

Zacks Small-Cap Research

Sponsored – Impartial - Comprehensive

Lisa Thompson
312-265-9154
lthompson@zacks.com

scr.zacks.com

10 S. Riverside Plaza, Chicago, IL 60606

IDEX Biometrics ASA (NASDAQ: IDBA)

IDBA: Making Progress Gradually, Then All at Once

We are valuing IDEX on 2025 revenues discounted to today using the average EV/Sales of other fabless semiconductor companies that trade at 13.0 times 2021 estimated sales.

Current Price (11/05/21) \$28.00
Valuation \$75.00

OUTLOOK

IDEX Biometrics is a Norwegian-headquartered fabless semiconductor company largely operating from the US with a US based senior management team that provides hardware and software systems to create biometric fingerprint protected payment cards and other smart card solutions. Next generation payment cards are being piloted and should start to ship in volume at the end of this year. The networks that process 45% of cards worldwide have already certified its technology. Its solution results in a payment card cost that is 30-50% less expensive than cards built with the competition through leading-edge design and is protected by IP. Without legacy product to cannibalize, IDEX provides a pure play in fingerprint based biometric solutions.

SUMMARY DATA

52-Week High \$28.20
52-Week Low \$16.14
One-Year Return (%) 68.9
Beta 2.0
Average Daily Volume (sh) 871

ADS Outstanding (mil) 12.3
Market Capitalization (\$mil) \$344
Short Interest Ratio (days) 0
Institutional Ownership (%) 4.9
Insider Ownership (%) 21.6

Annual Cash Dividend \$0.00
Dividend Yield (%) 0.00

5-Yr. Historical Growth Rates
Sales (%) N/A
Earnings Per Share (%) N/A
Dividend (%) N/A

P/E using TTM EPS N/M
P/E using 2021 N/M
P/E using 2022 N/M

Risk Level Above Average
Type of Stock Small-Growth
Industry Elec. Comp-Semi

ZACKS ESTIMATES

Revenue

(in millions of \$)

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2019	0.2 A	0.0 A	0.1 A	0.1 A	0.4 A
2020	0.1 A	0.1 A	0.2 A	0.6 A	1.1 A
2021	0.6 A	0.7 A	0.7 A	0.8 E	2.9 E
2022					20.0 E

Earnings Per ADS

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2019	-\$1.04 A	-\$0.95 A	-\$0.94 A	-\$1.16 A	-\$4.06 A
2020	-\$0.66 A	-\$0.65 A	-\$0.65 A	-\$0.63 A	-\$2.62 A
2021	-\$0.65 A	-\$0.61 A	-\$0.62 A	-\$0.63 E	-\$2.50 E
2022					-\$1.84 E

WHAT'S NEW

IDEX Biometrics has worked through 2021 with little to show for revenues other than mostly sales to Bloomberg, but just recently a flurry of news has landed. Today the company announced that China UnionPay certified its partner Hengbao's latest biometric smart card. China UnionPay is the largest payment network in the world, with 9.4 billion cards in circulation. Last week both VISA and Mastercard fully certified IDEMIA Group's F.CODE™ biometric smart card platform, that uses IDEX's TrustedBio® fingerprint authentication solution. IDEMIA is one of the top two largest card makers in the world and after this certification, it placed a mass production order with IDEX for its TrustedBio fingerprint sensor. IDEMIA uses IDEX in its F.CODE payment card. This was the largest production order for TrustedBio to date and represents a material increase to backlog. Deliveries against this new order are scheduled to begin shipping in Q1 2022. These certifications are what many bank customers have been waiting for, and now they will start to announce pilots and rollouts of fingerprint cards.



According to the Nilson Report, VISA currently has approximately 3.6 billion cards in circulation and is expected to grow that by 18% by 2026, while Mastercard has about 2.5 billion cards in current circulation, with growth of 29% expected over the same time period.

There are five billion smart cards issued per year worldwide, of which three billion are payment cards and 1.9 billion of them are contactless. The market for contactless cards is growing 8% per year. It is expected that 18% of the market will be using biometric cards by 2025 or 500 million cards. IDEX is one of only two fingerprint solution providers for this market and it believes it has the superior solution due to among other things, its cost and ability to do transactions in half a second. In the future, when Asian manufacturers may enter the market, IDEX believes it will be protected, as Western banks would not be inclined to trust their cards to those low cost providers.

Source: IDEX Biometrics

The outlook in China is also gaining steam and IDEX expects rollouts late in 2022. IDEX is the sole supplier for the sensors to be used in the e-CNY wallet tests at the Olympics in February 2022, but given that it is November and we are not sure any orders have been placed, the trial is looking to be less than robust. During the third quarter, IDEX announced a design win with Union Smart Card for a cold wallet card in collaboration with the six state-owned banks. This product, with a screen and a keyboard, is an alternative to mobile wallets on smartphones. A physical card is a must with digital currency as evidenced by the recent Coinbase hacks. The fingerprint card, which is never connected to the Internet, can give an extra layer of security to any transaction that originates from a phone. For an example of a Phaeton Technology using IDEX in its card for cryptocurrency security see this link <https://youtu.be/qEtfr3W14nM>. China is also testing adding more applications using these digital wallets including paying for transit and health records.

Union Pay Smart Wallet



Beijing Yikatong Transit Card



Source: IDEX Biometrics

Source: Shutterstock

Zwipe has also announced a number of customers all of whom will result in orders for IDEX. Redeye is predicting Zwipe will generate US\$7.6 million in 2022 ramping to \$54 million in 2023. We believe that at least 25% of Zwipe's cost of goods sold will go to IDEX, so on \$54 million, at Redeye's 28% gross margin estimate that would be between \$10 and \$15 million in sales to IDEX. It recently announced it was under evaluation by a Global Tier 1 Smartcard Manufacturer; it received two commercial orders from Beautiful Cards Corporation and Inkript, and it has also announced pilots with MEPS, Reltime, Credit Lebanaise, and a Global Tier-1 Bank.

Progress has accelerated recently and production ramp forecasts are now supported by orders coming in. Investors must also be aware that given its cash burn the company will need to do a capital raise soon. We expect that to happen before year-end. Clearly management was waiting for the Mastercard and VISA certification and the IDEMIA order before launching its efforts. The company is still burning about \$5.5-6.5 million a quarter and had \$12.9 million in cash on September 30, 2021.

Q3 Earnings Results

In Q3 of 2021 the company generated \$732,000 in revenues sequentially up again from \$697,000 in Q2 and compared to \$248,000 in Q3 2020. Product sales were \$731,000 in Q3 2021 compared to \$246,000 in 2020, again reflecting primarily production shipments to Bloomberg as well as an increasing ramp of sample and pilot shipments to card manufacturers. The majority of sales were still to Bloomberg for its new keyboards against its \$6 million minimum contract.

Q3 sales yielded a gross margin of 59.0% versus 81.9% due to product mix. Operating expenses increased to \$7.9 million in Q3 2021 versus \$7.0 million in Q3 2020. Payroll costs increased \$769,000 while other expense increased \$359,000. R&D spending was again down from last year, this time by \$271,000. The company believes expenses will start to decline as a percentage of sales and possibly only increase slightly as far as marketing costs, but the big R&D spending is behind them. This year the company received government grants of \$134,000 versus only \$12,000 last year. Other income increased primarily due to the costs associated with being listed on NASDAQ.

The operating loss and net loss for the quarter were \$7.5 million compared to a loss of \$6.8 million last year. The non-GAAP loss was \$6.9 million versus \$5.1 million, an increase of \$1.8 million. The non-GAAP loss takes out stock-based compensation.

GAAP loss per share was \$0.008 versus \$0.009, and non-GAAP was a loss of \$0.007 versus a loss of \$0.006. The share count increased 14.5% to 902 million average primary shares and 923 million fully diluted.

GAAP loss per ADS was \$0.62 versus a loss of \$0.65 last year. The non-GAAP loss per ADS was \$0.56 versus a loss of \$0.46. EBITDA loss in this quarter was \$6.5 million compared to \$5.3 million in Q3 2020. Cash flow (not including changes in working capital) was a negative \$6.5 million compared to a negative \$5.3 million. Free cash flow was a negative \$6.3 million compared to a negative \$5.4 million.

Balance Sheet

At the end of September IDEX had \$12.9 million in cash, \$13.7 million in working capital and no debt. It is still burning about \$5.5-6.5 million a quarter.

As of November 2nd, the company had **919.5 primary** shares outstanding or 12.3 million ADSs.

KEY POINTS

- IDEX Biometrics was founded in Norway in 1997 and has since 2014 largely become a US centric product company with extensive expertise in fingerprint biometrics and semiconductor and systems design. It is a fabless semiconductor company that targets primarily the payment card industry and is just starting to ship production volumes of its next generation sensors and solutions to major card providers.
- Next generation payment cards will have fingerprint authentication embedded sensors and chips. Importantly this generational switch will not require new POS equipment as with chip and PIN and the transition should occur much faster. This technology is expected to reduce fraud and increase usage easily providing payback for banks even with the incremental cost. IDEX's unique patent-protected "*off-chip*" design allows cards to be manufactured at less than half the price of competitors by separating the fingerprint sensor from its controller chip thus allowing the use of a smaller, newer, and more powerful chips.
- Despite the existence of smartphone-based payment systems, market researcher Nilson still believes the market for payment cards will increase 7.3% per year. There are 23.6 billion payment cards in use globally. Biometric payment card units are expected to grow to 500 million by 2025. IDEX could receive \$3 per card of the market share it captures.
- IDEX has already had its design certified the three major card networks, VISA, Mastercard and China UnionPay. It is already providing cards in small quantities to card issuers to sample and conduct pilots at banks in various countries, with rollouts expected by year-end.
- In 2021 we expect the company will be providing product to many of the major card providers who in turn will sell to their customers worldwide. In addition, it will be selling production volumes to customers in the secure access control business and other applications such as IOT. A new opportunity that is just starting to ship samples is for wallets for the Chinese digital currency with rollout predicted for 2022.
- As a fabless semiconductor company with high operating leverage, it is expected to be at very high pretax margins once it ramps revenues and it deserves an enterprise value to sales valuation in line with its peers that trade at 13.0 times 2021 revenues. It currently trades at \$344 million market cap and a \$324 enterprise value. We believe that by 2025 it has the potential of \$500 million in sales at which point it could be valued as a \$6.5 billion company.

OVERVIEW

IDEX Biometrics was founded in 1997 and is headquartered in Norway. The company has 109 employees and currently operates from offices in Wilmington, MA and Rochester, NY, Farnborough, UK, Shanghai China, and Norway. It files financials in Norway and is listed on the Oslo Bors and NASDAQ.

It sells its system solutions which include fingerprint sensors, chips, and the software to make them function, to companies that incorporate fingerprint identification technology into their products. IDEX is targeting primarily the payments card market including contactless debit and credit cards. The company also supplies its products for access control and IoT. It has developed a unique design that fits the specific parameters required for cards including energy harvesting and low power operation at industry leading costs. Its only competitor is Fingerprint Cards AB (FPC) of Sweden, who has participated in more pilots with partners but is offering an older, more expensive, larger, and kludgy solution. IDEX believes

customers will see its cost, design, and performance advantages and it will capture large market share in this nascent industry.

VALUATION

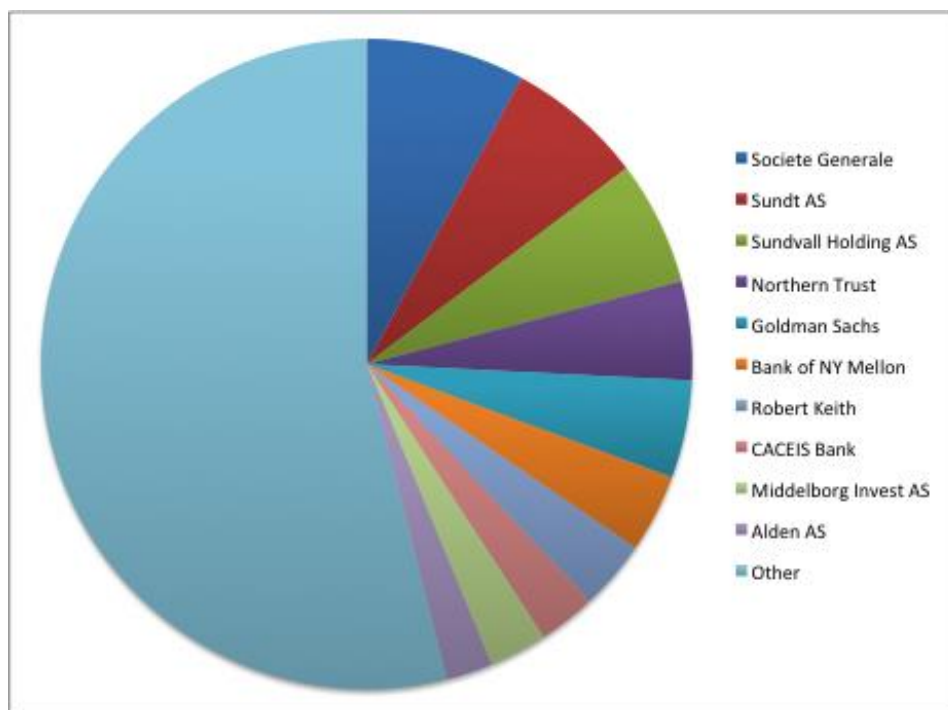
IDEX is now at a run rate of \$2.9 million in revenue and entering the production ramp of its life cycle. To value the company we need to look to future years and discount valuations back to today to calculate a current price for IDEX. From the comp chart below we see that the average fabless semiconductor company trades as an average of 13.0 times enterprise value to 2021 estimated sales. If the market is 500 million cards by 2025, and the company can take 50% of the market (since there are only two players) and gets paid \$3 per card, by 2025 IDEX could easily reach \$500 million in sales or higher. That would result in an enterprise value of \$6.5 billion. The company now has 920 primary shares outstanding and fully diluted share count of approximately **930 million fully diluted shares**. We are adding 20 million shares to reach 950 million by 2025. Divided by 950 gives us a stock price of \$6.84 share. Discounting that by 30% per year to current value gives an EV of \$2.28 billion and a stock price of \$2.40 per share. To be conservative we are starting with a valuation of \$1.00 per share and will increase that as we see it ramp revenues and land design wins on its path to our earnings expectations. Translating that \$1.00 price per share to ADS is \$75.00 per ADS.

		Cal. Revenue				EBIDTA		Enterprise Value / Sales			EV/EBITDA	Included	
Company	Ticker	2022E	2021E	LTM	EBITDA	Margin	2022E	2021E	LTM			in Average?	Ent. Value
AMD	AMD	\$19,120	\$16,120	\$14,850	3,420	23%	8.5x	10.0x	10.9x	47.3x		y	161,650
Broadcom	AVGO	NA	\$28,000	\$26,510	13,930	53%	NA	9.3x	9.8x	18.6x		y	259,440
Cirrus Logic	CRUS	NA	\$1,548	\$1,520	320	21%	NA	2.7x	2.8x	13.3x		y	4,250
Lightwave Logic	LWLG	NA	NA	\$0	(9)	NM	NM	NM	NM	-141.8x		n	1,347
Marvell	MRVL	\$5,200	\$4,270	\$3,460	798	23%	12.2x	14.9x	18.4x	79.6x		y	63,520
Monolithic Power Sys	MPWR	\$1,430	\$1,190	\$1,100	260	24%	17.1x	20.6x	22.3x	94.3x		y	24,510
NVIDIA	NVDA	\$29,090	\$25,770	\$21,900	8,490	39%	25.3x	28.6x	33.7x	86.8x		y	736,940
Qualcomm	QCOM	NA	\$35,600	\$33,570	11,370	34%	NA	5.2x	5.5x	16.4x		y	185,920
Xilinx	XLNX	NA	\$3,623	\$3,470	1,030.0	30%	NA	13.0x	13.6x	45.9x		y	47,280
Average							15.8x	13.0x	14.6x	20.0x			114,220

RISKS

- The use of biometric payment and security cards is still in the testing and pilot stage. There is no assurance customers will ultimately choose to use this technology or that it will work as expected.
- IDEX is just starting to move to produce larger volumes of product. There is no assurance they will be able to successfully manufacture product in the volumes needed at the cost expected.
- Production ramps and customer acceptance and rollouts may take longer than expected and forecasts may not be achieved in the time frame we predict.
- The company is still losing money and is cash flow negative. We expect it will need further funding before reaching cash flow break even, diluting current shareholders.

OWNERSHIP



INCOME STATEMENT

US\$ in Thousands

	Q1 20	Q2 20	Q3 20	Q4 20	Q1 21	Q2 21	Q3 21	Q4 21E	2019	2020	2021E	2022E
Product sales	53	121	246	593	623	696	731	820	159	1,013	2,870	
Other operating income	47	28	2	5	1	1	1	1	265	82	4	
Total Revenue	\$ 100	\$ 149	\$ 248	\$ 598	\$ 624	\$ 697	\$ 732	\$ 821	\$ 424	\$ 1,095	\$ 2,874	\$ 20,000
Yr-to-yr growth	-37.5%	246.5%	66.4%	730.6%	524.0%	367.8%	195.2%	37.3%		158.3%	162.5%	595.9%
Cost of revenue	19	32	45	178	220	304	300	361	62	275	1,185	9,800
Gross margin	81	117	203	420	404	393	432	460	362	820	1,689	10,200
Gross margin %	81.0%	78.5%	81.9%	70.2%	64.7%	56.4%	59.0%	56.0%	85.4%	74.9%	58.8%	51.0%
Operating expenses												
Payroll expenses	4,677	3,515	4,275	5,206	5,101	4,682	5,044	5,100	21,749	17,672	19,927	22,100
Development expenses	40	1,069	930	(144)	608	881	659	798	4,385	1,895	2,946	3,500
Other operating expenses	1,191	1,218	1,370	2,157	1,713	1,763	1,729	1,800	4,641	5,936	7,005	7,285
Amortization and depreciation	429	422	430	439	454	460	460	440	1,633	1,719	1,756	1,756
Operating expenses	6,337	6,224	7,005	7,658	7,876	7,786	7,892	8,138	32,408	27,222	31,634	34,641
Operating income	(6,256)	(6,107)	(6,802)	(7,238)	(7,472)	(7,393)	(7,460)	(7,678)	(32,046)	(26,402)	(29,945)	(24,441)
Net financial items	(164)	(330)	7	0	(56)	156	(9)	0	(216)	(451)	91	0
Pretax loss from operations	(6,420)	(6,437)	(6,795)	(7,238)	(7,528)	(7,236)	(7,469)	(7,678)	(32,262)	(26,853)	(29,854)	(24,441)
Income taxes	(101)	(41)	(3)	45	0	0	0	25	160	99	25	100
Net loss	(6,319)	(6,396)	(6,792)	(7,283)	(7,528)	(7,236)	(7,469)	(7,703)	(32,422)	(26,754)	(29,879)	(24,541)
Non-GAAP net loss	(5,806)	(5,992)	(5,128)	(6,508)	(6,522)	(6,678)	(6,935)	(6,903)	(29,891)	(22,899)	(29,879)	(24,541)
Exchange differences on foreign operations	717	(305)	(622)	879	(91)	(60)	274	0	(662)	670	123	0
Total comprehensive income	(5,602)	(6,701)	(7,414)	(6,404)	(7,619)	(7,296)	(7,195)	(7,703)	(33,084)	(26,084)	(29,756)	(24,541)
Basic net loss per share	\$ (0.009)	\$ (0.009)	\$ (0.009)	\$ (0.008)	\$ (0.009)	\$ (0.008)	\$ (0.008)	\$ (0.008)	\$ (0.054)	\$ (0.035)	\$ (0.033)	\$ (0.025)
Yr-to-yr growth	-36.4%	-31.7%	-31.5%	-45.6%	-1.7%	-6.0%	-4.0%	-0.2%		-35.6%	-4.5%	-26.3%
Non-GAAP loss per share	\$ (0.008)	\$ (0.008)	\$ (0.006)	\$ (0.007)	\$ (0.007)	\$ (0.007)	\$ (0.008)	\$ (0.007)	\$ (0.050)	\$ (0.030)	\$ (0.033)	\$ (0.024)
Basic shares outstanding in mil	718.0	742.6	787.9	867.6	870.5	894.0	902.3	919.5	598.4	767.1	896.6	999.5
Yr-to-yr growth	25.9%	24.2%	31.8%	41.4%	21.2%	20.4%	14.5%	6.0%		28.2%	16.9%	11.5%
Diluted shares	719.1	743.7	789.0	873.1	898.5	915.3	922.8	930.0	600.2	773.4	916.6	1,032.9
Yr-to-yr growth	26.1%	24.4%	31.9%	44.2%	24.9%	23.1%	17.0%	6.5%		28.9%	18.5%	12.7%
Basic net loss per ADS	\$ (0.66)	\$ (0.65)	\$ (0.65)	\$ (0.63)	\$ (0.65)	\$ (0.61)	\$ (0.62)	\$ (0.63)	\$ (4.06)	\$ (2.62)	\$ (2.50)	\$ (1.84)
Non-GAAP loss per ADS	\$ (0.56)	\$ (0.56)	\$ (0.46)	\$ (0.56)	\$ (0.54)	\$ (0.55)	\$ (0.56)	\$ (0.56)	\$ (3.74)	\$ (2.22)	\$ (2.44)	\$ (1.78)
Basic ADS outstanding in millions	9.6	9.9	10.5	11.6	11.6	11.9	12.0	12.3	8.0	10.2	12.0	13.3
Diluted ADS	10.3	10.6	11.2	11.6	12.0	12.2	12.3	12.4	8.0	10.3	12.2	13.8
EBITDA	(5,314)	(5,281)	(5,308)	(6,024)	(6,212)	(6,375)	(6,466)	(6,638)	(27,937)	(21,927)	(25,691)	(19,441)

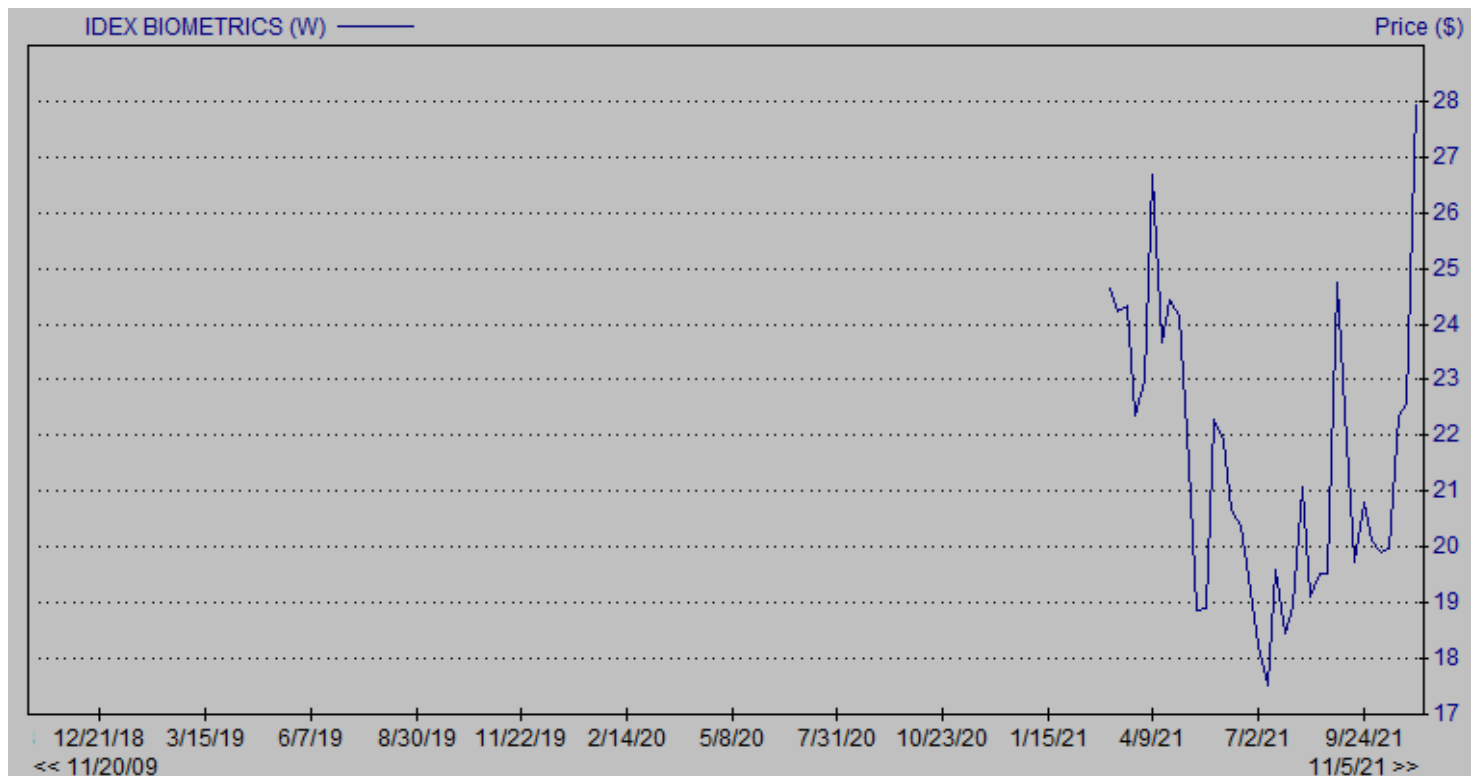
BALANCE SHEET

Thousands US \$	Sept 30, 2021	June 30, 2021	Qtr-Qtr % Growth	Sept 30, 2020	Yr-Yr % Growth
Current					
Cash and cash equivalents	\$ 12,938	\$ 19,255	-33%	\$ 5,704	127%
Inventory	1,094	998	10%	834	31%
Trade receivables	758	724	5%	223	240%
Prepaid expenses	909	869	5%	655	39%
Other current receivables	588	1,103	-47%	686	-14%
Current Assets	16,287	22,949	-29%	8,102	101%
Goodwill	968	968	0%	871	11%
Other intangible assets	2,064	2,204	-6%	2,123	-3%
Property, plant and equipment	1,413	1,524	-7%	1,661	-15%
Right of use asset	381	604	-37%	1,017	-63%
Long-term receivable	103	79	30%	72	43%
Total Assets	21,216	28,328	-25%	13,846	53%
Liabilities					
Accounts payable	389	995	-61%	539	-28%
Income tax payable	0	0	0%	97	-100%
Current lease liabilities	350	486	-28%	661	-47%
Public duties payable	364	310	17%	209	74%
Notional employer's tax on sub. Rights	0	0	0%	54	-100%
Other current liabilities	1,459	1,365	7%	1,813	-20%
Current Liabilities	2,562	3,156	-19%	3,373	-24%
Non-current lease liability	55	150	-63%	392	-86%
Total liabilities	2,617	3,306	-21%	3,765	-30%
Shareholders' Equity					
Share capital	18,809	18,787	0%	16,505	14%
Share premium	28,368	28,132	1%	206,624	-86%
Other paid-in capital	20,562	20,028	3%	17,844	15%
Total paid-in capital	67,739	66,947	1%	240,973	-72%
Foreign currency translation effects	(12,199)	(12,473)	-2%	(13,201)	-8%
Retained earnings	(36,921)	(29,452)	25%	(217,690)	-83%
Total shareholder's equity	18,619	25,022	-26%	10,082	85%
Tot Liabilities and Share. Equity	21,236	28,328	-25%	13,847	53%
Cash	\$ 12,938	\$ 19,255	-33%	\$ 5,704	127%
Current ratio	6.4	7.3	-13%	2.4	165%
Quick ratio	5.9	7.0	-15%	2.2	175%
Working capital	13,725	19,793	-31%	4,729	190%
Debt	0	0	0%	0	0%
Debt/total assets	0.0%	0.0%	0%	0.0%	0%

CASH FLOWS

	YR 2019	Mar. 31, 2020 3 month	June 30, 2020 3 month	Sept 30, 2020 3 month	Dec. 31, 2020 3 month	YR 2020	Mar. 31, 2021 3 month	June 30, 2021 3 month	Sept 30, 2021 3 month
Cash flows from operating activities:									
Net loss	\$ (32,263)	\$ (6,420)	\$ (6,436)	\$ (6,795)	\$ (7,202)	\$ (26,853)	\$ (7,529)	\$ (7,236)	\$ (7,469)
Adjustments to reconcile net loss to net cash used in operating activities:									
Amortization and depreciation	1,633	429	422	430	439	1,719	454	460	460
Stock-based compensation	2,531	513	404	1,064	775	2,755	806	558	534
Changes in working capital:									
Inventories	470	(16)	(42)	(140)	59	(139)	(52)	(87)	(95)
Accounts receivables	8	(59)	(63)	(72)	(220)	(414)	(50)	(186)	(35)
Accounts payable	(124)	217	329	(447)	41	141	(39)	402	(368)
Change in other working capital	895	12	(695)	(69)	133	(618)	(247)	(653)	611
Other operating activities	43	197	325	(51)	109	579	(218)	59	67
Interest expense	(135)	(20)	-	(2)	(5)	(27)	(5)	(2)	-
Income taxes	(226)	(16)	43	-	(464)	(437)	-	-	-
Net cash flows from operating activities	(27,168)	(5,163)	(5,713)	(6,082)	(6,335)	(23,294)	(6,880)	(6,685)	(6,295)
Cash flows from investing activities:									
Purchases of property, plant & equipment	(850)	(522)	(18)	(51)	(242)	(333)	(70)	(39)	(20)
Proceeds from sale of assets	-	-	-	-	-	-	-	-	-
Payments on non-current receivables	(6)	-	19	56	1	75	(4)	-	(25)
Interest received	135	19	-	1	5	26	4	3	-
Net cash flows from investing activities	(721)	(503)	1	6	(236)	(232)	(70)	(36)	(45)
Cash flows from financing activities:									
Proceeds from issue of shares	34,164	(1)	10,251	-	8,035	18,731	25,755	295	257
Payments on lease liabilities	(675)	(192)	(200)	(199)	(202)	(793)	(215)	(216)	(221)
Payment related to financed asset purchase	(500)	-	-	-	-	(500)	-	-	-
Net cash provided by financing activities	32,989	(193)	10,051	(199)	7,833	17,438	25,540	79	36
Net increase (decrease) in cash	5,100	5,861	4,339	(6,275)	1,262	(6,088)	18,590	(6,642)	(6,304)
Effect of exchange rate changes on cash	(609)	(1,265)	62	577	332	(740)	4	5	(13)
Cash at beginning of period	9,635	14,126	7,001	11,402	5,704	14,126	7,298	25,892	19,255
Cash at end of period	14,126	18,722	11,402	5,704	7,298	7,298	25,892	19,255	12,938
Cash flow	(28,099)	(5,478)	(5,610)	(5,301)	(5,988)	(22,379)	(6,269)	(6,218)	(6,475)
Free cash flow	(28,949)	(6,000)	(5,628)	(5,352)	(6,230)	(22,712)	(6,339)	(6,257)	(6,495)

HISTORICAL STOCK PRICE



DISCLOSURES

The following disclosures relate to relationships between Zacks Small-Cap Research (Zacks SCR), a division of Zacks Investment Research (ZIR), and the issuers covered by the Zacks SCR Analysts in the Small-Cap Universe.

ANALYST DISCLOSURES

Zacks SCR Analysts hereby certify that the view expressed in this research report or blog article accurately reflect the personal views of the analyst about the subject securities and issuers. Zacks SCR also certifies that no part of any analysts' compensation was, is, or will be, directly or indirectly, related to the recommendations or views expressed in this research report or blog article. Zacks SCR believes the information used for the creation of this report or blog article has been obtained from sources considered reliable, but we can neither guarantee nor represent the completeness or accuracy of the information herewith. Such information and the opinions expressed are subject to change without notice. The Zacks SCR Twitter is covered herein by this disclosure.

INVESTMENT BANKING AND FEES FOR SERVICE

Zacks SCR does not provide investment banking services nor has it received compensation for investment banking services from the issuers of the securities covered in this report or article.

Zacks SCR has received compensation from the issuer directly, from an investment manager, or from an investor relations consulting firm engaged by the issuer for providing non-investment banking services to this issuer and expects to receive additional compensation for such non-investment banking services provided to this issuer.

The non-investment banking services provided to the issuer include the preparation of this report, investor relations services, investment software, financial database analysis, organization of non-deal road shows, and attendance fees for conferences sponsored or co-sponsored by Zacks SCR.

Each issuer has entered into an agreement with Zacks to provide continuous independent research for a period of no less than one year in consideration of quarterly payments totaling a maximum fee of \$40,000 annually.

POLICY DISCLOSURES

This report provides an objective valuation of the issuer today and expected valuations of the issuer at various future dates based on applying standard investment valuation methodologies to the revenue and EPS forecasts made by the SCR Analyst of the issuer's business.

SCR Analysts are restricted from holding or trading securities in the issuers that they cover. ZIR and Zacks SCR do not make a market in any security followed by SCR nor do they act as dealers in these securities. Each Zacks SCR Analyst has full discretion over the Valuation of the issuer included in this report based on his or her own due diligence. SCR Analysts are paid based on the number of companies they cover.

SCR Analyst compensation is not, was not, nor will be, directly or indirectly, related to the specific valuations or views expressed in any report or article.

ADDITIONAL INFORMATION

Additional information is available upon request. Zacks SCR reports and articles are based on data obtained from sources that it believes to be reliable, but are not guaranteed to be accurate nor do they purport to be complete. Because of individual financial or investment objectives and/or financial circumstances, this report or article should not be construed as advice designed to meet the particular investment needs of any investor. Investing involves risk. Any opinions expressed by Zacks SCR Analysts are subject to change without notice. Reports or articles or Tweets are not to be construed as an offer or solicitation of an offer to buy or sell the securities herein mentioned.

CANADIAN COVERAGE

This research report is a product of Zacks SCR and prepared by a research analyst who is employed by or is a consultant to Zacks SCR. The research analyst preparing the research report is resident outside of Canada, and is not an associated person of any Canadian registered adviser and/or dealer and, therefore, the analyst is not subject to supervision by a Canadian registered adviser and/or dealer, and is not required to satisfy the regulatory licensing requirements of any Canadian provincial securities regulators, the Investment Industry Regulatory Organization of Canada and is not required to otherwise comply with Canadian rules or regulations.