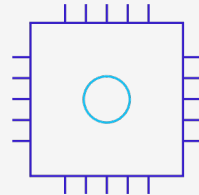# DEEP TECH UPDATE

STRATEGIC M&A ● VENTURE CAPITAL ● NEWS AND INSIGHTS

AI & COMPUTER VISION

SEMICONDUCTOR ECOSYSTEMS

IoT

4th QUARTER 2022

October 27, 2022

CONNECTED VISION FOUNDER'S BLOG

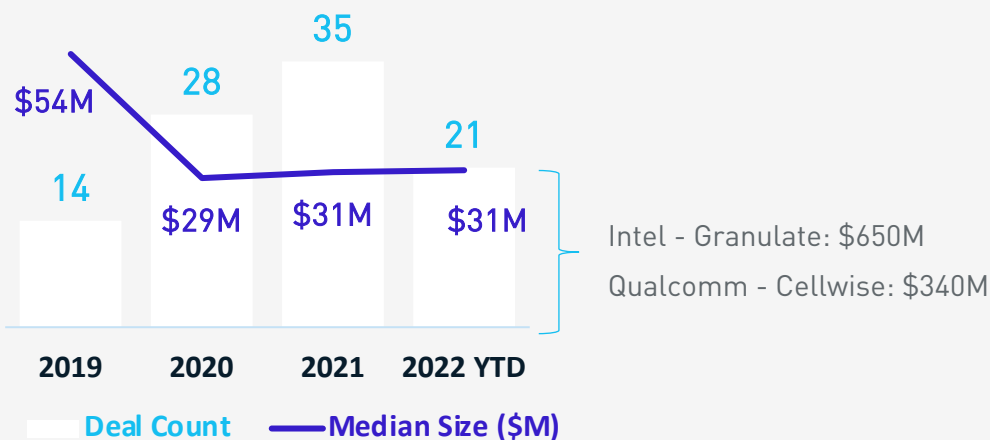**ARE CHIP COMPANIES STILL BUYING SOFTWARE COMPANIES? YES**

Semiconductor companies remain good buyers for software companies. At CVA, we spend a great deal of time talking with semiconductor executives, who may be buyers or strategic investors for our clients. Everyone on our team spent decades in the semiconductor and related industries before becoming bankers. We also have deep transaction experience, advising deals selling clients to buyers including Renesas, Qualcomm, Lattice Semiconductor; and the Arduino Series B with strategic investors including Renesas and ARM.

From a macro level, we see these trends:

- Transaction counts peaked in 2021 (as expected) but have remained above 2019 levels.

- Average transaction values have held constant from 2020 - 2022 in the $30M range[1]

➢ Overall, software acquisitions by semiconductor buyers have remained strong in 2022

SEMICONDUCTOR ACQUISITION OF SOFTWARE TARGETS
M&A DEAL TRENDS

$54M

35

28

$29M $31M $31M

21

14

Intel - Granulate: $650M

Qualcomm - Cellwise: $340M

| 2019 | 2020 | 2021 | 2022 YTD |

Deal Count ▬▬ **Median Size ($M)**

CONNECTED VISION ADVISORS

Edge AI

AI/ML modeling and inference engines that enable high performance AI software at the edge, on low footprint edge processors without a GPU. Based on PyTorch, TinyML, TensorFlow. We've also seen interest in a broader range of AI-based software such as Natural Language Processing (NLP).

Computer Vision

Computer vision technologies that strengthen camera and imaging differentiation in competitive markets like smart phones, security, automotive (attention-sensing, navigation and in-cabin monitoring), and automation. Technologies with facial recognition should be GDPR compliant, as privacy concerns accelerate.

Expert Teams

Expert software teams in high-demand disciplines like computer vision and AI modeling. Despite hiring slow-downs, engineers with expertise in AI/ML and automation remain in high demand. Many chip buyers are seeking to build centers of excellence outside of Silicon Valley in places like Montreal.

High Volume Markets

Acquisitions that enable high volume design-wins in markets like automotive, mobile and industrial. As the market becomes more uncertain, companies with more customer footprint and revenue will be more in demand.
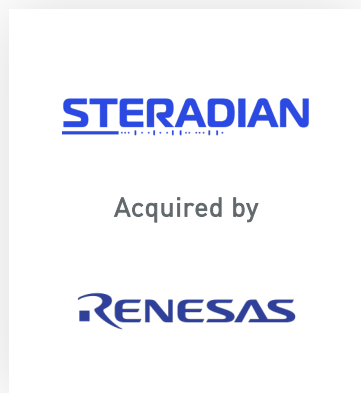
Developer Ecosystem

Large global ecosystems of developers that are generating applications, code base, thought leadership and loyalty. These ecosystems create more pull-through design-wins.

- BRENT LORENZ & PAUL WERP, CO-FOUNDERS, CONNECTED VISION ADVISORS

INTERESTING M&A TRANSACTIONS

AI, COMPUTER VISION, SEMICONDUCTOR ECOSYSTEMS, IoT

STERADIAN ACQUIRED BY RENESAS

DEAL METRICS: NR ● >>10X REVENUE MULTIPLE

Steradian Semiconductors is an India-based provider of 4D radar imaging semiconductors, which is targeted towards automotive navigation. The deal represents another significant transaction for Reneses since 2021, which has included investments in Arduino (Arduino Series B was advised by CVA professionals while affiliated with a previous firm), and Syntiant; and acquisitions of Dialog Semiconductor, Celeno and Reality AI.
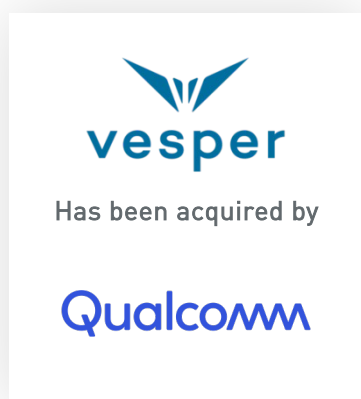
VESPER ACQUIRED BY QUALCOMM

DEAL METRICS: $160M

Vesper is a developer of piezoelectric microphone products designed to improve the reliability of voice in smartphones, smart speakers and similar devices. The company had recently completed an $18M Series B (post-money of $143M), closing in December 2021. Qualcomm continues its strong pace of M&A, acquiring 9 companies since 2021 including RoadDB, Cellwize, and Twentybn. (Twentybn advised by CVA professionals while affiliated with a previous firm).

SIERRA WIRELES TO BE ACQUIRED BY SEMTECH

DEAL METRICS: $1.2B ● 2X REVENUE MULTIPLE

Semtech sells analog and mixed signal semiconductors across broad markets, with revenue generated primarily in Asia. The acquisition will strengthen Semtech's IoT offerings. Semtech has been historically active in minority growth equity investments in companies like Dryad, Microshare and myDevices.

INTERESTING VC TRANSACTIONS

SERIES B AND ABOVE, >$20M

METALENZ $30M SERIES B

POST-MONEY: $136M

INVESTORS: Neotribe Ventures, 3M Ventures, Intel Capital, Baidu, Braemar, TDK and others

Metalenz is a developer of optics designed for high-volume applications including consumer electronics, mobile and automotive. It enables customers to provide high-resolution full-color imaging in a smaller & flatter form factor. The company's technology was built at Harvard University.

LITMUS $30M SERIES B

POST-MONEY: $140M

INVESTORS: Belden, undisclosed others. Previous investors include Mitsubishi

Litmus has developed an intelligent edge computing platform for IoT, primarily in the manufacturing sector. The platform facilitates connectivity to hundreds of OT assets and legacy systems. The Series B brings Litmus total funding to $43M. Belden continues a run of strong activity since 2021, which also included 4 smaller acquisitions totaling $160M.

ESPERANTO TECHNOLOGIES $20M SERIES C2
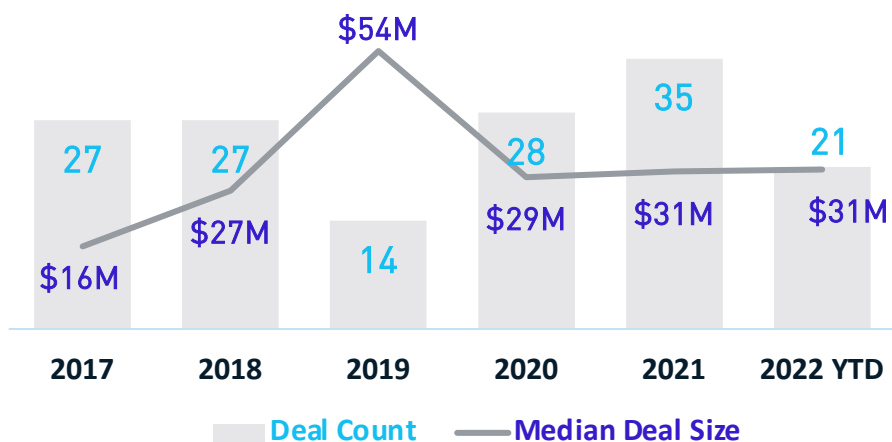
POST-MONEY: $220M

INVESTOR: The Clermont Group

Esperanto offers energy-efficient computing semiconductors for AI / ML, based on the emerging RISC-V instruction set. The company markets itself as having the highest performance RISC-V based commercial chip. CEO Art Swift has a prior track record of leading companies including Transmeta, MIPS and Wave Computing. Dave Ditzel, CTO was previously the founder and CEO of Transmeta.

SEMICONDUCTORS

STRATEGIC M&A

SEMICONDUCTOR BUYERS - SOFTWARE TARGETS ONLY

Deal Count: 27 (2017), 27 (2018), 14 (2019), 28 (2020), 35 (2021), 21 (2022 YTD)

Median Deal Size: $16M (2017), $27M (2018), $54M (2019), $29M (2020), $31M (2021), $31M (2022 YTD)
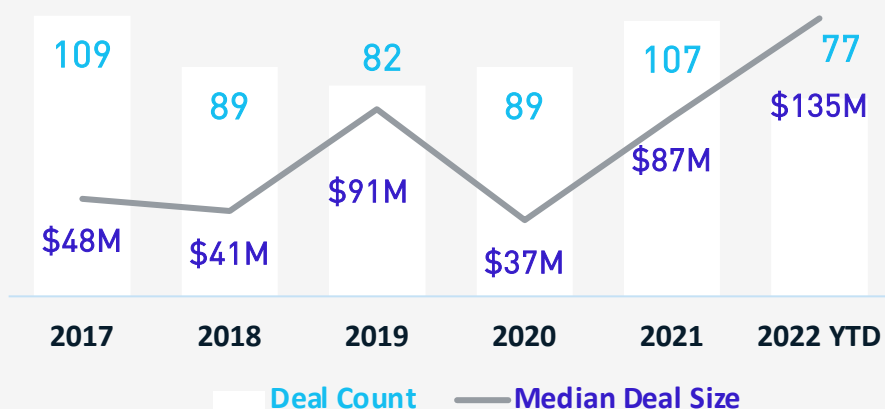
Deal Count — Median Deal Size

Large transactions: Broadcom acquisition of CA for $18.B (2018) and Symantec for $10.7B (2019). Both have been removed from average transaction values as outliers.

TOP BUYERS	# DEALS
intel	15
SYNOPSYS	14
Qualcomm	9
NVIDIA	7
BROADCOM	6
ST	4

Others: XILINX, ams, Analog Devices, Applied Materials, Infineon, Maxlinear, Silicon Labs, XPERI
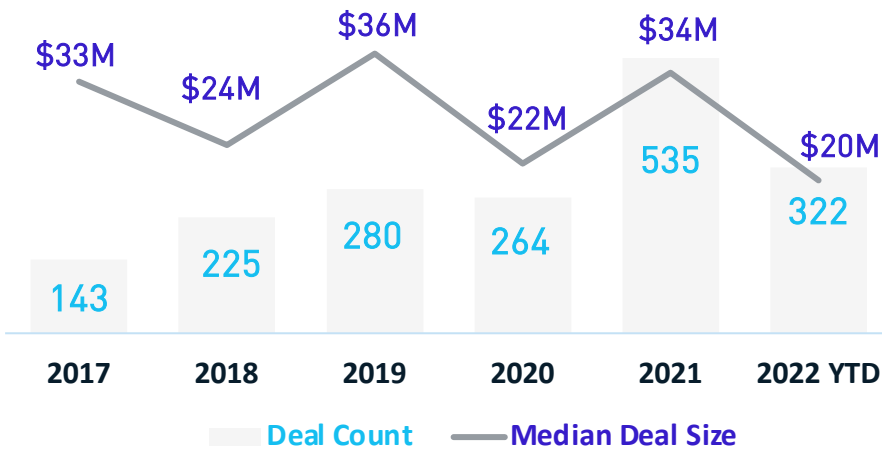
SEMICONDUCTOR BUYERS - ALL TARGET TYPES

Deal Count: 109 (2017), 89 (2018), 82 (2019), 89 (2020), 107 (2021), 77 (2022 YTD)

Median Deal Size: $48M (2017), $41M (2018), $91M (2019), $37M (2020), $87M (2021), $135M (2022 YTD)

Deal Count — Median Deal Size

TOP BUYERS	# DEALS
intel	24
SYNOPSYS	21
Qualcomm	12
BROADCOM	10
NVIDIA	10
ST	9

Others: Analog Devices (8), Infineon (7), Maxlinear (7) Qorvo (7), Marvell (6), ams (5), Microchip (5), Renesas (5), Xilinx (5), AMD (3), NXP (3)

AI, ML and COMPUTER VISION SOFTWARE
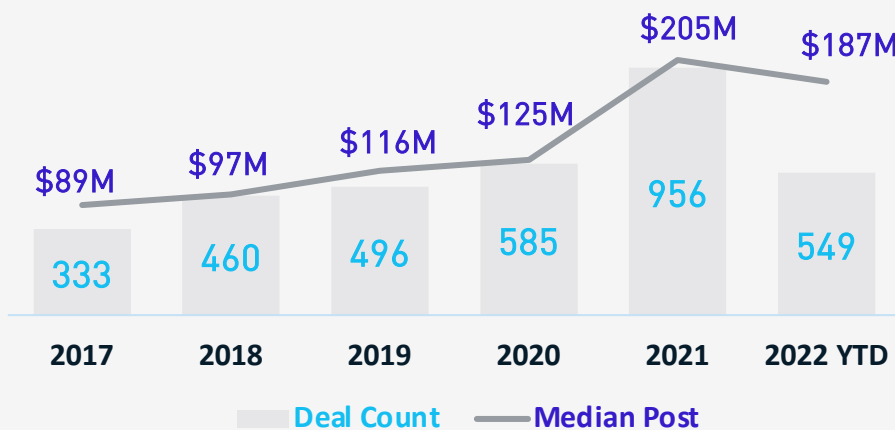
M&A AND VC RAISES (SERIES B+)

STRATEGIC M&A

	2017	2018	2019	2020	2021	2022 YTD
Deal Count	143	225	280	264	535	322
Median Deal Size	$33M	$24M	$36M	$22M	$34M	$20M

TOP BUYERS	# DEALS
Apple	20
Microsoft	12
CISCO	10
accenture	9
DataRobot	9
Meta	8

VENTURE CAPITAL (SERIES B+)

	2017	2018	2019	2020	2021	2022 YTD
Deal Count	333	460	496	585	956	549
Median Post	$89M	$97M	$116M	$125M	$205M	$187M

TOP INVESTORS	# Deals
SEQUOIA	128
TIGERGLOBAL	106
INSIGHT PARTNERS	96
Salesforce Ventures	75
Accel	67
SoftBank	53

IoT

M&A AND VC RAISES (SERIES B+)

STRATEGIC M&A

Year	2017	2018	2019	2020	2021	2022 YTD
Median Deal Size	$46M	$28M	$26M	$18M	$15M	$26M
Deal Count	153	173	140	147	194	152

Deal Count ■ — **Median Deal Size**

TOP BUYERS — # DEALS

TOP BUYERS	# DEALS
HID ASSA ABLOY	8
accenture	5
COMCAST	5
amazon	4
Panasonic	4
Apple	3

VENTURE CAPITAL (SERIES B+)

Year	2017	2018	2019	2020	2021	2022 YTD
Median Post	$69M	$78M	$104M	$107M	$134M	$160M
Deal Count	144	192	175	198	263	165

Deal Count ■ — **Median Post**

TOP INVESTORS — # Deals

TOP INVESTORS	# Deals
QUALCOMM VENTURES	31
IDG Capital	23
Celesta	20
khosla ventures	19
intel Capital	18
NEA	16
INSIGHT PARTNERS	15

RECENT M&A TRANSACTIONS

STRATEGIC ACQUISITIONS

TARGET	BUYER	VALUE ($M)	REVENUE MULTIPLE	DESCRIPTION
Vesper	Qualcomm	160		Piezo-electric acoustic sensors and microphones
Bluecity	Velodyne			Computer vision and traffic data platform designed to make streets safer
Blue Pillar	Generac			Energy management for industrial IoT
SFL Scientific	Deloitte			Data science and AI consulting
ItoM	Bosch			Design services & IP for IoT
Identify3D	Materialise			Data security to trace flow of parts to prevent counterfeiting
Caaresys	Harman			RF-based vehicle passenger monitoring and occupancy system
Steradian	Renesas		>>10x	4D imaging radar semiconductors
Mobilogix	Telit			IoT tracking
E2C Technology	CBRE			Building management software
iRobot	Amazon	1,700	1.2x	Consumer robots
Sierra Wireless	Semtech	1,200	2.0x	IoT Connectivity products
Thales (Cellular IoT products)	Telit			IoT Connectivity products
Envio Systems	JLL			Smart building software
Reality AI	Renesas			Edge AI modeling software
Askdata	SAP			AI driven natural language
Vuram	WNS Global Services	165		Low-code enterprise automation
Codeplay	Intel			Enterprise AI development software
XtremeEDA	Accenture			Design and verification for semiconductor
MemoMi	Walmart			Retail camera imaging intelligence platform

RECENT VC TRANSACTIONS

CAPITAL RAISE, SERIES B+ >$20M

COMPANY	SERIES	DEAL SIZE ($M)	POST MONEY ($M)	DESCRIPTION
Metalenz	B	30	136	Ultra-thin optics for high resolution imaging
Unravel	D	50	120	AI based data pipeline management
DeHaat	E	100	900	AI based supply chain software for farming
Superb AI	B	16	120	Customed AI model training data
Verkada	D	205	2,995	Enterprise security cameras
Litmus	B	30	140	Intelligent edge computing platform for IoT
Arize AI	B	38	117	AI model real-time analytics solution
PolyAI	B	40	260	Conversational AI software
BigPanda	E	120	1,080	Alert correlation platform
Esperanto Technologies	C2	20	220	RISC-V energy-efficient computing
Aisera	D	88	550	Service management software
AssemblyAI	B	30	155	Automation of audio transcriptions
Dedrone	C	30	336	Counter-drone platform
AI21 Labs	B	64	600	Writing companion to understand & generate natural language
Pattern Ag	B	30	125	Actional intelligence on soil DNA mapping for farming
Zesty.ai	B	23	120	AI based platform for assessing climate risk
AMP Robotics	C	71	500	Recycling robots for reclaiming raw materials for the global supply chain
Arduino	C	32	NR	Open-source hardware, connectivity and tools for embedded developers

Advised by CVA professionals while affiliated with a previous firm.

ABOUT CONNECTED VISION ADVISORS

DEEP TECH INVESTMENT BANKING
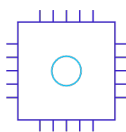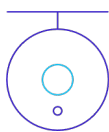
+ **We are a deep tech investment banking firm.** We advise on M&A and capital raise transactions. We are experts at driving strategic value in technology deals.

+ **We aren't your typical financial bankers.** We are electrical engineers and former executives, and we have seen deals from all sides: large tech, startups and as bankers. Our experience gives us unique insights that helps us drive the best outcome for our clients.

+ **We focus on AI, Computer Vision, Semiconductor Ecosystems and IoT markets**, working with market-leading software, hardware and IP companies.

+ **Our team is global**, based in the USA, UK and Canada. We have deep experience doing deals across North America and Europe.

+ **We work with buyers and investors** like Qualcomm, Cisco, ARM, Bosch, Amazon, Renesas, Intel, Lattice, Cadence, Faurecia and many more.

Transaction Experience

ARDUINO — Series B — BOSCH, arm, RENESAS, ANZU PARTNERS	mirametrix — Has been acquired by — LATTICE SEMICONDUCTOR	SPORTS TECH COMPUTER VISION AI — Has been acquired by — Qualcomm	SMART BUILDING COMPUTER VISION AI — Has been acquired by — CISCO	VanGogh Imaging — IP licensed by — INTUITIVE SURGICAL	nyansa — Has been acquired by — vmware
netrounds — Has been acquired by — JUNIPER NETWORKS	Sentient ENERGY — Has been acquired by — KOCH	cognivue — Has been acquired by — freescale semiconductor	IRYStec — faurecia — Strategic Advisory	WNDRVR — intel — Buy-side Advisory	TWISTEDPAIR — Has been acquired by — MOTOROLA SOLUTIONS

Note: All transactions above advised by current CVA team members. Some transactions were completed while affiliated with previous firms.

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