	-1.6%

#### **Company Revenue Multiples**

	5/31/2017	5/31/2016
Cable and Video Index	1.0x	1.2x
Amino	1.9x	1.2x
Arris	0.9x	1.2x
Harmonic	1.2x	0.8x
NetGem	1.0x	0.6x
SeaChange	0.7x	0.5x

**EBITDA Multiple Trends** 

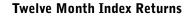


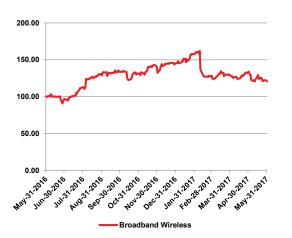
### **Company EBITDA Multiples**

	5/31/2017	5/31/2016
Cable and Video Index	9.1x	11.5x
Amino	15.6x	12.6x
Arris	8.1x	10.9x
Harmonic	NM	NM
NetGem	11.2x	8.1x
SeaChange	NM	NM

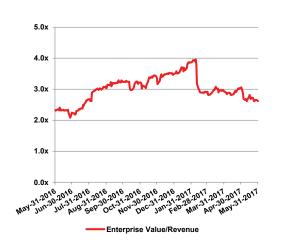
Source: Capital IQ

# Sub Sector Analysis: Broadband Wireless





### **Revenue Multiple Trends**



**EBITDA Multiple Trends** 



**Company Returns** 

	12 Month	3 Month
Broadband Wireless Index	20.7%	-5.0%
Aviat Networks	153.8%	13.0%
Ceragon Networks	69.0%	-20.1%
DragonWave	-84.9%	-44.4%
Redline Communications	-32.5%	-27.4%
Ubiquiti Networks	18.3%	-4.0%

#### **Company Revenue Multiples**

	5/31/2017	5/31/2016
Broadband Wireless Index	2.6x	2.3x
Aviat Networks	0.3x	0.0x
Ceragon Networks	0.7x	0.4x
DragonWave	0.6x	0.7x
Redline Communications	0.5x	0.8x
Ubiquiti Networks	4.2x	4.7x

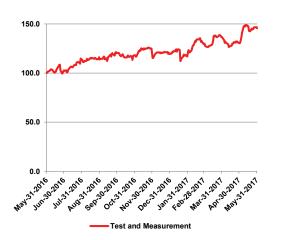
#### **Company EBITDA Multiples**

	5/31/2017	5/31/2016
Broadband Wireless Index	12.8x	15.0x
Aviat Networks	NM	NM
Ceragon Networks	7.2x	4.3x
DragonWave	NM	NM
Redline Communications	NM	NM
Ubiquiti Networks	12.0x	13.6x

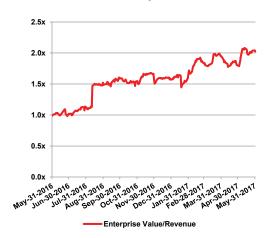
Source: Capital IQ

### Sub Sector Analysis: Test and Measurement

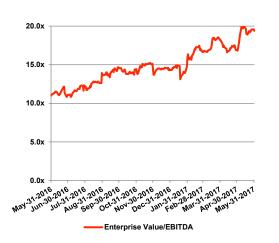
#### **Twelve Month Index Returns**



#### **Revenue Multiple Trends**



#### **EBITDA Multiple Trends**



#### **Company Returns**

	12 Month	3 Month
Test and Measurement Index	45.6%	12.2%
Anritsu	52.1%	10.8%
EXFO	32.6%	-6.2%
Gigamon	22.5%	12.0%
Spirent	53.5%	15.6%
Viavi	64.4%	12.1%

#### **Company Revenue Multiples**

	5/31/2017	5/31/2016
Test and Measurement Index	2.0x	1.0x
Anritsu	1.3x	0.7x
EXFO	1.2x	0.9x
Gigamon	3.6x	3.6x
Spirent	1.5x	0.9x
Viavi	2.5x	1.3x

#### **Company EBITDA Multiples**

	5/31/2017	5/31/2016
Test and Measurement Index	19.4x	11.0x
Anritsu	13.6x	6.8x
EXFO	13.8x	11.4x
Gigamon	40.4x	40.0x
Spirent	10.3x	6.0x
Viavi	23.2x	23.8x

Source: Capital IQ

# FOCUS Telecom Technology and Services Team

#### **Richard H. Pierce**



Managing Director and Telecom Technology and Services Team Leader, Washington, DC rich.pierce@focusbankers.com 202-470-1983 Rich Pierce has more than ten years

of investment banking experience advising middle market clients on a variety of mergers and acquisitions and capital raising transactions. Dur-

ing that time, Mr. Pierce's primary emphasis has been on serving clients in the telecommunications industry including providers of network related hardware and software products, wireless, and wireline telecommunications service providers and network engineering and construction companies.

### John T. Bradshaw



#### Partner, Bend, Oregon john.bradshaw@focusbankers.com 541-306-6451

John Bradshaw has over 30 years experience in sales, marketing, manufacturing, finance, and systems engineering with corporations specializing in technology-driven business products and services. Mr. Bradshaw has been a successful

senior executive and manager in both large and small organizations, and has spent the last 15 years working with entrepreneurial companies. Mr. Bradshaw has particular expertise in enterprise communications and contact center related technology.

#### **David Freeland**



#### Principal, San Francisco, California david.freeland@focusbankers.com 978-505-1837

David Freeland, a FOCUS Principal, has more than fifteen years of experience providing investment banking and management consulting services to a variety of corporate clients, ranging from the Fortune 500 to start-up businesses. He has been an

investment banker since 2003, advising clients on mergers and acquisitions and capital raising transactions. Mr. Freeland has broad experience in the telecom and technology industry and has significant experience with data center companies.

#### Eric M. Oganesoff



#### Managing Director, Washington, DC eric.oganesoff@focusbankers.com 202-470-1969

Eric Oganesoff has conducted over forty M&A, debt, and capital raise transactions with an aggregate value of over \$300 million and has served as the CEO or President of several companies. Mr. Oganesoff has over twenty years of senior executive level

experience in leading businesses ranging from wireless solutions, software, and RFID services to manufacturing, industrial products, energy, and environmental products and government contracting.

# About FOCUS Investment Banking LLC

FOCUS Investment Banking LLC provides a range of middle market investment banking services with an emphasis on mergers, acquisitions, divestitures and corporate finance. FOCUS is a national firm serving clients from offices in major cities across the United States. FOCUS specializes in business units with transactions or revenues in the \$5-300 million range, serving entrepreneurs, corporate owners and various types of investors across a broad range of industries, throughout the U.S. and worldwide. FOCUS bankers are seasoned operating and financial executives with extensive transaction experience. Securities transactions conducted by FOCUS Securities LLC, an affiliated company, registered Broker/Dealer and member FINRA/SIPC. For more information on FOCUS, visit www.focusbankers.com.

© 2017 FOCUS Investment Banking LLC



#### MID-ATLANTIC REGION

FOCUS Investment Banking LLC Headquarters 1133 20th Street, NW Suite 200 Washington, DC 20036 202.785.9404 202.785.9413 (fax)

#### SOUTHEAST REGION

FOCUS Investment Banking LLC Atlanta Office 3353 Peachtree Road, NE Suite 1160 Atlanta, GA 30326 404.504.8620 404.814.9141 (fax)

#### WESTERN REGION

FOCUS Investment Banking LLC Los Angeles Office 355 South Grand Avenue Suite 2450 Los Angeles, CA 90071 213.426.1395 213.943.1397 (fax)

Securities transactions conducted by FOCUS Securities LLC, an affiliated company, registered Broker Dealer member FINRA/SIPC.