



November 17, 2017

CURRENT PRICE: \$24.74
RATING: HOLD
PRICE TARGET: N/A
CURRENT YIELD: 1.0%

EPS Estimates

	DEC 16A	DEC 17E
1Q	(\$0.07)	\$0.24A
2Q	\$0.09	\$0.37A
3Q	\$0.01	\$0.30A
4Q	\$0.08	\$0.21
	\$0.12	\$1.12

Trading Data

52-WEEK PRICE RANGE: **\$26.17-\$11.80**
 SHARES OUTSTANDING: **29.11(M)**
 MARKET CAP: **\$720.2(M)**
 AVG. DAILY TRADING VOLUME: **0.26(M)**
 S&P 500: **2,579**

Valuation Data

BOOK VALUE: **\$9.30**
 PRICE TO BOOK: **2.7x**
 DIVIDEND: **\$0.24**

COHU, Inc. (NSDQ: COHU)

3Q17 Earnings Results Improve

Highlights

- 3Q17 earnings of \$0.30/share vs. 3Q16's \$0.01/share
- Momentum in auto, mobility, and "IoT" increase sales
- Margin improvement due to cost cutting & revenue growth
- COHU provides positive 4Q17 guidance
- Maintain HOLD rating

Investment Thesis

Use of integrated circuits throughout the world continues to accelerate as it finds its way into more products. A few decades integrated circuits were only associated with computers. However, their use has now spread into cellphones, automobiles, mobility items (i-Pads, Kindles, FitBit, etc.), communications, industrial robotics, solid state lighting (LED), and high speed memory. The current annual integrated circuit market is estimated to be \$11 billion with expectations of it growing to \$20 billion by 2020. One way for investors to invest in this growth area is through shares of COHU.

Company Summary

COHU is headquartered in the greater San Diego Metropolitan area (Poway CA) and has 1,600 employees. Formerly known as Cohu Electronics, the company changed its name to Cohu, Inc. in 1972 and was originally founded in 1947. The company develops, manufactures, sells, and services products used by the semiconductor industry to automate the testing of integrated circuits, wafer-level packages (WLPs) and light-emitting diodes (LEDs) found in many consumer products (i.e., cellphones, automobile sensors, computers, i-pads, automobile sensors, and other products). The company is comprised of four operating units: 1) Delta Design, 2) Rasco, 3) Ismeca, and 4) Integrated Test Solutions (ITS).

For Important Disclosure information regarding the Firm's rating system, valuation methods and potential conflicts of interest, please refer to the last two pages of this report.

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COMPANY PRODUCTS

COHU's products include semiconductor test handling and back-end finishing systems, micro-electronic mechanical systems (MEMS) test modules, thermal subsystems for burn-in and system level test of integrated circuits (ICs), and test contactors. COHU's products are used in the back-end of the semiconductor manufacturing process by global-semiconductor manufacturers and test sub-contractors to automate the testing of ICs. This testing determines the quality of performance of the ICs prior to shipment to customers.

The company is comprised of four operating units: 1) Delta Design, 2) Rasco, 3) Ismecca, and 4) ITS.

Delta sells "pick & place" and "thermal sub-systems" used for burn-in and system level testing. This unit sells its Pyramid, Matrix, Eclipse, T-Core, and Linx products to semiconductor manufacturers and test subcontractors. The ICs tested with COHU's products go into the mobile markets (phones, tablets, etc.), computing, the automotive area, and high-performance memory.

Rasco was purchased by COHU in 2008 and sells "gravity feed", "test-in-strip", and "micro-electronic mechanical systems" (MEMS) test solutions. Test handles sold by this unit include Jupiter, Saturn, and Jaguar. ICs tested by these products are used in mobile products, "internet of things", and magnetic and pressure sensors used in automotive applications.

Ismecca, purchased in 2013 by COHU, sells "current-based test handling" and "back-end finishing equipment". This unit's products include NY20 and NX32 used for IC testing, LEDs, discrete devices, and sensors. ICs tested by these handlers are used in mobile products, "internet of things", solid state lighting, portable wearable items (e.g. Apple Watches & Fitbit wrist bands), and cyber security.

ITS provides high performance products for the test contactor markets was created in 2014 to drive growth in this sector. Growth of the test contactor market has made it vital for COHU to supply an integrated solution for power semiconductor testing in automotive, industrial, and LED markets. The company designs, manufactures, sells, and provides support for various lines of test contractor solutions. These are consumable electro-mechanical assemblies connecting the device under test, inside COHU's test handlers, and the automotive test equipment.

COHU'S MANUFACTURING FACILITIES

- Poway, CA : 338,000 square feet (sold/leased back)
- Kolbermoor, Germany: 40,000 square feet (owned)
- Malacca, Malaysia: 50,000 square feet (leased)
- Calamba City, Laguna, Philippines: 51,000 square feet (leased)
- La Chaux-de-Fonds, Switzerland: 34,000 square feet (leased)
- Suzhou, China: 6,000 square feet (leased)



SEMICONDUCTOR INDUSTRY'S USE OF COHU PRODUCTS:

Back-end testing includes the final test of an IC by manufacturers, or subcontractors, before end use in cellphones, computers, tablets, wearable internet products, solid state lighting products, automotive vehicles, and cybersecurity items. COHU provides test handling equipment to automate test the final test of ICs, reducing the likelihood of faulty product shipment by semiconductor manufacturers.

The problem for IC manufacturers is the more functions a chip is asked to perform, the more heat it generates which could potentially shut-down the IC and its ability to do its programmed tasks. COHU's thermal-control products controls/lowers the temperature of these multi-function chips during the testing process, solving the "heat problem", thus allowing the manufacturer to produce more ICs for sales to its customers. The more chips making it through the testing period is known as "increasing yield" and increases sales/profits for IC manufacturers.

MANAGEMENT'S OPERATING GOALS

1) Increase market share in the ~\$940 million test handling market. COHU plans to leverage its leading "handler" market position, broad product portfolio, and thermal control technology to optimize test yield and increase its market share. 2) Expand total available market to ~\$2 billion with expansion into Wafer Level Package (WLP) probe and test contacting. 3) Continuously lowering product costs and expand COHU's gross margins by moving more of its manufacturing to Asia 4) Hit its 3-5 year financial targets of \$400 million in annual revenues, non-GAAP gross margins of 40%, and 17% adjusted EBITDA.

REVENUE/PROFIT GROWTH OPPORTUNITIES:

COHU's success is directly tied to the semi-conductor industry and the proliferating use of integrated circuits/chips in various consumer products such as cell phones, i-pads, computing products, automobiles/vehicles, consumer products, and the growing connectivity of individuals into the internet. This provides three potential sources of revenue growth for COHU:

GROWTH OF THE OVERALL SEMICONDUCTOR INDUSTRY. In 2014 this industry grew 9.9% to \$336 billion, according to the Semiconductor Industry Association (SIA). COHU could piggy-back its own revenue growth with the semiconductor market as this sector grows into the future.

COHU COULD EXPAND MARKET SHARE IN ITS CORE MARKETS. Increasing its share in growing segments (mobility/automotive/LED), from optimizing test yields of ICs through new technologies, such as COHU's active thermal control/vision inspection.



EXPAND TOTAL AVAILABLBE MARKET TO ~\$2 BILLION FROM INCREASED SALES INTO TEST CONTACTING & WLP PROBE MARKETS. COHU introduced its new business unit, ITS, in 2014 to help increase revenues in the ~\$650 million test contactor market. The company's test handlers include test contactors which until recently only focused on selling the test handler. COHU's new strategy is to focus on selling both the handlers and test contactors and believes this could increase its market share of the test contractor market.

Additionally, 20% of semiconductors remain as WLPs and are not subject to traditional IC assembly and final test. These WLPs are only visually inspected and cannot be tested by traditional "test-handlers" and automated test equipment. However, COHU is developing products to test WLPs, and solve this issue, which potentially opens up an additional revenue stream in a market estimated at approximately ~\$250 million in size.

TRADING INFLUENCES ON COHU'S STOCK:

COHU's stock is very volatile, mirroring movements of semiconductor stocks. By modern day views, COHU would be viewed as a momentum, or growth stock, subject to potentially wide fluctuations in its share price. There are two things which tend to dictate the direction of COHU's share price movement. First, is the directional movement of semiconductor stocks. This occurs since COHU gets its orders from the semiconductor industry and as the anticipation of profits in this sector rises and falls, so do investor expectations regarding stocks in this sector. Thus both bullish and bearish Wall Street expectations associated with this sector drives the direction of trading in these stocks, as well as COHU's.

Second, is the amount of revenues generated on a quarterly basis. Being a small company, investors judge COHU's growth prospects upon increasing revenues on a quarter-to-quarter basis. Growing quarterly revenues, or new orders from COHU's customers, could be seen as positive and cause increased buying in its stock. Conversely, the opposite is true should revenues decline or customers delay/halt orders. Thus, management's forward guidance regarding expectations often times influences the direction of COHU's stock price movement.

RECENT DEVELOPMENTS

COHU recently completed its acquisition of Kita Manufacturing Co. LTD, a Japanese based company for \$15 million. Kita had 2016 revenues of \$17 million and designs, manufactures, and sells spring probe contacts used in final test contactors, probe cards, PCB test boards, and connectors sold to worldwide customers.



EQUITY RESEARCH

Recent Earnings

COHU reported 3Q17 GAAP earnings of \$0.30/share vs. \$0.01 share during 3Q16. The improvement was due to increases in revenues and gross profit margins. Higher revenues resulted from continued strength in the automotive, mobility, and “Internet of Things” (IoT) markets. Revenues rose to \$93.7 million from \$69.3 million driven by higher recurring revenues, including test contactor sales. Gross margins increased to 40.9%, from 33.5%, resulting from strong contactor sales and recurring revenue growth. EBIT improved to \$10.4 million from \$906,000. When breaking down 3Q17 orders, 50% were recurring and 50% were system orders. 3Q17’s system orders were comprised of sensors (25%), digital/mixed signal (19%), discrete (17%), mixed signal RF (15%), small signal discrete (11%), LED (7%), and processors (6%).

Total operating expenses rose 21.6% to \$83.2 million from \$68.4 million. This occurred due to increases in cost of sales (\$56.7 million vs. \$46.0 million), research and development (\$9.6 million vs. \$8.7 million), and SGA expenses (\$16.9 million vs. \$13.7 million). The rise in cost of sales was prompted by increased orders while R&D rose from COHU’s continued product development needed for its customers’ changing technological needs. SG&A’s increase came from higher variable compensation related to outside sales commissions and travel expenses.

3Q17 non-GAAP earnings improved to \$0.43/share from \$0.16/share during 3Q16. Income from operations rose to \$8.8 million from \$100,000. The GAAP to non-GAAP earnings adjustments included approximately \$1.9 million of stock-based compensation, \$1.1 million of purchased intangible amortization expense, \$592,000 of cost related step-up in valuation from the Kita acquisition, and \$753,000 of other acquisition-related costs.

CONFERENCE CALL TAKEAWAYS

During the 3Q17 earnings conference call, COHU noted the 35% sales increase was due to strong recurring sales particularly in the computing market and increased product demand from test contactors in spring probes as COHU captured synergies and cross-selling opportunities from the recent Kita acquisition. Test contactors orders rose 12% when comparing 3Q17 and 3Q16. COHU also benefited from 13 design wins and additional penetration across its handler customer base mainly complimenting its pick-and-place product offerings.

Sensor system orders maintained momentum mainly due to strong demand for gravity handlers orders combined with MEMS stimulus modules for test and devices in the automotive sector. The use of MEMS is continuing to proliferate in mobile devices, industry equipment, consumer products, and vehicles emphasizing new automated driver system capabilities-potentially increasing future demand for COHU’s products.

COHU stated one of its leading Korean IDM customers placed a repeat order for the new “Eclipse” configuration supporting interface to factory automation and expects higher demand for “Eclipse” products during 4Q17 and increased volume production requirements in 2018. Management believes the global handler market will grow 10%-15% this year COHU’s sales in this could increase 25% to \$352 million when compared to last year.



Given the current macroeconomic environment in the semi-capital equipment industry, COHU expects further growth in 2018 and expects order momentum for its products to continue into 4Q17 and could produce quarterly sales exceeding the record amount produced during 2Q17 (\$93.8 million).

Our Thoughts

A good 3Q17 earnings report for COHU as product orders continue to increase because of the ongoing positive fundamentals in the semi-capital equipment sector due to automation, IoT, and increased use of integrated circuits in the automobile industry. COHU reported 3Q17 GAAP earnings of \$0.30/share vs. \$0.01 share during 3Q16. The improvement was due to increases in revenues and gross profit margins. Higher revenues resulted from continued strength in the automotive, mobility, and “IoT” markets. Revenues rose to \$93.7 million from \$69.3 million driven by higher recurring revenues including test contactor sales. Gross margins increased to 40.9%, from 33.5%, due to strong contactor sales and recurring revenue growth. 3Q17 non-GAAP earnings improved to \$0.43/share from \$0.16/share during 3Q16.

4Q17 results could also show improvement as the positive fundamentals existing in its customer’s industry sectors continue moving into 2018. COHU provided 4Q17 guidance of \$84 million in revenues (due to seasonally slowing of customer orders) and 2017 revenues of approximately ~\$352 million (+16% vs. 2016). 4Q17’s gross profit margins should be about 41%-up approximately 100 basis points. Longer term management believes future gross profit margins could rise to 45% if COHU’s annual revenues rise towards \$500 million.

While we like the improving operating fundamentals of COHU we continue to rate the stock a HOLD based on our belief the tech sector has become overvalued after seeing a huge influx of investor dollars flowing into high tech stocks during the past two years. Investors might revisit the possibility of owning COHU stock in the future at lower price levels.



Risks

There are no guarantees COHU will be able to grow future earnings. Declining customer orders, increasing commodity prices, and rising operating costs could negatively affect the company's profits. Economic slowdowns, downturns in the semiconductor industry, and political change in Europe and Asia could have adverse effects on earnings. Currency fluctuations could influence earnings. New products from competitors, or changing industry trends/technology, are risks for COHU's ability to sell its products. Negative equity markets, rising interest rates, terrorist attacks, and failure to comply with the Sarbanes Oxley Act could cause a decline in COHU's share price. Given the relatively small amount of daily trading activity in COHU's stock, any increase in trading volume could significantly accelerate the volatility of its share price movement.

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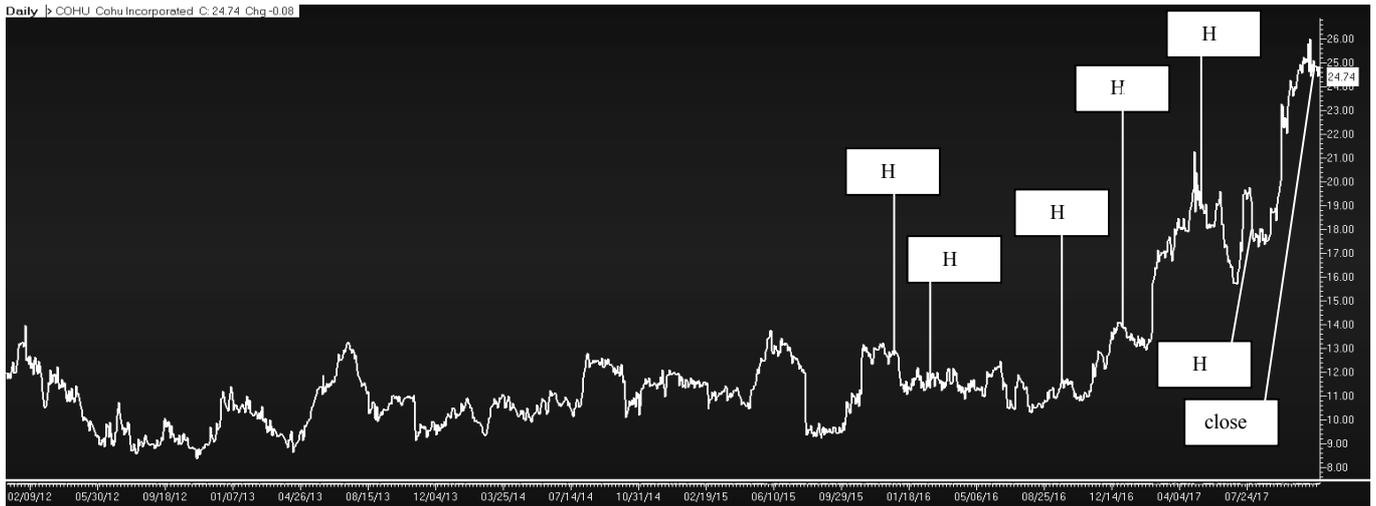


EQUITY RESEARCH

COHU, Inc.
(dollars in figures, except for per share figures)

	1Q16	2Q16	3Q16	4Q16	FY16	1Q17	2Q17	3Q17	4Q17e	2017e
Revenues	\$65,778	\$76,353	\$69,259	\$70,694	\$282,084	\$81,097	\$93,866	\$93,651	\$84,185	\$352,799
Cost of Sales	46,337	49,669	46,083	45,167	187,256	48,841	56,736	56,742	50,511	212,830
Research & Development	7,803	8,305	8,634	10,143	34,481	9,776	9,466	9,609	9,688	38,539
Selling, general, & Administrative	13,370	15,015	13,591	12,232	54,332	14,460	16,020	16,882	16,915	64,277
Impairment of goodwill/assets										
Gain on sale of facility										
Total costs/expenses	\$67,510	72,989	68,263	67,642	276,419	73,077	82,222	83,233	77,114	315,646
Gain/(loss) from Operations	-1,732	3,364	996	3,052	5,665	8,020	11,644	10,418	7,071	37,153
Interest & other, net	43	59	71	169	342	101	142	174	161	578
Gain/(loss) from Cont. operations pre-tax	-1,689	3,423	1,067	3,221	6,007	8,121	11,786	10,592	7,232	37,731
Income tax/benefit	222	761	849	915	2,747	1,358	1,078	1,837	1,087	5,360
Gain/(loss) from Cont. operations	-1,911	2,662	218	2,306	3,260	6,763	10,708	8,755	6,145	32,371
Discontinued operations										
Income from dis. Ops pre-tax		-55	51	-217	-221		-278			-278
Income tax										
Income(loss) from discontinued ops		-55	51	-217	-221		-278			-278
Net Gain/(loss)	-1,911	2,607	269	2,089	3,039	6,763	10,430	8,755	6,145	32,093
Income from Discontinued Ops.		\$0.00	\$0.00	\$0.00	(\$0.01)	\$0.00	(\$0.01)	\$0.00	\$0.00	(\$0.01)
Diluted earnings per share (GAAP)	(\$0.07)	\$0.10	\$0.01	\$0.08	\$0.12	\$0.24	\$0.37	\$0.30	\$0.21	\$1.12
Non-GAAP earnings per share	\$0.06	\$0.22	\$0.14	\$0.24	\$0.68	\$0.35	\$0.48	\$0.43	\$0.32	\$1.58

Important Disclosures



Ratings-
 BUY: B
 HOLD: H
 SELL: S

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