

**February 28, 2022 1:30PM PST**

**Q4 and Fiscal Year 2022 (January 31, 2022) earnings call script**

**Louis Gerhardy, Corporate Development**

Good afternoon and thank you for joining our fourth quarter and fiscal year 2022 financial results conference call. On the call with me today is Dr. Fermi Wang, President and CEO, and John Young, VP Finance.

The primary purpose of today's call is to provide you with information regarding our fourth quarter and fiscal year 2022 results. The discussion today and the responses to your questions will contain forward-looking statements regarding our projected financial results, financial prospects, market growth and demand for our solutions, among other things.

These statements are subject to risks, uncertainties and assumptions. Should any of these risks or uncertainties materialize or should our assumptions prove to be incorrect, our actual results could differ materially from these forward-looking statements. We are under no obligation to update these statements.

These risks, uncertainties and assumptions, as well as other information on potential risk factors that could affect our financial results, are more fully described in the documents that we file with the SEC, including the Annual Report on Form 10-K that we filed on March 31, 2021 for the fiscal year 2021 ending January 31, 2021 and the form 10-Q filed on December 10, 2021 for the third quarter of fiscal year 2022 ending October 31, 2021.

Access to our fourth quarter and fiscal 2022 results press release, historical results, SEC filings and a replay and prepared transcripts of today's call can be found on the Investor Relations portion of our website.

Fermi will provide a business update for the quarter and the full year, John will review the financial results and then Fermi, John and I will be available for your questions.

**Dr. Fermi Wang, President and CEO**

Good afternoon, thank you for joining our call today.

Fiscal 2022 represented an inflection year for Ambarella with numerous milestones achieved. Record revenue of \$332 million was up 49% year-over-year, with CV revenue more than tripling to exceed 25% of total revenue and driving blended ASPs higher. It was the first year where CV delivered a material contribution to our operating results, enabling non GAAP operating margins to reach 19% versus 4% the prior year.

CV revenue Wave 2 (Smart Home) became material during the year as expected, and we are pleased to announce CV revenue from Wave 3 (Automotive) also became material during the year. This occurred more than a year ahead of the guidance originally provided in June, 2019. Turning to products, we expect CV5, our first 5nm SOC, to begin mass production in the second half of Fiscal 2023, while CV3, our second 5nm SoC, a 10 billion transistor automotive domain controller, taped-out and is expected to sample this year.

There is strong and broad based demand for our CV products. At the end of the year we had cumulatively shipped more than 6 million CV SoCs to more than 275 unique CV customers across many verticals, but it is interesting to note a majority, or more than 175 companies, have not yet reached production status with even their first design.

Looking into Fiscal 2023, geopolitical and public health headwinds persist and market forecasters predict real global GDP and semiconductor industry growth rates will decelerate. There is a continuation of supply chain challenges and in February, we were informed our 14nm supply from Samsung will be constrained. At this time we anticipate an adverse impact to our video processor revenue of approximately \$5 million in Q2.

Despite these headwinds, we see the secular forces from the digital transformation remaining very strong, in particular demand for our deep learning AI processors for IoT end points. A majority of our customers' design activity is now on CV, and we expect CV revenue to reach 45% of our total revenue in Fiscal 2023, driving a further increase in our blended average selling price as fewer of the lower ASP video processors are shipped.

I will now provide some representative market development activity during the quarter.

We hit the road running in the first week of January, hosting our annual technology showcase, held during CES in Las Vegas, and announcing our new CV3 AI domain controller. We held over 35 live technology demonstrations, including our latest EVA autonomous vehicles, Oculii radar technology running in both automotive and security applications, and numerous IOT, robotics and partner demonstrations. The automotive partner demonstrations included ADAS implementations from software partners Autobrains and HelmAI, as well as driver monitoring demos from Seeing Machines and Cipia, all running on our CVflow SoCs. While attendance was limited to about 30% of normal due to Covid travel restrictions, we recorded the entire event and have begun presenting it to customers and will begin to present to investors in March.

On January 4<sup>th</sup>, we launched CV3, our AI Domain Controller SoC Family for Single-Chip Multi-Sensor Perception, Fusion and Path Planning in ADAS to L4 Autonomous Vehicles. This scalable, power-efficient CVflow<sup>®</sup> family of SoCs provides the automotive industry's highest AI processing performance, at up to 500 eTOPS, representing a 42x increase over Ambarella's CV2 and 160x CV22. The first CV3 family member is fabricated in 5nm process technology and enables centralized, single-chip processing for multi-sensor perception—including high-resolution vision, radar, including Oculii software, and other sensor modalities. The family's unique hardware scalability allows automakers to unify their software stacks across their entire product portfolios, while reducing the cost and complexity of software development.

We have received significant interest in CV3 from leading automotive OEMs and tier 1s following the announcement. CV3 video: <https://www.youtube.com/watch?v=SdAyRalOdp0>

In addition to automotive applications, we will be developing CV3 SoC derivatives targeting other markets including security cameras and robotics applications. These new CV3 family SoCs will leverage the increased performance of the CV3's third generation CVflow architecture which provides over three times the power efficiency of the previous CV2 generation.

In January we announced our new Artificial Intelligence Image Signal Processor. This new ISP architecture uses neural networks to augment the image processing done by the hardware ISP integrated into our CV SoCs. We demonstrated it live during the show, showing full frame rate, HD video captured in under 0.03 lux lighting conditions, or almost complete darkness. We believe this technology will be game changing in all of our markets as the higher quality video data not only improves visibility in human viewing applications, but also improves the accuracy of AI processing algorithms under challenging lighting conditions. AI ISP CES2022 demo: <https://youtu.be/98GghdKQEC0>

During the quarter we made a number of automotive partnership announcements.

We announced our collaboration with AutoBrains, a developer of self-learning AI for assisted and autonomous driving, to deliver a scalable range of AI solutions ranging from front ADAS to higher levels of autonomy for the automotive mass market. At the show we demonstrated the AutoBrains ADAS software running on a single CV2 automotive SoC. The collaboration will deliver high resolution front ADAS solutions targeting compliance with five star NCAP standards.

We also announced our partnership with Seeing Machines, the industry's leading computer vision technology company for driver monitoring applications and we demonstrated Seeing Machines' software running on our CVflow AI platform. The partnership will enable the delivery of complete, integrated DMS and ADAS solutions.

I will now discuss selected customer activity in the automotive market during the quarter.

We are seeing new opportunities in automotive applications employing cameras for security, access control and customization of personal settings. During the quarter, Hyundai introduced its Genesis GV60 SUV with a face connect feature that recognizes a driver's face, opens and closes vehicle doors and provides customized settings for the driver using Near Infra-Red cameras and deep learning technology. The face recognition module is based on Ambarella's CV25AQ automotive SoC and ensures reliable face recognition performance under any lighting conditions including during adverse weather or at night.

Also during the quarter, Rivian began shipments of its first consumer SUV, the R1S, and its first commercial vehicle, the new EDV700 delivery van, designed in close collaboration with Amazon. As announced by Rivian, the R1 family, comprised of the R1S and the R1T, has 71,000 vehicles preordered while Amazon has placed an initial order for 100,000 of the vans. Both the R1S and EDV700 have camera platforms based on Ambarella solutions, with multiple Ambarella CV2 SoCs being utilized for Rivian's autopilot, called Driver+, Gear Guard, and surround view systems. The EDV700 delivery vans also include stereo forward facing cameras enabled by the CV2s' built-in stereo processing capability. The rapid design and deployment of these vehicles, in addition to our other automotive production wins, reflects the maturity of our CVflow SoCs and development tools.

In February the U.S. Department of Transportation's National Highway Traffic Safety Administration issued a final rule allowing automakers to install adaptive driving beam, or ADB, headlights on new vehicles. Adaptive driving beam headlight systems are useful for distance illumination of pedestrians, animals, and objects without reducing the visibility of drivers in on-coming vehicles. The use of cameras with AI-based perception to intelligently control the headlight beams represents a new opportunity for Ambarella's CVflow SoCs.

In December we announced an early win in this area with Chinese automotive visual technology company, HASCO VISION, and IM Motors, a new automobile technology company jointly created by SAIC Group, Zhangjiang Hi-Tech and Alibaba Group. At the 2021 Shanghai Auto Show, IM Motors announced its new L7 electric vehicle, which began sales in February. It includes an intelligent DLP lighting system based on our CV22AQ automotive SoC that can perceive the driving environment and provide visual warnings to pedestrians as well as automatically adjust the width of the headlight beams under narrowing road conditions.

Also in China during the quarter, Hycan, an EV vehicle joint venture between GAC Group and electric car maker Nio, introduced its Z03 SUV. The Z03 includes Hycan Pilot 2, an intelligent driving assistance system based on our CV2AQ SoC and supplied by tier 1 Maxieye.

I will now talk about some of our IoT customers' product introductions during the last quarter.

In the enterprise camera market, Motorola Solutions announced the expansion of its License Plate Recognition (LPR) portfolio with the introduction of the L6Q camera, based on our CV25 SoC. The L6Q can accurately scan vehicles moving at up to 75 MPH and up to 75 feet away. It can be powered by battery, solar panel or AC/DC power and can operate in complete darkness.

Also in the enterprise and public market, Verkada introduced its CD42 and CD52 dome cameras based on our CV25 SoC. The CD42 and CD52 are 5MP designs offering up to 2 terabytes of in-camera storage, leveraging the latest in AI and edge computing to uncover actionable insights in real time.

And, Panasonic i-PRO sensing solutions, introduced its iPro mini, a versatile network camera based on our CV22 SoC. With a size smaller than a business card, the iPro mini enables advanced edge AI processing in a very small and unobtrusive form factor for applications such as theft prevention, congestion detection and privacy guard.

In the smart home market, Comcast introduced its first video doorbell, the Xfinity Video Doorbell. Based on our SoC, it supports 1080p HD video, crystal clear night vision, and a wider 4:3 aspect ratio that allows you to see more of your doorstep. In the same market, Ubiquiti introduced its G4 Doorbell Pro, a WiFi enabled video doorbell with a primary 5MP camera and a second 8MP package camera. Ubiquiti also began shipping its AI 360 PTZ camera which provides panoramic, overhead surveillance and is based on our CV25 SoC.

We are also seeing opportunities in new AI camera IOT applications including robotics and video conferencing.

During CES, HMS, an AI factory automation company based in Japan, announced and demonstrated its new SiNGRAY AI 3D camera designed for robotic and industry 4.0 applications. In this application Ambarella's CV25 SoC does the camera perception and fusion, combining the RGB camera and ToF dual sensors. The product is being supplied to Japanese robotics leader Yaskawa for a robotic arm application.

In video conferencing applications an example of one of our first wins is from Minrray, a China-based leader in communications and video conferencing. Their new UV430 series, an Ultra HD PTZ Video Conferencing camera based on our CV22 SoC, offers 4Kp60 video, 25x optical zoom and pan tilt zoom operation.

In summary, these engagements indicate we are successfully leveraging our state-of-the-art human viewing video processor expertise into markets for high bandwidth AI processors in machine sensing IoT edge endpoints. Much of the early CV growth we have experienced has been driven by new product cycles in existing markets, like security cameras, but we are extremely excited about the penetration we are achieving in multiple new market verticals, like the robotic arm, automotive headlamp or automotive access control mentioned earlier. The megatrends for security, safety, automation, and eventually complete autonomy, or robotics, are key drivers in all our markets, and it is a key driver of our SAM expansion, increasing from about \$4 billion this year to approach \$10 billion in calendar 2027.

With the breadth of our SAM expanding, the market opportunities are now much larger. We are engaged in discussions at multiple customers where the lifetime revenue of any one program could be more than 20x higher than what we have experienced in the past.

With evidence mounting, we are more convinced in the positive secular trends for our AI products. In order to sustain and grow our leadership position, we have, and will continue to make a premium investment in our differentiated semiconductor and software R&D. Our organic R&D investment leads the way, and has been augmented with our synergistic acquisition of HD radar leader Oculii. Our R&D investments include new perception technology development, deep fusion for cameras and radars, automotive functional safety, next generation processors on 3 or 4 nanometer technology, and software modules “higher up-the-stack.”

I would like to provide an update on Oculii about four months after we announced the acquisition. We are very pleased with customer interest and activity with our proprietary HD radar products and many cross selling opportunities were discussed with customers during CES this year. Since the acquisition, we have seen a significant pick-up in the number of radar module customers, in fact during Q4 we shipped a record number of 77GHz radar modules. We understand many of these customers are evaluating the technology for their production programs and we plan to continue to aggressively hire to support the strong interest and outlook for our HD radar technology.

In conclusion, after 5+ years of edge AI investment, Fiscal 2022 represented a firm inflection for Ambarella, and while decisively established, we are still in the very early innings of the AIoT market development. We are very pleased with our progress, evidence continues to build and we remain convinced the market opportunity is very significant. We are committed to sustaining our strong investment to capitalize on our leadership position, and along the way we are committed to deliver positive operating leverage at the \$500 million and \$1 billion annual revenue milestones, as indicated during our Capital Markets Day in January. CMD presentation and replay: <https://investor.ambarella.com/events-presentations>

With that, John will now provide our prepared financial comments.

**John Young, VP Finance**

I will review the financial highlights for the fourth quarter and the full fiscal year 2022, ending on January 31, 2022, and provide a financial outlook for our first quarter of fiscal year 2023, ending on April 30, 2022.

I will be discussing non-GAAP results and ask that you refer to today's press release for a detailed reconciliation of GAAP to non-GAAP results. For non-GAAP reporting, we have eliminated stock-based compensation expense and acquisition related costs adjusted for the impact of taxes.

Fiscal year 2022 revenue increased 49% year-over-year to \$331.9 million. Security camera revenue was close to 65% of total revenue, up more than 50% year-over-year. Auto revenue more than doubled year-over-year, and represented almost 25% of total revenue. Our Other business declined roughly 20% year-over-year to represent slightly more than 10% of revenue.

For fiscal year 2022, non-GAAP gross margin was 63.4% up from 61.4% in FY21. Despite some higher costs and expenses, our customer mix and product mix improved and the pricing environment was relatively stable. Non-GAAP operating expenses increased 15% for the year, with a majority of this increase in our organic R&D investment. For the 14<sup>th</sup> consecutive year we reported positive annual operating cash flow, which was \$38.8 million in Fiscal 2022. With no debt, net cash on hand totaled \$171 million at the end of the year.

Q4 revenue of \$90.2 million was slightly above the mid-point of our guidance range, with CV ending the year on a strong note. Q4 revenue declined 2% sequentially, well above the 5 year average of down about 10% sequentially. With several new video processor and computer vision programs commencing production, auto revenue increased more than 30% sequentially. Security camera and Other revenue declined about 10% sequentially.

Non-GAAP gross margin for Q4 was 64.8%, above the high-end of our guidance range of 63% to 64%. Despite some increased costs, the more diversified nature of our business, a relatively stable pricing environment, and a richer customer and product mix all contributed to this strong gross margin performance.

Non-GAAP operating expense for the fourth quarter was \$40.3 million, compared to \$35.6 million in Q3. This was slightly above the mid-point of our guidance range of \$39 to \$41 million.

Non-GAAP net income for Q4 was \$17.9 million, or \$0.45 per diluted share compared to \$22.2 million, or \$0.57 per diluted share in the third quarter.

In the fourth quarter, the non-GAAP earnings per share were based on 39.7 million shares.

Total headcount at the end of the fourth quarter was 899 with about 82% of employees dedicated to engineering, most of whom are focused on software. Approximately 65% of our total headcount is located in Asia.

In Q4 we generated positive operating cash flow of \$20.6 million.

Total accounts receivable at the end of Q4 were \$44.5 million or 45 days sales outstanding, in-line with the 45 days at the end of the prior quarter.

Net inventory at the end of the fourth quarter was \$45.2 million or down about 4% in dollars from the \$47.0 million at the end of the previous quarter. On a days basis, inventory increased to 128 days in Q4 from 118 days in Q3.

We had two end customers represent 10% or more of our revenue in Q4. WT

Microelectronics, a fulfillment partner in Taiwan who ships to multiple customers in Asia, came in at 59% of revenue and Hakuto, a distributor for automotive customers in Japan, came in at 12% of revenue. Revenue from Dahua and Hikvision declined more than 60% sequentially and more than 75% on a year-over-year basis, and represented about 2% of total revenue in Q4 and 6% for the year.

I will now discuss the outlook for the first quarter of fiscal year 2023:

Underlying demand remains solid but supply-side conditions are highly dynamic.

First, as Fermi indicated, our lead times remain extended and we are now facing new challenges and uncertainty with regard to our Supplier's timing of deliveries for our 14nm video processors.

Second, some of our customers have experienced significant delinquencies from other component suppliers. As a result, some customers may choose to defer our shipments. Other customers may build inventory of our SoCs as they await a complete “kit.”

We are also prepared for a potential public health lock down in Hong Kong, where our main warehouse is located, by arranging alternative delivery routes to our customers.

To the best of our knowledge at the current time, our guidance contemplates these new and existing supply chain challenges.

Considering all these factors, we expect our Q1 results to be better than the 9% average sequential decline experienced in the last 5 years. We estimate our revenue to be in the \$88.5 to \$91.5 million range, or approximately flat sequentially at the mid-point. After a surge in demand for several new programs in Q4, auto revenue is anticipated to decline sequentially with IoT revenue increasing sequentially. As indicated at our January 4<sup>th</sup> Capital Markets Day, given our strategy and the related changes to our business, going forward we will be reporting in 2 revenue categories; Automotive and IoT.

We estimate Q1 non-GAAP gross margin to be between 63.0% and 64.0%.

We expect non-GAAP OPEX in the first quarter to be between \$41 and \$43 million, with the increase from Q4 primarily coming from increased engineering headcount, payroll tax accruals, and other engineering expenses.

The Q1 non-GAAP tax rate should be modeled in the 3% to 6% range.

We estimate our diluted share count for Q1 to be approximately flat sequentially. .

Ambarella will be participating in the Morgan Stanley TMT conference on March 9<sup>th</sup> and 10<sup>th</sup>, the 33<sup>rd</sup> Annual ROTH Conference on March 14<sup>th</sup>, and Bank of America's 12th Annual Global Automotive Summit in April. During Q2 we will also be hosting virtual demos from our recent CES exhibition. Please contact us for more details.

Thank you for joining our call today, and with that, I will turn the call over to the operator for questions.

## **Q&A**

### **Dr. Fermi Wang, President and CEO**

I'm very proud of what our employees accomplished in fiscal year 2022, a year that demanded tremendous execution across all functional disciplines, all in the face of so many major challenges. Fiscal year 2022 was a break-out year for Ambarella, and we are eager to take the company to the next level in fiscal year 2023. Thanks to all our stakeholders, and I look forward to seeing you at some of the upcoming events. Goodbye.