

ASX RELEASE

15 October 2024

ASX: NVU

## Nanoveu To Acquire Leading System-on-a-Chip (SoC) Semiconductor Company

### Transformational Acquisition Unlocks New Opportunities in SoC, AI-Enabled Hardware and Glasses-Free 3D Technology

**Nanoveu Limited (ASX: NVU)** is pleased to announce that it has reached an agreement to acquire 100% of the fully paid ordinary shares in **Embedded A.I. Systems Pte. Ltd** (“EMASS”), which holds a proprietary, semiconductor system on a Chip (“SoC”) business and intellectual property (“IP”) portfolio. A summary of the material terms is set out in Annexure A.

This acquisition is a key milestone in Nanoveu’s strategic growth, enabling the integration of EMASS’ cutting-edge SoC technology into the EyeFly3D™ platform while also positioning Nanoveu to enter the high-growth Semiconductor and SoC market across multiple high-tech industries.

#### Highlights:

- **Revolutionary SoC Integration for EyeFly3D™** > EMASS’ SoC technology is expected to increase the market reach of Nanoveu’s EyeFly3D™ platform by bringing real-time 2D-to-3D conversions to a greater range of smartphones and tablets, as well as large screen TVs, delivering glasses-free 3D to new industries and applications such as medical devices, retail and digital signage.
- **Strategic Entry into High-Growth SoC Market** > EMASS’ ultra-low power SoC technology allows Nanoveu to directly tap into the growing demand for edge artificial intelligence (“AI”) applications in wearables, smart home systems, and Internet of Things (“IoT”) devices.
- **Expanded Product Portfolio and Revenue Streams** > In addition to enhancing EyeFly3D™, Nanoveu can now offer EMASS’ industry-leading SoCs directly to manufacturers of wearables, fitness trackers, drones and advanced IoT devices, diversifying the Company’s revenue streams.
- **World-Class Leadership and Innovation** > Founded by a Stanford-trained engineer with a research background that attracted \$75M in funding from Defense Advanced Research Projects Agency (“DARPA”)<sup>1</sup>, EMASS brings an experienced leadership team and impressive IP portfolio including proprietary AI acceleration and energy-efficient SoC chip designs that outperform industry standards.
- **Acquisition Terms Structured for Value Creation** > As consideration and subject to shareholder approval, the Company will issue A\$5 million in fully paid ordinary shares in Nanoveu (“Shares”) (with a deemed issue price of \$0.029 per Share) and 83,333,333 performance rights that are directly linked to EMASS and its integration with Nanoveu’s EyeFly3D™ platform, which align incentives with key commercialisation milestones.

**Commenting on the acquisition, Alfred Chong, Managing Director, and CEO of Nanoveu said, “As recent market interest in our EyeFly3D™ technology has grown significantly, we embarked on a search for the best-in-class solution to further increase its commercialisation opportunities. The agreement to acquire EMASS marks a pivotal moment for Nanoveu, positioning us to deliver**

<sup>1</sup> <https://www.darpa.mil/attachments/3DSOCProposersDay20170915.pdf>

*superior, glasses-free 3D experiences across a broader range of devices and industries. The EMASS acquisition also positions Nanoveu to capitalise on the rising global demand for high-performance SoCs capable of supporting more complex AI computations on low-power devices.”*

## THE IMPORTANCE OF SOC TECHNOLOGY

A **System on a Chip (SoC)** is a highly integrated semiconductor that consolidates all the essential components of a computer (such as a CPU & GPU, memory, network communications and input/output controls) all within a single chip. This integration allows devices to perform complex tasks, such as AI acceleration, data processing, 3D graphics rendering and wireless communication, in a much smaller, more power-efficient chip. SoCs are commonly used in portable devices like smartphones, wearables, medical and IoT devices, where space is limited and efficiency of power consumption is critical.

The importance of SoCs lies in the technology’s ability to perform multiple complex tasks while consuming minimal energy. This makes SoCs ideal for devices that need to process large amounts of data quickly with low power consumption. The demand for more efficient SoCs is rapidly expanding as technologies like AI, 5G, 3D rendering, and augmented reality demand more processing power from smaller devices “at the edge” (i.e. locally on the device) without the need for cloud processing.

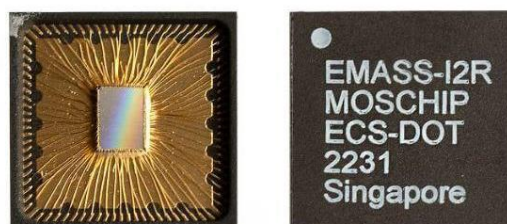
Integration of EMASS' ultra-low power SoCs into the EyeFly3D platform will provide Nanoveu with a unique competitive edge to meet the growing market need for energy-efficient AI-enabled hardware and 3D capabilities across a growing range of portable devices in a wide range of industries.

## INTRODUCING EMASS: A LEADER IN ULTRA-LOW POWER AI SOC TECHNOLOGY

Founded in 2020, EMASS is a fabless semiconductor design company, specialising in ultra-low power SoC solutions for artificial intelligence “at the edge”.

Led by Dr. Mohamed Sabry Aly, an accomplished expert in hardware innovation, EMASS was incubated at Nanyang Technological University. Prof. Aly brings extensive experience and has received a PhD from École Polytechnique Fédérale de Lausanne and conducted postdoctoral work at Stanford University, where his research contributed to a transformative \$75 million DARPA project.

EMASS has developed a SoC that is built on the Reduced Instruction Set Computing (“RISC-V”) architecture, known for its simplicity, extensibility, and low power consumption. As a result, EMASS’ SoC has the potential to bring advanced AI capabilities to applications where power supply and computational power is typically low and allow devices to perform complex tasks by consuming very little power on battery operated or energy sensitive applications.



**Figure 1: EMASS Current SoC**

## EMASS SOC: SETTING A NEW INDUSTRY STANDARD FOR SOC TECHNOLOGY

EMASS' SoC enables complex, computationally intensive tasks, such as converting 2D content into 3D visual experiences in real-time and "at the edge", which reduces the need to send large amounts of data to the cloud for processing, saving bandwidth and ensuring smoother and more efficient processing, especially in low-power and low-bandwidth environments.

Compared to industry peers <sup>2</sup>, EMASS SoC's have demonstrated:

- **High AI Performance:**
  - EMASS SoC delivers an industry-leading **30 GOPs** (Giga Operations per Second, **30 Billion Operations per Second**), significantly outpacing the next best competitor at 6.4 GOPs. This translates to over **10 trillion AI operations per second**, (compared to the current <2 trillion operations per second for the same product category).
- **Superior Power Efficiency:**
  - Operates at an average of **0.1mW (Milliwatt) with maximum power usage of 10mW**, making it the most power-efficient SoC on the market and suitable for next-generation portable devices (such as wearables and IoT devices) where battery life and low power consumption are critical.
- **High Memory Capacity:**
  - Features **4 MByte** of memory capacity, matching leading competitors like Himax, exceeding others in the market and supporting larger on-device AI models.
- **Advanced Deep Learning Capabilities:**
  - EMASS supports up to **13 million simultaneous AI parameters**, surpassing competitors that handle a maximum of 7 million parameters.
- **Integrated Software Optimisation:**
  - EMASS has been designed with software optimisation in-mind to support a wide range of devices and applications. Built on RISC-V open-source architecture which allows full customisation of the chip design to match end-users' requirements.

**Dr. Mohamed Sabry Aly, founder of EMASS, remarked,** *"We are thrilled to join forces with Nanoveu in order to combine EMASS' leading SoC technology with Nanoveu's innovative EyeFly3D™ platform. This acquisition also enables us to bring our proprietary technology to a broader range of industries and devices and unlocks new opportunities in the rapidly growing System-on-Chip market. With Nanoveu's commercial reach, we are poised to deliver leading technologies and shape the future of real-time 3D content and edge computing."*

### ACQUISITION RATIONALE

The integration of EMASS' SoC technology into Nanoveu's software and technologies, specifically the flagship EyeFly3D™ platform, has the following potential benefits:

- **EMASS' Edge Processing** will allow the necessary AI tasks to occur "at the edge" and can improve the ability of the Company's software applications to convert 2D video and images into 3D experiences without the latency associated with cloud processing.

---

<sup>2</sup> MLPerf Tiny benchmark suite: <https://mlcommons.org/benchmarks/inference-tiny/>

- **EMASS' ultra-low-power SoCs** integrated with AI software developed by the Company will allow for more efficient conversion of high resolution 2D images and videos to 3D, reducing latency and improving performance without draining battery life. This ensures high-quality 3D visuals, even on smaller, power-sensitive devices.
- **EMASS modular RISC-V architecture** allows for task-specific customisation and optimisation, enabling the technology to adapt to different industry requirements.

The Company plans to use the EMASS-enhanced EyeFly3D™ platform to unlock a broad range of commercial opportunities across a diverse range of industries, including medical devices, autonomous driving, education, military, digital signage, retail, and marketing. The flexibility and scalability of the technology platform positions the Company to access high-growth markets where advanced 3D displays can enhance user experiences.

Following recent commercial progress for EyeFly3D™<sup>3</sup>, the Company plans to work with partners to embed EMASS SoCs in devices so that they work synergistically with Nanoveu's EyeFly3D™ software, delivering superior 3D experiences on small, power-sensitive devices.

#### **STRENGTHENING NANOVEU'S TECHNICAL TEAM and EXPANDING IP PORTFOLIO**

The acquisition also provides the Company with an IP portfolio and an SoC expert capable of driving further innovation.

Dr. Mohamed Sabry Aly

Prof. Aly is a Stanford-trained engineer whose pioneering research has driven advancements in SoC design will remain as EMASS full-time CEO after the acquisition. Prof. Aly has led several major hardware initiatives, notably a groundbreaking \$25 million project in Singapore and his work at Stanford University initiated a transformative \$75 million DARPA program focused on emerging hardware technologies with new nanodevices. Additionally, his prolific contributions are reflected in over 50 published papers in top-tier conferences and journals, including Nature and the Proceedings of IEEE.

#### ***Intellectual Property***

The current suite of EMASS IP includes five core technologies in SoC, covering algorithmic transformation, hardware support, system architecture, and AI-specific hardware accelerators. Future filings will focus on advanced algorithm compression, improved dataflow mapping, power gating, and customised firmware for AI applications solidifying EMASS' global leadership position in SoC and edge AI computing.

---

<sup>3</sup> See ASX release 19 August 2024, 30th July 2024,

## **CORPORATE UPDATES**

### **Board Changes**

Nanoveu is also pleased to announce that Non-Executive Chairman, Dr. David Pevcic has been appointed Executive Chairman, effective immediately. While his base remuneration remains unchanged, Dr. Pevcic will be issued 30,000,000 Performance Rights expiring on the date that is three years from the date of issue (subject to shareholder approval). Each Performance Right will be convertible into a Share subject to the following vesting conditions being met:

1. 10,000,000 Performance Rights will vest upon the Company's share price being \$0.03 or greater based on a 10 Day VWAP calculated.
2. 10,000,000 Performance Rights will vest upon the Company's share price being \$0.04 or greater based on a 10 Day VWAP calculated.
3. 10,000,000 Performance Rights will vest upon the Company's share price being \$0.05 or greater based on a 10 Day VWAP calculated.

All vested and unvested Performance Rights will lapse in the event that Dr Pevcic is no longer a Company director.

In addition, the Company will issue a total of 9,080,000 performance rights expiring on the date that is three years from the date of issue (subject to shareholder approval) to the following board members (named below) as part of their remuneration package with each performance right convertible into one Share and expire on the date that is three years from the date of issue, subject to satisfaction of the vesting conditions below. All vested and unvested Performance Rights will lapse in the event that any of the directors are no longer a Company director.

#### ***Alfred Chong***

1. 5,000,000 Performance Rights will vest upon the Company's share price being equal to \$0.03 or greater based on a 10 Day VWAP calculated.

#### ***Steve Apedaile***

1. 680,000 Performance Rights will vest upon the Company's share price being equal to \$0.03 or greater based on a 10 Day VWAP calculated.
2. 680,000 Performance Rights vesting upon the Company's share price being equal to \$0.04 or greater based on a 10 Day VWAP calculated.
3. 680,000 Performance Rights Performance Milestone NVU share price being \$0.05 or greater based on a 10 Day VWAP calculated.

#### ***Dr Michael Winlo***

1. 680,000 Performance Rights will vest upon the Company's share being equal to \$0.03 or greater based on a 10 Day VWAP calculated.
2. 680,000 Performance Rights will vest upon the Company's share price being equal to \$0.04 or greater based on a 10 Day VWAP calculated.
3. 680,000 Performance Rights will vest upon the Company's share price being equal to \$0.05 or greater based on a 10 Day VWAP calculated.

## **Corporate Advisory Appointment**

Nanoveu is pleased to announce the appointment of 62 Capital Pty Ltd (ACN 677 075 704) (62 Capital) as the Company's corporate advisor until 14 October 2026.

### ***Consulting agreement terms with 62 Capital Pty Ltd***

Pursuant to the Corporate Advisory mandate between Nanoveu and 62 Capital (**Mandate**), the parties agree to the following key terms:

1. Subject to shareholder approval, as consideration for the corporate advisory services the Company agrees to issue:
  - a. 5,000,000 Shares upon signing of the Mandate;
  - b. 5,000,000 unlisted options with an exercise price of \$0.025 per share, with an expiry 5 years from the issue date; and
  - c. 5,000,000 unlisted options with an exercise price of \$0.035 per share, with an expiry 5 years from the issue date.
2. The Company will pay for or reimburse all out-of-pocket expenses reasonably incurred with any single expense or expenses in aggregate exceeding \$1,000 requiring written consent of Nanoveu.
3. The Mandate may be terminated without cause by any party with 30 days written notice or with cause by the non-defaulting party with immediate effect provided that the defaulting party has not remedied the breach within 10 days of being notified of the breach in writing.

## **Capital Raise**

Nanoveu is also pleased to announce that the Company has received firm commitments from existing sophisticated and professional investors to raise \$600,000 (before costs). Subject to shareholder approval at a general meeting to be held in November, the Company will issue via private placement 24,000,000 Shares at an issue price of \$0.025 per Share (Capital Raising). This represents a 19% premium to the closing price, 11 October 2024 of \$0.021.

The Company appointed 62 Capital as the Lead Manager for the Placement. 62 Capital (or its nominees) will be paid a capital raising fee of 6% of the gross proceeds raised under the Capital Raising (plus GST), to be paid in Shares on the same terms as the Capital Raising.

Settlement of the Capital Raising will occur as a single tranche.

The proceeds from the Capital Raising will be strategically allocated towards the development of EMASS (subject to settlement of the acquisition), integration with EyeFly3D and to support working capital requirements associated with EMASS.

**This announcement has been authorised by the Board of Directors of Nanoveu Limited.**

## **Annexure A – Key terms for the acquisition of EMASS**

The key terms of the acquisition of EMASS are as follows:

- **Conditions Precedent:** Settlement of the acquisition of EMASS is conditional upon the satisfaction or waiver of the following conditions precedent (**Conditions**):
  - Definitive Agreement: execution of a binding share sale agreement by Nanoveu, EMASS and the shareholders of EMASS (**Definitive Agreement**);
  - Due Diligence: completion of financial, legal and technical due diligence by Nanoveu on EMASS, its business, assets and operations, to the absolute satisfaction of Nanoveu and Nanoveu being absolutely satisfied with its findings in the due diligence process by the 8<sup>th</sup> January, 2025 and prior to the execution of the Definitive Agreement; and
  - Regulatory Approval: Nanoveu obtaining all necessary shareholder and regulatory approvals or waivers (as required) pursuant to the ASX Listing Rules (including but not limited to Listing Rule 7.1), *Corporations Act 2001* (Cth), including shareholder approval for the issuance of the Consideration Securities to the Vendors, or any other law to allow Nanoveu to lawfully complete the matters set out in the Definitive Agreement (as applicable).

All Conditions will be for the benefit of Nanoveu and will only be able to be waived in writing by Nanoveu.

- **Consideration:** Subject to the satisfaction (or waiver) of the Conditions, in consideration at settlement of the acquisition Nanoveu agrees to issue to the shareholders of EMASS (Vendors) the following:
  - \$5,000,000 worth of Shares in Nanoveu at a deemed issue price of \$0.029 per Share.
  - 83,333,333 performance rights that will each convert into the number of Shares (rounded down) equal to \$0.06 divided by the greater of:
    - the 20-day volume weighted average price of the Purchaser Shares prior to the achievement of the respective milestone or
    - \$0.06
  - on achievement of the following milestones (**Performance Rights**):
    - 27,777,778 Class A Performance Rights which will vest upon the EMASS migrating its developed AI monocular depth estimation model, to convert 2D content into 3D, to an entity component system data oriented technology stack (ECS-DoT), including achieving an active power of ~2mW, while providing up to 30 GOPs/sec, as a result of which the Company is able to broaden the application of its EyeFly3D technology to larger TV screens, and mobile devices (such as smartphones and tablets) with less computational power, as verified by suitable qualified independent academic from either the Singapore Agency for Science Technology and Research or the National University of Singapore; and
    - 27,777,778 Class B Performance Rights which will vest upon EMASS either:
      - filing and being granted a patent relating to the Purchaser's proprietary artificial intelligence driven algorithm for real time 2D to 3D conversion using a SoC; or
      - filing an application for amendment of its existing patents and 12 months elapsing from the date of filing of the application; and
    - 27,777,778 Class C Performance Rights which will vest upon the Company having executed one or more legally binding unconditional contracts for the sale of products incorporating the EMASS' technology with customers which will result in a cumulative revenue of not less than \$1,000,000 based on actual revenue billed by Nanoveu to customers over a 12-month period ending on 31 December or 30 June as validated by the Nanoveu's auditor.

The Performance Rights will expire on or before the date that is five years from the date of issue (**Expiry Date**). If the relevant Milestones attached to the Performance Rights has been achieved by the Expiry Date, all unconverted Performance Rights of the relevant class of Performance Rights will automatically lapse at that time. The terms and conditions of the Performance Rights will be issued on customary terms and conditions as per ASX guidance.

**Further information:**

**Alfred Chong**

**Managing Director and CEO**

**t: +65 6557 0155**

**e: [info@nanoveu.com](mailto:info@nanoveu.com)**

## About Nanoveu Limited

Nanoveu is a company specialising in advanced films and coatings. <https://www.nanoveu.com/>.

Further details on the Company can be found at <https://wcsecure.weblink.com.au/pdf/NVU/02656570.pdf>.

### EyeFly3D™

The EyeFly3D™ platform is a comprehensive solution for delivering glasses-free 3D experiences across a range of devices and industries. At its core, EyeFly3D™ combines advanced screen technology, sophisticated software for content processing, and now, with the integration of EMAS ultra-low-power SoC, powerful hardware.

**Nanoshield™** - is a self-disinfecting film that uses a patented polymer of embedded Cuprous nanoparticles to provide antiviral and antimicrobial protection for a range of applications, from mobile covers to industrial surfaces. Applications include:

***Nanoshield™ Marine***, which prevents the growth of aquatic organisms on submerged surfaces like ship hulls, and

***Nanoshield™ Solar***, designed to prevent surface debris on solar panels, thereby maintaining optimal power output.

## Forward Looking Statements

This announcement contains 'forward-looking information' that is based on the Company's expectations, estimates and projections as of the date on which the statements were made. This forward-looking information includes, among other things, statements with respect to the Company's business strategy, plans, development, objectives, performance, outlook, growth, cash flow, projections, targets and expectations and related expenses. Generally, this forward-looking information can be identified by the use of forward-looking terminology such as 'outlook', 'anticipate', 'project', 'target', 'potential', 'likely', 'believe', 'estimate', 'expect', 'intend', 'may', 'would', 'could', 'should', 'scheduled', 'will', 'plan', 'forecast', 'evolve' and similar expressions. Persons reading this announcement are cautioned that such statements are only predictions, and that the Company's actual future results or performance may be materially different. Forward-looking information is subject to known and unknown risks, uncertainties and other factors that may cause the Company's actual results, level of activity, performance, or achievements to be materially different from those expressed or implied by such forward looking information