ALPHAWAVE IP GROUP PLC
Company Number 13073661

LEI: 213800ZXTO21EU4VMH37

ALPHAWAVE SEMI AUDITED RESULTS FOR THE YEAR ENDED 31 DECEMBER 2023

- Technology leadership and product portfolio underpin broader customer base of 103 (FY 2022:80)
- Over 80% of FY 2023 licence and NRE bookings in advanced nodes
- Revenue up 74% year-on-year to US$322m (FY 2022: US$185m)
- Operating loss of US$19m compared to an operating profit of US$38m in FY 2022
- Adjusted EBITDA[1] of US$63m and adjusted EBITDA margin of 19% compared with US$47m and 25% in FY 2022
- EBITDA[1] of US$10m, down from US$49m in FY 2022
- Cash generated from operations of US$25m (Restated FY 2022: US$1m)
- Cash and cash equivalents balance of US$101m; Net debt of US$119m

LONDON, United Kingdom and TORONTO, Ontario, Canada 23 April 2024 - Alphawave IP Group plc (LSE: AWE, the "Company" or "Alphawave Semi"), a global leader in high-speed connectivity for the world's technology infrastructure, has published its results for the year ended 31 December 2023.

Financial Summary and APMs[1] – US$m	**FY 2023**	**FY 2022**	**Change**
Licence and NRE	167.6	137.6	22%
Royalties and silicon	154.2	47.8	222%
Total revenue	321.7	185.4	74%
Operating (loss) / profit	(19.4)	37.6	nm
Operating margin	*-6%*	*20%*	
EBITDA[1]	9.8	49.3	(80)%
EBITDA margin	*3%*	*27%*	
Adjusted EBITDA[1]	62.6	46.8	34%
Adjusted EBITDA margin	*19%*	*25%*	
Net (loss)	(51.0)	(1.1)	nm
Net margin	*-16%*	*-1%*	
Cash generated from operations[2]	25.5	1.0	nm
Cash and cash equivalents	101.3	186.2	(46)%
Net cash/(debt) balance	(119.1)	(24.0)	397%
Bookings[3] and Design Win Activity – US$m	**FY 2023**	**FY 2022**	**Change**
Licence and NRE	274.0	131.3	109%
Royalties and silicon	109.9	96.8	14%
New Bookings	383.9	228.1	68%
Additional design win activity – FSA (Flexible Spending Account) drawdowns and China re-sale licences[4]	3.8	23.2	(84)%
Number of revenue generating end-customers	103	80	22%

Due to rounding, numbers presented in the table may not add up to the totals provided and percentages may not precisely reflect the absolute figures. 'nm' where referenced, means 'not meaningful'.

Tony Pialis, President and Chief Executive Officer of Alphawave Semi, said: "In 2023 we delivered another year of strong revenue growth, up 74% year-on-year, while investing to support our growing pipeline and future revenue growth. Our pipeline reflects the strong momentum in the roll out of next generation AI and data centre infrastructure and our Q1 bookings reflect that momentum. Our leading connectivity portfolio combined with our talented team and a growing market opportunity give us confidence in the long-term potential of our business."

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[1] For definitions of non-IFRS measures see Alternative Performance Measures section.

[2] FY 2022 has been restated to reflect the finalisation of the purchase price allocation on the acquisition of OpenFive (see notes 12 and 30).

[3] Bookings is a non-IFRS measure and represents legally binding and largely non-cancellable commitments by customers. Bookings comprise licence fees, non-recurring engineering, support, orders for silicon products and estimated future royalties (based on contractually committed royalty prepayments or on volume estimates provided by customers). Licence and NRE bookings in 2023 have been adjusted for an amount of US$4.9m related to a licence & NRE booking reported in Q1 2023.

[4] Both FSA (Flexible Spending Account) drawdowns and China re-sale licences convert previously announced contractual commitments included within bookings reported in prior periods to new product design wins which will be recognised as revenue over time.

John Lofton Holt, Executive Chair of Alphawave Semi, added: "During 2023 we made significant progress on our strategic objectives. Our financial performance in 2023 was strong albeit below our outlook for the year. With a full product portfolio of leading connectivity solutions, we can help our customers meet their connectivity needs across their data centres and create long-term value for our shareholders and other stakeholders."

Business and Technology Highlights

- In 2023, Alphawave Semi expanded its ongoing collaboration with the leading foundries in the industry
- The Company's IP product portfolio increased to over 235 IPs (Intellectual Property) at the end of 2023, covering the full range of interfaces required in data centres
- Alphawave Semi joined Arm Total Design, an ecosystem to make specialised solutions based on Arm® Neoverse™ Compute Subsystems (CSS) widely available across the infrastructure
- The Company announced two successful tape outs on TSMC's most advanced 3nm process of its High Bandwidth Memory 3 (HBM3) PHY and Universal Chiplet Interconnect Express™ (UCIe™) PHY IPs, paving the way for a new generation of chiplet-enabled silicon platforms, tailored for hyperscaler and data infrastructure customers
- Alphawave Semi was the first company to announce UCIe PHY IP supporting faster die-to-die data rates of 24Gbps per lane
- The Company maintained its technology leadership with 34 design wins of which six were design wins in 3nm
- During 2023, the Company expanded its revenue-generating end-customer base to 103 (FY 2022: 80 customers)
- Continued to build sales and R&D capabilities with new offices in Pune (India) and Ottawa (Canada)
- Closing headcount increased by 134 people globally, bringing the total headcount to 829 (2022: 695)

Outlook

- The Company expects FY 2024 revenue of US$345m to US$365m and adjusted EBITDA of approximately US$70m (or approximately 20% of revenue), which is at the mid-point of the revenue guidance range. This reflects the deliberate decision to de-prioritise growth in China, which will reduce materially as a proportion of revenue. We expect the revenue profile in 2024 to be back end loaded and H1 2024 revenue to be below H1 2023, which saw a significant contribution from the legacy OpenFive backlog.
- The Company expects FY 2025 revenue of approximately US$450m and adjusted EBITDA margin between 20%-25%.

Capital Markets Day

The Company will host a Capital Markets Day in London, on 4 June 2024. Alphawave Semi's executives will present the Company's long-term business strategy as it enters its next phase of technology leadership in connectivity for digital infrastructure markets.

Results Presentation and Webcast

A presentation for investors and analysts will be held today at 8.30am BST. The webcast will be accessible via:

https://awavesemi.zoom.us/s/84323327486?pwd=WFdWQzArdVBsN3JJcGlFbEM5WUo3Zz09

Passcode: 802056

Or by phone:

United Kingdom: +44 203 901 7895 / +44 208 080 6591 / +44 330 088 5830

United States: +1 669 900 9128 / +1 689 278 1000 / +1 719 359 4580 or +1 253 205 0468

Webinar ID: 843 2332 7486

Passcode: 802056

International numbers available: https://awavesemi.zoom.us/u/kdbhCTHaVt

The full announcement, presentation and a replay of the webcast will be made available on the Investor Relations section of the website: https://awavesemi.com/financial-results/

About Alphawave Semi (LSE: AWE)

Alphawave Semi is a global leader in high-speed connectivity and compute silicon for the world's technology infrastructure. Faced with the exponential growth of data, Alphawave Semi's technology services a critical need: enabling data to travel faster, more reliably, and with higher performance at lower power. We are a vertically integrated semiconductor company, and our IP, custom silicon, and connectivity products are deployed by global tier-one customers in data centres, compute, networking, AI, 5G, autonomous vehicles, and storage. Founded in 2017 by an expert technical team with a proven track record in licensing semiconductor IP, our mission is to accelerate the critical data infrastructure at the heart of our digital world. To find out more about Alphawave Semi, visit: awavesemi.com.

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Cautionary statement regarding forward-looking statements

This document may contain forward-looking statements which are made in good faith and are based on current expectations or beliefs, as well as assumptions about future events. You can sometimes, but not always, identify these statements by the use of a date in the future or such words as "will", "anticipate", "estimate", "expect", "project", "intend", "plan", "should", "may", "assume" and other similar words. By their nature, forward-looking statements are inherently predictive and speculative and involve risk and uncertainty because they relate to events and depend on circumstances that will occur in the future. You should not place undue reliance on these forward-looking statements, which are not a guarantee of future performance and are subject to factors that could cause our actual results to differ materially from those expressed or implied by these statements. The Company undertakes no obligation to update any forward-looking statements contained in this document, whether as a result of new information, future events or otherwise.

AI-Led End Markets Remain Strong

Against the backdrop of an uncertain economic environment, digital infrastructure markets remained strong driven by growing Artificial Intelligence (AI) demand. Our core markets continued to provide compelling opportunities for growth.

During 2023 we saw the introduction of multiple language-based AI models. Hyperscalers are increasingly focusing on ramping up their AI infrastructure in data centres to cater to the demand for training proprietary AI models, launching native B2C generative AI user applications, and expanding AIaaS (Artificial Intelligence-as-a-Service) product offerings[5]. Worldwide end-user spending on public cloud services is forecast to grow 20.4% to total $678.8 billion in 2024, up from $563.6 billion in 2023[6]. This is the result of organisations racing to adopt AI technology and hyperscaler verticals integrating industry-specific software, platform and infrastructure services. Not surprisingly, the amount of data created, captured, replicated and consumed each year is expected to more than double in size from 2022 to 2026 and we expect our addressable market to grow at approximately 20% CAGR over the 2023-2026 period[7].

In the last decade, AI was run as software on traditional server grade, general performance Central Processing Units (CPUs). In order to deliver the inevitable performance gains, data centres transitioned to Graphics Processing Units (GPUs) based architecture. GPUs can perform a higher number of calculations in parallel and have dedicated hardware for implementing complex mathematical models like neural networks and deep learning. Our business is well positioned to benefit from the ongoing upgrade of the infrastructure required to support the scale of AI infrastructure. As AI technologies become more powerful, the demand for data will become even greater. This makes data speeds, bandwidth, latency and robustness of connectivity technologies essential to the future of AI technology. Cloud, AI and software providers will also benefit from the advantages of chiplet architecture and optimising silicon to their specific requirements while obtaining 30%-40% cost savings[8], which will provide multiple opportunities for our custom silicon offering.

AI-centric data centres with powerful compute engines will require the upgrade of all the network components enabling faster data speeds and bandwidth. A new optical network supporting 800G and 1.6T solutions will be rolled out over the coming years, alongside other components such as switches, ports, etc. For example, recent market research expects nearly half of the data centre switch ports will be driven by 400 Gbps speeds and higher by 2027. In addition, 800 Gbps is expected to eclipse 400 Gbps by 2025[9.]

[5] AI Drives Cloud Player Capex Amid Cautious Overall Spend - Counterpoint (counterpointresearch.com)

[6] https://www.gartner.com/en/newsroom/press-releases/11-13-2023-gartner-forecasts-worldwide-public-cloud-end-user-spending-to-reach-679-billion-in-20240

[7] Semico Research Corporation, December 2022, IPNest and LightCounting

[8] https://www.design-reuse.com/articles/54720/deploying-chiplets-into-mass-markets.html

[9] https://www.delloro.com/news/20-percent-of-ethernet-data-center-switch-ports-will-connect-to-ai-servers-by-2027/

Our pipeline of customer opportunities reflects these trends. Our customers continue to seek differentiation and enhanced performance by transitioning faster to lower design nodes. Over 80% of our licence & NRE bookings in 2023 were in advanced nodes, 7nm manufacturing process and below, and we had additional design wins in 3nm. Alongside this, we continued to see hyperscale data centre providers reducing reliance on networking ASIC vendors.

The ongoing constraints on the semiconductor supply chain and the ubiquitous presence of semiconductors in our lives continue to reinforce the importance of semiconductor technology on a global scale. As the digital infrastructure continues to grow and support the roll out of AI technologies, it will continue to make the transition to utilise leading and more efficient technologies. This gives us confidence in the long-term outlook of the business.

FY 2023 Financial Performance Summary

At the end of 2023 backlog[10] was US$354.9m representing a 7% decrease year-on-year (Restated FY 2022: US$379.7m). The decrease was mainly driven by adjustments and cancellations of which nearly half were made to the remaining backlog acquired through OpenFive.

New bookings in 2023 totalled US$383.9m[11] up 68% year-on-year (FY 2022: US$228.1m). Licence and NRE bookings in 2023 were up 109% to US$274.0m (FY 2022: US$131.3m) of which over 80% were in advanced nodes and less than 10% came from Chinese customers. Royalties and silicon bookings in 2023 totalled US$109.9m compared to US$96.8m in 2022. Most of these bookings relate to legacy custom silicon designs in production for Chinese customers.

Revenue in 2023 was up 74% year-on-year to US$321.7m (FY 2022: US$185.4m). During FY 2023, we recognised revenue from 103 end-customers, compared to 80 end-customers in FY 2022. 59% of revenue in the period was generated from Chinese customers (FY 2022: 57%), including the legacy custom silicon business from the acquisition of OpenFive. Revenue excluding China was US$131.3m, up 63% year-on-year (FY 2022: US$80.7m). Revenue for the year was below our guidance mainly due to our accelerated transition away from our legacy custom silicon business in China and the timing of revenue recognition of long-term contracts in advanced nodes.

Gross margin in 2023 was 51% compared to 67% in 2022. The decrease reflects the diversification of our business into custom silicon development and silicon products. Through the acquisition of OpenFive, we inherited a number of contracts with gross margins below our Group targets.

The year-on-year increase in R&D, S&M and G&A expenses was primarily due to the increase in our headcount from 695 employees at the end 2022 to 829 at end 2023, as well as investment in associated R&D software tool costs, finance, HR, legal and corporate marketing teams reflecting the increased complexity and the extended geographical footprint of the Group.

In 2023 other operating expenses amounted to US$52.9m, compared to other operating income of US$2.5m in FY 2022[12]. Stock-based payment costs of US$40.7m in 2023 (FY 2022: US$15.7m) reflect the increased headcount, significant one-time grants awarded to new members of the senior management team who joined us in 2023 and the payment of 2023 employee bonuses in shares rather than in cash. In 2023 we recognised as an expense US$8.4m of the compensation element of Banias Labs' deferred cash rights which extend to August 2026 (FY 2022[12]: income of US$1.7m). In other expenses we also recognised an exchange loss of US$3.0m compared to US$36.8m of exchange gains in 2022 which resulted from the strengthening of USD against GBP, as the Company held a significant USD balance at the Plc level, which is a GBP denominated entity.

During 2023, the business incurred an operating loss of US$19.4m, significantly down compared to the prior year (FY 2022: operating profit of US$37.6m) and reflected the decrease in gross margin and higher operating expenses. Operating margin in 2023 was -6%, also significantly below FY 2022 (FY 2022: 20%).

Adjusted EBITDA in 2023 was up 34% year-on-year to US$62.6m (19% margin) (FY 2022: US$46.8m or 25% margin) but below our guidance for the year. The year-on-year increase was the result of the revenue growth partially offset by the lower gross margin and higher operating expenses. The decrease in adjusted EBITDA margin reflects the early stage of our migration to a combined IP licensing and silicon model through our acquisitions and the scaling of our engineering capabilities to support our pipeline of opportunities.

Finance income in 2023 was US$3.4m, compared to US$1.7m in 2022. The increase was largely driven by cash balances being invested in interest-bearing accounts and higher interest rates.

Finance expense in 2023 was US$8.8m, US$5.2m higher than in 2022. The increase was mainly driven by interest associated with the five-year term loan obtained in October 2022.

Share of the post-tax loss of equity-accounted joint ventures was US$14.7m, compared to US$18.5m in 2022. At the end of 2023, the Group owned 42.5% (2022: 42.5%) of WiseWave, a company established in China in Q4 2021 to develop and sell silicon products

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[10] Backlog is a non-IFRS measure that represents cumulative bookings (excluding royalties) that have not yet been recognised as revenue and which we expect to be recognised in future periods.For definition of non-IFRS measures see Alternative Performance Measures section.

[11] FY 2023 bookings include an adjustment of US$4.9m decreasing the value of a licence and NRE booking reported in Q1 2023

[12] There has been a change to the grouping of operating expenses in 2022, specifically relating to the compensation element of Banias deferred cash rights. This is shown within other operating expenses/(income) in 2023 so we have changed 2022 operating expenses /(income) to be presented on the same basis (see notes 6 and 30).

incorporating silicon IP licensed from the Group. The five-year subscription licence agreement is being capitalised and amortised over the life of the agreement by WiseWave.

In 2023, the Group incurred a net loss of US$51.0m, compared to a US$1.1m net loss incurred in 2022.

Cash generated from operations was US$25.5m compared with US$1.0m in 2022[13]. During the period we saw a cash outflow from working capital of approximately US$41.7m (Restated FY 2022: US$50.1m). In 2022 there were one-time payments of approximately US$6.0m relating to M&A and professional fees and included US$28.2m of cash outflows related to deferred compensation payable as part of the acquisitions of Precise-ITC and Banias Labs.

Cash inflow from operating activities in 2023 was US$15.8m compared to an outflow of US$18.9m in 2022[13]. Net income tax paid in 2023 was US$9.7m, below US$19.9m paid in 2022. Capital expenditure (excluding capitalised development expenditure) during 2023 totalled US$20.4m (US$8.3m in 2022), comprising US$18.6m of plant, property and equipment and US$1.8m of intangibles. The increase in plant, property and equipment was mainly due to purchases of IT and lab and test equipment as we ramp our own product development capabilities. In 2023 we capitalised US$53.3m of development expenditure. This was mainly related to the development of our opto-electronics products (FY 2022: US$7.2m).

We closed the period with a cash and cash equivalents balance of US$101.3m compared to US$186.2m at the end of 2022. At the end of 2023 we had loans and borrowing for an amount of US$220.4m, resulting in a net debt position of US$119.1m (FY 2022: US$24.0m).

We ended 2023 with aggregate goodwill of US$309.2m from the acquisitions of Precise-ITC, OpenFive and Banias Labs. Aggregate goodwill has decreased from our provisional estimate of US$331.9m in 2022, following the finalisation of the purchase price adjustment for OpenFive. This included an agreement reached with SiFive in January 2024, regarding OpenFive's cash, indebtedness and working capital on completion. As a result, SiFive paid the resulting purchase price adjustment of US$12.4m.

Accrued revenue, where revenue recognition conditions are met under IFRS 15 but we have not billed or collected any amount, increased from US$57.0m at the end of 2022[14] to US$65.2m at the end of 2023. This increase was a function of our revenue growth and the timing of invoicing milestones on specific contracts, primarily for our IP sales. WiseWave accounted for US$40.8m of our accrued revenue balance at the end of 2023 (FY 2022: US$20.2m).

Investments in equity-accounted associate, namely the value of the investment in WiseWave was US$nil at end of 2023 (FY 2022: US$nil), as a result of equity accounting for losses at WiseWave during the period. The value of the cumulative losses incurred by WiseWave exceeds the cumulative value of our investment into the business.

During 2023, current trade and other payables decreased from US$88.7m to US$69.3m. This decrease was predominantly due to timing differences of payments to vendors.

Contract liabilities, where we have invoiced or received money for products or services where revenue recognition conditions are not met, decreased from US$96.9m at the end of 2022 to US$56.0m at the end of 2023. This decrease was due to the order intake for custom silicon products where in some instances customers were required to make advance payment ahead of silicon being shipped to them.

Principal Risks and Uncertainties

The Group faces a number of risks and uncertainties that may have an impact on our operations and performance. These risks and uncertainties are regularly assessed by the Directors. The principal risks and uncertainties affecting the Group are as follows:

Risk	Description
Managing our growth	We have a limited operating history and are growing rapidly with increased pressure on cash flows. If we do not manage our growth successfully, fail to execute on our strategy, fail to meet future debt covenants or maintain sufficient liquidity, or fail to implement or maintain governance and control measures, our business may be adversely impacted. We have rapidly expanded our headcount and the complexity of our business and operations, both organically and through acquisitions.
Competition and failure to maintain our technology leadership	We seek to maintain our competitive advantage by being first to market with new IP as data speeds increase and manufacturing sizes decrease. If these industry transitions do not materialise, or are slower than anticipated, our competitors may be able to introduce competing IP which may diminish our competitive advantage and selling prices. Our ability to maintain our technology leadership is further dependent on our ability to attract R&D and engineering talent.
Customer dependence	Our products and technology target AI, data centre and network infrastructure markets, where there are a limited number of customers. Further, the cost and complexity of developing semiconductors targeted by our IP limits the number of our potential addressable customers. In any reporting period, a substantial part of our revenues may be attributable to a small number of customers.

[13] FY 2022 has been restated to reflect the finalisation of the purchase price allocation on the acquisition of OpenFive (see notes 12 and 30).

[14] Restated to reflect the finalisation of the purchase price allocation on the acquisition of OpenFive (see notes 12 and 30).

Customer demand	Demand for our technology is dependent on the continued global growth in generation, storage and consumption of data across our target markets, as well as the increasing cost and complexity of designing and manufacturing semiconductors. We may be impacted by our customers' demand sensitivity to broader economic and social conditions. Our potential customers may seek to develop competitive IP or semiconductors internally or acquire IP or semiconductors from our competitors.
Risks associated with WiseWave	WiseWave is today an important element of our strategy to monetise our IP in China and we are a significant minority shareholder. We may be limited in our ability to influence strategy, operational, legal, commercial or financial matters. The Group and WiseWave may also face regulatory risk in terms of transfer of technology into China. There is a risk that our equity investment diminishes in value. WiseWave is a new venture and if it does not effectively execute on its business plan, we may be negatively impacted
Dependence on licensing revenue	Our financial performance is less dependent on licensing revenues, and we do not anticipate a material contribution from royalty revenues for some years. If our customers delay or cancel their development projects, fail to take their products to production or those products are not successful, our royalty revenues may be delayed, diminished or not materialise
Reliance on key personnel and ability to attract talent	We rely on the senior management team and our business could be negatively impacted if we cannot retain and motivate our key employees. Our ability to grow the business is also dependent on attracting talent, particularly in R&D and engineering, and if we are unable to do so, our business may be negatively impacted.
External environment and events	Semiconductors are becoming increasingly important as countries and regions seek to guarantee supply and build domestic supply chains, as well as restrict outside access to their domestic technologies. Our business could be impacted by the actions of governments, political events or instability, or changes in public policy in the countries in which we operate. The current conflict in the Middle East potentially has wide-ranging impacts, including global economic instability, increased geopolitical tensions and disruption to our operations and supply chains.
IP protection and infringement	We protect our technology through trade secrets, contractual provisions, confidentiality agreements, licences and other methods. A failure to maintain and enforce our IP could impair our competitiveness and adversely impact our business. If other companies assert their IP rights against us, we may incur significant costs and divert management and technical resources in defending those claims. If we are unsuccessful in defending those claims, or we are obliged to indemnify our customers or partners in any such claims, it could adversely impact our business.
Reliance on third-party manufacturing foundries	We rely on third-party semiconductor foundries, both as customers and as manufacturing partners to our customers. If foundries delay the introduction of new process nodes or customers choose not to develop silicon on those process nodes, our ability to license new IP and our selling prices may be adversely impacted. By pursuing a vertically integrated model and supplying silicon products, we are reliant on the foundries' capacity for a portion of our revenues and this reliance may increase as royalty revenues become more material to us.
Reliance on complex IT systems	We rely heavily on IT systems to support our business operations. The vast majority of our design tools, software and IT system components are off-the-shelf solutions and our business would be disrupted if these components became unavailable. If our IT systems were subject to disruption, for example through malfunction or security breaches, we may be prevented from developing our IP and fulfilling our contracts with our customers.

EXECUTIVE CHAIR'S STATEMENT

A year of significant progress.

John Lofton Holt
Executive Chair

Dear shareholder,

2023 was our third year as a public listed company, a year during which we consolidated the acquisitions we made in 2022, while continuing to invest in future revenue growth for 2024 and beyond.

This has been a year of significant progress, where the integrated businesses began to work with a single long-term ambition, to be the leader in wired connectivity solutions for next generation AI and digital infrastructure, and to create value for our stakeholders in pursuit of our goal. The AI boom is not only an important driver for AI as an end-market, but is a force-multiplier with the associated infrastructure investments needed to support AI. All of these markets and end applications need our connectivity technology in the form of IP, custom silicon and connectivity products.

Following the success of our first Capital Markets Day in early 2023, we will be hosting our second event on 4 June 2024. During the event we will share with analysts and investors our long-term ambition for the business as well as all the achievements and the progress we have made so far.

Whilst we remain mindful of the challenging global macro and geopolitical environment, we are laying the foundations ahead of the scaling phase and continue to deliver growth in all three areas of our business: IP licensing, custom silicon, and our exciting new range of connectivity products that will start generating revenue in 2024.

Financial performance

In 2023 we consolidated the three acquisitions we made in 2022 under the Alphawave Semi umbrella. We also made significant organic investments in future revenue growth through hiring and business infrastructure investment.

Bookings for the full year were US$383.9m, 68% above the prior year (FY 2022: US$228.1m). Alongside the strong growth in bookings, we delivered another year of robust revenue growth, up 74% year-on-year, a significant achievement for the business albeit below our guidance for the year. Adjusted EBITDA was US$62.6m, 34% above the prior year (FY 2022: US$46.8m) although below our guidance for the year of approximately US$87m. Adjusted EBITDA margin of 19% was below 2022 (FY 2022: 25%). EBITDA in 2023 was US$9.8m compared to US$49.3m in 2022. In 2023, the business incurred a net loss of US$51.0m compared to a net loss of US$1.1m in 2022. The cash position at the end of 2023 was US$101.3m. This was lower than the prior year, reflecting the ongoing investment in future revenue growth, including the development of our new opto-electronic products.

People, culture and values

Our employees have embodied our customer focus, with their commitment and passion at the core of our success. On behalf of the Board, I would like to express our sincere gratitude for their hard work during the year.

Our culture and values inform the way we conduct our business, ensuring we are mindful of the impact we have on society and the environment, helping us to build strong relationships with all our stakeholders. Throughout this report are examples of how we live these values, achieving results and maintaining a strong customer focus with an unwavering commitment to collaboration, honesty, transparency and accountability.

Governance and oversight

During the year we continued to evolve our governance capabilities, particularly on financial oversight, as we welcomed David Reeder to our Board as a Non-Executive Director. David has served in senior finance and operational roles in global technologies companies, bringing vast commercial and operational experience in semiconductors as well as additional governance around finance operations. David is a member of the Audit Committee and the Nomination Committee.

We also welcomed Rahul Mathur as our new CFO in October 2023. Rahul's extensive experience in senior finance positions, consistently delivering strong financial results and shareholder value within listed semiconductor companies, has already been invaluable as we continue to build the foundations for the next phase of business growth. I have the pleasure of working with Rahul on a daily basis and I feel more confident than ever in our finance team.

Stakeholder relationships

As a company we seek to establish strong and responsible relationships with customers, partners and the communities in which we operate. Our values extend to the way we engage with all our stakeholders.

We contribute to society by promoting diversity, fostering the next wave of innovation and innovators, promoting responsible business practices and playing our role in tackling climate change. We do this both through our own activities and in collaboration with our customers and other stakeholders, for shared success.

We are a fabless business, i.e. we do not own any manufacturing facilities, we partner with multiple stakeholders in the supply chain, playing our role in promoting responsible business practices (see Supply Chain section). As the business grows and matures we will continue to enhance our policies and practices in this area.

In July 2023, we joined the United Nations Global Compact (UNGC), supporting the Ten Principles of the UNGC on human rights, labour rights, environment and anti-corruption. In this report, you will find how some of our activities advance the broader development goals of the United Nations, particularly the Sustainable Development Goals.

Sustainability

During the year we made further progress on our sustainability strategy by undertaking our first materiality assessment. The ESG Steering Committee met three times during the year and the outcome of the materiality assessment was presented at the last meeting of the year. The assessment will inform our ESG strategy and will help us prioritise our key sustainability areas. In 2024 we will review and consider the implementation of its detailed recommendations.

Update on our China go-to-market strategy

Following the simplification of our China strategy in 2022, during 2023 the Group made three small additional investments in WiseWave for a total of US$14.7m. We are seeking to exit our equity investment in WiseWave in 2024 but we will time this exit based on market conditions to maximise return to shareholders.

With these changes to the Group's go-to-market strategy in China, we will continue to execute against the market opportunities in China in a simplified way that adapts to the evolving geopolitical and macroeconomic environment.

Outlook 2024 and beyond
In 2024 we will put in place the final pieces of the consolidation phase and start preparations for the beginning of the scaling phase of our business in 2025. For the FY 2024 we expect revenue to be between US$345m to US$365m and adjusted EBITDA margin of approximately 20%. Our 2025 targets have been revised to approximately US$450m of revenue (previously US$500m) and adjusted EBITDA margin between 20% and 25% (previously 30%).

We are executing on our strategy and we remain excited about the growth potential of our business. We are creating a leading semiconductor business in high-speed connectivity and compute technologies. But most importantly, we are building on our strengths to generate significant value for shareholders and other stakeholders over the long term.

John Lofton Holt
Executive Chair

23 April 2024

CEO Q&A

Investing to become the next leader in connectivity for AI.

Tony Pialis
President & Chief Executive Officer

What would you highlight about the business performance in 2023?
During 2023 we signed a record US$383.9m of bookings (FY 2022: US$228.1m), up 68% over the prior year. Of the US$274.0m of licence and NRE bookings signed in 2023, over 80% were in advanced nodes, 7nm and below. Given the complexity of this market, our success reflects the strength of our technology leadership and the business potential of the acquisitions we made in 2022. Our backlog at the end of 2023 was 7% below the prior year. In 2023 we reduced our backlog by approximately US$87m of net adjustments of which nearly half came from the backlog acquired through OpenFive. Our backlog is now enriched by more business in advanced nodes from which we can extract higher profitability over the long-term.

We continued to integrate the business operations of the 2022 acquisitions and delivered strong revenue growth but our financial results were below our guidance for the year. This was mainly as a result of our accelerated transition away from our legacy custome silicon business and differences in the timing of the revenue recognition of long-term contracts in advanced nodes. In 2023, revenue grew 74% via our historical IP and our newly formed Custom Silicon business. In parallel, we continued to invest in R&D, maintaining our technology leadership. As a result, adjusted EBITDA was up 34% from the prior year to US$62.6m and adjusted EBITDA margin was below 2022 at 19% (FY 2022: 25%). In 2023 the business generated a loss before tax of US$39.5m (FY 2022: profit before tax US$17.2m).

During the year our cash and cash equivalents balance decreased to US$101.3m (FY 2022: US$186.2m), as we continued to invest in the development of new products and the necessary equipment to support future growth. We continue to review our capital allocation as well as available sources of capital to support our long term growth strategy.

With an enhanced product portfolio of connectivity technology for AI, as well as with our partnership with ARM to implement their latest Neoverse cores for advanced AI and data centre compute products, we can further monetise our investments in the form of custom silicon and other connectivity products. This is allowing us to access a larger addressable market focused on AI, gain greater scale and enhance our competitive position. The combined custom silicon design wins in 2023 will support our mid and long-term revenue targets as we start to generate revenue from the production phase. These wins have a potential lifetime revenue from silicon production of approximately US$500m, which is not yet reflected in our bookings or backlog. The first silicon production orders are expected in 2025, which is when they will start contributing to revenue.

The success of the business would not be possible without the commitment and support of all our employees and I would like to express my sincere gratitude for their hard work during 2023.

How does Alphawave Semi compete against much larger players in the industry?
High-speed connectivity IP and advanced ARM compute are the DNA of the business. Our Company has been recognised by the world’s largest foundries as the premier leader in high-speed connectivity. But we don’t just develop great connectivity, we also do it in the world’s most advanced nodes. We look into our portfolio of now over 235 silicon IPs and pull from it the ingredients that we can bring to the table in order to meet our customers’ needs.

Our competitive positioning is built on our technology leadership and a full product portfolio of leading connectivity solutions coupled with our partnership delivering ARM compute to the world’s most advanced artificial intelligence (AI) processors. This is what differentiates us from some of our competitors that are more focused on certain products or segments. We have been part of TSMC IP Alliance Programme, a key component of the Open Innovation Platform®, for five consecutive years. In 2023 we became a founding partner of TSMC 3DFabric™ Alliance working towards the adoption of chiplet products.

With a unique portfolio of leading-edge connectivity technology, we are working with our customers to meet their connectivity needs across their data centres and create long-term business relationships.

Many of our customers have first-hand experience of our technology through our IP, which is often the foundation of our business relationship. Once a customer has that positive experience of our technology it creates opportunities to work across other connectivity needs, such as custom silicon or opto-electronics.

How are data centres changing to enable the increasing adoption of AI?
In the last decade, AI was run as software on traditional server grade, general performance CPUs. In order to deliver the inevitable performance gains, data centres transitioned to GPU-based architecture. GPUs can perform a higher number of calculations in parallel and have dedicated hardware for implementing complex mathematical models like neural networks and deep learning.

However, as we scale the amount of compute from teraflops to petaflops, we need to build a faster network using leading opto-electronic solutions that can deliver the increased compute capacity with a lower energy footprint.

This has created accelerated momentum, where hyperscalers are designing and implementing their own AI engines, commonly using ARM processors, in addition to industry standard GPUs. These engines are optimised for their specific models, and deliver higher performance using lower power.

Not surprisingly, the custom silicon market is expected to grow at a healthy double-digit rate over the next few years as hyperscalers invest in the development of their own AI engines.

AI and machine learning (ML) put a tremendous amount of bandwidth performance requirements on the network, and are therefore among the major growth drivers for data centre switching over the next five years. With bandwidth in AI growing, the portion of Ethernet and PCI-Express switching that is used to connect AI/ML and accelerated computing will migrate from a niche today to a significant portion of the market by 2027[1]. Our connectivity technology plays a central role in building the network connecting the switches, optics and GPUs.

How do you see business in China evolving over time?
In 2023, Licence and NRE bookings from China remained below 10% for a second consecutive year (FY 2023: 7%; FY 2022: 10%). This is an important leading indicator of the transformation of our pipeline and our revenue over the medium to long term. Based on this, we expect a decline in revenue from China over the longer term, which will be mainly offset by revenue from North American customers.

In 2023, revenue from China was US$190.4m or 59% of the Group revenue (2022: US$105m or 57% of the total). The increase in revenue from China was mainly driven by the legacy silicon business from OpenFive.

China is an important market for the semiconductor industry and the Group will continue to comply with all applicable rules and regulations to ensure we can create sustainable customer relationships in all geographies.

1. https://650group.com/press-releases/data-center-ai-networking-surges-over-100-y-y-as-infiniband-and-ethernet-achieve-record-revenues-in-1q23-according-to-650-group/.

Did the custom silicon business perform as expected? What do you think is the strength of the offering?
Our broad portfolio of high-speed connectivity IP is what sets us apart. We can bundle our IP and expertise to win larger and more complex custom silicon opportunities at leading-edge process nodes.

We have transformed our custom silicon business from a low margin business to a highly scalable AI and data centre business, and our pipeline is built on opportunities in advanced nodes, 5nm and below.

Our custom silicon team deploys the necessary IP from our portfolio, working closely with our customers, taking their specifications and transforming them into silicon. In 2023, we achieved key wins into next generation 800G/1.6T solutions for data centre, including a 3nm highspeed IP licensing deal and a 3nm custom ASIC win for AI. These wins were the result of our leading connectivity IP, our partnership with ARM and our design capability in advance nodes.

Is the Connectivity Products business on track to deliver first revenue in 2024?
The Connectivity Products business is developing the next generation of PAM4 and coherent technology to drive the cabling. This will feed the exponential data growth over the next several generations of product refresh, creating the optical network that connects all the switches inside data centres. We are working closely with a leading North American hyperscaler and we expect first revenue in 2024.

What are the main sustainability priorities for Alphawave Semi?
In 2023 we joined the United Nations Global Compact and in 2024 we will be submitting our first Communication on Progress describing our company's effort to implement the Ten Principles. In addition, we undertook our first sustainability materiality assessment, which is informing our sustainability strategy and helping us prioritise what is most critical to the long-term success of the Company.
The outcome of the assessment was shared with the Board.

As a provider of leading connectivity technology, our products contribute towards the deployment of a more efficient digital infrastructure, enabling the transmission of data faster, more efficiently and consuming less energy. Our commitment to sustainability extends to our ongoing operations, as we seek to maintain high standards of business conduct across our value chain.

We have delivered ongoing progress with our sustainability reporting and we will continue to do so over the coming years.

What's next for Alphawave Semi?
During 2023 we consolidated and fully embedded the acquisitions we made in 2022.

We also continued to invest in future revenue growth, expanding our workforce and pushing ahead with the development of leading connectivity technologies and our own connectivity products.

Despite an uncertain macro and geopolitical environment, our customers continue to invest in leading technology. AI investments are ramping up quickly and could amount to US$200bn globally by 2025[1]. Our pipeline reflects the accelerated momentum in the rollout of next generation AI infrastructure and provides a solid foundation from which we seek to create long-term value for our shareholders and other stakeholders. I look forward to the future with confidence.

1. https://www.goldmansachs.com/intelligence/pages/ai-investment-forecast-to-approach-200-billion-globally-by-2025.html.

ESG

Introduction
Our success and long-term value creation depend on the close collaboration of various stakeholders. Working closely together and acting responsibly can positively impact our business while creating long-term value for our shareholders, employees, customers, partners and the communities where we live and work.

In 2023 we established the ESG Steering Committee, undertook our first sustainability materiality assessment and joined the United Nations Global Compact.

The Group supports the UN SDGs and through our existing programmes and technologies we contribute to progress against five of the 17 goals.

Managing our resources and relationships

We are managing our resources and relationships to create a sustainable business model, aiming to preserve and create long-term value for a wide range of stakeholders.

A sustainable business model
Vision
Since the Company's IPO, we have sought to carefully manage our key sustainability issues and risks. We aim to embed sustainable and responsible business practices into the way we act internally and engage with external stakeholders in order to create and preserve long-term value for a wide range of stakeholders.

Applicable external standards
We participate in and are committed to the principles of the following standards:

- United Nations Global Compact (since July 2023).
- ISO 9001 Quality Management System Standard for our custom silicon operations.
- Sustainability Accounting Standards – SASB Semiconductor Standard version 2023-12.

In addition to the above, we apply the UN Guiding Principles and international recognised labour rights, and aim to contribute to the achievement of the UN SDGs.

- UN Guiding Principles.

Management approach
In 2023, we established the ESG Steering Committee, joined the United Nations Global Compact and undertook our first sustainability materiality assessment.

The ESG Steering Committee is a multi-disciplinary group chaired by the Executive Chair, with representatives from People, Places and Culture (PPC), Governance, Investor Relations, IT, Risk Management and Supply Chain. The purpose of the ESG Steering Committee is to:

- ensure all relevant sustainability areas are identified, managed and reported upon, externally and internally;

- co-ordinate overall ESG strategy and identify areas of improvement across the Group; and
- ensure consistency between consideration of ESG issues and the Group's main strategic decisions.

The ESG Steering Committee met three times during 2023. During the year, the Steering Committee reviewed and discussed ESG ratings, and considered actions to improve a range of activities. The ESG Steering Committee also supports the identification of ESG risks and opportunities, reviews all relevant KPIs and proposes changes when necessary.

In December 2023 the ESG Steering Committee reviewed the outcome of our first materiality assessment for the first time. Further reviews will take place during 2024 by each functional lead and these will inform our future ESG strategy and prioritise our activities across the Group.

PPC, Operations Manufacturing and IT are responsible for the management of their respective sustainability issues, and are subject to the oversight of the ESG Steering Committee and the management team. Where sustainability management performance issues are of sufficient importance, responsible departments will report these directly to the Board on an ad hoc basis.

Main sustainability issues
In 2023, the Company undertook its first sustainability materiality assessment to support the ESG Steering Committee in the ongoing development of the Company's ESG strategy and management approach. The outcome of the assessment provided a holistic view of where the Company should focus its ESG management and reporting efforts (i.e. identification of its material ESG issues, as well as insight into key risks, opportunities and impacts). It provided recommendations on a number of areas which will be reviewed in detail in 2024.

The assessment was carried out by an external third party, following a structured four-stage approach to identify what matters most to the Company and its stakeholders:

- baseline research including sector analysis, peer benchmarking, ESG rating reports, customer questionnaires, external standards and media reviews;
- internal engagement with subject matter experts;
- external engagement with investors and ESG analysts; and
- verification and finalisation.

Governance, including risk management, was automatically considered as material.

The results of the materiality assessment are set out in the matrix published below.

This includes our most material issues, as well as a range of additional relevant issues that we are also proactively managing. The matrix replaces the SASB Semiconductor Risk Matrix considered in 2022. The Group continues to report on sustainability topics following the Semiconductors Sustainability Accounting Standard 2023-12. Further details can be found in the Appendix.

During the assessment, external stakeholders shared additional comments on three areas:

- product impacts: the low-emissions nature of the business and the demand for further disclosures on the positive impact of our products;
- R&D and innovation: as a business at the forefront of technology, the need for a set of KPIs to monitor progress in this area; and
- governance: investors are placing further scrutiny on a number of ESG topics, such as talent attraction, development and retention or carbon emissions.

Material sustainability issues
These are the sustainability issues that are most important to our business and key stakeholders. Although our sustainability activities cover a wide range of topics, our effort is focused on these.

1. Economic performance and impact
2. R&D and innovation
3. Compliance, business ethics and transparency
4. Talent attraction, development and retention
5. Product impacts
6. Value chain disruption
7. Cybersecurity
8. Responsible supply chains
9. Employee engagement and wellbeing
10. Climate risks and opportunities
11. Diversity, equity and inclusion
12. Meeting customer standards

Focus areas in 2024

- ESG Steering Committee functional leads to review in detail the recommendations of the materiality assessment to inform and identify areas of improvement and next steps.
- Update our ESG Policy taking into account the outcome of the materiality assessment.
- Agree carbon emissions baseline based on 2023 data, identify actionable targets and develop a plan.
- Continue our focus on recruitment, talent management and retention to support our growth strategy.

Alphawave Semi joined the UNGC in July 2023.
The Group supports the UN SDGs and through our existing programmes and technologies we contribute to progress against five of the 17 goals in the following ways:

Highly engaged and diverse workforce
UN SDG 4 QUALITY EDUCATION
UN SDG 5 GENDER EQUALITY
UN SDG 8 DECENT WORK AND ECONOMIC GROWTH

Quality education
Alphawave Semi fosters future innovators through our support for science, technology, engineering and maths (STEM) subjects, particularly amongst female students. This includes our community engagement activities, internship programme, collaboration with universities and our recent partnership in Canada with Let's Talk Science.

Gender equality
Alphawave Semi takes equality and equal opportunity for all employees very seriously. In line with our corporate values, we conduct business ethically, honestly and in full compliance with applicable laws and regulations. This applies to every business decision in every area of the Company worldwide. Our Equal Opportunities and Dignity at Work Policy and Code of Ethics and Business Conduct provide a solid framework to ensure all related activities are fully compliant.

We are making efforts to raise awareness amongst women, both inside and outside the Company, of the exciting careers in engineering.

Decent work and economic growth
As a business built on innovation and leading-edge technology, we recognise the importance of investing in the development of our employees. Alphawave Semi is committed to employing and developing those people who have the necessary skills, experience and values to excel in their role. The Company is also making efforts to develop the talent of the future and our internship programme and learning and development activities are key to this.

Leading wired connectivity IP and products
UN SDG 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
UN SDG 13 CLIMATE ACTION

Industry, innovation and infrastructure
Innovation is at the core of our business and we seek to sustain a healthy level of investment in the development of leading-edge connectivity technology and products. Our technologies support infrastructure development and value creation from the adoption of AI. Our R&D approach and close collaboration with foundry partners, customers and ODMs, ensure we remain at the forefront of connectivity technology.

Climate action
Our connectivity technology helps to reduce the power consumption of data centres, as well as minimise the number of chips required.

Although fabless, we seek to reduce our carbon footprint using renewable energy in those locations where it is available and offset all travel-related CO_2 emissions.

Increasing long-term returns and investment in high margin revenue with strong cash flow generation
UN SDG 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Industry, innovation and infrastructure
As part of our strategic objectives, we reinvest cash in the organic development of new connectivity technologies and products. We seek to maintain a focused and sustained investment in the R&D of leading and lower power connectivity technologies aiming to solve the hardest problems.

Responsible and longstanding relationships
UN SDG 8 DECENT WORK AND ECONOMIC GROWTH

Decent work and economic growth
We expect all of our major suppliers to comply with minimum standards relating to impacts on human and labour rights, health and safety, and the environment. The Company is committed to fair wages, healthy and safe working conditions, respect for human and labour rights, and honest relationships with both customers and partners in the supply chain.

This is in addition to our support of the Ten Principles of the United Nations Global Compact on human rights, labour, environment and anti-corruption.

Our people

Context
Building upon the effort made in 2022, 2023 was a pivotal chapter in our journey, marked by the continued integration of our newly acquired teams. We aim to enhance cohesion, productivity and innovation across the entire organisation. Whilst our headcount grew more slowly this year, we continued to add capability in our teams in support of our growth strategy. Our closing headcount grew from 695 in 2022 to 829 as of 31 December 2023. In 2023, we opened new offices in Pune, India and Ottawa, Canada.

Management approach: nurturing excellence through people-centric values
We firmly believe that our people are the driving force behind our success. Guided by a robust management approach, we seek to prioritise the wellbeing, development and engagement of our employees. This commitment is overseen by the Vice President of PPC and supported by a dedicated PPC team based in each of our regions.

The management team interacts daily with employees and operates a dedicated PPC function at our key sites. We have implemented employee policies and procedures that are appropriate for the size of the Company and meet the requirements of applicable local legislation.

Our goal, reflected in our policies, is that our employees can openly communicate and share any ideas and concerns with management regarding working conditions and management practices without fear of discrimination, reprisal, intimidation or harassment. Our approach is characterised by the following key pillars:

Customised human resource policies
Our HR team is dedicated to the application of human resource policies tailored to reflect local legal requirements, business priorities and labour market nuances. By seeking to ensure compliance while adapting to the unique needs of different locations, we aim to create a work environment that respects diversity and fosters inclusion.

Code of Ethics and Business Conduct
We adhere to a Code of Ethics and Business Conduct that establishes fundamental standards governing our behaviour. This includes a strong commitment to labour and human rights, seeking to ensure that our employees work in an ethical and respectful environment.

Talent planning and development
Recognising that our people are our most valuable asset, we invest in talent planning and development initiatives. This approach seeks to ensure that our employees and our business are equipped with the skills and knowledge needed to thrive in an ever-evolving technological landscape.

Diversity and inclusion
We recognise the benefits that a diverse workforce can offer. We actively seek to create an environment where different perspectives are not only welcomed but celebrated. Our commitment to diversity is fundamental to fostering innovation and creativity within our workforce.

Employee engagement and communication
To align our workforce with our business objectives, we implement robust engagement and communication strategies. This seeks to ensure that our employees are well-informed, motivated and connected to the larger vision of the Company.

We undertake annual employee satisfaction surveys and the CEO has regularly appeared in virtual meetings for all employees, providing a summary of business performance, and addressing questions on a wide range of topics.

Knowledge sharing and collaboration
We encourage a culture of knowledge sharing and collaboration, believing that collective intelligence fuels innovation. Our employees are empowered to share ideas, collaborate across teams, and contribute to the continuous improvement of our operations.

Employee wellbeing
We strive to create a supportive environment that prioritises the physical and mental health of our workforce. By doing so, we seek to foster a workplace where our employees can thrive both personally and professionally.

Reward and recognition
We recognise high performance through effective and targeted compensation, as well as benefits programmes that enable our employees to share in the value they create.

We seek to create an entrepreneurial and dynamic culture, where the best in our sector want to work and develop their careers in advanced technologies. We have built our company on the foundations of diversity and inclusion, where our employees can share their ideas and concerns.

Working conditions and employment rights
Our workspaces aim to offer our employees the highest standard of safety, comfort, technology and accessibility, with additional measures to ensure employees can successfully work remotely as required.

We support internationally recognised human rights, as laid out in the Universal Declaration of Human Rights, including labour rights such as freedom of association, and aim to ensure that our employees benefit from excellent working conditions, across all geographies.

We have a formal grievance escalation procedure which is referenced in the Workplace Violence and Harassment Policy as well as in the Code of Ethics and Business Conduct (see policies at **https://awavesemi.com/company/esg**).

Closing headcount by region
North America | 43%
EMEA | 9%
APAC | 48%

Diversity

Total employees gender diversity
Male | 81%
Female | 19%

Senior management gender diversity
Male | 92%
Female | 8%

Board gender diversity
Male | 60%
Female | 40%

Equal opportunities
Our Equal Opportunities and Dignity at Work Policy (see **www.awavesemi.com**) stresses the value and importance of diversity in the workplace and highlights our strict stance against discrimination, harassment or bullying in the workplace.

We respect and uphold internationally proclaimed human rights principles (Universal Declaration of Human Rights) and in 2022, the first year after our IPO, we put in place an Anti-Slavery and Human Trafficking Policy, which applies to both employees and others through whom the Company conducts business. The Company may perform investigations and audits to verify that business is being conducted in compliance with this policy. For more information see **www.awavesemi.com**.

Number of employees

FY 2023	**Female**	***Male***	Total
Board	**4**	***6***	10
Total employees	**160**	***669***	829
Senior management[1]	**1**	***10***	11

FY 2022	**Female**	***Male***	Total
Board	**4**	***6***	10
Total employees	**141**	***554***	695
Senior management[1]	**1**	***11***	12

1. Senior management diversity reflects the composition of the leadership team, including the CEO and the Executive Chair.

UN SDG 4 QUALITY EDUCATION
UN SDG 5 GENDER EQUALITY
UN SDG 8 DECENT WORK AND ECONOMIC GROWTH

Disclosure regarding employment of disabled persons
In accordance with our Equal Opportunities and Dignity at Work Policy, we give full and fair consideration to applications for employment made by disabled persons, having regard to their aptitudes and abilities. We remain committed to any employees who become disabled during their time with us, ensuring they receive the support and training they may require. Promotion and development opportunities are provided for all employees without discrimination. All these topics are covered in our Equal Opportunities and Dignity at Work Policy and Alphawave Semi Accessibility Plan (see all People-related policies at **www.awavesemi.com**).

Key initiatives

Employee wellbeing
The wellbeing of all our employees is important to the Company. During 2023, our employees continued to work following a hybrid model, working remotely and in our offices.

Number of employees (closing)
829
FY 2022: 695

Employee turnover
7%
FY 2022: 10%

Gender diversity
19%
FY 2022: 20%

We put in place multiple initiatives and activities to make the most of the time our employees spend at our offices, creating opportunities for social interaction and promoting a healthy and supportive environment; for example, health check days, assistance programmes and access to wellness courses such as yoga and meditation.

We have in place a Right to Disconnect Policy (see **www.awavesemi.com**) which recognises that every employee has the right to, and should, disconnect from work outside of their normal working hours unless there is an emergency or agreement to do so, for example there is an emergency and/or another legitimate reason (examples of which are provided in the policy).

Talent identification and recruitment
We believe our employees are our best ambassadors and that is why the Company has an internal referral programme in place. Employees who refer successful candidates receive a reward. In parallel, we have social media campaigns targeting specific skills and roles.

Employee learning and development
Facilitating learning and sharing across the organisation are key aspects of employee development. Alphawave University is an internal programme that aims to give employees the opportunity to learn different aspects of our Company and its technology. The programme consists of regular sessions where a range of technical and non-technical topics are discussed. Presenters are mostly members of the management team and the Board.

The Company also has an employee education programme that reimburses employees upon successful completion of relevant courses. Employees identify their learning and development needs on a regular basis (both technical and non-technical) and agree these with their line manager.

In 2023, we added over 20,000 courses to our Global HR system covering a broad range of competency and technical training needs.

Alphawave University – A session with our Senior Independent Director Jan Frykhammar
Jan Frykhammar was the main speaker in a virtual meeting with employees, part of the Alphawave University programme. Jan shared valuable insights gained as an experienced CFO. He discussed his views on performance management, risk management and the importance of establishing a clear link between the present and mid-term ambitions. Jan also discussed the importance of culture in organisations and how all employees share a joint responsibility for success.

Leadership development
2023 was the second year of our Board mentoring programme. This programme cultivates leadership excellence within our organisation. By pairing experienced Board members with leaders, this programme fosters a unique mentorship dynamic that transcends traditional hierarchical structures. Through personalised guidance, seasoned leaders can impart strategic insights, industry knowledge and leadership skills to mentees, contributing to their professional growth and development.

The mentorship programme plays a pivotal role in shaping a robust leadership pipeline by instilling a strong sense of organisational culture, values and strategic vision. As mentors share their experiences and expertise, they support the next generation of leaders, fostering a collaborative and forward-thinking leadership ethos that benefits the entire organisation.

Diversity and inclusion
We believe in fostering an inclusive environment where every individual, regardless of gender, background or ethnicity, can thrive. We are committed to supporting community programmes aimed at encouraging children, especially girls, to explore and pursue STEM fields. By investing in these initiatives, we hope to contribute to the development of a diverse talent pipeline and inspire the next generation of leaders.

In 2023, for example, we launched two new D&I initiatives. We started a partnership with Let's Talk Science in Canada, to encourage girls to get into engineering and ultimately take engineering programmes we hire from. Let's Talk Science is an award-winning, national, charitable organisation, focused on education and outreach to support youth development. They create and deliver a comprehensive suite of unique learning programmes and services that engage children, youths and educators in STEM.

In addition, we launched a women's mentoring programme within our organisation, recognising the importance of empowering women to excel in their careers. These initiatives reflect our dedication to fostering diversity, equity and inclusion. Our two largest locations, India and Canada, now have dedicated gender diversity initiatives in place. Our internship programme is also part of our D&I initiatives.

The majority of our independent Board members are women and 19% of our employees are female (FY 2022: 20%).

We closely monitor our salary systems, regular reviews and processes, which have been designed to avoid any gender-based discrimination.

Alphawave Semi is not legally required to submit Gender Pay Gap data as it does not have the minimum required number of employees in the UK. The Company has a Diversity and Inclusion Policy in place which is available on our website at **www.awavesemi.com.**

Alphawave University – A session with our CEO, Tony Pialis

Tony Pialis, our CEO, was the main speaker in a virtual meeting with employees, part of the Alphawave University programme. Tony shared his background and early experiences as an entrepreneur in the semiconductor industry as well as Vice President of Mixed-Signal IP at Intel. He shared with employees his vision and ambition for the future of the business and how employees can be part of the journey. During the event, employees had the opportunity to ask Tony questions.

Internship programme

Alphawave Semi has internship programmes in Canada and India, the two countries with the highest number of employees. During 2023 we successfully hired many of our interns. As of 31 December 2023, there were 12 interns in the Company (FY 2022: 47).

In Canada, we welcome interns from the universities of Toronto and Ottawa, and the programme runs for a period of 12 to 16 months. As of 31 December 2023, there were eleven in Canada (FY 2022: ten).

The programme seeks to encourage the next generation of engineers and innovators, giving them insight into the wide range of engineering careers and illustrating the valuable contribution they can make to the advancement of technology.

The main objective of our internship programme is to identify high potential students in their final semester or year of their undergraduate or masters degree, with a view to future employment within the Company. As of 31 December 2023, there was one intern in India (2022: 37). The programme engages with universities such as KLE Tech University, the University of Burdwan and the CVR College of Engineering in Hyderabad. Students come from different socio-economic backgrounds.

Reward and recognition

We offer market-competitive pay and employee benefits, along with opportunities for individual and team recognition, all within a supportive working environment. We regularly benchmark our pay and benefits against the employment markets in which we operate.

Our compensation programmes include short-term cash-based bonus and long-term share plans that allow us to differentiate levels of reward, based on critical skills and performance levels. In early 2023, the Company introduced a performance appraisal process with clear objectives aligned with the Company objectives.

The majority of our employees participate in our long-term incentive programme which helps to promote a shared sense of ownership. The majority of the hires we made in FY 2023 were given equity incentivization through our long-term employee share programme.

Non-financial benefits

Employees have access to a variety of non-financial benefits that contribute to their overall job satisfaction and wellbeing. These benefits include, amongst others: flexible work arrangements, such as telecommuting and flexible hours; professional development opportunities such as training programmes and educational assistance; and health and wellness initiatives, including health insurance and access to gym memberships, as well as access to financial counselling.

We seek to ensure that our teams have the opportunity to participate in team-building activities and workshops, fostering a positive company culture. In addition, employees have access to different work amenities such as remote work support and massage chairs. Employee engagement initiatives, a strong emphasis on company culture and values, health check days with doctors on site and volunteer and community involvement programmes, contribute to a holistic and supportive work environment.

The availability of these benefits varies reflecting geographic location, regional cultures and regulatory requirements.

Employee engagement and communication strategies

We implement ongoing employee engagement and communication through town halls, employee forums and local events with the participation of the senior management team. We keep employees updated on the strategic progress of the Company, as well as financial results and key areas of strategic focus for the business.

In 2023, we undertook our second annual employee satisfaction survey, which was conducted by 'Great Place to Work'. The response rate for the Group was 76% (FY 2022: 80%, Canada and US only) and the feedback from our employees was extremely positive. Amongst some of the positive messages, our employees feel that they can make a difference and remain committed to go the extra mile to get the job done.

The survey also suggested that enhancing work/life balance and development programmes remain as two of the key areas of interest for our employees.

The results of the annual survey were presented back to the Board and employees, and have informed changes to, for example, the Global Rewards and Recognition Programme, which will be rolled out in 2024.

The Company is now certified as a Great Place to Work® in all its main locations (FY 2022: Canada and US only).

Focus areas in 2024

- Improve our employee response rate, fostering a workplace where our team members feel valued, motivated and empowered.
- Implement a comprehensive Global Rewards and Recognition Programme.
- Implement community outreach initiatives globally focused on education and healthcare.
- Implement Company-wide job architecture and compensation design and strategy.

Environmental responsibility

Context

As a fabless semiconductor company we have a low carbon footprint relative to companies in other segments of the value chain. Alongside the benefit our products bring to the overall energy consumption in digital infrastructure applications (such as data centres, 5G base stations and artificial intelligence) we are working towards minimising and reducing our carbon footprint over time.

Although fabless, we are making ongoing efforts to minimise our carbon footprint and rely on our foundry and OSAT partners, which are mostly based in Asia, for the fabrication, testing, assembly and distribution of our products.

We intend to use FY 2023 data to baseline our carbon footprint and identify opportunities to reduce carbon emissions further.

Management approach

Responsibility for environmental performance sits with the Board. We govern our environmental responsibility through the application of our ESG Policy, which was approved in early 2023 and addresses our key priorities.

The Company seeks to minimise and gradually reduce its carbon footprint through a combination of emission reduction and energy efficiency initiatives and the use of carbon offsets.

In addition to the environmental reporting in this section we make further disclosures following the Semiconductors Sustainability Accounting Standard version 2023-12 (see SASB table in the Appendix).

Governance

The Board has overall accountability for the management of climate-related risks and opportunities.

UN SDG 13 CLIMATE ACTION

Our Chief Financial Officer is responsible for our risk management framework, including the assessment and management of climate-related risks. The ESG Steering Committee supports and guides the execution of our climate-related and environmental activities.

Our Global Head of Investor Relations is also responsible for leading our climate change agenda and managing our policies and practices across sustainability and ESG matters. Our Global Facilities Manager is responsible for all our facilities and our IT Director is responsible for our IT resilience and IT end-of-life policies.

Strategy

The delivery of our technology to customers is, in certain instances, through virtual and not physical means. Our value chain has worked effectively through exceptional circumstances, such as the COVID-19 pandemic, to execute remotely and from alternative locations. Therefore, we regard our exposure to direct physical climate-related risks as low.

Further, the impact of any transitional changes upon the Group and its operations is considered to be low compared to those businesses that have more direct dependencies. However, carbon pricing policies and the cost of energy can have some impact in the running costs of our business.

In preparing the consolidated financial statements, the Directors have considered the impact of climate change on the Group and have concluded that there is no material impact on financial reporting judgements and estimates (as discussed in note 3 to the financial statements). This is consistent with the assertion that risks associated with climate change did not affect the business, its strategy and financial performance in 2023, and are not expected to have a material impact on the longer-term viability of the Group.

Further, the Directors do not consider there to be a material impact on the carrying value of goodwill, other intangibles or on property, plant and equipment.

Metrics and targets

For the third consecutive year, the Company appointed Carbon Footprint Ltd, a carbon and energy management company, to independently assess its greenhouse gas (GHG) emissions in accordance with the UK Government's 'Environmental reporting guidelines: including Streamlined Energy and Carbon Reporting requirements'. The GHG emissions have been assessed following the ISO 14064-1:2018 standard using the 2021 emission conversion factors published by Department for Environment, Food and Rural Affairs and the Department for Business, Energy and Industrial Strategy.

We use Scope 1, Scope 2 and partial Scope 3 emissions as our metrics. As a fabless business we outsource the production of semiconductors to leading foundries. In line with our fabless peers, we currently have no data from the foundries on the emissions relating to the manufacturing of our products or our IP embedded in customers' products which would be very complex to calculate. In addition, we use the intensity ratio per employee as defined in the table below.

The assessment follows the location-based approach for assessing Scope 2 emissions from electricity usage. The financial control approach has been used.

The table below summarises the GHG emissions for the 2023 reporting year, including all our locations in 2023. Israel was not included in 2022. In 2023 we moved to larger offices in Pune and Ottawa, resulting in higher Scope 2 emissions. Israel was not included in the reported 2022 emissions.

Scope 1 includes emissions associated with gas consumption. Scope 2 includes emissions associated with electricity consumption. The increase in Scope 1 and Scope emissions was mainly driven by the increase in our headcount and the square footage of our offices. Scope 3 includes those emissions associated with business travel and also includes electricity consumption attributable to our utilisation of servers within our third-party data centre provider. In our 2023 Scope 3 emissions we have for the first time, included those from outsourced logistics, commuting and computing. This resulted in an increase in excess of 1,600 metric tonnes. In addition, due to the increase in our headcount and level of business activity, emissions related to travel increased by over 800 metric tonnes. These two elements represent over two thirds of the overall increase in 2023. In 2024 we will be analysing in further detail our 2023 emissions to establish a baseline carbon footprint from which we can identify opportunities for improvement over the short, medium and long term and assess the need for more specific reduction goals and targets.

Streamlined Energy and Carbon Reporting	2022	**Baseline year 2023**
In metric tonnes CO_2e		
Total Scope 1 emissions (natural gas)	208.9	**378.7**
Total Scope 2 emissions (electricity consumption)	341.5	**1,111.5**
Total Scope 3 emissions (transmissions and distribution, non-controlled electricity, hotel stays, homeworkers, computing, upstream logistics air and road, well to tank, commuting, flights, hire car, taxi and grey fleet travel.)	601.7	**3,452.6**
Total gross (Scope 1, 2 and 3) location-based emissions	1,152.1	**4,942.8**
Intensity ratios		
tCO_2e (gross Scope 1, 2 and 3) per employee	1.78	**5.96**
tCO_2e (gross Scope 1, 2 and 3) per US$m revenue[1]	nm	**15.3**
Underlying energy consumption (kWh)		
Total global energy consumed	2,618,460	**5,685,827**
Total UK energy consumed[2]	n/a	**n/a**
UK-based emissions	nm	**nm**
UK-based energy consumption	nm	**nm**

1. tCO_2e (gross Scope 1, 2 and 3) per US$m revenue reported as nm in 2023 and 2022. Group FY 2022 revenue includes revenue from the acquisition of OpenFive from 31 August 2022 (closing date) but FY 2022 emissions baseline includes annualised contribution from the related locations in India and the US. Considering the annualised contribution of these locations allowed for a more meaningful tCO_2e (gross Scope 1, 2 and 3) per employee comparison.
2. UK energy consumed in 2023 and 2022 was calculated based on the kWh for home-working and it represented an insignificant portion of the total energy consumed.

We are gradually rolling out activities to reduce our GHG emissions: actively managing e-waste with robust product lifecycle management programmes for our computer and IT resources, reducing unnecessary business travel, locating our offices in energy-efficient buildings and, where possible, sourcing from renewable energy. In 2023 we made the decision to relocate our offices in Bangaluru to newly built premises that are more energy efficient. The relocation will take place in 2024.

In addition, we are also offsetting our GHG emissions from travel included in Scope 3.

Our reporting is consistent with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). We provided the information on our approach to assessing and disclosing climate-related risks and opportunities in accordance with Listing Rule 14.3.27R, except for the following matters: disclosure ('strategy c') – we have not performed a quantitative risk assessment or climate-related scenario analysis. The Directors believe this is not necessary for an understanding of the Company's business at this stage. In 2024 we will evaluate the additional requirements and associated costs to assess the resilience of the organisation under different climate-related scenarios. Following this evaluation, we will make a decision on whether a quantitative risk assessment should be prioritised and the timing if appropriate.

See our full compliance statement in the Appendix.

Risk management

Our process for identifying and assessing climate-related risks and opportunities follows our Group-wide risk assessment and management process. These risks, together with mitigations, are discussed by the executive management team and the Board. Given our fabless business model, the Group's exposure to climate-related risks is considered to be limited and not currently classified as a significant risk.

The Group has not identified any short-term direct climate-related risks that are likely to have a material and direct impact on our operations. We are potentially exposed to medium and longer-term climate-related risks of a global/macro nature that impact society in general, together with risks which may impact our end-customers and the broader semiconductor supply chain.

Short, medium and long-term time periods

Short term | 2021-2030
Medium term | 2021-2040
Long term | 2030-2050

Climate-related risks and opportunities related to the transition to a low-carbon economy

Risks	Opportunities
Policy and legal | low risk, medium to long term In 2023, we undertook our first business materiality assessment We continue to adapt and comply with regulatory standards, including evolving product standards. As a fabless business with low capital intensity we do not have a significant amount of assets at risk of impairment or early retirement as a result of changes in environmental legislation.	***Resource efficiency | low risk, medium to long term*** We are actively managing e-waste, reducing unnecessary business travel and, when necessary, relocating our offices into energy-efficient buildings.
Technology | low risk, medium to long term Alphawave Semi is at the forefront of wired connectivity technology. Our leading-edge technology advances push the boundaries of wired connectivity capabilities, enabling data to travel faster, more reliably and using lower power. Our focus on connectivity and R&D investment seeks to ensure we remain ahead of our competitors.	***Energy source | low risk, medium to long term*** Energy from renewables is not available in all our locations, but where possible, we try to improve the mix of purchased energy towards renewables. All our premises are leased. Our offices in Canada (Toronto and Ottawa) and the US (Milpitas and San Jose) are based in modern, smart buildings with energy-saving systems and modern HVAC systems. In 2023 we selected a new location for our office in Bangalore; a highly efficient building with climate resilience procedures in place.
Market | low risk, medium to long term As a fabless business, energy costs are not a major direct cost driver. Our business has a low risk exposure from scarcity of 'rare Earth materials'. Higher energy costs could potentially impact the direct costs of our manufacturing partners and result in higher cost of goods sold. Our foundry partners are the leading manufacturing companies in the industry and continuously invest in the adoption of next generation manufacturing technologies.	***Products and services | medium risk, medium to long term*** The semiconductor industry is well placed to support the transition to a lower carbon emission economy. Our technology enables semiconductors with lower power consumption, contributing to a more energy-efficient digital infrastructure, such as data centres, 5G base stations and other data-intensive applications. Our technology contributes in different ways to reduce the power consumption of data centres.

Reputation | low risk, long term
Although our direct carbon footprint is relatively small compared to other business activities, we seek to reduce our carbon footprint and undertake appropriate efforts to not fall short of best practice amongst fabless semiconductor companies in our sector and our largest customers.

We are planning to use our 2023 carbon emissions baseline to set a clear level from which we can define specific environmental goals.

Markets | medium risk, long term
We work with the leading companies in the semiconductor industry, leading telecommunications business, technology companies as well as hyperscalers. These companies have a strong focus on reducing their carbon footprint and are investing in new technologies.

Our connectivity technology aims to address the hardest-to-solve problems for customers in digital infrastructure markets.

Our new range of opto-electronics and increased AI and data centre custom silicon business represent new revenue opportunities for our low power technologies, contributing towards reducing the power consumption of data centres and AI infrastructure.

Related to the physical impact of climate change
Acute risk (event driven) | low to medium risk, medium to long term
As a fabless semiconductor company, our own operations are unlikely to face any specific material risks as a result of the physical impacts of climate change, such as property damage due to extreme weather events (i.e. changes in temperature, wind patterns or water-related).

We have not yet assessed current and future climate risks, acute and chronic, in our most critical locations. In 2024 we are intending to evaluate additional requirements and costs involved in such assessment.

All our employees can work remotely and the majority of our offices are located in modern offices in city centres.

Our manufacturing partners have implemented multiple initiatives to reduce their carbon footprint, review water and energy usage, and understand and manage the effects of climate change on their own operations. We work with leading companies such as TSMC, Samsung and Intel which follow the recommendations of the TCFD and have initiatives in place to manage these risks.

Chronic risk (long-term shifts in climate patterns) | low to medium risk, medium to long term
In the longer term, changes in greenhouse gas emissions regulations could result in increased costs in our supply chain due to higher compliance, raw materials or energy costs to our suppliers.

It could potentially become more difficult or expensive to insure certain locations.

Dependency on natural, human and social capital
Climate change would not create any new direct dependencies on natural, human or social capital.

Our highly skilled engineers and talented employees are vital to ensure we can deliver innovative products. Electronic engineers are in high demand and companies outside the semiconductor industry are establishing engineering departments to design some of their semiconductor requirements.

Focus areas in 2024
- Develop further training, define process for data collection and reporting requirements to support the collection and monitoring of emissions across the Group’s locations.
- Set emissions baseline using 2023 data and develop emission-reduction strategies for our main locations.
- Evaluate additional requirements and costs involved in the development of climate-related scenarios.

Supply chain

Context
Our Silicon Operations team is responsible for managing the manufacturing process that is outsourced to foundries as well as semiconductor assembly and test (OSAT) partners.

As a fabless business, our commercial success is reliant on our ability to manage our supply chain. As such, we are not only focused on minimising any reputational, commercial or contractual harm but also to identify and proactively manage related sustainability impact.

As well as minimising potential disruption risks, this also includes sustainability aspects such as:

- impact on human and labour rights (aligned to national legislation);
- health and safety performance of our partners; and
- environmental impact.

Our main foundry and OSAT partners, which are the leading companies in their sectors and much larger organisations, have longstanding environmental and labour programmes in place.

Management approach
We outsource the production of our semiconductors to the leading companies in the industry, such as TSMC. These companies provide high-quality products and have the ability to meet both our stringent qualification requirements and our tight deadlines.

Assembly and test functions are also outsourced to leading companies in the sector, such as ASE.

We still retain advanced packaging expertise in-house, such as 2.5D and 3D technologies, as this is an area of vital importance in the development of new architectures, such as System-in-Package and chiplets.

Our manufacturing operations are ISO 9001:2015 certified **https://awavesemi.com/custom-silicon/**

Our Vice President of Silicon Operations is responsible for all manufacturing-related activities, including the management of our foundry, assembly and test partners. Board-level responsibility for supply chain lies with our CEO.

We manage our supply chain by:

- requiring all our fabrication, assembly and test partners to be ISO 9001 certified;
- the categorisation of partners as critical and non-critical;
- screening all partners against our manufacturing partner assessment survey and undertaking on-site audits for a limited number of suppliers, mainly those categorised as critical;
- carrying out annual audits (audit-light approach) of our major partners using the assessment survey checklist including a focus on training and development of staff, working conditions and the traceability of materials, as well as a range of topics directly related to the quality and control of their activities;
- jointly reviewing the annual audits with our partners, including any recommended corrective actions. Any major discrepancies may require a re-survey to verify that the required corrective actions have been implemented;
- significant non-compliance quality events are addressed by issuing Corrective Action Requests (CARs). These actions identify root cause, implement permanent corrective actions, and are followed by monitoring its effectiveness;
- engaging with those suppliers which have not met our requirements to resolve and to raise their level of performance to acceptable levels; and
- carrying out weekly business and performance reviews with our regular partners, as well as in-person bi-monthly business reviews and annual meetings with our major vendors.

In addition, certain customers carry out due diligence on us and our suppliers to ensure adequate systems are in place to monitor ongoing performance, ensuring it is in line with expectations and the products supplied meet all requirements.

Performance
In 2023, we performed 14 audits (FY 2022: 11 audits), covering the majority of our manufacturing partners as well as our main foundry partner. The average score of the audits undertaken in 2023 was 99%. The lowest score achieved was 94.7%. Three of the 14 audits were undertaken onsite and the remaining through self-assessment.

During the year we raised two CARs and sought to obtain full resolution. In one of the cases we achieved this with enhanced part marking, additional training and instructions.

On-time delivery (OTD)
OTD measures supply chain efficiency; whether or not the Company is meeting its goals in regard to agreed delivery times. It is also important for maintaining customer satisfaction. In FY 2023, average OTD was 100% which was in line with 2022 (from 1 September to 31 December 2022, the average OTD was 99%).

Conflict minerals
We support international efforts to ensure that the mining and trading of tin, tungsten, tantalum and gold (known as 3TG) in high-risk locations do not contribute to conflict and/or serious human rights abuses in the Democratic Republic of the Congo (DRC) and the Great Lakes region of Africa (or elsewhere). We have a Conflict Minerals Policy in place which is available on our website:
https://awavesemi.com/custom-silicon.

Alphawave Semi extends this obligation to our suppliers, requiring them to reasonably assure that the tin, tungsten, tantalum and gold in the products they manufacture are conflict free. The Company also expects its suppliers to establish their own due diligence programme to achieve conflict-free supply chains.

In 2023 we did not identify any instances where tin, tungsten, tantalum and gold that are integrated into our products have supported armed groups in the DRC or adjoining countries (2022: nil). All our 3TG minerals are from Conflict Minerals compliant smelters.

Environmental management
It is important that our fabrication partners demonstrate responsible environmental standards. This is why, in line with our Environmental Compliance Policy, we only work with suppliers who are committed to environmental preservation, and who comply fully with

environmental laws, regulations and industry environmental guidelines. We continue to work with our manufacturing partners to adopt advanced process technologies that aim to have an ever-decreasing impact on the environment.

It is vital that we can identify and safely manage hazardous materials. This includes the provision of relevant materials declarations under EU Directive 2011/65/EU (Restriction of Hazardous Substances or ‘RoHS3’) and the amendment EU Directive 2015/863. Our products are halide free, containing very low concentrations of halogens (fluorine, chlorine, bromine and iodine), well below the internationally suggested limits.

Our products are also fully compliant with EU Regulation (EC) 1907/2006 (Registration, Evaluation, Authorisation and Restriction of Chemicals, or ‘REACH’).

Forward focus 2024

- Continue to deliver high levels of operational performance and maintain our average OTD.
- Ongoing identification of possible areas of improvement.

UN SDG 8 DECENT WORK AND ECONOMIC GROWTH

Intellectual property

Context

The protection of intellectual property (IP) is vital for any business focused on the creation of innovative and high-value technological solutions.

Any failure in this regard could have profound consequences for the value of our inventions, products and our Company.

Furthermore, we have access to and work with our customers’ intellectual property and/or commercial and technological secrets.

We recognise the high degree of trust that this requires on the part of our customers, and this reflects the value we seek to add in these relationships which we work hard to maintain.

Management approach

We are advancing wired connectivity technology for digital infrastructure. Given the rapid evolution of technology and increasingly demanding customer requirements, the sustainability of our business relies on us staying at the cutting edge. Our engineering teams seek to innovate in ways that grow the business, help our customers and keep the Group at the forefront of the connectivity market. As a result, we invest a significant amount into R&D. In FY 2023 we expensed US$78.2m of R&D activities or 24% of revenue (FY 2022: US$69.4m or 37% of revenue).

Our Chief Technology Officer (CTO) works with Alphawave Semi innovators to define our technology vision and roadmap and to drive innovation across the Group.

The CTO chairs the IP Committee, and its members include representatives from our Engineering, Marketing and Legal teams. The Committee meets on a monthly basis.

The IP Committee is responsible for:

- advising the CTO on how to best combine trade secrets, patents and public disclosures to lead in a competitive environment; and
- reviewing and ensuring the correct implementation of applicable policies and procedures.

We ensure that all intellectual property is safeguarded through the application of:

- a dedicated Invention Disclosure Policy, as well as related procedures. The Invention Disclosure Policy is intended to ensure all innovation is recognised and properly managed;
- an incentive policy for innovations submitted to the IP Committee as well as recognition awards;
- a Public Technical Disclosure Policy, covering the regulation of public technical disclosures to standards bodies, consortia, customers, vendors, partners and other public venues;
- related restrictive provisions in our contracts of employment;
- robust information technology systems to prevent data leakage; and
- access controls to specific project data for employees and third parties.

In line with our Company commitment to fostering innovation and supporting the next generation of innovators, each innovation disclosure submitted to the IP Committee by employees is considered for an innovation award. Recipients of these awards are recognised at an all-hands event with a commemorative plaque and US$4,000 bonus shared equally among inventors.

Alphawave Semi innovation award

In 2023 the Group awarded its second innovation award. The award recognised four innovators for an invention that improves the robustness of our DSP for high-speed connectivity in some of the industry’s most demanding applications. We look forward to recognising many more of the outstanding innovations across the Company in 2024 and beyond.

UN SDG 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
UN SDG 13 CLIMATE ACTION

Key issues and initiatives

Positive product impacts

The technology that we develop and market can be optimised to our customers' precise design needs, helping to bring applications to market quicker. Our multi-standard silicon IP solutions enable data transmission faster, more reliably and at lower power, offering proven solutions to many of the world's most complex connectivity challenges.

Being particularly energy intensive, the data centre industry accounts for 1-1.5% of global electricity use. The data centres and data transmission networks that underpin digitalisation accounted for around 300 Mt CO_2-eq in 2020, equivalent to 0.9% of energy-related GHG emissions or 0.6% of total GHG emissions[1]. Connectivity accounts for 20% to 40% of the power in data centres, and our technology is helping to reduce it by approximately 25% to 40%.

Reliable and power-efficient data transmission sits at the core of industry efforts to improve energy efficiency and help reduce carbon emissions. As published by the Global Semiconductor Mobile Association in its State of the Industry on Climate Action 2022 report, AI, ML and virtualisation are helping to optimise power use in equipment, centralising network resources (enabling synergies) and avoiding unnecessary heating or air-conditioning[2]. Our technology enables the flow of data necessary to enable this.

Our technology reduces the number of components needed in data centres and helps reduce power consumption in a number of ways:

- the required reach (or distance of data transmission) enabled by our transceivers eliminates the need for additional receivers or retransmitters;
- our R&D contributes to reduce the transceiver low power, which helps to keep the overall data centre power low;
- achieving higher per-lane data rates (for example from 112G to 224G) as well as more advanced technology nodes (for example from 5nm to 3nm) significantly reduces the energy-per-bit transmitted. On average the adoption of a smaller manufacturing node achieves power savings of between 25% to over 40%[3] compared to the previous node;
- our chiplet architectures allow for new low-power computing architectures resulting in power savings of approximately 40% compared to monolithic products (HBM is less power intensive than DDR; more in-package integrated compute replaces chip-to-chip communication with ultra low-power die-to-die communication); and
- our CXL and higher-speed PCIe allows for aggregation or sharing of memory or storage, reducing the amount of memory required for data centre compute by approximately 30%, lowering the environmental footprint of memory manufacturing.

1. IEA (2022), Data Centres and Data Transmission Networks, IEA, Paris https://www.iea.org/reports/data-centres-and-data-transmission-networks, License: CC BY 4.0.
2. https://www.gsma.com/betterfuture/wp-content/uploads/2022/05/Moble-Net-Zero-State-of-the-Industry-on-Climate-Action-2022.pdf.
3. TSMC focuses on power and efficiency with the new 2nm node | Digital Trends; Samsung's 3nm chips reduce power consumption by up to 45% – Inceptive Mind

Minimisation of negative product impacts

The nature of our integrated circuits means that their actual and potential negative impacts are relatively limited. Nonetheless, we design our products in a way that helps to minimise any negative impacts they might have over their lifecycle. This includes efforts to reduce the size of our integrated circuits, thus reducing the amount of input materials required.

Focus areas in 2024

- Ongoing development of technologies that enable AI.
- Increase collaboration across teams to foster more innovation.

Investing in the future of AI compute

In 2023, we continued to invest in key connectivity technologies for AI compute, such as PCIe6 and PCIe7[1], CXL[2] and UCIe[3] (Universal Chiplet Interconnect Express). These investments, in combination with our entry into the ARM Total Design ecosystem position us to be one of very few companies able to deliver optimised custom silicon for AI compute.

Power consumption breakdown in data centre

20%-40%

of the data centre power consumption relates to connectivity.

25%-40% Savings

Our connectivity technology enables power savings of between 25%-40%. That is approximately 10% power savings of the overall data centre power consumption.

Source: Company

1. https://pcisig.com.
2. HOME | Compute Express Link.

3. Home | My Site (uciexpress.org).

Business ethics

Context
We work with leading-edge technologies and seek to establish long-lasting relationships with our customers, partners and suppliers.

Our Code of Ethics and Business Conduct guides:

- adherence to technical, ethical and commercial requirements;
- protection of our intellectual property; and
- strict compliance with the national legislation of our host societies, including relevant anti-bribery and corruption laws.

Any breach of our legal obligations or our customers' and partners' trust has the potential to compromise our business, either in terms of the loss of valuable commercial relationships, loss of our reputation or the application of official sanctions.

Management approach
Our Code of Ethics and Business Conduct addresses a range of issues, including:

- respect for the individual;
- creating a culture of open and honest communication;
- ethical and fair competition;
- proprietary information;
- conflicts of interest;
- corporate record keeping;
- protection of the Company's reputation; and
- selective disclosure.

For further information on our policies see **www.awavesemi.com.** Our Code of Ethics and Business Conduct is also available at **www.awavesemi.com.**

Our Code of Ethics and Business Conduct is directly informed by international, industry and customer standards.

Responsibility for reviewing and updating the Code of Ethics and Business Conduct sits with our Chief Financial Officer.

Below we set out some of the additional issues we actively manage, in line with our corresponding policies.

Human and labour rights
Given the highly specialised nature of our industry, we believe our supply chain has relatively low levels of slavery and human trafficking risk. Our Policy Against Trafficking of Persons and Slavery reflects our ongoing commitment to a work environment that is free from human trafficking and slavery, including forced labour and unlawful child labour. The Company seeks to remain vigilant through compliance monitoring and verification, especially in selecting new suppliers.

For further details on our Policy Against Trafficking of Persons and Slavery see our website at **www.awavesemi.com.**

Anti-bribery and corruption
Compliance with global anti-bribery and corruption (ABC) legislation is vital to our approach to business dealings and forms the basis of our Anti-Bribery Policy. We uphold all laws relevant to countering bribery and corruption in all the jurisdictions in which we operate. However, we remain bound by the laws of the UK, including the Bribery Act 2010, in respect of our conduct both in the UK and abroad. Training on this policy forms part of the induction process for all new employees. Additionally, all employees are asked to formally accept conformance to the policy on an annual basis.

Responsibility for this framework sits with our Chief Financial Officer.

For further details see our Anti-Bribery and Corruption Policy at **www.awavesemi.com.**

Anti-fraud and dishonesty
Compliance with our Anti-Fraud and Dishonesty Policy ensures transparency and accountability in how our administrative processes are carried out and the decisions we make. This policy includes topics such as fraud, theft and abuse of position.

The Company seeks to foster honesty and integrity in its entire workforce. Directors and staff are expected to lead by example in adhering to policies, procedures and practices.

Equally, customers and external organisations (such as suppliers and contractors) are expected to act with integrity and without intent to commit fraud against the Company.

The Company provides clear routes by which concerns may be raised by Directors, employees and associates. For further details see our Anti-Fraud and Dishonesty Policy at **www.awavesemi.com.**

Whistleblowing
Employees or associates that suspect a potential issue including bribery, facilitation of tax evasion, fraud or other criminal activity, can report it to the confidential email address ombudsman@awavesemi.com or by contacting the Senior Independent Director. Employees or associated persons who report such issues in good faith will be supported by the Company. The Company seeks to ensure that the individual is not subjected to detrimental treatment as a consequence of his/her report and any instances of such behaviour will be treated as a disciplinary offence. Our Whistleblowing Policy is available to all employees.

In 2023 there was an incident reported through these whistleblowing channels (2022: no incidents). The Company engaged an independent third party to investigate the accuracy of the reported incident. The report was determined to be accurate and as a result the employment contract of one of our employees was immediately terminated.

In addition, the Company is planning to introduce increased background checks on contractors and third-party vendors.

Details can be found in the Company's Anti-Bribery and Whistleblowing Policy.

Overall responsibility for managing the risk of fraud sits with the Chief Financial Officer. Day-to-day responsibility has been delegated to the Senior Director of Group Finance who acts on behalf of the Chief Financial Officer.

For further details or to receive a copy of the policy please email **info@awavesemi.com**

Performance
In 2023, all new employees covered our Code of Ethics and Business Conduct as part of their induction. In addition, during the year, all employees were required to read and acknowledge our key policies.

During the year we updated our Policy Against Trafficking of Persons and Slavery and reviewed some of our key policies, such as the Anti-Fraud and Dishonesty Policy and our Anti-Bribery and Corruption Policy.

Focus areas in 2024
- Annual review of relevant policies.
- New Whistleblowing Policy.
- Review of additional training requirements.

UN SDG 5 GENDER EQUALITY
UN SDG 8 DECENT WORK AND ECONOMIC GROWTH
UN SDG 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

IT and cybersecurity

Key areas of focus in 2023
In 2023, our IT function successfully integrated our IT support systems, following two major business acquisitions in Q4 2022. This will help ensure seamless service delivery across our expanded enterprise. A major achievement was the integration of applications, where we streamlined multiple platforms into a unified suite, enhancing efficiency while optimising our licensing framework. This effort not only rationalised costs but also fostered a more cohesive user experience.

Our efforts are managed by our IT Director, who oversees a comprehensive, multidisciplinary programme involving information security, IT and physical security. The IT Director reports directly to the Senior Vice President, Engineering and regularly updates our Board of Directors on our cybersecurity performance and risk profile.

We have made significant progress on the integration of our network. We implemented Zero Trust VPN and Magic WAN products from Cloudflare, significantly enhancing our network infrastructure. This strategic implementation not only reduced costs and simplified operations but also enabled the Group to enforce robust network firewall policies across our global network, ensuring superior security and connectivity.

Central to our integration strategy was the implementation of centralised authentication and Single Sign-On (SSO) solutions, simplifying user access and further reinforcing security. In 2023, we also made considerable progress in safeguarding our digital assets and improving our IT infrastructure.

These steps towards implementing a unified IT infrastructure have significantly enhanced our operational resilience and positioned us to leverage technology for scalable growth.

Overview of cybersecurity landscape – management approach
Within our corporate security framework, Alphawave Semi upholds a detailed set of policies for information security management, aligned with the ISO/IEC 27001 standards. In addition, our cloud-based Software-as-a-Service (SaaS) applications are regularly audited

to ensure adherence to various standards covering aspects such as security, availability, processing integrity, confidentiality and privacy.

We also engage in annual third-party penetration testing of our business and customer networks, along with continuous vulnerability scans of servers, applications, endpoints and network equipment. Any vulnerabilities categorised as critical, high or medium risks are addressed promptly. Moreover, we play an active role in global and professional groups focused on shaping future standards for a more secure, safe and privacy-conscious digital environment, such as the Institute of Electrical and Electronics Engineers.

Group-wide Security policies and IT controls are regularly reviewed and updated by the Security Council, which is chaired by our IT Director. Our policies seek to address the regulatory environment, including data privacy regulations, and to mitigate the evolving cybersecurity threat.

All our existing policies and procedures are assessed regularly by our external auditors, as well as third-party consultants. We maintain cyber-liability insurance that covers certain liabilities in connection with security breaches or related incidents.

In 2023, Alphawave Semi did not experience any material information security breaches (2022: zero). We also addressed cybersecurity scenarios in our resiliency planning and documented them through business continuity plans. Our Incident Response Programme facilitates an integrated response to potential cybersecurity events.

Security training and awareness
We are committed to regularly improving our employees' understanding and awareness of security and privacy matters. This is in response to the rising number of significant cyber-attacks, and with the aim of safeguarding the confidentiality and security of our employees, customers and other interested parties. This is achieved through:

- implementing regular, quarterly email phishing exercises that encompass a large portion of our workforce, equipping them with essential skills for cyber self-defence; and
- mandatory annual training sessions for all employees on data security and privacy awareness. These sessions include comprehensive coverage of topics such as cybersecurity, phishing, data protection and privacy concerns.

Focus areas in 2024
- Formation of a dedicated Security team.
- Rollout of a new enterprise system.

Our new Security team
In 2024, we plan to establish a dedicated team at the forefront of our cybersecurity initiatives, focusing on enhancing compliance and IT controls. Their expertise and specialised focus will enable us to implement more robust security measures, conduct in-depth risk assessments and respond more effectively to potential threats.

This is aligned with our broader goal of ensuring the highest levels of data protection and network security, thereby maintaining the trust and confidence of our clients and stakeholders.

We believe that these enhancements in our cybersecurity framework will significantly contribute to the resilience and success of our organisation in the digital era.

Community engagement

Context
2023 was the second year of our community engagement programme. As an organisation, it is important to us that we engage with the communities in which we operate.

Our corporate giving programme provides additional support by matching employee donations to local charities and organisations.

Our community engagement activities seek to improve the welfare of the communities where we work and live.

This programme creates a platform for our employees to donate their time and support to a range of local and not-for-profit organisations that are of interest to them.

Management approach
Our Community Involvement Global Council includes local representatives from all our locations, who meet remotely on a bi-monthly basis. The purpose of the Global Council is to ensure that local engagement is aligned with our principles and values, to co-ordinate Group-wide initiatives and to share experiences.

Responsibility at Group level sits with our Global Facilities Manager who is part of the People, Places and Culture function.

The goal of our community engagement programme is to support local and not-for-profit organisations that are of interest to our employees, promote the wellbeing of local residents and align with our corporate values, such as Inclusivity, Integrity and Collaborative.

Key initiatives
In 2023, the Company donated approximately US$37,000 globally to support local organisations and charities (FY 2022: US$30,000).

Additionally, our internship programmes in India and Canada work with local universities and organisations to make a positive contribution to the promotion of science, technology, engineering and mathematics (STEM) education and careers in engineering. The objective of this effort is to support the next wave of innovators and expanding the talent pipeline. For more information see the Our People section.

In 2023 we rolled out Keen to Help, an external platform through which our employees can request and search for volunteer opportunities that are aligned with our Company values and community engagement programme goals.

In 2023, we also hosted our second 'bring your kids to work' day in Toronto and Ottawa. As in the prior year there were multiple creative activities with a link to science.

Alphawave Semi is partnering with the Dream School Foundation (DSF) in India, providing educational support to unprivileged children. Alphawave Semi and DSF initiated a new and effective programme named TYDE (Transformation Youth Development Engagement). This programme supports high school and college-going students and helps in their all-round development.

Forward focus areas in 2024
- Track number of volunteering hours focused on community engagement activities.
- Assign country-specific community engagement budgets.
- Encourage employee participation through online tools that facilitate volunteering.

Alphawave Semi partnering with the Dream School Foundation in India
Alphawave Semi has partnered with the DSF in India, which provides educational support to underprivileged children. The DSF strives to break the cycle of socio-economic vulnerability faced by children and their families, and help them to help themselves through the power of education. It helps children and parents travel the path from 'schools to livelihood'.

Through TYDE we support students from socio-economically disadvantaged families. It helps students gain technological knowledge and skills. Alphawave Semi not only provides financial support but has been involved in the planning and design of the infrastructure and the selection of the equipment required. Our volunteers provide intensive mentoring and coaching as well as providing other support to students.

UN SDG 4 QUALITY EDUCATION

FINANCIAL REVIEW

In 2023 we delivered another year of strong revenue growth, up 74% and continued to invest in our leading-edge engineering capabilities. As a vertically integrated business we are well positioned to benefit from the long-term investment in AI and digital infrastructure.

Investing in future revenue growth
In 2023 we consolidated the teams and technologies we acquired in 2022 and became a vertically integrated global semiconductor company. Alphawave Semi is one of the few companies in the world bringing a full portfolio of connectivity IP for AI and digital infrastructure.

Building on the strength of our technology portfolio, we have successfully transformed our custom silicon pipeline to a higher margin business focused on AI and data centre solutions in advanced nodes. Our connectivity solutions meet the increasingly complex bandwidth, latency and power requirements critical to support the adoption of artificial intelligence. With our enhanced product portfolio and silicon expertise, we can access a larger and high-growth addressable market of approximately US$18bn by 2026, gaining greater scale and enhancing our competitive position.

During this transition year, we achieved record bookings of US$383.9m. 71% of these bookings came from IP licencing and advanced node custom silicon NRE contracts with North American, European and APAC (non-China) customers. The remaining 29% came from the legacy lower margin business we acquired in 2022. The custom silicon contracts that we signed in 2023 give us visibility to a potential lifetime revenue from silicon production of approximately US$500m, which is not yet reflected in our bookings or backlog. First silicon production orders from these contracts are expected in 2025.

Our financial performance was below our guidance for the year both on revenue and adjusted EBITDA, mainly due to our accelerated transition away from our legacy custom silicon business in China and the timing of revenue recognition on long-term contracts in advanced nodes combined with our continuing investment in advanced research and development. Revenue grew 74% year-on-year from US$185.4m to US$321.7m and we delivered an adjusted EBITDA margin of 19%, down 6% from 2022.

In 2023 we expensed US$78.2m in the development of products which will go into production in future years and will contribute to accelerated revenue growth over the medium term. The strong investment in our new opto-electronic products and future revenue growth is reflected in the lower cash and cash equivalents balance at the end of 2023 of US$101.3m (compared with US$186.2m at the end of 2022).

2024 will be another year of growth for the Group as we lay the foundations towards our longer-term strategic and financial targets. I am confident that with prudent financial management and the successful execution of our product roadmaps and customer engagements we are on track to become the next great global semiconductor company.

Contracted order book and backlog
2023 bookings totalled US$383.9m, of which US$274.0m represented IP licensing and NRE orders and US$109.9m represented royalty and silicon orders. This compares to US$228.1m of total bookings in 2022. Bookings grew 68% year-on-year, comprising 109% growth in licensing and NRE orders and 14% growth in royalty and silicon orders. The performance in our royalty and silicon orders was driven by silicon orders in our custom silicon group following the acquisition of OpenFive.

North America was the largest contributor to bookings in 2023, representing 34% of the total. It was followed by 25% from China, 21% from APAC and 20% from EMEA excluding China. Our China bookings in the period were largely driven by custom silicon orders from customers acquired through the acquisition of OpenFive.

Backlog represents the value of contracted bookings over the life of the Group not yet recognised as revenue, excluding potential royalties. At the end of 2023, our backlog was US$354.9m, 7% lower than the backlog at the end of 2022 of US$379.7m. Backlog reduced year-on-year due to adjustments of US$87.3m, of which nearly half came from the backlog acquired with OpenFive.

Revenues
Revenues for 2023 reached US$321.7m, 74% growth compared to US$185.4m in 2022:

- customers – in 2023, we recognised revenues from 103 end-customers, compared to 80 end-customers in 2022. This included new tier-one customers licensing our IP as well as legacy customers acquired in 2022. End-customer revenue concentration marginally decreased during the year. Our top five end-customers generated 46% of our 2023 revenues (2022: 47%) or 42% excluding revenues from the WiseWave subscription deal (2022: 39%); and
- regions – in addition to WiseWave and VeriSilicon, the contribution in 2023 from China (59%) was driven by legacy custom silicon business. Absent this, our regional mix was comparable to 2022. Over the long term, as silicon product revenues ramp with hyperscalers and other large, predominantly North American, customers, we expect the mix of China revenues to gradually decrease to 10% of sales or lower.

North American revenues grew 60% from US$51.4m in 2022 to US$82.2m in 2023, and APAC (excluding China) revenues grew 97% from US$17.0m in 2022 to US$33.5m in 2023. We also saw EMEA revenue grow 28% from US$12.3m in 2022 to US$15.7m in 2023.

We recognised a small amount of royalty revenue in 2023 based on early production volumes from a specific customer. Given the long design cycles at our customers, we expect royalties to gradually increase and contribute to earnings in the medium term. Further, as we seek to monetise our IP through silicon and achieve greater revenue scale and higher absolute earnings, we expect the contribution from IP royalties to be less significant to our Group results.

Income Statement

	IFRS		Adjusted	
US$m	**2023**	2022	**2023**	2022
Revenue	**321.7**	185.4	**n/a**	n/a
Cost of sales	**(156.4)**	(60.8)	**n/a**	n/a
Gross profit	**165.3**	124.6	**n/a**	n/a
Gross margin	**51%**	67%	**n/a**	n/a
EBITDA	**9.8**	49.3	**62.6**	46.8
EBITDA margin	**3%**	27%	**19%**	25%
Operating (loss)/profit	**(19.4)**	37.6	**n/a**	n/a
Operating margin	**(6%)**	20%	**n/a**	n/a
(Loss)/profit before tax	**(39.5)**	17.2	**n/a**	n/a
Net (loss)/profit	**(51.0)**	(1.1)	**11.3**	6.7
Basic EPS (US$ cents)	**(7.23)**	(0.16)	**1.59**	0.98
Diluted EPS (US$ cents)	**(7.23)**	(0.16)	**1.59**	0.98
Cash generated from operations	**25.5**	1.0	**n/a**	n/a

1. For definitions of non-IFRS measures see Alternative Performance Measures section.

Adjusted EBITDA

	Year ended 31 December	
	2023	2022
US$m	**US$m**	US$m
Net loss	**(51.0)**	(1.1)
Add/(deduct):		
Finance income	**(3.4)**	(1.7)
Finance expense	**8.8**	3.6
Loss from joint venture	**14.7**	18.5
Income tax expense	**11.5**	18.3
Depreciation and amortisation	**29.1**	11.7
EBITDA	**9.8**	49.3
Add/(deduct):		
Acquisition-related costs	**0.7**	12.7
Compensation element of Banias deferred cash rights	**8.4**	1.7
Remeasurement of contingent consideration payable for Precise-ITC	**0.0**	4.2
Share-based compensation expense	**40.7**	15.7
Currency translation loss/(gain)	**3.0**	(36.8)
Adjusted EBITDA	**62.6**	46.8

Operating expenses and profitability

Gross margin in 2023 was 51%, with cost of sales primarily reflecting silicon manufacturing costs and custom silicon development costs, as well as sales and reseller commissions on IP sales. In 2022, gross margin was 67%, driven predominantly by our IP business before acquisitions. Gross margin in 2023 reflects the diversification of our business into custom silicon development and silicon products. Through the acquisition of OpenFive, we inherited a number of contracts where gross margins are below our Group targets.

EBITDA[1] in 2023 was US$9.8m (3% margin) compared to US$49.3m in 2022 (27% margin). On an adjusted basis, EBITDA in 2023 was US$62.6m (19% margin) compared to US$46.8m (25% margin) in 2022. The decrease in adjusted EBITDA margin reflects the early stage of our migration to a combined IP licensing and silicon business model through our acquisitions and the scaling of our engineering capabilities. Adjusted EBITDA was below our guidance for 2023. This was driven by a combination of low-margin silicon sales from legacy OpenFive contracts and increased investment in R&D activities.

Reflecting the continued scaling of the business and our acquisitions, operating expenses in 2023 were US$184.7m compared to US$87.0m in 2022.

Research and development (R&D) expenses in 2023 were US$78.2m (24% of revenue) compared to US$69.4m (37% of revenue) in 2022. In 2023, R&D expenses included US$12.7m amortisation of acquired intangibles (US$5.5m in 2022). In 2023 we capitalised US$54.5m related to our own product development activities, compared to $7.2m in 2022, the increase reflecting the growth in investment in our own product development.

Sales and marketing (S&M) expenses in 2023 were US$12.8m (4% of revenue) compared to US$4.6m (3% of revenue) in 2022.

General and administrative (G&A) expenses in 2023 were US$40.8m (13% of revenue) compared to US$15.5m (8% of revenue) in 2022. G&A expenses in 2023 included an expected credit loss of US$7.3m based on our assessment of our potential credit loss on overdue invoices and accrued revenues (US$2.2m in 2022). Excluding this, our G&A expenses for 2023 were US$33.5m, or 10% of revenue (US$13.3m, or 7% of revenue in 2022).

The year-on-year increase in R&D, S&M and G&A expenses was primarily due to the increase in headcount from 695 full-time employees at end 2022 to 829 at end 2023, together with associated software tool costs which scale with our R&D headcount. In addition, we invested in our support functions and continue to scale our finance, HR, legal and corporate marketing teams, reflecting the increased complexity and geographical spread of the Group to support our transition to a vertically integrated semiconductor company.

In the medium term, we anticipate modest growth in our headcount as we address the opportunities ahead.

Other expenses in 2023 totalled a US$52.9m. Share-based payment costs of US$40.7m in 2023 reflect our increased headcount, as well as one-time grants awarded to new members of the senior management team who joined us in 2023 and the payment of the 2023 employee bonus in shares rather than in cash. Exchange losses in 2023 were US$3.0m. US$8.4m of other expenses in 2023 related to deferred cash rights for the former Banias Labs employees.

Other expenses in 2022 totalled a credit of US$2.5m, comprising M&A and professional costs of US$12.7m related to the acquisitions and the debt funding, US$15.7m share-based payment costs, US$1.7m of deferred cash rights for the former Banias Labs employees and US$36.8m of exchange gains.

Operating loss was US$19.4m in 2023, compared to an operating profit of US$37.6m in 2022 and reflected the decrease in gross margin and increases in operating expenditures described above.

For definitions of non-IFRS measures see Alternative Performance Measures section

Finance income in 2023 was US$3.4m, compared to US$1.7m in 2022. The increase was largely driven by cash balances being invested in interest-bearing accounts and higher interest rates.

Finance expense in 2023 was US$8.8m, higher than the US$3.6m in 2022 due to interest associated with the five-year Term Loan obtained in October 2022. US$9.5m of finance expense was capitalised in 2023 as it related to qualifying intangible assets.

Share of the post-tax loss of equity-accounted joint ventures was US$14.7m in 2023, compared to US$18.5m in 2022.

At the end of 2023, the Group owned 42.5% of WiseWave (compared to 42.5% at the end of 2022), a company established in China in Q4 2021 to develop and sell silicon products incorporating silicon IP licensed from the Group. We equity account for the investment as a joint venture, resulting in a US$14.7m loss in 2023 (US$18.5m loss in 2022). The five-year subscription licence agreement is being capitalised and amortised over the life of the agreement by WiseWave.

Tax expense in 2023 was US$11.5m, being 29% of loss before tax of US$39.5m.

In 2023 we incurred a net loss of US$51.0m compared to US$1.1m loss for the year in 2022.

On an adjusted basis, net profit in 2023 was US$11.9m, compared to US$6.7m in 2022.

The exchange gain of US$10.2m in other comprehensive income is predominantly a result of the Company, a GBP-denominated entity, having net assets translated into USD, our presentational currency. This is re-translated again for presentational purposes into USD at the year end.

Balance sheet, liquidity and cash flow

At the end of 2023, we held US$101.3m in cash and cash equivalents and had borrowings of US$220.4m, comprising a Revolving Credit Facility of US$125.0m, a Term Loan of US$93.8m and other long-term borrowings of US$1.6m. During 2023, our net debt position increased from US$24.0m to a net debt position of US$119.1m as we continued to invest in our business.

During 2023 current trade and other receivables increased from US$47.1m to US$75.6m. This change was primarily due to timing of advance payments to foundries to reserve fab capacity and other prepayments.

Contract assets, where revenue recognition conditions are met under IFRS 15, but we have not billed or collected any amount, increased from US$57.0m at the end of 2022 to US$65.2m at the end of 2023. This increase was a function of our revenue growth and the timing of invoicing milestones on specific contracts, primarily for our IP sales. WiseWave accounted for US$42.4m of the contract asset balance at the end of 2023 (2022: US$16.8m).

At the end of 2023 we held physical inventory of silicon devices with a value of US$11.6m (2022: US$18.1m). The decrease reflects the fulfilment in 2023 of a large number of silicon orders booked in 2022.

Current income tax receivables increased from US$2.9m in 2022 to US$23.5m in 2023 and other current assets decreased from US$71.5m in 2022 to US$19.0m in 2023. The significant decrease in other current assets came from a reduction in prepayments which were unusually high at the end of 2022 due to payments made to foundries for silicon production that occurred in 2023.

We ended 2023 with aggregate goodwill of US$309.2m from the acquisitions of Precise-ITC, OpenFive and Banias Labs. Aggregate goodwill has decreased from our provisional estimate of US$331.9m in 2022, following the finalisation of the purchase price adjustment for OpenFive and Alphawave Semi making a Section 338 election which allowed the OpenFive acquisition to be treated as an asset deal for US tax purposes. US$10.3m of the decrease in goodwill relates to the Section 338 election which reduced deferred tax liabilities by US$15.9m and increased consideration by US$5.6m. US$12.4m of the decrease in goodwill relates to the finalisation of the arbitration process to determine the final consideration due for the OpenFive acquisition.

At the end of 2023 the carrying amount of other intangible assets was US$203.3m (2022: US$161.4m). This balance is primarily due to the technology and IP acquired with OpenFive and Banias Labs and the capitalisation of our own development expenditure.

Owned property and equipment increased from US$13.4m at the end of 2022 to US$20.7m at the end of 2023 due to increased expenditure on laboratory equipment and prototyping. Leased property and equipment increased slightly from US$14.6m at the end of 2022 to US$15.3m at the end of 2023.

Investments in equity-accounted associates, namely the value of the investment in WiseWave, remains US$nil, as a result of equity accounting for losses at WiseWave during the period. The value of the cumulative losses incurred by WiseWave exceeds the cumulative value of our investment into the business. In 2023 we invested US$1.0m in an Israeli semiconductor company.

During 2023, current trade and other payables decreased from US$88.7m to US$69.3m. This decrease was predominantly due to timing differences of payments to vendors.

Contract liabilities, where we have invoiced or received money for products or services where revenue recognition conditions are not met, decreased from US$96.9m at the end of 2022 to US$56.0m at the end of 2023. This decrease was due to the high order intake for custom silicon products at the end of 2022 where customers were required to make advance payment ahead of silicon being shipped to them in the first half of 2023.

Summary balance sheet

US$m	**31 December 2023**	Restated[1] 31 December 2022
Assets		
Cash and cash equivalents	**101.3**	186.2
Other current assets	**194.9**	196.6
Total current assets	**296.2**	382.8
Goodwill	**309.2**	309.2
Other intangible assets	**203.3**	161.4
Other non-current assets	**45.8**	47.2
Deferred tax assets	**12.1**	2.7
Total non-current assets	**570.4**	520.5
Total assets	**866.6**	903.3
Liabilities and equity		
Total current liabilities	**136.6**	194.4
Loans and borrowings	**214.8**	205.2
Other non-current liabilities	**46.7**	35.5
Total non-current liabilities	**261.5**	240.7
Total liabilities	**398.1**	435.1
Total equity	**468.5**	468.2
Total liabilities and equity	**866.6**	903.3

1. Restated to reflect the finalisation of the purchase price allocation on the acquisition of OpenFive (see notes 12 and 30).

Balance sheet, liquidity and cash flow

At the end of 2023, our current and non-current loans and borrowings were US$220.4m, an increase of US$10.2m from 2022 as a result of drawing down an additional US$15.0m against the revolving credit facility and repayments of the term loan principal.

In 2023, we generated cash from operations of US$25.5m compared with US$1.0m in 2022. In 2022 there were one-time payments of approximately US$6.0m relating to M&A and professional fees. Also, our operating cash flow in 2022 included US$28.2m of cash outflows related to deferred compensation payable as part of the acquisitions of Precise-ITC and Banias. These are attributable to payments made as part of the acquisitions that do not represent consideration, but are classified as compensation payments in lieu of share-based remuneration or payments conditional on continued employment with the Group. These payments are included within working capital. Excluding these, our operating cash flow before tax in 2022 was US$29.2m.

Working capital in 2022 decreased by US$50.1m, compared to a decrease of US$41.7m in 2023. The decrease in working capital in 2023 was primarily due to an increase in trade and other receivables and a decrease in contract liabilities, offset by an increase in trade and other payables.

Income tax paid in 2023 was US$9.7m, compared to US$19.9m in 2022.

In 2023, the Group generated a cash inflow from operating activities of US$15.8m, compared to a cash outflow of US$18.9m in 2022, due to increased cash generation from operations and lower tax payments in 2023.

Capital expenditure during 2023 totalled US$73.6m (2022: US$15.5m), comprising US$18.6m of property and equipment (2022: US$4.2m), US$1.8m of intangible assets (2022: US$4.1m) and US$53.3m of capitalised development expenditure (2022: US$7.2m). US$6.9m of property and equipment relates to purchases of lab and test equipment which grew from US$0.1m in 2022 as we ramp our own product development capabilities.

In 2023, we also made further equity investments into WiseWave totalling US$14.7m, with Wise Road Capital contributing US$19.9m. As disclosed in our IPO Prospectus, Alphawave Semi has the ability to invest up to US$170m in total into WiseWave, although our expectation is that any future investment will continue to be limited. We are seeking to exit our equity investment in WiseWave in 2024 but we will time this exit based on market conditions to maximise return to shareholders.

During the second quarter of 2023, the Group's Fixed Charges Coverage Ratio (FCCR), one of the covenants in its borrowing arrangements, was below the minimum allowed ratio of 1.25x, principally due to a higher working capital requirement as a result of a significant reduction in contract liabilities, a higher proportion of lower margin silicon revenue at the beginning of the year and increased investment in research and development activities, as anticipated, as the Group invests in its own products business. On 22 September

2023, we established an amendment to the Credit Agreement with the lenders which suspended the FCCR ratio for the period from the quarter ended 30 June 2023 to the quarter ending 30 June 2024, after which it is set at 1.1x until the quarter ending 30 September 2025 when it reverts to 1.25x. As we continue to invest in growth and scale, we continue to closely monitor our cash flow to ensure we maintain full compliance with our debt covenants.

The Company's capital allocation policy remains focused on investment in own product development and prototyping, critical hires and expertise to support growth opportunities, and management of our debt position in a changing interest rate environment. We do not intend to pay dividends or make significant acquisitions in the short or medium term. We continue to review our capital allocation framework and available sources of capital to support our long-term growth strategy.

Finally, as further detailed on the Directors have adopted the going concern basis of accounting.

Summary cash flow

US$m	**31 December 2023**	Restated[1] 31 December 2022
Cash generated from operations before changes in working capital	**67.3**	51.0
Changes in working capital	**(41.7)**	(50.1)
Cash generated from operations	**25.5**	1.0
Taxes paid	**(9.7)**	(19.9)
Cash flow from operating activities	**15.8**	(18.9)
Capital expenditure	**(73.6)**	(15.5)
Investment in joint venture	**(14.7)**	(9.1)
Purchase of businesses	**(7.4)**	(403.6)
Drawdown of loans and borrowings	**15.0**	210.0
Interest paid	**(18.4)**	(0.7)
Interest received	**3.1**	1.3
Other cash flows	**(50.0)**	14.6
Net decrease in cash and cash equivalents	**(88.8)**	(239.9)
Cash and cash equivalents at the beginning of the year	**186.2**	501.0
Currency translation gain/(loss) on cash and cash equivalents	**3.9**	(74.9)
Cash and cash equivalents at the end of the year	**101.3**	186.2

1. Restated to reflect the finalisation of the purchase price allocation on the acquisition of OpenFive (see notes 12 and 30).

Tony Pialis
Chief Executive Officer

23 April 2024

STATEMENT OF DIRECTORS' RESPONSIBILITIES

In respect of the annual report and financial statements

The Directors are responsible for preparing the annual report and the Group and Company financial statements in accordance with applicable law and regulations.

Company law requires the Directors to prepare Group and parent Company financial statements for each financial year. Under that law they are required to prepare the Group financial statements in accordance with UK-adopted international accounting standards and applicable law and have elected to prepare the parent Company financial statements in accordance with UK accounting standards and applicable law, including FRS 101 Reduced Disclosure Framework.

Under company law, the Directors must not approve the financial statements unless they are satisfied that they give a true and fair view of the state of affairs of the Group and Company and of the Group's profit or loss for that period. In preparing each of the Group and Company financial statements, the Directors are required to:

- select suitable accounting policies and then apply them consistently;
- make judgements and estimates that are reasonable, relevant and reliable;
- for the Group financial statements, state whether they have been prepared in accordance with UK-adopted international accounting standards;
- for the parent Company financial statements, state whether applicable UK accounting standards have been followed, subject to any material departures disclosed and explained in the parent Company financial statements;
- assess the Group and Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern; and

- use the going concern basis of accounting unless they either intend to liquidate the Group or the Company or to cease operations, or have no realistic alternative but to do so.

The Directors are responsible for keeping adequate accounting records that are sufficient to show and explain the Group's transactions and disclose with reasonable accuracy at any time the financial position of the Group and enable them to ensure that its financial statements comply with the Companies Act 2006. They are responsible for such internal control as they determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error, and have general responsibility for taking such steps as are reasonably open to them to safeguard the assets of the Group and to prevent and detect fraud and other irregularities.

Under applicable law and regulations, the Directors are also responsible for preparing a strategic report, Directors' report, Directors' remuneration report and corporate governance statement that complies with that law and those regulations.

In accordance with Disclosure Guidance and Transparency Rule (DTR) 4.1.16R, the financial statements will form part of the annual financial report prepared under DTR 4.1.17R and 4.1.18R. The auditor's report on these financial statements provides no assurance over whether the annual financial report has been prepared in accordance with those requirements.

The Directors are responsible for the maintenance and integrity of the corporate and financial information included on the Group's website. Legislation in the UK governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

Responsibility statement of the Directors in respect of the annual financial report

We confirm that to the best of our knowledge:

- the financial statements, prepared in accordance with the applicable set of accounting standards, give a true and fair view of the assets, liabilities, financial position and profit or loss of the Company and the undertakings included in the consolidation taken as a whole;
- the management report includes a fair review of the development and performance of the business and the position of the issuer and the undertakings included in the consolidation taken as a whole, together with a description of the principal risks and uncertainties that they face; and
- we consider the annual report and accounts, taken as a whole, is fair, balanced and understandable and provides the information necessary for shareholders to assess the Group's position and performance, business model and strategy.

Tony Pialis
Chief Executive Officer
23 April 2024

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EC2V 7NQ
United Kingdom

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

		Year ended 31 December	
	Note	**2023**	2022[1]
Continuing operations		**US$'000**	US$'000
Revenue	4	**321,724**	185,406
Cost of sales		**(156,372)**	(60,777)
Gross profit		**165,352**	124,629
Research and development expenses	5	**(78,216)**	(69,358)
Sales and marketing expenses		**(12,810)**	(4,647)
General and administration expenses		**(40,821)**	(15,465)
of which expected credit loss	24	**(7,337)**	(2,184)
Other operating (expense)/income	6	**(52,857)**	2,468
Operating (loss)/profit		**(19,352)**	37,627
Finance income	9	**3,448**	1,684
Finance expense	9	**(8,836)**	(3,588)
Loss from joint venture	16	**(14,730)**	(18,481)
(Loss)/profit before tax		**(39,470)**	17,242
Income tax expense	10	**(11,532)**	(18,328)
Net (loss)		**(51,002)**	(1,086)
Other comprehensive income/(expense)			
Items that may be reclassified subsequently to profit or loss:			
Currency exchange gain/(loss) on translation of foreign operations		**10,161**	(74,989)
		10,161	(74,989)
Items that will not be reclassified to profit or loss:			
Currency exchange remeasurements of defined benefit obligation	25	**(1,207)**	—
Related income tax credit		**409**	—
		(798)	—
Other comprehensive income/(expense)		**9,363**	(74,989)
Total comprehensive loss		**(41,639)**	(76,075)
Loss per share (US$ cents)	11		
Basic		**(7.23)**	(0.16)
Diluted		**(7.23)**	(0.16)

There has been a change to the grouping of operating expenses in 2022, specifically relating to the compensation element of Banias deferred cash rights. This is shown within other operating expenses/(income) in 2023 so we have changed 2022 operating expenses /(income) to be presented on the same basis (see notes 6 and 30).

The notes on this document form part of these financial statements.

CONSOLIDATED BALANCE SHEET

		As at 31 December	
	Note	**2023**	2022
		US$'000	Restated[1] US$'000
Assets			
Cash and cash equivalents	17	**101,291**	186,231
Trade and other receivables	18	**78,089**	47,143
Contract assets	4	**65,173**	56,987
Inventories	19	**11,622**	18,061
Income tax receivables		**23,467**	2,922
Other current assets	20	**19,017**	71,475
Total current assets		**298,659**	382,819
Goodwill	12	**309,199**	309,199
Other intangible assets	13	**203,314**	161,406
Property and equipment – owned	14	**20,654**	13,421
Property and equipment – leased	15	**15,262**	14,553
Other investments		**1,019**	—
Trade and other receivables	18	**6,392**	19,272
Deferred tax assets	10	**12,086**	2,680
Total non-current assets		**567,926**	520,531
Total assets		**866,585**	903,350
Liabilities and equity			
Trade and other payables	21	**69,285**	88,665
Contract liabilities	4	**56,026**	96,933
Income taxes payable		**1,051**	—
Lease liabilities	15	**3,953**	3,756
Loans and borrowings	22	**5,625**	5,000
Total current liabilities		**135,940**	194,354
Trade and other payables	21	**1,775**	10,555
Lease liabilities	15	**12,727**	11,177
Loans and borrowings	22	**214,750**	205,201
Deferred tax liabilities	10	**32,945**	13,790
Total non-current liabilities		**262,197**	240,723
Total liabilities		**398,137**	435,077
Ordinary shares	26	**10,011**	9,751
Share premium account	26	**1,638**	775
Merger reserve	26	**(793,216)**	(793,216)
Share-based payment reserve	26	**41,875**	18,189
Currency translation reserve	26	**(86,546)**	(96,707)
Retained earnings		**1,294,686**	1,329,481
Total equity		**468,448**	468,273
Total liabilities and equity		**866,585**	903,350

Restated to reflect the finalisation of the purchase price allocation on the acquisition of OpenFive (see notes 12 and 30).

The financial statements were approved and authorised for issue by the Board of Directors on 23 April 2024 and were signed on its behalf by:

Tony Pialis
Director

The notes on this document form part of these financial statements.

CONSOLIDATED CASH FLOW STATEMENT

	Note	As at 31 December 2023 US$'000	Restated[1] 2022 US$'000
Cash flows from operating activities			
Net (loss)		**(51,002)**	(1,086)
Non-cash items within operating profit:			
– Amortisation of intangible assets	13	**13,294**	6,159
– Depreciation of property and equipment – owned	14	**11,212**	2,472
– Depreciation of property and equipment – leased	15	**4,612**	3,036
– Share-based compensation expense	27	**40,691**	15,695
– Currency translation loss/(gain) on intercompany balances		**15,466**	(10,444)
Deferred cash rights		**8,352**	1,702
Other income		**—**	—
Finance income	9	**(3,448)**	(1,684)
Finance expense	9	**8,836**	3,588
Loss from joint venture	16	**14,730**	18,481
Income tax expense		**4,533**	13,130
Cash generated from operations before changes in working capital		**67,276**	51,049
Changes in working capital:			
(Increase) in trade and other receivables		**(22,592)**	(120,921)
Decrease/(increase) in inventories		**6,439**	(3,390)
(Increase) in contract assets		**(8,186)**	(22,554)
Increase in trade and other payables		**23,503**	51,973
(Decrease)/increase in contract liabilities		**(40,907)**	44,834
Cash generated from operations		**25,533**	991
Income taxes paid		**(9,699)**	(19,906)
Cash inflow/(outflow) from operating activities		**15,834**	(18,915)
Cash flows from investing activities			
Purchase of intangible assets	13	**(1,825)**	(4,131)
Purchase of property and equipment	14	**(18,568)**	(4,209)
Capitalised development expenditure		**(53,254)**	(7,202)
Investment in joint venture	16	**(14,730)**	(9,060)
Purchase of businesses, net of acquired cash		**(7,369)**	(403,588)
Interest received		**3,118**	1,270
Cash outflow from investing activities		**(92,628)**	(426,920)
Cash flows from financing activities			
Issue of ordinary shares	26	**1,123**	898
Interest paid		**(18,390)**	(650)
Lease payments	15	**(4,740)**	(3,038)
Drawdown of loans and borrowings		**15,000**	210,000
Repayment of loans and borrowings		**(5,000)**	(1,250)
Cash (outflow)/inflow from financing activities		**(12,007)**	205,960
Net decrease in cash and cash equivalents		**(88,801)**	(239,875)
Cash and cash equivalents at the beginning of the year		**186,231**	500,964
Currency translation gain/(loss) on cash and cash equivalents		**3,861**	(74,858)
Cash and cash equivalents at the end of the year	17	**101,291**	186,231

Restated to reflect the finalisation of the purchase price allocation on the acquisition of OpenFive (see notes 12 and 30).

A reconciliation of changes in liabilities arising from financing activities is presented in note 22.

The notes on this document form part of these financial statements.

CONSOLIDATED STATEMENT OF CHANGES IN EQUITY

	Note	Ordinary share capital US$'000	Share premium account US$'000	Merger reserve US$'000	Share-based payment reserve US$'000	Currency translation reserve US$'000	Retained earnings US$'000	Total US$'000
As at 1 January 2022		9,399	—	(793,216)	4,777	(21,718)	1,328,530	527,772
Net loss		—	—	—	—	—	(1,086)	(1,086)
Other comprehensive expense		—	—	—	—	(74,989)	—	(74,989)
Total comprehensive loss		—	—	—	—	(74,989)	(1,086)	(76,075)
Settlement of share awards:								
– Issue of ordinary shares	26	352	775	—	(246)	—	—	881
– Transfer of cumulative compensation expense on settled awards	27	—	—	—	(2,037)	—	2,037	—
Share-based compensation expense for the year	27	—	—	—	15,695	—	—	15,695
Other changes in equity		352	775	—	13,412	—	2,037	16,576
As at 31 December 2022		9,751	775	(793,216)	18,189	(96,707)	1,329,481	468,273
Net loss for the year		**—**	**—**	**—**	**—**	**—**	**(51,002)**	**(51,002)**
Other comprehensive expense		**—**	**—**	**—**	**—**	**10,161**	**(798)**	**9,363**
Total comprehensive loss for the year		**—**	**—**	**—**	**—**	**10,161**	**(51,800)**	**(41,639)**
Settlement of share awards:								
– Issue of ordinary shares	26	**260**	**863**	**—**	**—**	**—**	**—**	**1,123**
– Transfer of cumulative compensation expense on settled awards	27	**—**	**—**	**—**	**(17,005)**	**—**	**17,005**	**—**
Share-based compensation expense for the year	27	**—**	**—**	**—**	**40,691**	**—**	**—**	**40,691**
Other changes in equity		**260**	**863**	**—**	**23,686**	**—**	**17,005**	**41,814**
As at 31 December 2023		**10,011**	**1,638**	**(793,216)**	**41,875**	**(86,546)**	**1,294,686**	**468,448**

The notes on this document form part of these financial statements.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

For the year ended 31 December 2023

1 Background

Reporting entity

Alphawave IP Group plc (the 'Company') is a public limited company that is incorporated and domiciled in England and Wales and whose shares are listed on the main market of the London Stock Exchange. The address of the Company's registered office is 6th Floor, 65 Gresham Street, London, EC2V 7NQ, United Kingdom.

The principal activities of the Company and its subsidiaries (together, the 'Group') are the development and marketing of high-speed connectivity solutions for application in data centres, data networking, data storage, artificial intelligence, 5G wireless infrastructure and autonomous vehicles.

The financial information set out above does not constitute the company's statutory accounts for the years ended 31 December 2023 or 2022 but is derived from those accounts. Statutory accounts for 2022 have been delivered to the registrar of companies, and those for 2023 will be delivered in due course. The auditor has reported on those accounts; their reports were (i) unqualified, (ii) did not include a reference to any matters to which the auditor drew attention by way of emphasis without qualifying their report and (iii) did not contain a statement under section 498 (2) or (3) of the Companies Act 2006.

Statement of compliance

The consolidated financial statements have been prepared in accordance with International Financial Reporting Standards (IFRS) as adopted for use in the United Kingdom and those parts of the Companies Act 2006 that are applicable to companies reporting under IFRS. The consolidated financial statements also comply with IFRS as issued by the International Accounting Standards Board (IASB).

Basis of preparation

The consolidated financial statements have been prepared on a going concern basis and in accordance with the historical cost convention, except that certain investments and contingent consideration are measured at fair value. Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Information about assets and liabilities that are measured at fair value is presented in note 23.

The Group's material accounting policies are set out in note 2.

Going concern
At the time of approving the financial statements, the Directors are required to form a judgement as to whether the Group and the Company have adequate resources to continue in operational existence for the foreseeable future. In forming their judgement, the Directors consider the Group's current financial position, the Group's medium-term plan and its budget for the next financial year, and the principal risks and uncertainties that it faces.

As at 31 December 2023, the Group had cash and cash equivalents of US$101.3million and had bank borrowings totalling US$220.4million, comprised of a Term Loan of US$95.4million and US$125.0million drawn against a US$125.0m Revolving Credit Facility. Both the Term Loan and the Revolving Credit Facility are scheduled to mature in the fourth quarter of 2027.

The Directors based their going concern assessment on the base case scenario and a severe but plausible downside scenario over the going concern period as follows:

- Group revenue forecasts are materially reduced by 25% and the interest rate on the Group's debt is 200 basis points higher than forecast, with a controllable mitigating reduction of 10% of operating expenditure and a reduction of 50% in laboratory and prototyping operating and capital expenditure.

Under both the base and downside scenario, there are no further investments forecast to be made to WiseWave. Under the base case and the downside scenario, the analysis demonstrates the Group can continue to maintain sufficient liquidity headroom with no default on debt covenants.

Following consideration of the Group's liquidity position and prospects for the year ahead, the Directors have a reasonable expectation that the Group has adequate resources for a period of at least twelve months from the date of approval of the consolidated financial statements and have therefore assessed that the going concern basis of accounting is appropriate in preparing the consolidated financial statements.

Segment information
An operating segment is a component of an entity that engages in business activities from which it may earn revenues and incur expenses for which discrete financial information is available and whose operating results are regularly reviewed by the Chief Operating Decision Maker (CODM) to assess performance and make resource allocation decisions.

Our business model is such that our IP is leveraged across the channels through which we provide our products and services to customers, i.e. IP licensing, custom silicon or own products. Moreover, the Group's products and services are of similar nature and are provided to similar types of customers in similar locations. Our CODM, the Chief Executive Officer, therefore does not utilise disaggregated information for resource allocation decisions. Accordingly, management considers that the Group's business constitutes only one operating segment and therefore no disaggregated information is presented in the consolidated financial statements.

Presentation currency
The Directors consider that the Company's functional currency is pound sterling, but present the consolidated financial statements in US dollars ('US$') because substantially all of the Group's revenues and a significant part of its expenses are denominated in US$. US$ is the presentation currency used by most companies in the semiconductor industry and its use by the Group therefore assists investors in making comparisons with its peers.

All US$ amounts are rounded to the nearest thousand, unless stated otherwise.

Use of estimates
The preparation of the financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Changes in estimates and assumptions are accounted for prospectively. Actual outcomes may differ from estimates and assumptions and affect the Group's results in future periods. Key sources of estimation uncertainty affecting the consolidated financial statements are discussed in note 3.

Approval of the consolidated financial statements
The consolidated financial statements for the year ended 31 December 2023 were authorised for issue by the Board of Directors on 23 April 2024.

Company financial statements
Separate financial statements for the Company are set out on pages 79 to 80.

Accounting standards adopted during the year
IFRS 17 Insurance Contracts
IFRS 17 requires liabilities in relation to insurance contracts to be measured at current fulfilment value and provides a more uniform measurement and presentation approach for all insurance contracts compared with the standard that it replaced, IFRS 4 Insurance Contracts.

While the Group established a captive insurance subsidiary with the intention of providing Directors' and officers' liability insurance, it has not transacted any business. Accordingly, the adoption of IFRS 17 had no impact on the consolidated financial statements.

Classification of Liabilities as Current or Non-Current and Non-current Liabilities with Covenants (Amendments to IAS 1)
Amendments to IAS 1 Presentation of Financial Statements were issued by the IASB in 2020 and 2022 to clarify that the classification of liabilities with an uncertain settlement date as current or non-current is based on rights that are in existence at the end of the reporting period and to introduce new disclosure requirements for non-current liabilities that are subject to covenants.

While adoption of the amendments was not mandatory for the Group until 1 January 2024, we adopted them early with effect from 1 January 2023.

As disclosed in note 22, the Group has outstanding borrowings under a Term Loan facility and a Revolving Credit Facility that are subject to financial covenants. For the period ended on 30 June 2023, the Fixed Charges Coverage Ratio was below the minimum permitted level of 1.25x.

As a consequence of having adopted the amendments to IAS 1, since the breach of the covenant was unresolved as at 30 June 2023, the amounts outstanding under the Term Loan and the Revolving Credit Facility were classified wholly as current liabilities in the consolidated balance sheet as at that date. On 22 September 2023, we agreed an amendment of the Credit Agreement with the lenders that temporarily suspended the Fixed Charges Covenant Ratio but introduced a Minimum Liquidity Requirement. Since the Group was not in breach of the amended financial covenants as at 31 December 2023, the appropriate portion of the amounts owed under the Term Loan facility and the Revolving Credit Facility are classified as non-current liabilities in the consolidated balance sheet as at that date.

International Tax Reform – Pillar Two Model Rules (Amendments to IAS 12)
In October 2021, the OECD published its Global Anti-Base Erosion Model Rules (Pillar Two) that seek to ensure that large multinational enterprises pay a minimum effective corporate tax rate of 15% on the income arising in each jurisdiction where they operate.

In view of the uncertainties that exist during the implementation phase, in May 2023, the IASB issued amendments to IAS 12 Income Taxes that introduce a temporary exception under which an entity does not recognise any deferred tax assets or liabilities related to Pillar Two top-up taxes together with new disclosure requirements concerning an entity's estimated exposure to them. The amendments became effective for the Group immediately following their endorsement for use in the UK in July 2023.

Since the Group does not currently operate in any jurisdiction where it expects to have a liability for Pillar Two top-up taxes, adoption of the amendments has had no impact on the consolidated financial statements.

Definition of Accounting Estimates (Amendments to IAS 8)
Amendments to IAS 8 Accounting Policies, Changes in Accounting Estimates and Errors that introduce a definition of an accounting estimate to be applied where items are subject to measurement uncertainty and clarify that a change in an accounting estimate that results from new information or new developments is not the correction of an error.

Adoption of the amendments did not have a material impact on the consolidated financial statements.

Disclosure of Accounting Policies (Amendments to IAS 1 and IFRS Practice Statement 2)
Amendments to IAS 1 to require the disclosure of 'material', rather than 'significant', accounting policies. Although adoption of the amendments did not result in any change in the Group's accounting policies themselves, they have caused management to revise the accounting policy information disclosed in the consolidated financial statements.

Deferred Tax related to Assets and Liabilities arising from a Single Transaction (Amendments to IAS 12)
Amendments to IAS 12 that have the effect that the exemption from the requirement to recognise deferred tax assets and liabilities on initial recognition of a transaction does not apply to transactions in which equal amounts of deductible and taxable temporary differences arise on initial recognition, for example where a lessee recognises an asset and a liability on the commencement of a lease.

The Group previously accounted for deferred tax on leases on a net basis. Since adopting the amendments, where appropriate, the Group has recognised a separate deferred tax asset in relation to its lease liabilities and a deferred tax liability in relation to its right-of-use assets. However, there was no impact on the consolidated financial statements because the deferred tax assets and liabilities recognised qualified for offset under IAS 12.

Accounting standards issued but not adopted as at 31 December 2023
Supplier Finance Arrangements (Amendments to IAS 7 and IFRS 7)
Amendments to IAS 7 Statement of Cash Flows and IFRS 7 Financial Instruments: Disclosures that add new disclosure requirements to the nature and extent of supplier finance arrangements (also known as 'reverse factoring'). The amendments became effective for the Group on 1 January 2024.

The Group does not currently provide supplier finance arrangements.

Lease Liability in a Sale and Leaseback (Amendments to IFRS 16)

Amendments to IFRS 16 Leases that clarify how a seller-lessee measures sale and leaseback transactions. The amendments became effective for the Group on 1 January 2024.

Management will refer to the new guidance in the event that the Group enters into any sale and leaseback transactions in the future.

Lack of Exchangeability (Amendments to IAS 21)
Amendments to IAS 21 The Effects of Changes in Foreign Exchange Rates to provide guidance to identify when a currency is exchangeable and how to determine the exchange rate to be used for accounting purposes when it is not. Subject to their endorsement for use in the UK, the amendments will become effective for the Group on 1 January 2025.

Management does not expect that adoption of the new guidance will have a material impact on the consolidated financial statements.

2 Material accounting policies
Basis of consolidation
The consolidated financial statements incorporate the results, cash flows and assets and liabilities of the Company and its subsidiaries.

A subsidiary is an entity that is controlled, either directly or indirectly, by the Company. Control exists when the Company is exposed, or has rights, to variable returns from its involvement with the entity and has the ability to affect those returns through its power to direct the relevant activities of the entity. Generally, such power exists where the Company holds a majority of the voting rights of an entity. When the Company holds less than a majority of the voting rights of an entity, it considers all relevant facts and circumstances in assessing whether or not its voting rights are sufficient to give it power to direct the activities that significantly affect its returns from the entity, including: the size of the Company's holding of voting rights relative to the size and dispersion of the holdings of other vote holders; potential voting rights held by the Company, other vote holders or other parties; and rights arising from other contractual arrangements.

Details of the Company's subsidiaries as at 31 December 2023 are set out on page 86.

Consolidation of a subsidiary commences when the Company obtains control over the subsidiary and ceases at such time as control over the subsidiary is lost. Transactions and balances between members of the Group, and any unrealised profits or losses on such transactions, are eliminated on consolidation.

Changes in the Company's ownership interest in a subsidiary that do not result in a loss of control are accounted for within equity.

Joint ventures
A joint venture is a joint arrangement where the parties that have joint control of the arrangement have rights to the net assets of the arrangement, rather than rights to its assets and obligations for its liabilities. Joint control is the contractually agreed sharing of control of an arrangement which exists only when decisions about the activities that significantly affect the returns of the arrangement require the unanimous consent of the parties sharing control.

Joint ventures are accounted for using the equity method. On initial recognition the investment in a joint venture is recognised at cost and the carrying amount of the investment is increased or decreased to recognise the Group's share of the comprehensive income or loss of the joint venture after the date of acquisition. If the Group's share of losses of a joint venture equals or exceeds its interest in the joint venture, the Group does not recognise its share of further losses. After the Group's interest in a joint venture is reduced to nil, additional losses are provided for, and a liability recognised, only to the extent that it has incurred legal or constructive obligations or made payments on behalf of the joint venture.

The Group's investment agreement in its joint venture, WiseWave Technology Co., LTD, stipulates that Alphawave can invest up to US$170,000,000 in WiseWave. Any requirement for a capital contribution is a shareholder reserved matter which requires the explicit approval of Alphawave as joint investor. As such, the Group does not have a constructive obligation to fund the joint venture and therefore additional losses recorded after the Group's interest in the joint venture have reduced to nil are not provided for and no liability is recognised.

Unrealised profits and losses arising on transactions involving assets between the Group and a joint venture are recognised only to the extent of unrelated investors' interests in the joint venture. Accordingly, the Group's share of its profit from the licensing of IP or the sale of products to a joint venture is eliminated to the extent that the resulting asset has not been utilised by the joint venture or sold on to a third party. Such elimination is made in arriving at the Group's share of the profit or loss from the joint venture and correspondingly against its interest in the joint venture. However, such elimination is made after the Group has recognised its share of the comprehensive income or loss of the joint venture and only to the extent that its interest in the joint venture is reduced to nil.

Business combinations
A business combination is a transaction or other event in which the Company obtains control over a business.

Business combinations are accounted for using the acquisition method.

Goodwill acquired in a business combination is recognised as an intangible asset and represents the excess of the aggregate of the consideration transferred, including contingent consideration, and the amount of any non-controlling interests in the acquired business over the net total of the identifiable assets and liabilities of the acquired business at the acquisition date. Any shortfall, negative goodwill, is recognised immediately as a gain in profit or loss.

Consideration transferred represents the sum of the fair values at the acquisition date of the assets given, liabilities incurred or assumed and equity instruments issued by the Group in exchange for control over the acquired business.

Acquisition-related costs are charged to profit or loss in the period in which they are incurred.

Identifiable assets and liabilities of the acquired business are measured at their fair value at the acquisition date, except for certain items that are measured in accordance with the relevant Group accounting policy, such as replacement equity-settled share-based compensation awards and deferred tax assets and liabilities.

Non-controlling interests that entitle their holders to a proportionate share of the net assets of the acquired business in the event of a liquidation are measured either at fair value or at the non-controlling interest's proportionate share of the identifiable assets and liabilities of the business. Other non-controlling interests are measured at fair value.

If the initial accounting for a business combination is incomplete by the end of the reporting period in which the combination occurs, provisional amounts are reported for the items for which the accounting is incomplete. During a measurement period of up to one year after the acquisition date, adjustments may be made to the provisional amounts as if the accounting for the business combination had been completed at the acquisition date. Thereafter, the initial accounting for a business combination may not be adjusted except to correct an error.

Foreign currency translation
Each entity within the Group has a functional currency, which is normally the currency in which the entity primarily generates and expends cash.

At entity level, a foreign currency is a currency other than the entity's functional currency. Sales, purchases and other transactions denominated in foreign currencies are recorded in the entity's functional currency at the exchange rate ruling at the date of the transaction. Monetary assets and liabilities denominated in foreign currencies are translated at the exchange rate ruling at the end of the reporting period. Currency translation differences arising at entity level are recognised in profit or loss. Non-monetary assets and liabilities denominated in foreign currencies are not retranslated subsequent to initial recognition.

On consolidation, the results of foreign operations are translated into US dollars at the average exchange rate for the reporting period and their assets and liabilities are translated into US dollars at the exchange rate ruling at the end of the reporting period. Currency translation differences arising on consolidation are recognised in other comprehensive income and taken to the currency translation reserve. In the event that a foreign operation is sold, the related cumulative currency translation difference recognised in other comprehensive income is reclassified from equity to profit or loss and is included in calculating the gain or loss on disposal of the foreign operation.

Revenue recognition
General principles
Revenue is recognised in accordance with IFRS 15 Revenue from Contracts with Customers, upon transfer of control of promised products or services to customers in an amount that reflects the consideration the Group expects to be entitled to in exchange for those products or services.

Revenue represents the consideration to which the Group expects to be entitled in exchange for transferring goods or services to a customer, excluding sales taxes and, where applicable, including estimates of rebates, product returns and other forms of variable consideration. Variable consideration is included in revenue only to the extent that we consider that it is highly probable that a significant reversal in the amount of cumulative revenue recognised will not occur when the uncertainty associated with the variable consideration is subsequently resolved.

IP licensing
The Group enters into contracts with customers to license intellectual property (IP) products, which consist primarily of software files that customers use to create, integrate and operate functional building blocks within a semiconductor device. Such contracts typically include the provision of support to customers during the integration of the IP product into their chip design ('integration support') and when ensuring that the IP product is functional within the resulting chip ('bring up support').

The Group typically licenses its IP products under standard pay-per-use licence agreements and are delivered over the period its customers are developing their semiconductor devices, which can span several years.

The Group licenses two different types of IP product:

- hard IP, which has to be specifically tailored for different manufacturing process technologies, as it contains analogue circuitry whose characteristics may change depending on the manufacturing process; and
- soft IP, which typically contains only digital circuitry and where computer-aided design tools can enable the IP to work with different manufacturing processes.

Contracts to license the Group's IP products specify the consideration to be paid by the customer, based on the specific IP products licensed and the amount of any non-recurring engineering (NRE) required. Invoicing is typically aligned with the achievement of project milestones. Support services are generally separately priced within the contract and are invoiced on an annual basis.

Where a contract involves more than one performance obligation, we allocate the transaction price to the performance obligations based on their relative stand-alone selling prices.

Hard IP

Due to the complexity of the IP products being delivered and the need for customers to integrate the IP products with other IP building blocks in their chip designs, the Group's IP products are typically delivered in multiple stages, referred to as IP views, all of which require some level of customisation and/or configuration. Although delivery of the licensed IP products is split over multiple deliveries of IP views, these deliveries are not distinct because each IP view is highly dependent on or interrelated with one or more of the other IP views.

Further, we do not consider any NRE work required to configure the IP products to be distinct because customers are unable to benefit from the IP views on their own or together with other resources readily available to them, due to the bespoke nature of the configuration that the Group performs on the hard IP products. We therefore consider that the delivery of the IP views and the configuration of the IP products represents a single performance obligation.

We recognise revenue on hard IP products by reference to the stage of completion of the project, measured based on the engineering hours spent on work performed to date as a percentage of the estimated total project hours.

Soft IP

While the initial delivery of IP may not be to a customer's exact specification, customers are able to use the IP without significant modification and therefore benefit from it on its own or together with resources readily available to them.

We therefore consider the initial delivery of IP to be a separate performance obligation.

We consider any customisation work and subsequent IP deliveries to be a single separate performance obligation because they are distinct from the initial IP delivery but are highly dependent or interrelated with each other.

We recognise revenue on the initial IP when the IP is delivered to the customer.

We recognise revenue on customisation and subsequent IP deliveries by reference to the stage of completion of the project and achievement of specific contractual milestones when successive deliveries of customised IP are made.

Support

Support services are considered a separate performance obligation from delivery of the IP products because customers could benefit from the services on their own or with other resources that are readily available to them.

Our obligation to provide support services is a stand-ready obligation over a specified period, the timing of which is uncertain and there is typically no maximum number of hours stated in the contract. Revenue from support services is therefore recognised on a straight-line basis over the contractual period of support provision.

Custom silicon

The Group enters into contracts with customers to develop custom silicon products that can include various combinations of IP provided by the Group, IP provided by third parties, other third-party costs required to prototype the device and the Group's internal engineering costs and, if those products go into production, to supply them to those customers. Custom silicon development contracts vary according to the proportion of the engineering work that the Group is required to undertake. For example, the customer may provide a specification only, with the Group designing, implementing and manufacturing the resulting chip, utilising third-party manufacturers. Alternatively, a customer may provide their own design, and only utilise the Group's supply chain infrastructure to manage the manufacturing of the chip. All custom silicon contracts specify that the Group owns the unique mask set of the chip design and, therefore, if the resulting chip goes into production, it can only be supplied to the customer by us. Equally, however, the customer controls the chip design because the Group cannot use it for any purpose other than to manufacture chips for the customer.

Custom silicon development projects are typically complex and highly customised with detailed engineering schedules and deliverables. A custom silicon project may include internal engineering services, our IP, IP support services, third-party IP, tooling costs and prototypes. While these elements are capable of being distinct, they are not distinct in the context of the contract. Each deliverable is highly dependent on or interrelated with one or more of the other goods or services in the contract and the nature of the obligation is to deliver a combined output in the form of a completed design or prototype.

We therefore consider custom silicon development to be a single performance obligation.

We consider that the supply of chips following release to production is a separate performance obligation which arises on receipt of a silicon purchase order from the customer. Custom silicon contracts do not contain purchase volume commitments and therefore the supply of chips is not only capable of being distinct, but is also distinct in the context of the contractual arrangements.

Custom silicon contracts specify the consideration receivable for the custom design work, including any third-party components, as well as pricing for any subsequent silicon orders. Pricing of the design work will depend on factors including chip complexity, manufacturing process technology and IP costs. Invoicing for development work is typically aligned with the achievement of project milestones. Contracts are typically cancellable by the customer for convenience during the design phase. In the event of cancellation, the customer will be liable to make payment corresponding to a future contract milestone or a specified fixed percentage of the contract value.

We recognise revenue on custom silicon development projects by reference to the stage of completion of the project, measured based on the costs incurred for work performed to date as a percentage of the estimated total development costs.

Supply of silicon products
The Group enters into contracts with customers for the supply of silicon devices that are developed by the Group to the customer's specification. Silicon products are physical goods held as inventory with revenue recognised at a point in time when the customer obtains control of the products. Accordingly, where products are sold on 'ex-works' incoterms, revenue is recognised when the products are released for collection by the customer. Otherwise, revenue is recognised when the products are delivered to the customer. Where products are supplied on a consignment basis, delivery takes place and revenue is recognised when the products are taken out of the consignment by the customer.

Reseller fees
VeriSilicon licensed the Group's IP products to third-party customers under an exclusive IP subscription reseller agreement that ended in December 2023. Under the agreement, we charged VeriSilicon exclusivity fees for each calendar year that we invoiced to them and collected on a quarterly basis.

The exclusivity fees represented minimum annual payments by VeriSilicon against which it could offset purchases of our IP products for license to third parties at any time during the relevant calendar year. We carried out the necessary customisation and/or configuration of our IP products to meet the requirements of the end-customers.

We recognised revenue under the agreement by reference to the stage of completion of the related customisation and/or configuration project, measured based on the engineering hours spent on work performed as a percentage of the estimated total project hours. Any unutilised exclusivity payments could not be carried forward by VeriSilicon to future calendar years.

We therefore recognised any unutilised exclusivity payments as additional revenue at the end of the relevant calendar year.

Licence agreement with joint venture
We have a subscription licence agreement that provides WiseWave with right of use over a library of our IP products for a fixed fee spread over a period of five years ending in 2026. As we do not usually provide individual licences without NRE to customers it is difficult to determine the standalone selling price of each of the IP products. Based on engineering schedules, we therefore estimated the total number of IP products that we expect to provide into the library over the duration of the agreement in order to calculate the estimated unit price of the IP products. Given that the number of products to be put into the library in the future is uncertain, the estimated unit price of the IP products constitutes variable consideration. We therefore exercise judgement in applying constraints to the unit price of the IP products in order to minimise the risk of significant reversals of revenue in future periods. Revenue on this agreement is recognised at a point in time when an IP product is added to the library, as this is when we consider control of the IP product is transferred to WiseWave.

Contract modifications
A contract modification is a change in the scope or price (or both) of a contract that is approved by the parties to the contract.

Modifications to our IP products and custom silicon development contracts with customers do not normally involve the addition of goods or services that are distinct from those already being provided under the contract. Such modifications are therefore accounted for as an adjustment to the existing contract rather than as a separate contract. Accordingly, the effect that the modification has on the transaction price and/or on the measure of progress to completion of the contract is recognised as a cumulative catch-up adjustment to revenue when the modification is approved.

Contract balances
Contract assets represent the amount of revenue recognised on IP and product development contracts that has not yet been billed to the customer.

Contract liabilities represent amounts billed to customers in excess of revenue recognised on IP and product development contracts.

Costs of obtaining contracts
Incremental costs of obtaining a contract with an expected duration of more than one year are recognised as an asset that is amortised over the period of the contract in proportion to the recognition of the revenue receivable on the contract.

As permitted by IFRS 15, the costs of obtaining contracts with an expected duration of one year or less are expensed as they are incurred.

Onerous contracts
If a contract with a customer is considered to be onerous, a provision is recognised to the extent that the remaining unavoidable costs of meeting the obligations under the contract exceed the remaining benefits to be received under it.

Research and development ('R&D')
All research expenditure is expensed as it is incurred.

Development expenditure is also expensed as it is incurred until such time as it can be demonstrated that the product is both technically feasible and commercially viable and that management intends to complete the development of the product and sell it to customers. Development expenditure incurred after that time and before the developed product is available to be put into full production is capitalised.

R&D expenditure credits
R&D expenditure credits principally comprise amounts claimed from the Canadian federal and provincial government under the Scientific Research and Experimental Development (SRED) incentive programme. Claims are made annually based on assumptions and estimates made by management in determining the eligible R&D expenditure incurred during the year. Claims made are subject to review and approval by the Canadian tax authorities and may be subject to adjustment in subsequent years.

R&D expenses are stated after deducting R&D expenditure credits claimed for the year and any adjustments to amounts claimed in previous years. We recognise a corresponding receivable for R&D expenditure credits claimed. R&D expenditure credits receivable are settled by deduction from the amount of income tax payable to the Canadian tax authorities. Any excess of the R&D expenditure credits receivable over income tax payable is paid to the Group by the tax authorities.

Goodwill
Goodwill acquired in a business combination is carried at cost, less impairment losses, if any.

Internally generated goodwill is not recognised as an asset.

Other intangible assets
Other intangible assets comprise identifiable intangibles acquired in business combinations (principally customer-related assets and developed technology), licences and capitalised product development costs.

Other intangible assets are carried at cost less accumulated amortisation and impairment losses, if any. Cost comprises the purchase price of the asset and any costs directly attributable to preparing the asset for its intended use, or, in the case of an asset acquired in a business combination, is its fair value at the acquisition date.

Other intangible assets are amortised on a straight-line basis so as to charge their cost to profit or loss over their estimated useful lives as follows:

Developed IP	– 4 to 5 years
Developed technology	– 4 to 8 years
Customer relationships	– 12 years

Note developed technology includes all capitalised development. Estimated useful lives are regularly reviewed and the effect of any change in estimate is accounted for prospectively by adjustment to the amortisation expense. Other intangible assets are regularly reviewed to eliminate obsolete items.

Property and equipment – owned
Property and equipment is carried at cost less accumulated depreciation and impairment losses, if any. Cost comprises the purchase price of the asset and any costs directly attributable to bringing the asset to the location and condition necessary to enable its intended use, or, in the case of an asset acquired in a business combination, is its fair value at the acquisition date.

Repair and maintenance costs are charged to profit or loss in the period in which they are incurred.

Items of property and equipment are depreciated on a straight-line basis so as to charge their cost, less estimated residual value, to profit or loss over their expected useful lives as follows:

Computer equipment	– 2 years
Furniture and fixtures	– 5 years
Leasehold improvements	– 2½ years
Laboratory equipment	– 2 years

Depreciation methods, useful lives and residual values are reviewed at each balance sheet date and the effect of any change in estimate is accounted for prospectively by adjustment to the depreciation expense. Property and equipment is regularly reviewed to eliminate obsolete items.

Any gain or loss arising on disposal of property and equipment is recognised in profit or loss.

Property and equipment – leased
Where the Group is lessee in a lease arrangement, it recognises a right-of-use asset and an associated lease liability, except where the leased asset is of low value or the lease is short term (a lease term of twelve months or less).

On the commencement date of a lease, the lease liability is measured at the present value of the future lease payments discounted using the interest rate implicit in the lease, if that rate can be readily determined, or using the lessee entity's incremental borrowing rate. Future lease payments comprise fixed lease payments, less any lease incentives receivable, variable payments that depend on an index or rate (initially measured using the index or rate at the commencement date) and, where applicable, amounts expected to be paid under a residual value guarantee, a purchase option or by way of termination penalties.

Variable lease payments that do not depend on an index or rate are not reflected in the lease liability and are recognised in profit or loss in the period in which the event that triggers those payments occurs.

After the commencement date, the carrying amount of the lease liability is increased to reflect the accrual of interest, reduced to reflect lease payments made and remeasured to reflect reassessments of the future lease payments or certain lease modifications. Interest on the lease liability is recognised in profit or loss (within interest expense).

On the commencement date of a lease, the right-of-use asset is measured at cost which comprises the initial amount of the lease liability, adjusted for any lease payments made at or before the commencement date, plus any initial direct costs incurred and an estimate of any dismantling or restoration costs (typically leasehold dilapidations).

The right-of-use asset is subsequently depreciated using the straight-line method from the commencement date to the end of the lease term, unless the lease transfers ownership of the underlying asset to the Group by the end of the lease term or the cost of the right-of-use asset reflects that the Group will exercise a purchase option. In that case, the right-of-use asset will be depreciated over the useful life of the underlying asset, which is determined on the same basis as those of property and equipment. In addition, the right-of-use asset is periodically reduced by impairment losses, if any, and adjusted for certain remeasurements of the lease liability.

Where a contract contains a lease and non-lease components (for example, property maintenance services) and the contractual payments cannot be readily allocated to the lease component, the Group accounts for the entire contract as a lease.

Lease payments relating to low-value assets or to short-term leases are recognised as an expense (in arriving at operating profit) on a straight-line basis over the lease term.

Cloud-computing arrangements
Software-as-a-Service (SaaS) arrangements convey to the Group the right to access the supplier's application software rather than control over the software. SaaS arrangements are accounted for as service contracts (rather than as a lease or the purchase of an intangible asset). Accordingly, the cost of a SaaS arrangement is recognised as an expense on a systematic basis over the term of the arrangement.

Costs that we incur to configure or customise the provider's software in a SaaS arrangement are recognised as an expense as incurred or, if not distinct from the right to access the software, over the term of the arrangement.

Capitalisation of borrowing costs
Borrowing costs are capitalised if they are directly attributable to the acquisition, construction or production of a qualifying asset, being an asset that takes a substantial period of time to get ready for its intended use. Borrowing costs are considered to be directly attributable to a qualifying asset if the related borrowings would have been avoided if the expenditure on the asset had not been made.

Impairment of tangible and intangible assets
Goodwill, other intangible assets and property and equipment are tested for impairment whenever events or circumstances indicate that their carrying amounts may not be recoverable. Additionally, goodwill and intangible assets still under development are subject to an annual impairment test.

An asset is impaired to the extent that its carrying amount exceeds its recoverable amount. An asset's recoverable amount is the higher of its value-in-use and its fair value less costs of disposal. An asset's value-in-use represents the present fair value of the future cash flows expected to be derived from the asset in its current use and condition. Fair value less costs of disposal is the amount expected to be obtainable from the sale of the asset in an arm's length transaction between knowledgeable, willing parties, less the costs of disposal.

Where it is not possible to estimate the recoverable amount of an individual asset, the recoverable amount is determined for the cash-generating unit (CGU) to which the asset belongs. An asset's CGU is the smallest identifiable group of assets that includes the asset and generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets. Goodwill does not generate cash flows independently of other assets and is, therefore, tested for impairment at the level of the CGU or group of CGUs that are expected to benefit from the synergies of the related business combination.

Value-in-use is based on pre-tax estimates of pre-tax cash flows in the periods covered by budgets and/or plans that have been approved by the Board. Such cash flow estimates are discounted at a pre-tax discount rate that reflects the current market assessments of the time value of money and specific risks.

Impairment losses are recognised in profit or loss.

Impairment losses recognised in previous periods for assets other than goodwill are reversed if there has been a change in the estimates used to determine the asset's recoverable amount, but only to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined had no impairment loss been recognised in previous periods. Impairment losses in respect of goodwill are not reversed.

Inventories
Inventories comprise raw materials, work in progress and finished goods.

Inventories are stated at the lower of cost and net realisable value. Cost is determined using the weighted-average cost method and includes expenditure incurred in acquiring the inventories and in bringing them to their present location and condition. In the case of work in progress and finished goods, cost includes an appropriate share of overheads based on normal operating capacity. Net realisable value represents the estimated selling price, less estimated costs of completion and marketing, selling and distribution costs.

Financial instruments
Cash and cash equivalents
Cash and cash equivalents comprise cash at bank and on hand and bank deposits with an original maturity of 90 days or less. Cash and cash equivalents are measured at fair value on initial recognition, less an allowance for expected credit losses, and subsequently measured at amortised cost using the effective interest method.

Contract assets
Contract assets represent the amount of revenue recognised on IP and product development contracts that has not yet been invoiced to the customer, less an allowance for expected
credit losses.

Trade and other receivables
Trade receivables represent the amount of revenue from customers that has been invoiced, but for which payment has not been received. Trade and other receivables are measured at fair value on initial recognition, less an allowance for expected credit losses, and subsequently measured at amortised cost.

Equity investments
Equity investments are measured at fair value through profit or loss unless we make an irrevocable election on initial recognition to measure them at fair value through other comprehensive income. Gains and losses recognised in other comprehensive income are not reclassified to profit or loss in the event that the investment is sold.

Impairment of financial assets
The Group recognises an allowance for credit losses in respect of trade receivables and contract assets measured as the amount of the lifetime expected credit losses estimated using a provision matrix based on the Group's historical credit loss experience, adjusted for factors that are specific to the customers, and general current and forecasted economic conditions.

We recognise an allowance for credit losses in respect of other financial assets that is measured as the amount of expected credit losses over the next twelve months. If, however, the risk of default has increased significantly since initial recognition, we measure the allowance as the amount of lifetime expected credit losses.

If a financial asset has no realistic prospect of recovery, it is written off, firstly against any allowance made and then directly to profit or loss. We consider that a financial asset is not recoverable if the balance owing is 365 days past due and information obtained from the counterparty and other external factors indicate that the counterparty is unlikely to pay its creditors in full. Any subsequent recoveries are credited to profit or loss.

Trade and other payables
Trade payables represent the value of goods and services purchased from suppliers for which payment has not been made. Trade and other payables are measured at fair value on initial recognition and subsequently measured at amortised cost.

Contingent consideration liabilities
Contingent consideration that is classified as a liability is measured at fair value through profit or loss. Contingent consideration that is classified as equity is not remeasured and its subsequent settlement is accounted for within equity.

Loans and borrowings
Bank and other loans are measured at fair value on initial recognition, less any directly attributable transaction costs, and are subsequently measured at amortised cost using the effective interest method.

If a loan or borrowing is subject to covenants and the Group is in breach of one or more of the covenants at the end of the reporting period, the carrying amount of the liability is classified wholly as a current liability, irrespective of any element that would otherwise be payable more than one year after the end of the reporting period.

Facility arrangement costs are amortised as a finance expense over the term of the facility.

Offsetting financial instruments
Financial assets and financial liabilities are offset and the net amount presented in the balance sheet where there is a currently enforceable legal right to offset the recognised amounts and management intends either to settle on a net basis or to realise the asset and settle the liability simultaneously.

Contract liabilities
Contract liabilities represent amounts invoiced to customers in excess of revenue recognised on IP and product development contracts.

Share-based payments
As described in note 27, the Company operates share-based payment plans under which it grants options and RSUs over its ordinary shares to certain of its employees and those of its subsidiaries. Awards granted under the existing plans are classified as equity-settled awards.

We recognise a compensation expense that is based on the fair value of the awards measured at the grant date using an appropriate valuation model. Fair value is not subsequently remeasured unless relevant conditions attaching to the awards are modified.

Fair value reflects any market performance conditions and all non-vesting conditions. Adjustments are made to the compensation expense to reflect actual and expected forfeitures due to failure to satisfy service conditions or non-market performance conditions.

We recognise the resulting compensation expense on a systematic basis over the vesting period and a corresponding credit is recognised in the share-based payments reserve within equity.

In the event of the cancellation of an option or an award by the Company or by the participating employee, the compensation expense that would have been recognised over the remainder of the vesting period is recognised immediately in profit or loss.

Post-employment benefits
Defined contribution plans
Contributions to defined contribution pension plans are charged to profit or loss in the period to which they relate.

Defined benefit plans
As described in note 25, the Group operates certain unfunded post-employment benefit plans in India.

We measure the benefit obligation on an actuarial basis using the projected unit credit method and this is discounted using a discount rate derived from high-quality corporate bonds with a similar duration as the benefit obligation.

We recognise the current service cost and interest on the benefit obligation in profit or loss. The current service cost represents the increase in the present value of the benefit obligation resulting from employee service in the period. Interest on the benefit obligation is determined by applying the discount rate to the benefit obligation, both as determined at the beginning of each year, but taking into account benefit payments during the period.

We recognise the effect of remeasurements of the benefit obligation in other comprehensive income. Remeasurements comprise actuarial gains and losses arising due to changes in actuarial assumptions and experience adjustments.

Income taxes
Tax on the profit or loss for the year comprises current and deferred tax. Tax is recognised in the profit and loss account except to the extent it relates to items recognised directly in equity or other comprehensive income, in which case it is recognised directly in equity or other comprehensive income.

Current tax is the amount of tax payable or recoverable in respect of the taxable profit or loss for the period. Taxable profit differs from accounting profit because it excludes income or expenses that are recognised in the period for accounting purposes but are either not taxable or not deductible for tax purposes or are taxable or deductible in earlier or subsequent periods. Current tax is calculated using tax rates and laws that have been enacted or substantively enacted at the balance sheet date.

Deferred tax is tax expected to be payable or recoverable on temporary differences between the carrying amount of an asset or liability in the financial statements and its tax base used in the computation of taxable profit. Deferred tax liabilities are generally recognised for all taxable temporary differences. Deferred tax assets are generally recognised for all deductible temporary differences to the extent that it is probable that taxable profits will be available in the future against which they can be utilised.

Deferred tax assets and liabilities are not recognised in respect of temporary differences arising from the initial recognition of goodwill or from the initial recognition of other assets or liabilities in a transaction that is not a business combination and, at the time of the transaction, affects neither accounting profit nor taxable profit and does not give rise to equal amounts of taxable and deductible temporary differences.

Deferred tax liabilities are recognised for taxable temporary differences associated with investments in subsidiaries, except where management is able to control the reversal of the temporary difference and it is probable that it will not reverse in the foreseeable future. Deferred tax assets and liabilities are measured using the tax rates that are expected to apply when the asset is realised or the liability is settled, based on tax rates and laws that have been enacted or substantively enacted at the balance sheet date.

Where there is uncertainty concerning the tax treatment of an item or group of items, the amount of current and deferred tax recognised is based on management's expectation of the likely outcome of the examination of the uncertain tax treatment by the relevant tax authorities. Uncertain tax treatments are reviewed regularly and current and deferred tax amounts are adjusted to reflect changes in facts and circumstances, such as the expiry of limitation periods for assessing tax, administrative guidance given by the tax authorities and court decisions.

Current tax assets and liabilities are offset when there is a legally enforceable right to set off the amounts and management intends to settle on a net basis. Deferred tax assets and liabilities are offset when there is a legally enforceable right to offset current tax assets and liabilities and the deferred tax assets and liabilities relate to income taxes levied by the same taxation authority on the same taxable entity.

Current tax and deferred tax is recognised in profit or loss unless it relates to an item that is recognised in the same or a different period outside profit or loss, in which case the related tax is also recognised outside profit or loss, either in other comprehensive income or directly in equity.

Payments by customers incorporated in certain tax jurisdictions may be subject to withholding tax. Where the country in which the sales invoice is raised has a tax treaty in place with the relevant tax jurisdiction, the tax withheld is treated as prepaid income tax and offset against current tax payable.

3 Critical judgements and key sources of estimation uncertainty

Critical judgements in applying the Group's accounting policies

Critical judgements are the judgements, apart from those involving estimates, that management has made in applying the Group's accounting policies that have had the most significant effect on the consolidated financial statements.

Revenue recognition – Identification of performance obligations

<u>IP licensing</u>

Hard IP products are typically delivered in multiple stages, referred to as IP views. Management considers that these deliveries are not distinct because each IP view is highly dependent on or interrelated with one or more of the other IP views.

Furthermore, management does not consider any NRE work required to configure the IP products to be distinct because customers would be unable to benefit from the IP views without configuration by Alphawave. In management's judgement, the delivery of IP views and the NRE work required to configure them represents a single performance obligation.

While the initial delivery of soft IP may not be to a customer's exact specification, they can use the IP without significant modification. In management's judgement, the initial delivery of soft IP is a separate performance obligation but any customisation work and subsequent IP deliveries are a single separate performance obligation because they are highly dependent or interrelated with each other.

In management's judgement, support services are a separate performance obligation from the delivery of IP products because customers could benefit from the services on their own or with other resources that are readily available to them.

<u>Custom silicon</u>

Custom silicon developments are typically complex and highly customised with detailed engineering schedules and deliverables.

While the various elements of the contracts are capable of being distinct, they are not distinct in the context of the contract because each delivery is highly dependent on or interrelated with one or more of the other goods or services in the contract and the nature of the obligation is to deliver a combined output in the form of a completed design or prototype. In management's judgement, therefore, a custom silicon development contract constitutes a single performance obligation.

Custom silicon contracts do not contain purchase volume commitments and therefore the supply of custom silicon products is not only capable of being distinct, but is distinct in the context of the contractual arrangements. In management's judgement, therefore, the supply of silicon following release to production is considered a separate performance obligation which arises on receipt of a silicon purchase order from the customer.

Cash-generating units

A cash-generating unit (CGU) is the smallest identifiable group of assets that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets. Identification of CGUs is important for determining the Group's operating segments and the level at which goodwill should be tested for impairment.

Our business model is such that our IP is leveraged across the channels through which we provide our products and services to customers, i.e. IP licensing, custom silicon and own products. Given this interdependence of the Group's operations, management considers that the Group consists of a single CGU because there is no asset or group of assets within the business that generates cash inflows that are largely independent of the cash inflows from other assets or groups of assets. Consequently, the Group consists of a single operating segment and goodwill is tested for impairment at Group level based on the fair value less costs of disposal or value-in-use of the Group as a whole.

Capitalisation of product development costs
Product development costs are capitalised from the time when the technical feasibility and commercial viability of the product can be demonstrated. Management is therefore required to make judgements about the technical feasibility of the product based on engineering studies and the commercial viability of the product based on expectations concerning the marketability of the product, the product's useful life and the extent of future demand from customers. During 2023, the Group capitalised development costs totalling US$54.5m (2022: US$7.2m).

Capitalisation of borrowing costs
Borrowing costs are capitalised if they are directly attributable to the acquisition, construction or production of a qualifying asset, such as capitalised development costs. To the extent that the Group borrows funds generally and uses them for the purpose of obtaining a qualifying asset, the Group determines the amount of borrowing costs eligible for capitalisation by applying a capitalisation rate to the expenditures on that asset. Accordingly, the Group has capitalised eligible borrowing costs to capitalised development costs.

Accounting for WiseWave
Classification as a joint venture
The Group owns a 42.5% equity interest in WiseWave Technology Co Ltd ('WiseWave'), a company established in China to develop and sell silicon products incorporating silicon IP licensed from Alphawave.

Management was required to exercise judgement to determine whether WiseWave is an associate (an entity over which the Group has significant influence, but not control) or a joint arrangement (an arrangement in which the Group has joint control with one or more other parties). Joint control is the contractually agreed sharing of control of an arrangement, which exists only when decisions about activities that significantly affect the returns of the arrangement require the unanimous consent of the parties sharing control. Management determined that Alphawave has joint control and that WiseWave is therefore a joint arrangement.

Further judgement was required to assess whether Alphawave has rights to the joint arrangement's net assets (in which case it should be classified as a joint venture), or rights to and obligations for specific assets, liabilities, expenses and revenues (in which case it should be classified as a joint operation). Having considered relevant factors including the structure, legal form and contractual agreement governing the arrangement, management determined that WiseWave should be classified as a joint venture.

Share of losses in excess of interest in WiseWave
If the Group's share of losses of a joint venture equals or exceeds its interest in the joint venture, the Group discontinues recognising its share of further losses. If the Group's interest in a joint venture is reduced to nil, additional losses are provided for, and a liability recognised, only to the extent that the Group has incurred legal or constructive obligations or made payments on behalf of the joint venture. The Group's share of WiseWave's losses amount to US$34.0m. The remaining amount recognised as share of loss is the elimination of unrealised profit on sales to WiseWave which is cumulatively US$12.1m. As a result, the Group's interest in WiseWave has been reduced to nil (2022: US$nil) and no provision has been recognised on the basis that the Group does not have a constructive obligation.

Unrealised profit on sales to WiseWave
IAS 28 Investments in Associates and Joint Ventures requires that unrealised profits and losses arising on transactions between the Group and a joint venture are recognised only to the extent of unrelated investors' interests in the joint venture. Accordingly, the Group's share of its profit on 'downstream' sales to WiseWave is eliminated to the extent that the related IP has not been utilised by WiseWave. IAS 28 is, however, unclear on how this elimination should be recognised in profit or loss. Management has used judgement in determining the Group's accounting policy of making the elimination against the Group's share of WiseWave's profit or loss rather than revenue arriving at the Group's operating profit or loss and correspondingly against its interest in the joint venture. IAS 28 is also unclear about the elimination of unrealised gains on downstream sales in excess of the Group's interest in a joint venture.

Essentially, there is an accounting policy choice either to recognise the excess as deferred income or not to recognise the excess at all. Management has used judgement in deciding not to recognise the excess on the basis that it is consistent with management's intention to exit the joint venture in the medium term. If unrealised gains on sales to WiseWave had been eliminated in full, the Group's loss before tax for the year ended 31 December 2023 would have been US$12.5m larger (2022: profit before tax would have been US$2.3m lower) and there would be cumulative deferred income of US$14.1m at the end of 2023 (2022: US$2.3m). In prior periods, the elimination of downstream sales was reflected within the Loss from joint venture category. However, an alternative approach could have been to recognise this as a reduction in revenue. Consequently, an amount of US$12.5m could have been allocated to either revenue or loss from joint venture.

Recoverability of contract asset with WiseWave
At the end of 2023, the Group had completed its performance obligations under the subscription licence agreement with WiseWave relating to the provision of IP products to the library of IP. A significant proportion of the consideration due under the subscription licence agreement will be invoiced and collected over the remainder of the term of the contract and, as a result, a contract asset of US$42.4m has been recognised against the contract.

Management have considered the recoverability of this contract asset in the context of WiseWave's historic pattern of settlements of accounts receivable with the Group, the anticipated short- and medium-term funding requirements of WiseWave and their prospects of securing such additional funding and actions available to Alphawave in the event of non-payment by WiseWave of the future billing milestones. Taking the above factors into account, management have judged that the contract asset with WiseWave is recoverable and therefore no provision in excess of that determined by reference to the Group's expected credit loss policy has been made against the contract asset. Had we judged that the contract asset was not recoverable, contract assets would have been up to US$42.4m lower and the Group's loss before tax would have been up to US$42.4m lower as at and for the year ended 31 December 2023.

Uncertain tax treatments
Uncertainty may exist concerning the tax treatment of a specific item or group of items because of, for example, uncertainty as to the meaning of tax law or to the applicability of tax law to a particular transaction or circumstance, the determination of appropriate arm's length pricing in accordance with OECD transfer pricing principles or because the amount of current and deferred tax depends on the results of an ongoing or future examination of previously filed tax returns by the tax authorities. Where such an uncertainty exists, management is required to exercise judgement in forming its expectation of the likely outcome of the examination of the uncertain tax treatment by the relevant tax authorities. Due to the complexity of tax laws and their interpretation, the amount ultimately agreed with the tax authorities may differ materially from the amount of current and deferred tax recognised in the consolidated financial statements.

Key sources of estimation uncertainty
Key sources of estimation uncertainty are those that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year.

Revenue recognition – Percentage of completion
We recognise revenue from contracts for the provision of hard IP, customisation services and custom silicon development projects over time by reference to the stage of completion of the respective performance obligations. For hard IP and related customisation, we measure the stage of completion based on engineering hours spent on work performed to date as a percentage of the estimated total project hours. For custom silicon development projects, we measure the stage of completion based on actual cost incurred to date as a percentage of the estimated total project cost, where cost includes both external costs, such as bought-in IP and manufacturing mask sets and internal costs. Management is required to make estimates of the attributable cost per engineering hour for internal costs in custom silicon development projects and the number of hours required to complete the project in both IP delivery and customisation engagements and custom silicon development projects. These estimates vary depending on factors including the contract type, customer specifications, the maturity of the IP being licensed, the complexity of the silicon being developed, whether the IP has already been proven for integration in silicon products and whether the contract deliverables are in their early or later stages.

During 2023, we recognised revenue totalling US$171.8m by reference to the stage of completion of projects. At the end of 2023, the carrying amount of related contract assets and contract liabilities was US$69.0m (2022: US$58.5m) and US$55.2m (2022: US$96.9m) respectively. If the estimated number of hours, or the estimated external costs required to complete these projects was to change significantly, there could be a material adjustment to the cumulative revenue recognised and the carrying amount of contract balances during the next financial year.

Revenue recognition – Licensing agreement with joint venture
We have a subscription licence agreement that provides WiseWave with right of use over a library of our IP products for a fixed fee spread over a period of five years ending in 2026.

As explained in note 2, management estimates the total number of IP products that it expects will be provided into the library in order to calculate the estimated unit price of the IP products. Moreover, since the estimated unit price of the IP products constitutes variable consideration, management is required to exercise judgement in applying constraints to the unit price in order to minimise the risk of significant reversals of revenue in future periods. Revenue on this agreement is recognised at a point in time when an IP product is added to the library, as this is when control of the IP product is transferred to WiseWave.

During 2023, the Group recognised revenue of US$49.6m (2022: US$31.1m) from the subscription licence agreement, following delivery of all remaining IP products under the agreement to the library during the year. At the end of 2023, the cumulative amount of revenue recognised from the agreement amounted to US$108.4m. All IP products have now been delivered to the library and management have judged that there will be no further IP products provided. Based on this judgement, we no longer consider there to be any estimation uncertainty associated with the subscription licence agreement. The remaining revenue of US$0.6m to be recognised under this agreement relates to the provision of support services and associated revenue is recognised over time on a straight-line basis as it represents a stand-ready obligation.

Recoverability of trade receivables and contract assets

We recognise an allowance for credit losses in respect of trade receivables and contract assets measured as the amount of the lifetime expected credit losses estimated using a provision matrix based on the Group's historical credit loss experience, adjusted for factors that are specific to the customers, and general current and forecasted economic conditions.

As at 31 December 2023, the Group's allowance for expected credit losses was US$3.0m on trade receivables and contract assets totalling US$5.1m. If the amount of actual credit losses differs significantly from the lifetime expected credit losses, there could be a material impact on the Group's results within the next financial year.

Climate change
In preparing the consolidated financial statements, the Directors have considered the impact of climate change on the Group and have concluded there is no material impact on financial reporting judgements and estimates. This is consistent with the assertion that risks associated with climate change did not affect the business, its strategy and its financial performance in 2023, and are not expected to have a material impact on the longer-term viability of the Group.

4 Revenue

Disaggregation of revenue

The Group has disaggregated revenue into various categories in the following tables which is intended to depict how the nature, amount, timing and uncertainty of revenue and cash flows are affected by economic factors.

	Year ended 31 December	
	2023	2022
	US$'000	US$'000
Revenue by type:		
IP and NRE	**100,676**	76,123
IP and NRE – Reseller	**—**	3,270
IP and NRE – JV	**66,891**	58,207
Silicon and royalties	**154,157**	47,806
	321,724	185,406

'IP and NRE' represents revenues from IP products licensing, along with related support and NRE services, in addition to custom silicon NRE (which can include internal engineering services, our IP and related support, third party IP, tooling costs and prototypes). 'IP and NRE – Reseller' represents revenue from IP products licensing, related support and NRE services provided through VeriSilicon, prior to our arrangements with VeriSilicon being moved under WiseWave in late 2021. 'IP and NRE – JV' represents revenue from our joint venture, WiseWave, and includes revenues recognised under the five-year subscription licence and revenues recognised under the VeriSilicon reseller arrangements which were moved under WiseWave in late 2021. 'Silicon and royalties' represent revenues recognised once our customers are in production and in the case of custom silicon are based on shipments of physical silicon products and, for standalone IP licensing, royalties payable on usage of our IP within silicon products.

Whilst this part of the note shows revenue by type, due to materiality, we have separately itemised the revenue from our reseller and joint venture, both based in China. The revenue from our joint venture in China, WiseWave, predominantly relates to a five-year subscription licence agreement where we have recognised US$49.6m (2022: US$31.1m) based on our deliveries of IP to WiseWave. The remaining revenue from WiseWave relates to a separate agreement signed in Q4 2021 to deliver chiplet IP and revenue recognised through WiseWave acting as master reseller of IP to VeriSilicon.

All revenue from VeriSilicon and related balances are in respect of transactions signed with VeriSilicon as reseller prior to the VeriSilicon reseller agreement moving under WiseWave as master reseller effective from November 2021. All revenue and associated balances in respect of transactions signed with VeriSilicon since that date are now recognised through the WiseWave joint venture line.

	Year ended 31 December	
	2023	2022
	US$'000	US$'000
Revenue by region:		
North America	**82,160**	51,361
China	**190,376**	104,755
APAC (ex-China)	**33,459**	16,980
EMEA	**15,729**	12,310
	321,724	185,406

Revenues from customers which comprise greater than 10% of the Group's total revenues are as follows:

	Year ended 31 December	
	2023	2022
	US$'000	US$'000
China based customer	**78,226**	34,538
China based customer	**66,891**	58,207

US$117.9m (37% of total revenues) (2022: US$90.7m, 49%) represent revenues recognised over time. Of the US$117.9m revenue recognised over time, US$66.0m is subject to estimation uncertainty. US$8.2m of contract assets and US$35.3m of contract liabilities are also subject to estimation uncertainty. These revenues require management judgements and estimates of project hours or costs that are used in percentage of completion calculations. These revenues relate to work done during the design phase of a customer project and include (with the exception of a limited amount of revenue relating to our soft IP) IP product licensing fees, together with related support and NRE, as well as custom silicon NRE fees.

We have applied a sensitivity to revenues subject to estimation uncertainty in 2023. If our estimates of total hours or total costs had been 10% higher, these revenues would be US$59.4m, contract assets would be US$7.4m and contract liabilities would be US$38.8m. If our estimates of total hours or total costs had been 10% lower, these revenues would be US$72.6m, contract assets would be US$9.0m and contract liabilities would be US$31.8m.

US$203.8m (63% of total revenues) (2022: US$94.7m, 51%) are recognised at a point in time. These revenues are based on silicon shipments once our customers are in production. In the case of custom silicon, this represents revenues from shipments of physical silicon products, and for standalone IP licensing, royalties payable on usage of our IP within silicon products. Revenues from our five-year subscription licence agreement with WiseWave are also recognised at a point in time, based on the number of IP uploads during the period. Revenues from the three-year reseller agreement with VeriSilicon, which was moved under WiseWave in late 2021, are recognised at a point in time to the extent that they represent exclusivity fees paid during the period not credited against IP licences. In addition, a limited amount of revenue from our soft IP products is recognised at a point in time.

WiseWave – subscription licence agreement

Revenue recognition for the WiseWave subscription licence agreement is determined with reference to the estimated total number of IP uploads to be delivered to WiseWave during the term of the agreement and the number of uploads made to WiseWave each period. As described in note 3, the performance obligations relating to the provision of IP products to the library of IP have been completed as at the end of 2023 and the only remaining revenue to be recognised under the subscription licence agreement relates to the provision of support services. The subscription licence agreement has a term of five years ending in 2026 and the subscription licence fees paid by WiseWave are invoiced and collected regularly throughout the term. As all IP licence revenue has now been recognised, a contract asset of US$42.4m has been recognised against the contract (2022: US$16.8m).

Contract assets and liabilities

Below is a reconciliation of the movement in contract assets during the period:

	Year ended 31 December	
		Restated[1]
	2023	2022
	US$'000	US$'000
At the beginning of the year	**58,534**	31,719
Acquisition of subsidiaries	**—**	2,714
Revenue accrued in the period	**61,182**	56,231
Accrued revenue invoiced in the period	**(50,681)**	(31,983)
Expected credit loss	**(3,862)**	(1,547)
Currency translation differences	**—**	(147)
At the end of the year	**65,173**	56,987

Restated to allocate the expected credit loss allowance between trade receivables from contracts with customers and contract assets.

Below is a reconciliation of the movement in contract liabilities, excluding the flexible spending account, during the period:

	Year ended 31 December	
	2023	2022
	US$'000	US$'000
At the beginning of the year	**91,733**	12,661
Acquisition of subsidiaries	**—**	41,361
Revenue recognised in the period	**(90,346)**	(38,959)
Revenue deferred in the period	**48,743**	76,205
Currency translation differences	**(24)**	465
At the end of the year	**50,106**	91,733

The deferred revenue balance is all expected to be satisfied within twelve months of the balance sheet date.

The flexible spending account, which is included with contract liabilities on the face of the balance sheet, has increased to US$5.9m as at 31 December 2023 from US$5.2m as at 31 December 2022. This represents a type of deferred income, and these are contracts with customers who have committed to regular periodic payments to us over the term of the contract. These payments are not in respect of specific licences or other deliverables, but they can be used as credit against future deliverables.

The balances related to costs to obtain contracts from customers are as follows:

	Year ended 31 December	
	2023	2022
	US$'000	US$'000
Capitalised contract costs	**1,920**	874

The costs to obtain contracts from customers include commissions. Amortisation of US$1.9m (2022: US$2.9m) and impairment of US$nil (2022: US$nil) was charged to the profit or loss in the period.

5 Research and development expenses

Research and development expenses presented in profit or loss were derived as follows:

	Year ended 31 December	
	2023	2022
	US$'000	US$'000
Research and development costs incurred	**131,441**	78,011
Research and development expenditure credits	**(6,999)**	(5,198)
Development costs capitalised[1]	**(46,226)**	(3,455)
Total	**78,216**	69,358

The amount of US$46.2m capitalised in 2023 includes US$4.4m that has been capitalised in property and equipment.

6 Other operating (expense)/income

Other operating (expense)/income items were as follows:

	Year ended 31 December	
	2023	2022[1]
	US$'000	US$'000
Acquisition-related costs	**(831)**	(12,712)
Compensation element of Banias Labs deferred cash rights (note 30)	**(8,352)**	(1,703)
Remeasurement of contingent consideration payable for Precise-ITC (note 30)	**—**	(4,260)
Share-based compensation expense (note 27)	**(40,691)**	(15,695)
Currency translation (loss)/gain	**(2,983)**	36,838
Other operating (expense)/income	**(52,857)**	2,468

There has been a change to the grouping of operating expenses in 2022, specifically relating to the compensation element of Banias deferred cash rights. This is shown within other operating expenses/(income) in 2023 so we have changed 2022 operating expenses /(income) to be presented on the same basis (see consolidated statement of comprehensive income and note 30).

7 Employee benefit costs

Employee benefit costs incurred (before deducting R&D expenditure credits and including costs that were subsequently capitalised) were as follows:

	Year ended 31 December	
	2023	2022
	US$'000	US$'000
Wages and salaries	**84,784**	45,301
Social security costs	**2,033**	3,959
Defined contribution pension costs	**4,115**	1,300
Share-based compensation expense	**40,691**	15,695
Total	**131,623**	66,255

The average number of employees during the period, analysed by category, was as follows:

	Year ended 31 December	
	2023	2022
	Number	Number
Research and development/engineering	**675**	321
General and administration	**55**	29
Sales and marketing	**28**	11
Total	**758**	361

The number of employees at the period end, analysed by category, was as follows:

	Year ended 31 December	
	2023	2022
	Number	Number
Research and development/engineering	**741**	621
General and administration	**58**	57
Sales and marketing	**30**	17
Total	**829**	695

8 Auditor's remuneration

The Group incurred the following amount to its auditor in respect of the audit of the Group's financial statements and for other non-audit services provided to the Group.

	Year ended 31 December	
	2023	2022
	US$'000	US$'000
Audit of the financial statements	**3,472**	1,713
Audit-related assurance services	**268**	124
	3,740	1,837

An amount of US$1,078,000 included in the 2023 cost of the 'audit of the financial statements' row relates to additional work in respect of the 2022 audit.

9 Finance income and expense

	Year ended 31 December	
	2023	2022
	US$'000	US$'000
Finance income		
Interest income from contracts with customers containing significant financing components	**275**	235
Interest on bank deposits	**3,173**	1,449
	3,448	1,684
Finance expense		
Bank charges	**(65)**	—
Lease interest	**(1,581)**	(391)
Term loan interest	**(16,489)**	(3,134)
Term loan interest capitalised to the balance sheet	**9,534**	
NPV interest	**–**	(27)
Interest under IAS 19	**(61)**	—
IIA interest	**(174)**	(36)
	(8,836)	(3,588)
Net finance expense	**(5,388)**	(1,904)

10 Income taxes

Income tax recognised in profit or loss

The components of the Group's income tax expense for the year were as follows:

	Year ended 31 December	
	2023	2022
	US$'000	US$'000
Current tax		
UK corporation tax	**(2,642)**	5,792
Adjustments to prior periods	**3,167**	(516)
Overseas tax	**126**	13,330
Total current tax	**651**	18,606
Deferred tax		
Origination and reversal of timing differences	**10,881**	(278)
Total deferred tax	**10,881**	(278)
Income tax expense	**11,532**	18,328

Factors affecting the income tax expense for the year

Tax on the profit or loss for the year comprises current and deferred tax. Tax is recognised in the profit and loss account except to the extent that it relates to items recognised directly in equity or other comprehensive income, in which case it is recognised directly in equity or other comprehensive income. For income tax arising on dividends, the related tax is recognised in the income statement, statement of other comprehensive income, or in equity consistently with the transactions that generated the distributable profits. The Company has determined that the global minimum top-up tax – which is required to pay under Pillar Two legislation – is an income tax in the scope of IAS 12. The Company has applied a temporary mandatory relief from deferred tax accounting for the impacts of the top-up tax and accounts for it as a current tax when it is incurred.

The Group's income tax expense differed from the amount that would have resulted from applying the standard rate of UK corporation tax to the Group's profit before income taxes for the following reasons:

	Year ended 31 December	
	2023	2022
	US$'000	US$'000
(Loss)/profit before tax	**(39,470)**	17,242
(Loss)/profit before tax at the UK corporation tax rate of 23.52% (2022: 19%)	**(9,283)**	3,275
Effects of:		
Share-based compensation	**7,267**	3,141
Expenses not deductible for tax purposes	**3,171**	1,964
Under/(over) accrual of prior year provision	**3,167**	(516)
Different tax rates applied in overseas jurisdictions	**667**	3,469
Share of joint venture's loss	**3,465**	3,511
Movement in unrecognised deferred tax assets.	**2,146**	3,281
Other tax items	**932**	203
Income tax expense	**11,532**	18,328

Factors affecting the income tax expense in future years

A blended UK corporation tax rate of 23.52% is used for 31 December 2023 due to the change in the UK corporation tax rate to 25% from 1 April 2023, from the previously enacted 19%, announced at the Budget on 3 March 2021, and substantively enacted on 24 May 2021. The deferred taxation balances have been measured using the rates expected to apply in the reporting periods when the timing differences reverse.

There have been no legislative changes announced in 2023 in relation to Canadian or US tax rates which will affect the Group.

Deferred tax

The movement on the deferred tax account is as shown below:

	Year ended 31 December	
		Restated[1]
	2023	2022
	US$'000	US$'000
At the beginning of the year	**11,110**	422
Purchase of businesses	**–**	15,234
Charge/(credit) to profit or loss	**10,881**	(278)
(Credit) to OCI	**(409)**	—
Transfer of tax credits	**–**	(4,350)
Currency translation differences	**(2)**	82
Other	**(721)**	—
At the end of the year	**20,859**	11,110

Restated to reflect the purchase price allocation on the acquisition of OpenFive (see note 30)

The deferred tax account is made up as follows:

	Year ended 31 December	
		Restated[1]
	2023	2022
	US$'000	US$'000
Accelerated capital allowances	**5,720**	676
Leases	**(334)**	(65)
Intangibles	**22,429**	26,947
Non-capital loss	**(7,193)**	(13,613)
Transfer of tax credits	**–**	(4,350)
Other temporary differences	**237**	1,515
Total	**20,859**	11,110

Restated to reflect the purchase price allocation on the acquisition of Open Five (see note 30)

The deferred tax account is in a net liability position, all positive numbers indicate an increase in the deferred tax liability.

As at 31 December 2023, the Group has a deferred tax asset of US$12.1m (2022 restated: US$2.7m) and a deferred tax liability of US$32.9m (2022 restated: US$13.8m). Where we have recognised a deferred tax asset and a deferred tax liability in the same taxation jurisdiction, these have been netted off, resulting in a deferred tax asset of US$12.1m (2022 restated: US$2.7m) and a deferred tax liability of US$32.9m (2022 restated: US$13.8m) in the consolidated statement of financial position.

The Group has unrecognised deductible temporary differences of US$126.7m. This is primarily made up of US Federal losses (US$30.5m), US State losses (US$45.8m) and Stock based compensation (US$24.2m). The Group has not recognised the deductible temporary differences due to the lack of historical and future profitability. The Group has recognised deferred tax assets in entities that have suffered losses in the current year. The evidence relied upon to record the deferred tax assets relates to reversing taxable temporary differences and the entities which had deferred tax assets are expected to be profitable in the future.

11 Earnings/(loss) per share

Basic earnings/(loss) per share is calculated by dividing net income/(loss) for the period by the weighted average number of ordinary shares in issue during the period.

Diluted earnings/(loss) per share is calculated after adjusting the weighted average number of ordinary shares used in the calculation of basic earnings/(loss) per share to include the weighted average number of ordinary shares that would be issued on conversion of all dilutive potential ordinary shares. Potential ordinary shares comprise share options and RSUs outstanding under the Company's share-based compensation plans.

	Year ended 31 December	
(US$ thousands except number of shares)	**2023**	2022
Numerator:		
Net (loss) for the year	**(51,002)**	(1,086)
Denominator:		
Weighted average number of ordinary shares for basic earnings/(loss) per share	**705,550,299**	679,849,437
Adjustment for dilutive share options and RSUs	**–**	—
Weighted average number of ordinary shares for diluted earnings/(loss) per share	**705,550,299**	679,849,437
Basic earnings/(loss) per share (US$ cents)	**(7.23)**	(0.16)
Diluted earnings/(loss) per share (US$ cents)	**(7.23)**	(0.16)

Potential ordinary shares are not treated as dilutive if their conversion to ordinary shares would decrease a loss per share from continuing operations. Consequently, in both 2023 and 2022, basic loss per share and diluted loss per share were the same.

12 Goodwill

	Year ended 31 December	
		Restated[1]
	2023	2022
	US$'000	US$'000
Carrying amount		
At the beginning of the year	**309,199**	—
Acquisition of subsidiaries	**–**	331,886
Finalisation of OpenFive PPA	**–**	(12,437)
Increase in consideration for S338 election	**–**	5,610
Reversal of deferred tax liability	**–**	(15,860)
At the end of the year	**309,199**	309,199

Restated to reflect the purchase price allocation on the acquisition of OpenFive (see note 30)

Goodwill is denominated in US dollars and therefore there are no currency translation differences.

The 2022 goodwill figure has been restated for the finalisation of the OpenFive purchase price allocation resulting in a reduction in goodwill of US$12,437,000 and recognition of a receivable of US$12,437,000. The 2022 goodwill figure has further been restated for the increase in consideration from the S338 election where we increased goodwill by US$5,610,000 and reduced the investment in Alphawave Semi Inc. (formerly Open-Silicon Inc.) by US$5,610,000 and the reversal of a deferred tax liability where we reduced goodwill by US$15,860,000 and reduced the deferred tax liability by US$15,860,000. More information is available in note 30. All these adjustments are reflected in the restated 31 December 2022 balance sheet.

Goodwill is tested for impairment annually and whenever there is an indication that it may be impaired. Goodwill is tested for impairment at the level of the cash-generating unit (CGU) or group of CGUs to which it is allocated. Our business model is such that our IP is leveraged across the channels through which we provide our products and services to customers, i.e. IP licensing, custom silicon or own products. Given this interdependence of the Group's operations, management considers that the Group's business constitutes only one CGU because there is no asset or group of assets within the business that generates cash inflows that are largely independent of the cash inflows generated by other assets or groups of assets. Consequently, management has not allocated goodwill below Group level. Goodwill is therefore tested for impairment at Group level based on the fair value less costs of disposal or value-in-use of the Group as a whole.

In 2023, the Group's fair value less costs of disposal was higher than its carrying amount and therefore we concluded that no impairment of goodwill was required. Management considers that the Group comprises a single CGU and therefore goodwill is tested for impairment at the level of this single CGU, i.e. at Group level. The Company's shares are listed on the London Stock Exchange and its market capitalisation is therefore the most reliable measure of fair value (a 'Level 1' fair value). To test goodwill for impairment, we used the Company's market capitalisation as at 29 December 2023 (the last trading day of 2023) less assumed costs of disposal of 3%.

In 2022, we measured the Group's recoverable amount on a value-in-use basis. Value-in-use represents the present value of the projected future cash flows for the next five years based on the most recent budget and forecasts approved by management. Cash flow projections for a further five years are extrapolated based on revenue growth rates trending down to the perpetuity growth rate, and beyond this ten-year period cash flow projections have been estimated by applying a perpetuity growth rate to the forecast cash flows in the tenth year.

We consider that the key assumptions used in determining value-in-use are the expected growth in each of the Group's revenue streams, the expected gross margins for these revenue streams, our operating and capital expenditure, the perpetuity growth rate and the discount rate.

Expected future revenue is based on external forecasts of the future demand in each of our revenue streams adjusted to reflect specific factors such as our customer base, estimated market share and available distribution channels, the possibility of new entrants to the market and future technological developments. Cash flows during the five-year budget and forecast period also reflect the cost of materials and other direct costs, research and development expenditure and selling, general and administrative expenses. We estimated future revenue on current prices and market expectations of future price changes and future costs based on past experience and current prices and market expectations of future price changes, including the impact of inflation across the regions in which we operate.

We applied a perpetuity rate of 2% per annum which we consider to be a reasonable estimate of the average long-term growth rate in the markets for our products.

We calculated the value-in-use by applying a nominal discount rate to the expected post-tax cash flows that was determined using a capital asset pricing model and reflected current market interest rates, relevant equity and size risk premiums and specific risks. The equivalent pre-tax discount rate used was 13.4%.

A sensitivity analysis was performed on the single Group CGU, using reasonably possible changes in revenue growth rates, forecast cash flows and pre-tax discount rates and management concluded that no reasonably possible change in any of the key assumptions would result in the carrying value of the single Group CGU exceeding its recoverable amount.

We did not recognise any goodwill impairment during 2022 and the Group's recoverable amount was comfortably in excess of its carrying amount for the purpose of impairment tests.

13 Other intangible assets

	Developed IP US$'000	Developed technology US$'000	Customer relationships US$'000	RISC-V licences US$'000	Other intangibles US$'000	Total US$'000
Cost						
As at 1 January 2022	1,167	—	—	—	—	1,167
Acquisition of subsidiaries (note 30)	38,887	83,900	25,700	5,200	386	154,073
Additions	4,343	4,255	—	—	3,747	12,345
Currency translation differences	(49)	—	—	—	—	(49)
As at 31 December 2022	44,348	88,155	25,700	5,200	4,133	167,536
Additions	**—**	**54,539**	**—**	**—**	**1,825**	**56,364**
Re-classify to property and equipment	**(1,162)**	**—**	**—**	**—**	**—**	**(1,162)**
Re-classification of intangibles	**—**	**2,947**	**—**	**—**	**(2,947)**	**—**
Currency translation differences	**—**	**—**	**—**	**—**	**—**	**—**
As at 31 December 2023	**43,186**	**145,641**	**25,700**	**5,200**	**3,011**	**222,738**
Accumulated amortisation						
As at 1 January 2022	—	—	—	—	—	—
Amortisation charge for the year	4,730	—	714	347	368	6,159
Currency translation differences	(29)	—	—	—	—	(29)
As at 31 December 2022	4,701	—	714	347	368	6,130
Amortisation charge for the year	**10,112**	**—**	**2,142**	**1,040**	**—**	**13,294**
Currency translation differences	**—**	**—**	**—**	**—**	**—**	**—**
As at 31 December 2023	**14,813**	**—**	**2,856**	**1,387**	**368**	**19,424**
Carrying amount						
As at 31 December 2022	39,647	88,155	24,986	4,853	3,765	161,406

As at 31 December 2023	**28,373**	**146,441**	**22,844**	**3,813**	**1,843**	**203,314**

Developed technology consists of intangible assets that are still under development and are not yet available for use. The US$54.5m additions to developed technology is mainly made up of capitalised labour and contractor costs in the amount of US$41.8m (note 5) and term loan interest of US$9.5m that has been capitalised (note 9).
The acquired intangibles within the developed IP category are amortised over four years.

14 Property and equipment – owned

	Computer equipment US$'000	Furniture and fixtures US$'000	Leasehold improvements US$'000	Laboratory equipment US$'000	Total US$'000
Cost					
As at 1 January 2022	2,088	62	404	—	2,554
On acquisition of subsidiaries	913	111	264	1,279	2,567
Additions	10,128	286	1,261	93	11,768
Currency translation differences	(5)	(1)	(6)	—	(12)
As at 31 December 2022	13,124	458	1,923	1,372	16,877
Acquisition of subsidiaries	**—**	**—**	**—**	**—**	**—**
Additions	**8,488**	**824**	**2,349**	**6,907**	**18,568**
Re-classify from intangible assets	**—**	**—**	**—**	**1,162**	**1,162**
Currency translation differences	**—**	**—**	**—**	**—**	**—**
As at 31 December 2023	**21,612**	**1,282**	**4,272**	**9,441**	**36,607**
Accumulated depreciation					
As at 1 January 2022	766	31	131	—	928
Depreciation charge for the year	1,886	58	456	72	2,472
Currency translation differences	16	9	31	—	56
As at 31 December 2022	2,668	98	618	72	3,456
Depreciation charge for the year	**8,921**	**259**	**810**	**1,222**	**11,212**
Depreciation charged to the P&L then capitalised	**—**	**—**	**—**	**1,285**	**1,285**
Currency translation differences	**—**	**—**	**—**	**—**	**—**
As at 31 December 2023	**11,589**	**357**	**1,428**	**2,579**	**15,953**
Carrying amount					
As at 31 December 2022	10,456	360	1,305	1,300	13,421
As at 31 December 2023	**10,023**	**925**	**2,844**	**6,862**	**20,654**

Laboratory equipment includes additions of US$5.6m of test chips used for R&D projects that are not yet being depreciated.

15 Property and equipment – leased

Nature of leasing activities (as lessee)

The Group leases all of its product development and office facilities in the various countries in which it operates. Property leases that have been entered into by the Group contain varied terms and conditions reflecting its business requirements and local market practices. Property leases are typically for a fixed term of approximately five years but may include extension or early termination options to provide the Group with operational flexibility. Property rentals are typically fixed on inception of the lease but may be subject to review during the lease term to reflect changes in market rental rates.

The Group also leases office and other equipment.

Movements on right-of-use assets recognised in relation to leased property and equipment were as follows:

	Buildings US$'000	Equipment US$'000	Total US$'000
Cost			
As at 1 January 2022	8,460	2,579	11,039
Acquisition of subsidiaries	2,786	—	2,786
Additions	4,308	3,023	7,331
Currency translation differences	(248)	(104)	(352)
As at 31 December 2022	15,306	5,498	20,804
Additions	**5,265**	**608**	**5,873**
Disposals	**(551)**	**—**	**(551)**
Currency translation differences	**(3)**	**—**	**(3)**
As at 31 December 2023	**20,017**	**6,106**	**26,123**
Accumulated depreciation			
As at 1 January 2022	1,852	1,515	3,367
Depreciation charge for the year	1,706	1,330	3,036

Currency translation differences	(90)	(62)	(152)
As at 31 December 2022	3,468	2,783	6,251
Depreciation charge for the year	**3,006**	**1,606**	**4,612**
Disposals	**—**	**—**	**—**
Currency translation differences	**(2)**	**—**	**(2)**
As at 31 December 2023	**6,472**	**4,389**	**10,861**
Carrying amount			
As at 31 December 2022	11,838	2,715	14,553
As at 31 December 2023	**13,545**	**1,717**	**15,262**

Lease liabilities

Movements on the lease liabilities recognised in relation to leased property and equipment were as follows:

	US$'000
As at 1 January 2022	7,828
Acquisition of subsidiaries	2,616
Additions	7,196
Interest expense	391
Lease payments	(3,038)
Currency translation differences	(60)
As at 31 December 2022	14,933
Additions	**5,385**
Disposals	**—**
Interest expense	**1,581**
Lease payments	**(4,740)**
Currency translation differences	**(479)**
As at 31 December 2023	**16,680**

Lease liabilities were presented in the balance sheet as follows:

	As at 31 December	
	2023	2022
	US$'000	US$'000
Current	**3,953**	3,756
Non-current	**12,727**	11,177
Total lease liabilities	**16,680**	14,933

Expenses recognised in relation to lease payments that were not included in the measurement of lease liabilities were as follows:

	As at 31 December	
	2023	2022
	US$'000	US$'000
Expense relating to short-term leases and low-value lease expense	**716**	1,769
Expense relating to variable lease payments not included in lease liabilities	**—**	19
	716	1,788

Cash outflow on lease payments

The total cash outflow on lease payments was as follows:

	Year ended 31 December	
	2023	2022
	US$'000	US$'000
Cash flow from financing activities		
Lease payments included in lease liabilities	**4,740**	3,038
Cash flow from operating activities		
Variable lease payments not included in lease liabilities	**—**	19
Lease payments on short-term leases and leases of low-value assets	**716**	1,769
Total cash outflow on lease payments	**5,456**	4,826

16 Investment in joint venture

As at 31 December 2023, the Group held a 42.5% ownership interest in WiseWave Technology Co., LTD ('WiseWave'), a supplier of semiconductor devices based in China. WiseWave's registered office is at Room 105, No. 6, Baohua Road, Hengqin New District, Zhuhai, China.

Movements in the carrying amount of the Group's investment in WiseWave were as follows:

	US$'000
Carrying amount	
As at 1 January 2022	9,421
Additional investment	9,060
Loss from joint venture	(18,481)
As at 31 December 2022	—
Additional investment	**14,730**
Loss from joint venture	**(14,730)**
As at 31 December 2023	**–**

During 2023 and 2022, the Group and the other shareholders in WiseWave increased their investment by subscribing for new ordinary shares in proportion to their existing ownership interests.

As at 31 December 2023, the cumulative amount of the Group's share of WiseWave's losses amounts to US$34.0m. The remaining amount recognised as share of loss is the elimination of unrealised profit on sales to WiseWave which is cumulatively US$12.1m. As a result, the Group's interest in WiseWave has been reduced to nil and no provision has been recognised for the excess of the Group's share of WiseWave's losses over the carrying amount of the investment on the basis that the Group does not have a constructive obligation. As at 31 December 2022, the cumulative amount of the Group's share of WiseWave's losses was not greater than the carrying amount of the investment and therefore, in accordance with the Group's accounting policy, the elimination of gains from sales to WiseWave was recognised only to the extent of reducing the carrying amount of the investment to nil.

During 2023, the Group recognised revenue of US$49.6m (2022: US$31.1m) on delivery of IP licences under the subscription licence agreement with WiseWave. In accordance with the Group's accounting policy, to the extent that WiseWave has not yet utilised the IP, we have eliminated the Group's share of its profit on the licences. Such elimination is made against the carrying amount of the investment in WiseWave, but only insofar as it is reduced to nil. As at 31 December 2023, the cumulative amount of profit so eliminated was nil (2022: US$2.4m). This is due to the cumulative share of loss in itself already reducing the investment to nil, which was not the case at 31 December 2022. We still expect that the profit eliminated to date will be recognised during the remainder of the five-year subscription licence agreement ending in 2026.

The following tables summarise financial information of WiseWave taken from its own financial statements and adjusted in accordance with the Group's accounting policies:

	As at 31 December	
	2023	2022
	US$'000	US$'000
Current assets	**23,766**	18,536
Property and equipment	**5,043**	1,908
Intangible assets	**53,774**	71,331
Other non-current assets	**2,176**	4,883
Current liabilities	**34,411**	27,351
Non-current liabilities	**24,588**	42,317
Included in the above amounts are:		
Cash and cash equivalents	**13,700**	15,729
Current financial liabilities (excluding trade payables)	**–**	—
Non-current financial liabilities (excluding trade payables)	**–**	—
Net assets (100%)	**25,759**	26,990
Group share of net assets (42.5%)	**10,948**	11,471
Share of losses of joint venture recognised as a liability	**–**	—
Share of unrealised profits on IP licences to joint venture not recognised	**11,910**	2,344
Carrying amount of liability in joint venture	**–**	—

	As at 31 December	
	2023	2022
	US$'000	US$'000
Revenue	**19,826**	5,517
Loss from continuing operations	**(35,930)**	(37,764)
Included in loss from continuing operations are:		
Depreciation and amortisation	***(20,730)***	*(18,267)*
Interest expense	***(2,171)***	*(2,936)*
Other comprehensive income	**–**	—
Total comprehensive expense (100%)	**(35,930)**	(37,764)
Group share of total comprehensive expense (42.5%)	**(15,270)**	(16,050)
Reversal/(recognition) of share of unrealised profits on IP licences to joint venture	**540**	(2,431)
Loss from joint venture	**(14,730)**	(18,481)

17 Cash and cash equivalents

	As at 31 December	
	2023	2022
	US$'000	US$'000
Cash at bank and in hand	**101,291**	186,231

18 Trade and other receivables

	As at 31 December	
		Restated[1]
	2023	2022
	US$'000	US$'000
Current		
Trade receivables from contracts with customers	**49,214**	16,455
Less: Allowance for expected credit losses	**(5,635)**	(637)
Trade receivables – net	**43,579**	15,818
Restricted cash	**17,843**	18,295
Other receivables	**16,667**	13,030
Total current	**78,089**	47,143
Non-current		
Restricted cash	**6,392**	18,793
Other receivables	**–**	479
Total non-current	**6,392**	19,272
Total trade and other receivables	**84,481**	66,415

Restated to reflect the finalisation of the purchase price allocation for the acquisition of OpenFive (notes 12 and 30) and to allocate the expected credit loss allowance between trade receivables from contracts with customers and contract assets.

Prepayments and capitalised contract costs are shown within note 20.

Restricted cash comprises amounts held by third-party paying agents in respect of deferred consideration and future compensation amounts payable to employees of Precise ITC and Banias Labs conditional on their remaining in the Group's employment during the respective vesting periods, the last of which expires during 2026. Cash held by the paying agent in relation to amounts that are forfeited by the employees will be returned to the Company.

19 Inventories

	As at 31 December	
	2023	2022
	US$'000	US$'000
Finished goods	**4,248**	3,616
Work in progress	**5,737**	10,413
Raw materials	**1,637**	4,032
Total inventories	**11,622**	18,061

During 2023, an expense of US$0.6m (2022: US$0.5m) was recognised in respect of the write-down of inventories to net realisable value.

20 Other assets

	As at 31 December	
	2023	2022
	US$'000	US$'000
Current		
Prepayments	**17,094**	70,601
Capitalised contract costs	**1,923**	874
Total other assets	**19,017**	71,475

Prepayments include advance payments to foundries to reserve manufacturing capacity of US$5.1m (2022: US$50.9m) that are largely covered by advance receipts from customers.

21 Trade and other payables

	As at 31 December	
		Restated[1]
	2023	2022
	US$'000	US$'000
Current		
Trade payables	**18,098**	23,573
Accrued expenses	**33,553**	34,322
Social security and other taxes	**195**	1,204
Contingent consideration	**–**	5,000
Other payables	**17,439**	24,566
Total current	**69,285**	88,665
Non-current		
Other payables	**1,775**	10,555
Total non-current	**1,775**	10,555
Total trade and other payables	**71,060**	99,220

Restated to reflect the finalisation of the purchase price allocation for the acquisition of OpenFive (notes 12 and 30).

Other payables include US$10.4m (2022: US$10.5m) deferred consideration and compensation payable to employees of Banias Labs. US$5.5m (2022: US$5.5m) relates to an NRE project that has been put on hold due to the ongoing war in Ukraine. US$2.6m (2022: US$2.6m) relates to a prepayment from a customer where a project has been cancelled and this will be refunded in 2024.

22 Loans and borrowings

	As at 31 December	
	2023	2022
	US$'000	US$'000
Current		
Term Loan	**5,625**	5,000
Non-current		
Revolving Credit Facility	**125,000**	110,000
Term Loan	**88,125**	93,750
Israel Innovation Authority	**1,625**	1,451
Total loans and borrowings	**220,375**	210,201

In October 2022, the Group entered into a Credit Agreement with a syndicate of banks that provided it with a US dollar-denominated Delayed Draw Term Loan B ('Term Loan') facility of US$100.0m and a multi-currency Revolving Credit Facility (RCF) of US$125.0m.

In October 2022, the Group drew the Term Loan facility in full and US$110.0m from the RCF in connection with the acquisition of Banias Labs. The Group drew the remaining US$15.0m of the RCF in May 2023.

Both the Term Loan facility and the RCF mature in October 2027. We are required to repay a percentage of the principal amount of the Term Loan outstanding at the end of each calendar quarter prior to maturity. We repaid the first instalment of US$1,250,000 in December 2022 and repaid four quarterly instalments totalling US$5,000,000 during 2023. Based on the principal amount of the Term Loan outstanding at the end of 2023, we are scheduled to repay US$5,625,000 during 2024, US$7,500,000 during 2025, US$8,125,000 during 2026 and the remaining US$72,500,000 during 2027. We have the option to prepay some or all of the outstanding principal amount of the Term Loan at any time prior to maturity without premium or penalty.

We may, at any time, on one or more occasions, add to the principal amount of the Term Loan and/or the RCF by way of an Incremental Facility Amendment, provided that the increment is less than US$5.0m and the aggregate outstanding principal amount of all incremental Term Loan amounts would not thereby exceed the higher of US$60.0m and the Consolidated Adjusted EBITDA for the twelve months preceding the end of the most recent calendar quarter.

Our borrowings under the Credit Agreement and Incremental Facility Amendment were initially subject to two financial covenants that are normally tested quarterly: the Net Leverage Ratio (the ratio of Consolidated Total Debt at the end of each quarter to Consolidated Adjusted EBITDA for the preceding twelve months) and the Fixed Charges Coverage Ratio (the ratio of Consolidated Cash Flow to Consolidated Fixed Charges for the preceding twelve months) as defined in the Credit Agreement. The maximum permitted Net Leverage Ratio was 3.75 times up to the period ended 30 June 2023, 3.5 times up to the period ending 31 March 2024 and is 3.0 times thereafter until maturity of the facilities. The minimum permitted Fixed Charges Coverage Ratio was initially 1.25 times over the term of the facilities.

For the test period ended on 30 June 2023, the Fixed Charges Coverage Ratio was below the minimum permitted level. On 22 September 2023, we agreed with the lenders an amendment to the Credit Agreement which suspends the Fixed Charges Coverage Ratio from the period ended 30 September 2023 to the period ending 30 June 2024, after which it is set at 1.1 times until the period ending 30 September 2025 when it reverts to 1.25 times. When the Fixed Charges Coverage Ratio resumes, the test periods ending on

30 September 2024, 31 December 2024 and 31 March 2025 are shortened to the preceding three, six and nine-month periods, respectively.

While there were no changes affecting the Net Leverage Ratio test, the amendment to the Credit Agreement introduced a Minimum Liquidity Requirement whereby the average daily closing balance of cash and cash equivalents plus any unused portion of the Revolving Credit Facility during any month and the closing balance on the last day of each month must not be less than US$75.0m for any test period ending on or prior to 31 December 2023 and not less than US$45.0m for any test period ending thereafter until 30 September 2025.

The Group met both of the applicable financial covenants for the test periods ended on 30 September 2023 and 31 December 2023.

Both the Term Loan and amounts currently drawn under the RCF bear interest at floating rates of interest based on the Secured Overnight Financing Rate (SOFR) for the relevant tenor and adjusted according to the Group's Total Net Leverage ratio.

Changes in liabilities arising from financing activities were as follows:

	Loans and borrowings US$'000	Interest payable US$'000	Lease liabilities US$'000	Total US$'000
As at 1 January 2022	—	—	7,828	7,828
Acquisition of subsidiaries	1,451	—	2,616	4,067
Financing cash inflow/(outflow)	208,750	(650)	(3,038)	205,062
Currency translation differences	—	—	(60)	(60)
Other movements	—	3,134	7,587	10,721
As at 31 December 2022	210,201	2,484	14,933	227,618
Financing cash inflow/(outflow)	**10,000**	**(18,390)**	**(4,740)**	**(13,130)**
Currency translation differences	**174**	**—**	**(40)**	**134**
Other movements	**—**	**16,053**	**6,527**	**22,580**
As at 31 December 2023	**220,375**	**147**	**16,680**	**237,202**

23 Measurement of financial instruments

Analysis by class and category

We set out below the carrying amount of financial assets and liabilities held by the Group by class and measurement category and their estimated fair value at the balance sheet date:

	As at 31 December 2023	
	Carrying amount	
	Amortised cost US$'000	Fair value US$'000
Financial assets		
Cash and cash equivalents	**101,291**	101,291
Trade and other receivables	**103,498**	103,498
Contract assets	**65,173**	65,173
Total financial assets	**269,962**	269,962
Financial liabilities		
Trade and other payables	**(71,060)**	(71,060)
Lease liabilities	**(16,680)**	(16,680)
Loans and borrowings	**(220,375)**	(220,375)
Total financial liabilities	**(308,115)**	(308,115)

	Restated as at 31 December 2022[1]			
	Carrying amount			
	Amortised cost US$'000	At fair value through profit or loss US$'000	Total US$'000	Fair value US$'000
Financial assets				
Cash and cash equivalents	186,231	—	186,231	186,231
Trade and other receivables	137,890	—	137,890	137,890
Contract assets	56,987	—	56,987	56,987
Total financial assets	381,108	—	381,108	381,108
Financial liabilities				
Trade and other payables	(94,220)	(5,000)	(99,220)	(99,220)
Lease liabilities	(14,933)	—	(14,933)	(14,933)
Loans and borrowings	(210,201)	—	(210,201)	(210,201)
Total financial liabilities	(319,354)	(5,000)	(324,354)	(324,354)

Restated to reflect the finalisation of the purchase price allocation for the acquisition of OpenFive (notes 12 and 30) and to allocate the expected credit loss allowance between trade receivables from contracts with customers and contract assets.

Financial instruments carried at fair value

During the periods under review, all financial instruments held by the Group were carried at amortised cost except for the contingent consideration liability recognised in relation to the acquisition of Precise-ITC that was carried at fair value through profit or loss.

Financial instruments that are carried at fair value are categorised into one of three levels in a fair value hierarchy according to the nature of the significant inputs to the valuation techniques that are used to determine their fair value as follows:

- Level 1 – Quoted (unadjusted) market price in active markets for identical assets or liabilities;
- Level 2 – Inputs other than Level 1 that are observable either directly (as market prices) or indirectly (derived from market prices); and
- Level 3 – Unobservable inputs, such as those derived from internal models or using other valuation methods.

Contingent consideration in respect of the acquisition of Precise-ITC was dependent on the aggregate value of Precise's IP Core revenue and bookings exceeding US$10,000,000 during 2022. We determined the acquisition date fair value of the liability using an option pricing model based on a range of possible outcomes for Precise's IP Core revenue and bookings. Since the inputs to the fair value calculation were therefore largely unobservable, the fair value of the liability on initial recognition was a Level 3 fair value. Precise's actual IP Core revenue and bookings during 2022 significantly exceeded our expectations at the acquisition date. As at 31 December 2022, we therefore increased the liability to the maximum amount payable of US$5,000,000. We paid this amount to the vendors in May 2023.

Movements in the liability for contingent consideration were as follows:

	Year ended 31 December	
	2023 US$'000	2022 US$'000
Contingent consideration		
At the beginning of the year	**(5,000)**	—
Acquisition of Precise-ITC	**—**	(740)
Change in estimate (other operating expenses)	**—**	(4,260)
Settlements	**5,000**	—
At the end of the year	**—**	(5,000)

Financial instruments not carried at fair value

We are required to disclose the fair value of those financial instruments that are not carried at fair value.

Cash and cash equivalents, trade and other receivables, contract assets and trade and other payables (other than contingent consideration) are of short maturity and/or bear interest at floating rates. We therefore consider that their carrying amounts approximate to their fair value (Level 2).

We have calculated the fair value of lease liabilities by discounting the future lease payments at the relevant lessee's incremental borrowing rate based on observable yield curves at the balance sheet date (Level 2).

With the exception of the Term Loan, we consider that the carrying amount of loans and borrowings approximates to their fair value. In the case of the Term Loan, its carrying amount is stated net of the unamortised balance of issue costs and therefore does not represent its fair value. Since the Term Loan bears interest at a floating rate, we consider that the principal amount of the loan outstanding approximates to its fair value (Level 2).

24 Financial risk management

Background

The Board has overall responsibility for the determination of the Group's risk management objectives and policies. Whilst retaining ultimate responsibility for them, it has delegated the authority for designing and operating processes that ensure the effective implementation of the objectives and policies to the Group's centralised finance function, from which the Board receives regular updates.

The principal objectives of the Board are to ensure adequate funding is available to meet the Group's requirements and for maintaining an efficient capital structure, together with managing the Group's counterparty credit risk, interest rate risk and foreign currency exposures.

Credit risk

Credit risk is the risk that a customer or a counterparty financial institution fails to meet its contractual obligations as they fall due, causing the Group to incur a financial loss. The Group is exposed to credit risk in relation to receivables from its customers, contract assets and cash and cash equivalents held with financial institutions.

Before accepting a new customer, we assess the potential customer's credit quality and establish a credit limit. Credit quality is assessed using data maintained by reputable credit agencies, by checking references included in credit applications and, where they are available, by reviewing the customer's recent financial statements. Credit limits are subject to authorisation and are reviewed on a regular basis.

We recognise an allowance for credit losses in respect of trade receivables and contract assets measured as the amount of the lifetime expected credit losses. We estimate the expected credit loss on accounts receivable and contract assets using a provision matrix based on the Group's historical credit loss experience, adjusted for factors that are specific to the customers, and general current and forecasted economic conditions. When constructing the provision matrix, we grouped trade receivables and contract assets based on credit risk factors against which we applied differing loss rates. If we are aware of specific factors relevant to risk of default of a customer, we may apply a loss rate to balances receivable from that customer that differs from that suggested by the provision matrix.

Information about the allowance for expected credit losses by credit risk group was as follows:

	As at 31 December 2023			As at 31 December 2022		
	Weighted-average loss rate	**Gross carrying amount US$'000**	**Loss allowance $'000**	Weighted-average loss rate	Gross carrying amount US$'000	Loss allowance $'000
Start-up company based in developing country	**12%**	**45,311**	**5,620**	1%	25,300	300
Other start-up companies	**0%**	**21,658**	**85**	6%	21,500	1,194
Established company based in developing country	**25%**	**11,261**	**2,772**	2%	8,200	200
Other established companies	**3%**	**40,019**	**1,020**	2%	19,989	490
		118,249	**9,497**		74,989	2,184

Movements in the allowance for expected credit losses were as follows:

	Year ended 31 December	
	2023 US$'000	2022 US$'000
At the beginning of the year	**2,184**	—
Net remeasurement of loss allowance	**7,337**	2,184
Foreign exchange difference	**(24)**	—
At the end of the year	**9,497**	2,184

As at 31 December 2023, one customer accounted for 14% (2022: 20%) of the aggregate balance of trade receivables and contract assets. Management has no reason to believe that the amounts owed by the customer are not fully collectible in the future.

Cash and cash equivalents are placed, where possible, with financial institutions that have a median credit rating of not less than Aa3 (Moody's), AA- (Standard & Poor's), AA- (Fitch) or equivalent. We regularly monitor the credit quality of financial institutions with whom we have placed the Group's funds. Credit risk is further limited by holding cash on deposits with relatively short maturities.

Market risk

Market risk is the risk that the fair value of, or cash flows associated with, a financial instrument will fluctuate because of changes in market prices. Market risk comprises three types of risk: interest rate risk (due to changes in market interest rates), currency risk (due to changes in currency exchange rates) and other price risk.

Interest rate risk
The interest rate profile of the Group's financial assets and liabilities was as follows:

	As at 31 December 2023			
	Interest bearing			
	Floating rate	**Fixed rate**	**Non-interest bearing**	**Total**
	US$'000	**US$'000**	**US$'000**	**US$'000**
Cash and cash equivalents	**65,443**	**1,457**	**34,391**	**101,291**
Trade and other receivables and other assets	**–**	**–**	**103,498**	**103,498**
Contract assets	**–**	**–**	**65,173**	**65,173**
Total financial assets	**65,443**	**1,457**	**203,062**	**269,962**
Trade and other payables	**–**	**–**	**(71,060)**	**(71,060)**
Lease liabilities	**–**	**–**	**(16,680)**	**(16,680)**
Loans and borrowings	**(220,375)**	**–**	**–**	**(220,375)**
Total financial liabilities	**(220,375)**	**–**	**(87,740)**	**(308,115)**

	Restated as at 31 December 2022[1]			
	Interest bearing			
	Floating rate	Fixed rate	Non-interest bearing	Total
	US$'000	US$'000	US$'000	US$'000
Cash and cash equivalents	113,616	29,244	43,371	186,231
Trade and other receivables and other assets	–	–	137,890	137,890
Contract assets	–	–	56,987	56,987
Total financial assets	113,616	29,244	238,248	381,108
Trade and other payables	–	–	(99,220)	(99,220)
Lease liabilities	–	–	(14,933)	(14,933)
Loans and borrowings	(210,201)	–	–	(210,201)
Total financial liabilities	(210,201)	–	(114,153)	(324,354)

Restated to reflect the finalisation of the purchase price allocation for the acquisition of OpenFive (notes 12 and 30) and to allocate the expected credit loss allowance between trade receivables from contracts with customers and contract assets.

The Group's principal exposure to interest rate risk is in relation to floating rate loans and borrowings and cash deposits.

Currency risk
Currency risk arises on financial instruments that are denominated in a currency other than the functional currency of the entity that holds them. The Company's functional currency is pound sterling (GBP) and its principal subsidiaries have different functional currencies, including Canadian dollar (CAD), US dollar (USD), Israeli shekel (ILS), Indian rupee (INR) and Chinese renminbi (RMB). Substantially all of the Group's revenue and a significant proportion of its expenses are denominated in US dollars. Accordingly, the Group is subject to currency risk, particularly in those entities that have a functional currency other than the US dollar.

The Group does not use derivative instruments to reduce its exposure to currency risk.

The Group's exposure to currency risk was as follows:

	As at 31 December 2023							
	CAD	**GBP**	**ILS**	**INR**	**RMB**	**TWD**	**USD**	**Total**
	US$'000	**US$'000**	**US$'000**	**US$'000**	**US$'000**	**US$'000**	**US$'000**	**US$'000**
Cash and cash equivalents	**632**	**41,957**	**133**	**473**	**2,756**	**210**	**55,130**	**101,291**
Trade and other receivables and other assets	**20,376**	**902**	**596**	**1,055**	**6,211**	**72**	**74,286**	**103,498**
Contract assets	**–**	**–**	**–**	**–**	**66**	**–**	**65,107**	**65,173**
Trade and other payables	**(26,829)**	**(4,969)**	**(2,266)**	**(3,954)**	**(393)**	**(21)**	**(32,628)**	**(71,060)**
Lease liabilities	**(14,949)**	**–**	**(832)**	**(890)**	**(9)**	**–**	**–-**	**(16,680)**
Loans and borrowings	**–**	**–**	**(1,625)**	**–**	**–**	**–**	**(218,750)**	**(220,375)**
	(20,770)	**37,890**	**(3,994)**	**(3,316)**	**8,631**	**261**	**(56,855)**	**(38,153)**

	Restated as at 31 December 2022[1]						
	CAD	GBP	ILS	INR	RMB	USD	Total
	US$'000	US$'000	US$'000	US$'000	US$'000	US$'000	US$'000
Cash and cash equivalents	(6,648)	125,218	833	1,965	12,986	51,877	186,231
Trade and other receivables and other assets	—	—	—	1,572	23	136,295	137,890
Contract assets	—	—	—	—	—	56,987	56,987
Trade and other payables	(1,663)	(952)	(794)	(2,660)	(10,039)	(83,112)	(99,220)
Lease liabilities	(12,579)	—	(1,049)	(1,305)	—	—	(14,933)
Loans and borrowings	—	—	(1,451)	—	—	(208,750)	(210,201)
	(20,890)	124,266	(2,461)	(428)	2,970	(46,703)	56,754

Restated to reflect the finalisation of the purchase price allocation for the acquisition of OpenFive (notes 12 and 30) and to allocate the expected credit loss allowance between trade receivables from contracts with customers and contract assets.

When applied to financial instruments denominated in foreign currencies held at the end of the year, the effect on the Group's profit or loss before tax of a 5% strengthening or weakening of those currencies against the relevant functional currencies would have been as follows:

	As at 31 December	
	2023	2022
Foreign currency	**US$'000**	US$'000
CAD	**834/(834)**	4,807/(4,807)
GBP	**778/(778)**	583/(583)
ILS	**498/(498)**	18/(18)
INR	**26/(26)**	187/(187)
RMB	**632/(632)**	90/(90)
USD	**899/(899)**	4,599/(4,599)

Other price risk

Other price risk is market risk other than interest rate risk or currency risk. The Group has no significant exposure to other price risk.

Liquidity risk

Liquidity risk is the risk that an entity will encounter difficulty in meeting obligations associated with its financial liabilities.

In October 2022, the Company entered into a Credit Agreement with a syndicate of banks that provided it with a US dollar-denominated Delayed Draw Term Loan B ('Term Loan') facility of US$100.0m and a multi-currency Revolving Credit Facility (RCF) of US$125.0m. As at 31 December 2023, the facilities were fully drawn.

The Credit Agreement contains various provisions, covenants and representations that are customary for such facilities. For the test period ended 30 June 2023, the Fixed Charges Coverage Ratio was below the minimum required level. As described in note 27, we subsequently agreed with the lenders an amendment to the Credit Agreement such that testing of the Fixed Charges Coverage Ratio would be suspended until 30 June 2024 and thereafter the minimum required level would be reduced and the length of the testing periods would be reduced until 30 September 2025. While there were no changes to the Net Leverage Ratio, the amendment to the Credit Agreement introduced a Minimum Liquidity Requirement which effectively set minimum required levels for cash and cash equivalents. We currently monitor and forecast cash flows on a weekly basis at both Group and entity level. As at 31 December 2023, cash and cash equivalents amounted to US$101.3m (2022: US$186.2m). As explained in note 2, the Directors are satisfied that the Group has sufficient liquidity to continue as a going concern.

The following table sets out the contractual maturities (representing undiscounted contractual cash flows) of financial liabilities:

	As at 31 December 2023			
	Due within 1 year	**Due between 1 and 5 years**	**Due > 5 years**	**Total**
	US$'000	**US$'000**	**US$'000**	**US$'000**
Trade and other payables	**69,285**	**1,775**	**–**	**71,060**
Lease liabilities	**3,953**	**7,660**	**5,067**	**16,680**
Loans and borrowings	**5,625**	**214,750**	**–**	**220,375**
	78,863	**224,185**	**5,067**	**308,115**

	Restated as at 31 December 2022[1]			
	Due within 1 year US$'000	Due between 1 and 5 years US$'000	Due > 5 years US$'000	Total US$'000
Trade and other payables	88,665	10,555	—	99,220
Lease liabilities	3,756	8,819	2,358	14,933
Loans and borrowings	5,000	205,201	—	210,201
	97,421	224,575	2,358	324,354

Restated to reflect the finalisation of the purchase price allocation for the acquisition of OpenFive (notes 12 and 30).

Capital management

The Group's capital is represented by its total equity less net debt less lease liabilities. By this definition, the Group's capital as at 31 December 2023 was US$ 332,144,000m (2022: US$ 429,370,000m) as follows:

	As at 31 December	
	2023 US$'000	2022 US$'000
Total equity	**467,908**	468,273
Loans and borrowings	**220,375**	210,201
Cash and cash equivalents	**(101,291)**	(186,231)
Net debt	**119,084**	23,970
Lease liabilities	**16,680**	14,933
Total capital	**332,144**	429,370

We seek to maintain a capital structure that supports the ongoing activities of our business and its strategic objectives in order to deliver long-term returns to shareholders. We allocate capital to support organic and inorganic growth, investing in research and development and our IP licensing and product offerings. We fund our growth strategy using a mix of equity and debt after giving consideration to prevailing market conditions.

25 Post-employment benefits

Defined contribution plans

The Group operates defined contribution pension plans in most of the countries in which it operates. During 2023, the Group recognised an expense of US$4,115,000 (2022: US$1,300,000) for defined contribution plans. As at 31 December 2023, the Group had not paid contributions due to the plans totalling US$nil (2022: US$3,000). All contributions due for the year have since been paid to the plans.

Defined benefit plans

Prior to the acquisition of Open Silicon in August 2022, the Group had no defined benefit plans. Open Silicon operates unfunded gratuity and accrued leave plans in India that provide employees with lump sum benefits on leaving employment that are based on the individual's final salary and length of service.

Prior to and immediately following the acquisition, the benefit obligation was not measured on an actuarial basis. During 2023, we engaged an independent qualified actuary and the benefit obligation as at 31 December 2023 and the amounts recognised in comprehensive income for the year are based on the actuary's valuation of the plans that was prepared using the projected unit credit method. Remeasurement of defined benefit plans represents actuarial gains and losses relating to gratuity and leave encashment.

Movements in the benefit obligation were as follows:

	Year ended 31 December	
	2023 US$'000	2022 US$'000
At the beginning of the year	**821**	—
Acquisition of Open Silicon (note 30)	**—**	323
Recognised in profit or loss:		
Current service cost	**489**	507
Interest expense	**60**	—
Recognised in other comprehensive income:		
Experience adjustments	**472**	—
Change in financial assumptions	**735**	—
Benefits paid by employer	**(59)**	(9)
Currency translation differences	**(42)**	—
At the end of the year	**2,476**	821

As at 31 December 2023, the principal assumptions used in measuring the benefit obligation were as follows:

Staff attrition rate - age less than 30 years	**10.0% p.a.**
Staff attrition rate - 31-44 years	**5% p.a.**
Staff attrition rate - 45 years and above	**3% p.a.**
Mortality rate	**IALM 2012-14**
Rate of increase in salaries year 1	**22.0% p.a.**
Rate of increase in salaries year 2	**15% p.a.**
Rate of increase in salaries year 3 onwards	**10% p.a.**
Discount rate	**7.4% p.a.**

Mortality assumptions used in measuring the benefit obligation were based on the Indian Assured Lives Mortality 2012-14 tables ('100% of IALM 2012-14') published by the Institute of Actuaries in India.

Sensitivities of the benefit obligation to reasonably possible changes in the principal assumptions are immaterial to the consolidated financial statements.

26 Share capital and reserves

Share capital and share premium account

Share capital

The Company's share capital is comprised of ordinary shares with a nominal value of £0.01 per share.

The number of authorised, issued and fully paid ordinary shares was as follows:

	Number of shares	Nominal value US$'000
As at 1 January 2022	664,965,934	9,399
Shares issued under employee share schemes	30,102,266	352
As at 31 December 2022	**695,068,200**	**9,751**
Shares issued under employee share schemes	**20,446,367**	**260**
As at 31 December 2023	**715,514,567**	**10,011**

Shares issued during the year

During 2023, 20,446,367 shares (2022: 29,442,453 shares) were issued on the exercise or vesting of awards made under employee share schemes.

Since most of the awards were exercised or vested at £0.01 cost to the employee, the cash proceeds received by the Company on issue of the shares was equal to their aggregate nominal value. During 2023, a notional bonus expense of US$70,000, (2022: not material), calculated at the nominal value of £0.01 per share, was recognised in the profit or loss account and credited to share capital.

Rights and restrictions

Ordinary shareholders have no entitlement to a share in the profits of the Company except for dividends that may be declared from time to time. All ordinary shares rank equally with regard to the Company's residual assets in the event of a liquidation.

Ordinary shareholders have the right to attend, and vote at, general meetings of the Company or to appoint a proxy to attend and vote at such meetings on their behalf. Ordinary shareholders have one vote for every share held.

Share premium account

The share premium account represents the difference between the nominal value of shares in issue and the fair value of the consideration received. For 2023 the amount allocated to the share premium account is US$863,000 (2022: US$775,000). The share premium account is not distributable but may be used for certain purposes specified by United Kingdom law, including to write off expenses on any issue of shares and to pay up fully paid bonus shares.

Other reserves

Merger reserve

In May 2021, the Company purchased the entire issued share capital of Alphawave IP Inc., the Group's former parent Company, by way of an exchange of shares in a Group reorganisation that was accounted for as a merger. The merger reserve represents the excess of the nominal value of the Company's ordinary shares issued over the nominal value of Alphawave IP Inc's common shares in issue at the date of the reorganisation.

Share-based payment reserve

The share-based payment reserve represents the cost recognised to date in respect of share-based payment awards that have not been exercised.

Currency translation reserve

The currency translation reserve comprises gains and losses arising on the translation of the results and financial position of foreign operations from their functional currencies into US dollars.

27 Share-based payment

Prior to the Company's IPO in July 2021, options and restricted stock units (RSUs) were granted to employees and consultants to the Company and its subsidiaries under the Equity Incentive Plan (EIP). Following the IPO, no further awards were granted under the EIP and it was replaced by the Long Term Incentive Plan (LTIP). Awards under the LTIP may take the form of RSUs, options or restricted ordinary shares.

While the specific terms of awards may vary according to individual grant agreements, options and RSUs granted under the EIP and the LTIP typically vest over four years with 25% vesting on the first anniversary of the grant date and the remaining 75% vesting in equal monthly instalments thereafter until the fourth anniversary of the grant date conditional on the participant remaining in the Group's employment during the vesting period and any performance conditions having been met. Unexercised options granted under the EIP and the LTIP expire on the fifth and tenth anniversary of the grant date, respectively. On exercise or vesting, each option and RSU issued under the plans converts into one ordinary share in the Company. Unexercised options and unvested RSUs carry neither rights to dividends nor voting rights. No amounts are paid or payable by the recipient on receipt of an RSU, however, there are exercise costs paid or payable by the recipient on receipt of an Option.

All options and RSUs outstanding under the plans are equity-settled awards.

During 2023, 24,810,455 (2022: 23,109,685) RSUs were granted under the LTIP. Since the Company does not expect to pay dividends during the vesting period, the grant date fair value of the awards was the market price of the Company's ordinary shares on the grant date. The weighted-average grant date fair value of the RSUs granted during the year was US$1.38 (2022: US$1.64). During the periods under review, no options were granted under the LTIP.

The number of options and RSUs outstanding and the weighted-average price of the options and RSUs on the grant date were as follows:

	Year ended 31 December 2023		Year ended 31 December 2022	
	Number of awards	**Weighted-average exercise price (US$)[1]**	Number of awards	Weighted-average exercise price (US$)
Outstanding at the beginning of the year	**85,692,153**	**0.712**	95,273,220	0.280
Granted	**24,810,455**	**1.387**	23,109,685	1.640
Exercised or vested	**(20,446,367)**	**0.808**	(30,102,266)	0.102
Forfeited	**(3,792,278)**	**1.002**	(2,588,486)	1.381
Outstanding at the end of the year	**86,263,963**	**0.842**	85,692,153	0.712
Vested at the end of the year	**43,669,961**	**0.339**	41,720,539	0.221

The weighted average exercise price relates to options only.

The price payable by participants on exercise or vesting of option awards outstanding at the end of the year was in the range US$0.01 to US$1.04 (2022: US$0.01 to US$1.13).

The weighted-average market price of the Company's ordinary shares on the dates that options and RSUs vested during 2023 was US$1.45 (2022: US$1.86).

During 2023, the total share-based compensation expense recognised by the Group was US$40,691,000 (2022: US$15,695,000). The primary reason for this increase is due to the two large acquisitions completing in the final four months of 2022 and headcount more than doubling, with every employee being granted RSUs. In 2023 there was also a prospective change in accounting method for the RSU charge, in that the charge is based on monthly graded vesting, not annual graded vesting.

28 Commitments

Software licence commitments

We have entered into a number of multi-year Software-as-a-Service (SaaS) arrangements that give us access to the supplier's application software, principally in relation to EDA software that we use in developing chip designs. We account for such arrangements as service contracts.

Future minimum payments under these arrangements were as follows:

	Year ended 31 December	
	2023	2022
	US$'000	US$'000
Payable:		
Within one year	**32,602**	26,065
Between one and two years	**11,132**	26,792
Between two and five years	**1,369**	158
After more than five years	**—**	—
Total	**45,103**	53,015

Capital commitments
The shareholders' agreement governing the WiseWave joint venture stipulates that the Group shall invest up to US$170,000,000 in WiseWave. As at 31 December 2023 the Group has invested US$46,150,000 (2022: US$31,420,000). The shareholders' agreement includes several matters that are classified as shareholder reserved matters, including any requirement for a capital contribution. Such shareholder reserved matters require the prior written approval of Alphawave or at least one of the directors nominated by Alphawave to be passed. As any additional capital contribution requires the prior written approval of Alphawave, the Group's participation in future financing rounds is discretionary and therefore the Group has no capital commitments in relation to WiseWave.

WiseWave does not currently anticipate requiring the maximum amount stated in the shareholders' agreement and is likely to undertake an external financing round in the medium term. If such external financing round were to occur, the Group's interest in WiseWave would be diluted.

29 Related party transactions
Key management personnel
As defined by IAS 24 Related Party Disclosures, the Group's key management personnel are the Directors of the Company, the SVP, Engineering, the SVP, Operations and the Chief Financial Officer.

Expenses recognised in relation to the compensation of the Group's key management personnel were as follows:

	Year ended 31 December	
	2023	2022
	US$'000	US$'000
Short-term employee benefits	**5,898**	5,962
Post-employment benefits	**481**	59
Termination benefits	**25**	—
Share-based payments	**4,774**	2,208
	11,178	8,229

Post-employment benefits comprise employer contributions payable to defined contribution pension plans.

Termination benefits comprise contractual payments in lieu of notice payable to the former Chief Financial Officer over the twelve-month period ending in May 2024.

Other related party transactions
During the year, Group companies entered into the following transactions with related parties who are not members of the Group.

	Year ended 31 December	
	2023	2022
	US$'000	US$'000
Transactions		
Revenue from companies on which a Director is the chairman of the board[1]	**429**	3,549
Revenue from VeriSilicon	**–**	3,270
Revenue from WiseWave, a joint venture, where there is common directorship	**66,879**	58,207
Operating expenses from a company on which a Director is a director	**(133)**	—
Costs capitalised as intangible assets from a company on which a Director is a director	**(1,000)**	(1,200)
	66,175	63,826

	Year ended 31 December	
	2023	2022
	US$'000	US$'000
Balances		
Accounts receivable from a company on which a Director is the chairman of the board[1]	**1,650**	350
Accounts receivable from VeriSilicon	**–**	669
Accounts receivable from WiseWave, a joint venture, where there is common directorship	**6,364**	3,360
Contract asset from companies on which a Director is the chairman of the board[1]	**2,567**	6,750
Contract asset from WiseWave, a joint venture, where there is common directorship	**40,785**	20,217
Accrued liabilities with a company on which a Director is a director	**(600)**	(600)
	50,766	30,746
Contract liabilities from a company on which a Director is the chairman of the board	**–**	686
Prepaid expenses with a company in which a Director is a director	**(67)**	—
	(67)	686

Companies on which a Director is the chairman of the board are FLC Technology Group and DreamBig Semiconductor Inc. As John Lofton Holt ceased to be chairman of the board for Achronix Semiconductor Corporation on 8 July 2021, any transactions with Achronix Semiconductor Corporation have been excluded for 2023 but they are still included in the 2022 comparatives.

Sales to related parties are made at market prices and in the ordinary course of business. Outstanding balances are unsecured and settlement occurs in cash. Any estimated credit losses on amounts owed by related parties would not be material and are therefore not disclosed. This assessment is undertaken at each key reporting period through examining the financial position of the related party and the market in which the related party operates.

In the interests of transparency, we have opted to disclose VeriSilicon as a related party within this note. However, we have received advice that VeriSilicon is not a related party as defined by IAS 24 or Listing Rule 11. All revenue from VeriSilicon and related balances are in respect of transactions signed with VeriSilicon prior to the VeriSilicon reseller agreement moving under WiseWave as master reseller effective November 2021. All revenue and associated balances in respect of transactions signed with VeriSilicon since that date are now recognised through the WiseWave joint venture line. Please note this is only relevant for the 2022 comparative figures as there are no 2023 VeriSilicon figures. This is due to the VARVA agreement signed at the end of 2021 meaning all VeriSilicon revenue and associated balances fall under WiseWave.

30 Business combinations

Acquisition of Precise-ITC, Inc.

Year ended 31 December 2022

On 1 January 2022, we completed the acquisition of 100% of the equity interests of Precise-ITC, Inc. ('Precise'), a developer of Ethernet and Optical Transport Network (OTN) communications controller IP.

Precise, which is based in Ontario, Canada, brought a team of talented engineers and additional strategic IP to our portfolio. We had been working with Precise since 2019 and our combined IP solutions were already integrated in silicon products for several of our customers. Now, working as one team, we have an expanded and vertically integrated portfolio of communications IPs to service the most advanced global customers in the networking and data centre markets, including leading semiconductor companies and hyperscalers.

We acquired Precise for US$8,000,000 on a cash and debt-free basis. We paid consideration of US$8,470,000 in cash on completion, including US$470,000 in respect of Precise's cash less indebtedness.

Additional consideration of up to US$5,000,000 was payable contingent on the aggregate value of Precise's IP Core revenue and bookings exceeding US$10,000,000 during 2022. Using an option pricing model, we determined that the fair value of the contingent consideration at the acquisition date was US$740,000 and recognised a corresponding liability within trade and other payables.

Further payments totalling US$11,500,000 may be made to one of the vendors during the period of up to three years following completion. Since those further payments are largely conditional on that individual continuing in the Group's employment, they are accounted for as employee compensation rather than as consideration for the purchase of the business.

We recognised goodwill of US$3,097,000 on the acquisition of Precise that was principally attributable to the benefits expected to be derived from the combination of our technologies to develop new IP and increase our penetration of the rapidly growing networking and data centre markets.

From the acquisition date to 31 December 2022, Precise contributed revenue of US$2,251,000 and net income of US$2,747,000 to the Group's results.

Precise's actual IP Core revenue and bookings during 2022 significantly exceeded our expectations at the acquisition date. As a result, the full amount of the contingent consideration of US$5,000,000 became payable to the vendors. As at 31 December 2022, we therefore increased the related liability to US$5,000,000 and recognised a corresponding expense of US$4,260,000 in profit or loss (within other operating expenses).

Year ended 31 December 2023
In May 2023, we paid US$5,000,000 to the vendors in settlement of the contingent consideration, of which US$740,000 (its fair value on the acquisition date) was included in cash flows from investing activities and the balance of US$4,260,000 was included in cash flows from operating activities.

Acquisition of OpenFive
Year ended 31 December 2022
On 31 August 2022, we completed the acquisition of 100% of the equity interests in Open-Silicon, Inc. and related assets and liabilities that together comprised the OpenFive business unit of SiFive, Inc. and entered into certain IP licensing agreements that were integral to the business combination.

OpenFive is a leading provider of high-end SoC IP technologies globally, with a strong focus on the North American market. We believe that the acquisition of OpenFive has the following key benefits: it nearly doubles our connectivity and SoC IP portfolio and will accelerate our progress in providing advanced connectivity solutions in 5nm, 4nm, 3nm and beyond; it will enable us to offer leading-edge data centre and networking custom silicon solutions and will enhance our chiplet design capabilities; it significantly expands our customer base and total addressable market, including a new hyperscaler customer in North America, providing a broader platform from which to execute our sales strategy; and it brought a team of more than 300 people, largely based in India, that will considerably enhance our delivery capabilities.

We acquired the OpenFive business unit and the related IP licences for US$210,000,000 on a cash and debt-free basis. We paid consideration of US$203,636,000 in cash on completion, after deducting US$6,364,000 in respect of OpenFive's estimated cash, indebtedness and working capital.

It was envisaged in the Stock and Asset Purchase Agreement that Alphawave may make an election under section 338 of the US Internal Revenue Code of 1986 to treat the purchase of OpenFive as an asset acquisition for US federal income tax purposes. If such an election is made, the tax base of the assets acquired would be 'stepped-up' to their fair values on the acquisition date, enabling the purchaser to claim higher income tax deductions for those assets. On the other hand, there is usually an increase in the income tax payable by the vendor and the Stock and Asset Purchase Agreement required Alphawave to compensate the vendor for the additional US income tax expense that it may incur if a section 338 election were made.

At the time the Directors approved the Group's 2022 accounts, we had made a section 338 election but were awaiting the final calculation of its financial effect and any amount payable to the vendor. We therefore took no account of the section 338 election in determining the purchase consideration and OpenFive's deferred tax assets and liabilities in the purchase price allocation that were reflected in the Group's 2022 accounts.

Consequently, the purchase price allocation was provisional in respect of any adjustments that may arise from the finalisation of OpenFive's cash, indebtedness and working capital on completion and the finalisation of the financial effect of the section 338 election. On that basis, we recognised provisional goodwill of US$182,158,000 on the acquisition of OpenFive that is principally attributable to the assembled workforce, the benefits expected to be derived from the combination of our technologies to enhance our offering of advanced custom silicon solutions and further increases in our penetration of the rapidly growing networking and data centre markets.

From the acquisition date to 31 December 2022, OpenFive contributed revenue of US$70,827,000 and a net loss of US$11,717,000 to the Group's results. If we had acquired OpenFive on 1 January 2022, we estimate that the Group's revenue for 2022 would have been US$75,847,000 higher but its net loss for 2022 would have been US$13,554,000 greater.

Year ended 31 December 2023
We finalised the financial effect of the section 338 election in August 2023. As a result, we retrospectively adjusted the purchase price allocation as follows:

- to derecognise deferred tax liabilities of US$15,860,000 that were initially recognised in respect of identifiable intangible assets that became deductible for US federal income tax purposes as a result of the Section 338 election; and
- to increase the purchase consideration to reflect the tax adjustment amount of US$5,610,000 payable to compensate the vendor for the additional income tax payable as a consequence of the section 338 election.

We paid the tax adjustment amount to SiFive Inc. in October 2023.

As a result of these adjustments, the goodwill recognised on the acquisition was reduced by US$10,250,000. We have not restated the Group's income tax expense for 2022 to reflect the retrospective application of the 'stepped up' tax base of the assets acquired because the effect was immaterial.

A binding arbitration decision was reached in December 2023 regarding OpenFive's cash, indebtedness and working capital on completion and the vendor paid the resulting purchase price adjustment of US$12,437,000 to Alphawave in January 2024. At the end of August 2023, (i.e. at the end of the measurement period allowed by IFRS 3), it was unclear what the outcome of the dispute proceedings would be.

New information was obtained about facts and circumstances that existed at the acquisition date during the arbitration process and within the measurement period and therefore the provisional amounts recognised at the acquisition date have been adjusted accordingly. With the arbitration process concluding shortly after the end of the measurement period, management determined that the best estimate of the outcome as at the end of the measurement period was that the consideration would be retrospectively reduced by US$12,437,000.

In the restated 2022 balance sheet, we have therefore reduced goodwill by US$12,437,000 and recognised a receivable of US$12,437,000.

Acquisition of Banias Labs

Year ended 31 December 2022

On 12 October 2022, we completed the acquisition of 100% of the equity interests of Solanium Labs Ltd (Solanium), a leading optical Digital Signal Processing (DSP) chip developer that trades under the name Banias Labs.

Banias Labs is based near Tel Aviv, Israel and brought a team of about 50 people, the majority of whom are engaged in research and development. Alongside the acquisition of Banias Labs, we entered into a non-binding, multi-year purchasing framework with a leading North American hyperscaler that proposes a multi-year roadmap for Alphawave to develop and sell a portfolio of optical products and DSPs, including coherent DSP technology from Banias Labs, with sales potentially ramping to over US$300m. We consider that the acquisition of Banias Labs has the following key benefits: it brings silicon-proven optical DSP technology, expanding our product portfolio and strengthening our product roadmap; it will expand Alphawave's addressable market and deepen our commercial partnership with a leading North American hyperscaler; and it will enable us to target the growing opportunity to use coherent optical technology within data centres and in other shorter reach applications.

We purchased all of Banias Labs' outstanding issued common and preferred shares and all outstanding unexercised options over its common shares for US$240,000,000 on a cash and debt-free basis. We paid US$244,955,000 in cash on completion including US$4,955,000 in respect of Banias Labs' estimated cash, indebtedness and working capital. We paid US$24,300,000 of the initial consideration into an escrow fund that is available to settle any valid claims that we may make in relation to the representations, warranties and indemnities that were provided to us by the sellers. We funded the acquisition from existing cash balances and the proceeds of the US$210.0m Senior Secured Credit Facilities, comprising a five-year US$110.0m Revolving Credit Facility and a five-year US$100.0m Term Loan, that we obtained in October 2022.

On completion, all outstanding unvested employee options over Banias Labs' common shares were converted into rights to receive future cash payments, which are generally subject to the vesting schedule and other terms (including a service condition) that governed the options that they replaced. We determined that the fair value of the deferred cash rights on the acquisition date was US$31,013,000, of which US$8,804,000 was attributable to employee service rendered before the acquisition date and is therefore accounted for as consideration. We are recognising the balance of US$22,209,000 as an employee compensation expense over the remaining vesting periods of the deferred cash rights which extend to August 2026. The amount recognised as an expense, shown as 'Compensation element of Banias Labs deferred cash rights' in note 6, in 2023 was US$8,352,000 and in 2022 was US$1,702,000.

At the time the Directors approved the Group's 2022 accounts, we had completed the purchase price allocation, except for making any adjustments arising from the finalisation of Banias Labs' cash, indebtedness and working capital on completion. On that basis, we recognised provisional goodwill of US$146,585,000 on the acquisition that is principally attributable to the assembled workforce and the benefits expected to be derived from the future development of new connectivity product offerings for the rapidly growing networking and data centre markets.

Since its key future products are under development, Banias Labs does not yet generate any revenue. From the acquisition date to 31 December 2022, Banias Labs contributed a net loss of US$481,000 to the Group's results. If we had acquired Banias Labs on 1 January 2022, we estimate that the Group's net loss for 2022 would have been US$12,388,000 greater.

Year ended 31 December 2023

We have not yet agreed Banias Labs' cash, indebtedness and working capital on completion with the vendors, but do not expect there to be any material adjustments. Since the measurement period allowed for finalising the purchase price allocation expired in October 2023, any future adjustments will be recognised in profit or loss.

Assets acquired and liabilities assumed

We have finalised the allocation of the purchase consideration to the identifiable assets and liabilities of the businesses acquired at their respective acquisition dates and goodwill as follows:

	Precise-ITC US$'000	OpenFive US$'000	Banias Labs US$'000	Total US$'000
Assets acquired				
Cash and cash equivalents	803	14,503	9,131	24,437
Trade and other receivables	269	38,451	1,256	39,976
Inventories	—	14,671	—	14,671
Technology/IP	*7,800*	*30,100*	*83,900*	*121,800*
Customer relationships	—	*25,700*	—	*25,700*
Other intangibles	—	*6,573*	—	*6,573*
Intangible assets	7,800	62,373	83,900	154,073
Property and equipment	52	813	1,702	2,567
Other assets	—	1,667	1,119	2,786
Total assets acquired	8,924	132,478	97,108	238,510
Liabilities assumed				
Trade and other payables	(70)	(40,924)	(2,073)	(43,067)
Contract liabilities	(1,120)	(40,241)	—	(41,361)
Deferred tax liabilities	(1,621)	—	(13,613)	(15,234)
Other liabilities	—	(1,538)	(5,261)	(6,799)
Total liabilities	(2,811)	(82,703)	(20,947)	(106,461)
Net identifiable assets acquired	6,113	49,775	76,161	132,049
Goodwill arising on acquisition	3,097	159,471	146,585	309,153
Consideration	9,210	209,246	222,746	441,202
Purchase consideration was as follows:				
Cash paid on completion	8,470	203,636	222,746	434,852
Purchase price adjustment	—	5,610	—	5,610
Contingent consideration	740	—	—	740
Consideration	9,210	209,246	222,746	441,202

We engaged qualified external experts to support the identification and measurement of the identifiable assets acquired and liabilities assumed. Identifiable intangible assets comprised developed technology/IP, customer relationships and third-party IP licences. We determined the fair values of the acquired technology/IP intangible assets using the multi-period excess earnings method (MEEM), the fair value of the customer relationships using the MEEM and the fair value of the third-party IP licences using the cost savings approach.

Trade and other receivables are stated at their gross contractual amounts receivable, which are considered to be reflective of their fair values. At the acquisition dates, management expected all of the contractual cash flows from trade and other receivables to be collected.

As a consequence of our having made the section 338 election, goodwill recognised on the acquisition of OpenFive is deductible for tax purposes. Otherwise, none of the goodwill recognised on business combinations completed during 2022 is deductible for tax purposes.

During 2023, we incurred acquisition-related costs of US$831,000 (2022: US$14,415,000) (included in other operating expenses).

Cash flows in relation to business combinations

During the years ended 31 December 2023 and 2022, the cash outflow on the purchase of businesses included in cash flows from investing activities was as follows:

	2023 US$'000	2022 US$'000
Cash paid on completion	**—**	434,852
Purchase price adjustment	**5,610**	—
Contingent consideration	**740**	—
Consideration paid	**6,350**	434,852
Cash and cash equivalents acquired	**—**	(24,437)
Cash outflow on purchase of businesses, net of cash acquired	**6,350**	410,415

Contingent consideration of US$5,000,000 paid in 2023 in relation to the acquisition of Precise-ITC was higher than our estimate at the acquisition date and the excess of US$4,260,000 is therefore included within cash flows from operating activities.

31 Events after the reporting period

There are no events after the reporting period to report.

ALTERNATIVE PERFORMANCE MEASURES

Introduction
Management uses a number of measures to assess the Group's financial performance. We consider certain of these measures to be particularly important and identify them as 'key performance indicators' (KPIs). We have identified the following financial measures as KPIs: revenue; bookings; backlog (excluding royalties); adjusted EBITDA; and cash generated from operations.

Certain of these measures are non-IFRS measures because they exclude amounts that are included in, or include amounts that are excluded from, the most-directly comparable measure calculated and presented in accordance with IFRS or are calculated using financial measures that are not calculated in accordance with IFRS. We do not regard non-IFRS measures as a substitute for, or superior to, the equivalent IFRS measures. Non-IFRS measures presented by Alphawave may not be directly comparable with similarly titled measures presented by other companies.

Bookings and backlog
Management monitors bookings and backlog as indicators of future revenue from contracts with customers.

Bookings
Bookings is a non-IFRS measure and represents legally binding and largely non-cancellable commitments by customers. Bookings comprise licence fees, non-recurring engineering support, orders for silicon products, financing components and estimated future royalties (based on contractually committed royalty prepayments or on volume estimates provided by customers).

Bookings are recorded at the point the contract has been signed by both Alphawave and the customer. These are released to the market each quarter within our quarterly trading update. Infrequently, customers request to cancel bookings. At the time of cancellation, these are recorded as debookings after taking into account any pertinent cancellation charges.

Bookings during the year were as follows:

	Year ended 31 December	
		Restated[1]
	2023	2022
	US$m	US$m
Preliminary bookings (including royalties)	**364.4**	247.6
Adjustment	**19.5**	(19.5)
Bookings[1]	**383.9**	228.1
Royalties	**—**	(15.1)
Bookings (excluding royalties)	**383.9**	213.0

2022 bookings exclude a contract of US$19.5m that was signed by the acquired OpenFive business, but not considered a booking until 2023 when project viability was established.

Backlog
Backlog is a non-IFRS measure that represents cumulative bookings (excluding royalties) that have not yet been recognised as revenue and which we expect to be recognised in future periods.

Backlog at the end of the year is calculated based on our backlog as at the beginning of the year, plus new bookings during the year and backlog acquired in business combinations, less revenue recognised during the year.

Movements on backlog during the year were as follows:

	Year ended 31 December	
		Restated[1]
	2023	2022
	US$m	US$m
Backlog at the beginning of the year	**379.7**	183.8
Add: Bookings during the year (excluding royalties)	**383.9**	213.0
Add: Backlog acquired in business combinations	**—**	168.3
Less: Net adjustments/debookings during the year (excluding royalties)	**(87.3)**	—
Less: Revenue recognised during the year (excluding royalties)	**(321.4)**	(185.4)
Backlog at the end of the year	**354.9**	379.7

2022 opening backlog figure restated to include a WiseWave booking of US$15.2m previously omitted.

Our closing backlog at the end of 2023 is US$354.9m (2022: US$379.7m) and includes US$87.3m of net adjustments/debookings. Nearly half of this balance includes debookings related to the acquired backlog from OpenFive.

EBITDA
Earnings before interest, taxation, depreciation and amortisation (EBITDA) is a non-IFRS measure that we consider is useful to investors and other users of our financial information in evaluating the sensitivity of the Group's trading performance to changes in variable operating expenses.

Joint venture profit or loss
We also exclude the costs of our joint venture in WiseWave from EBITDA because we consider that, as a start-up, they hinder the comparison of the Group's trading performance from one period to another or with other businesses.

EBITDA may be reconciled to net income/(loss) for the period determined in accordance with IFRS as follows:

	Year ended 31 December	
	2023	2022
	US$'000	US$'000
Net loss	**(51,002)**	(1,086)
Add/(deduct):		
Finance income	**(3,448)**	(1,684)
Finance expense	**8,836**	3,588
Loss from joint venture	**14,730**	18,481
Income tax expense	**11,532**	18,328
Depreciation of property and equipment – owned	**11,212**	2,472
Depreciation of property and equipment – leased	**4,612**	3,036
Amortisation of intangible assets	**13,294**	6,159
EBITDA	**9,766**	49,294

Adjusted measures of profitability
We report adjusted measures of profitability because we believe that they provide both management and investors with useful additional information about the financial performance of our business. Adjusted measures of profitability are non-IFRS measures that represent the equivalent IFRS measures adjusted for specific items that we consider hinder comparison of the Group's financial performance from one period to another or with other businesses.

Adjusted measures of profitability exclude items that can have a significant effect on profit or loss. We compensate for this limitation by monitoring separately the items that are excluded from the equivalent IFRS measures in calculating the adjusted measures.

We outline below the specific items of income and expenses that are recognised in profit or loss in accordance with IFRS but are excluded from the Group's adjusted results.

Business combinations
We exclude those effects of applying the acquisition method of accounting under IFRS that we consider are not indicative of the Group's trading performance, including the accounting for transaction costs; the recognition of certain elements of the purchase price as compensation expense; and the recognition of remeasurements of contingent consideration in profit or loss.

During the periods under review, we excluded from our adjusted results the following items arising from the accounting for business combinations:

- acquisition-related costs;
- the element of the value of the deferred cash rights granted to employees of Banias Labs to replace the unvested employee share options at the acquisition date that is accounted for as compensation expense rather than as consideration;
- the remeasurement of the contingent consideration payable for Precise-ITC; and
- the purchase price adjustment receivable from the vendor of Open Silicon that was recognised as other operating income rather than as an adjustment to the purchase price because it was agreed after the end of the measurement period.

We also exclude from our adjusted measures the amortisation of identifiable intangible assets acquired in business combinations in order that the performance of our business may be compared more fairly with that of businesses that have developed on an organic basis.

Integration costs
We exclude the costs of integrating acquired businesses because we consider that they hinder the comparison of the Group's trading performance from one period to another or with other businesses.

Share-based payments and related expenses
We exclude the compensation expense recognised in relation to options and RSUs granted under the Company's share-based payment plans because the awards are equity-settled and their effect on shareholders' returns is already reflected in diluted earnings per share measures. We additionally exclude the expense for payroll taxes payable on the exercise or vesting of the awards because the expense

fluctuates according to the Company's share price at the exercise or vesting date and the effect on profit or loss is therefore not necessarily indicative of the Group's trading performance.

Currency translation differences

We exclude gains and losses that arise at entity level on the translation of foreign currency-denominated net cash and borrowings into the entity's functional currency. Such gains and losses can be significant and are not representative of the Group's trading performance.

Income tax effect of adjustments

Where relevant, we calculate the income tax effect of adjustments by considering the specific tax treatment of each item and by applying the relevant statutory tax rate to those items that are taxable or deductible for tax purposes.

Adjusted EBITDA

Adjusted EBITDA may be reconciled to EBITDA as follows:

	Year ended 31 December	
	2023	2022
	US$'000	US$'000
EBITDA	**9,766**	49,294
Add/(deduct):		
Acquisition-related costs	**831**	12,713
Compensation element of Banias Labs deferred cash rights	**8,352**	1,703
Remeasurement of contingent consideration payable for Precise-ITC	**—**	4,260
Share-based compensation expense	**40,691**	15,695
Currency translation (loss)/gain	**2,983**	(36,838)
Adjusted EBITDA	**62,623**	46,827

Adjusted earnings per share

We monitor basic and diluted earnings per share (EPS) on an IFRS basis and on an adjusted basis. We consider that adjusted EPS measures are useful to investors in assessing our ability to generate earnings and provide a basis for assessing the value of the Company's shares (for example, by way of price earnings multiples).

Adjusted net income/(loss) for calculating adjusted EPS measures may be reconciled to net income/(loss) determined in accordance with IFRS as follows:

	Year ended 31 December	
	2023	2022
	US$'000	US$'000
Net loss	**(51,002)**	(1,086)
Add/(deduct):		
Acquisition-related costs	**831**	12,713
Compensation element of Banias Labs deferred cash rights	**8,352**	1,703
Remeasurement of contingent consideration payable for Precise-ITC	**—**	4,260
Amortisation of acquired intangible assets	**12,657**	5,519
Share-based compensation expense	**40,691**	15,695
Currency translation (loss)/gain	**2,983**	(36,838)
Tax effect of above adjustments	**(2,623)**	4,708
Adjusted net income	**11,889**	6,674

Adjusted basic and diluted earnings per share were as follows:

	Year ended 31 December	
	2023	2022
	US$ cents	US$ cents
Adjusted basic earnings per share	**1.69**	0.98
Adjusted diluted earnings per share	**1.69**	0.98

Adjusted basic and diluted earnings per share have been calculated by taking the adjusted net income/(loss) for the year and dividing it by the weighted average number of common shares that are used in calculating the equivalent measures under IFRS as presented in note 27 to the consolidated financial statements.

COMPANY BALANCE SHEET

	Note	As at 31 December 2023 US$'000	 2022 US$'000
Assets			
Current assets			
Cash and cash equivalents	5	**16,911**	125,729
Amounts owed by Group undertakings	6	**21,404**	14,769
Income tax receivables		**2,417**	364
Other receivables	7	**11,888**	14,194
Total current assets		**52,620**	155,056
Non-current assets			
Investments in subsidiaries	8	**346,163**	280,373
Other investments		**1,019**	—
Amounts owed by Group undertakings	6	**366,304**	260,011
Other receivables	7	**6,392**	17,091
Total non-current assets		**719,878**	557,475
Total assets		**772,498**	712,531
Liabilities and equity			
Current liabilities			
Trade and other payables	9	**8,940**	12,400
Amounts owed to Group undertakings		**—**	—
Income tax payable		**—**	145
Loans and borrowings	10	**5,625**	5,000
Total current liabilities		**14,565**	17,545
Non-current liabilities			
Trade and other payables	9	**1,775**	4,423
Loans and borrowings	10	**213,125**	203,750
Total non-current liabilities		**214,900**	208,173
Total liabilities		**229,465**	225,718
Share capital	11	**10,011**	9,751
Share premium account	11	**1,638**	775
Merger reserve	11	**(777,751)**	(777,751)
Share-based payment reserve	11	**41,595**	17,909
Currency translation reserve	11	**(52,087)**	(79,706)
Retained earnings		**1,319,627**	1,315,835
Total equity		**543,033**	486,813
Total liabilities and equity		**772,498**	712,531

As permitted by section 408 of the Companies Act 2006, the Company's income statement is not presented in these financial statements. The Company's loss for the financial year was US$13,213,000 (2022: profit of US$18,407,000).

The financial statements on pages 79 to 80 were approved and authorised for issue by the Board of Directors on 23 April 2024 and were signed on its behalf by:

Tony Pialis
Director
Company registered number: 13073661

The notes on pages 80 to 85 form part of these financial statements.

COMPANY STATEMENT OF CHANGES IN EQUITY

	Note	Ordinary share capital US$'000	Share premium account US$'000	Merger reserve US$'000	Share-based payment reserve US$'000	Currency translation reserve US$'000	Retained earnings US$'000	Total equity US$'000
As at 1 January 2022		9,399	—	(777,751)	4,497	(23,486)	1,295,391	508,050
Profit for the year		—	—	—	—	—	18,407	18,407
Other comprehensive expense		—	—	—	—	(56,220)	—	(56,220)
Total comprehensive income for the year		—	—	—	—	(56,220)	18,407	(37,813)
Settlement of share awards:								
– Issue of ordinary shares	11	106	775	—	—	—	—	881
– Effect of proceeds below nominal value		246	—	—	(246)	—	—	—
– Transfer of cumulative compensation expense on settled awards		—	—	—	(2,037)	—	2,037	—
Share-based compensation recognised in the year	12	—	—	—	15,695	—	—	15,695
Other changes in equity		352	775	—	13,412	—	2,037	16,576
As at 31 December 2022		9,751	775	(777,751)	17,909	(79,706)	1,315,835	486,813
Loss for the year		**—**	**—**	**—**	**—**	**—**	**(13,213)**	**(13,213)**
Other comprehensive income		**—**	**—**	**—**	**—**	**27,619**	**—**	**27,619**
Total comprehensive income for the year		**—**	**—**	**—**	**—**	**27,619**	**(13,213)**	**14,406**
Settlement of share awards:								
– Issue of ordinary shares	11	**260**	**863**	**—**	**—**	**—**	**—**	**1,123**
– Effect of proceeds below nominal value		**—**	**—**	**—**	**—**	**—**	**—**	**—**
– Transfer of cumulative compensation expense on settled awards			**—**	**—**	**—**	**(17,005)**	**—**	**17,005**
Share-based compensation recognised in the year	12	**—**	**—**	**—**	**40,691**	**—**	**—**	**40,691**
Other changes in equity		**260**	**863**	**—**	**23,686**	**—**	**17,005**	**41,814**
As at 31 December 2023		**10,011**	**1,638**	**(777,751)**	**41,595**	**(52,087)**	**1,319,627**	**543,033**

The notes on this document pages 80 to 85 form part of these financial statements.

NOTES TO THE COMPANY FINANCIAL STATEMENTS

For the year ended 31 December 2023

1 Background

Reporting entity

Alphawave IP Group plc (the 'Company') is a public limited company that is incorporated and domiciled in England and Wales and whose shares are listed on the main market of the London Stock Exchange. The address of the Company's registered office is 6th Floor, 65 Gresham Street, London, EC2V 7NQ, United Kingdom.

The Company is the ultimate parent of a group of companies that develops and markets high-speed connectivity solutions for application in data centres, data networking, data storage, artificial intelligence, 5G wireless infrastructure and autonomous vehicles.

Statement of compliance

The Company's separate financial statements on pages 78 to 79 have been prepared in accordance with FRS 101 Reduced Disclosure Framework and those parts of the Companies Act 2006 that are applicable to companies reporting under FRS 101. Accordingly, the Company's separate financial statements comply with the recognition and measurement requirements of IFRS as adopted for use in the United Kingdom as at 31 December 2023 but they exclude certain disclosures that would otherwise be required under that body of accounting standards.

Basis of preparation

The Company's separate financial statements have been prepared on a going concern basis and in accordance with the historical cost convention.

The Company's material accounting policies are set out in note 2.

Going concern
At the time of approving the financial statements, the Directors are required to form a judgement as to whether the Company has adequate resources to continue in operational existence for the foreseeable future. In forming their judgement, the Directors consider the Company's current financial position, the Group's medium-term plan and its budget for the next financial year, and the principal risks and uncertainties that it faces.

As at 31 December 2023, the Company had cash and cash equivalents of US$16.9m and had bank borrowings totalling US$218.8m, comprised of a Term Loan of US$93.8m and US$125.0m drawn against a US$125.0m Revolving Credit Facility. Both the Term Loan and the Revolving Credit Facility are scheduled to mature in the fourth quarter of 2027.

The Directors based their going concern assessment on the base case scenario and a severe but plausible downside scenario over the going concern period as follows:

- Group revenue forecasts are materially reduced by 25% and the interest rate on the Group's debt is 200 basis points higher than forecast, with a controllable mitigating reduction of 10% of operating expenditure and a reduction of 50% in laboratory and prototyping operating and capital expenditure.

Under the base case and the downside scenario, the analysis demonstrates the Group can continue to maintain sufficient liquidity headroom with no default on debt covenants.

Following consideration of the Company's liquidity position and prospects for the year ahead, the Directors have a reasonable expectation that the Company has adequate resources for a period of at least twelve months from the date of approval of the financial statements and have therefore assessed that the going concern basis of accounting is appropriate in preparing the financial statements.

Use of estimates
The preparation of financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, as well as disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual outcomes could differ from those estimates and assumptions and affect the Company's results in future periods.

Presentation currency
The Directors consider that the Company's functional currency is pound sterling, but present the Company's financial statements in US dollars for comparability with the consolidated financial statements. All US dollar amounts are in thousands (US$'000), except where stated otherwise.

Disclosure exemptions utilised under FRS 101
In preparing the Company's separate financial statements, the Directors utilised the following exemptions from the disclosure requirements of IFRS adopted for use in the United Kingdom that are available to them under FRS 101:

- paragraphs 45(b) (number and weighted average exercise prices of share options) and 46 to 52 (determination of fair value of options and awards granted and financial effect of share-based compensation) of IFRS 2 Share-based Payment;
- the requirements of IFRS 7 Financial Instruments – Disclosures;
- paragraphs 91 to 99 (disclosure requirements) of IFRS 13 Fair Value Measurement;
- paragraph 38 of IAS 1 Presentation of Financial Statements with regard to comparative information requirements in respect of paragraph 79(a)(iv) of IAS 1 (reconciliation of the number of the Company's shares outstanding at the beginning and end of the period);
- paragraphs 10(d) (statement of cash flows), 16 (statement of compliance with IFRS), 38 (A to D) (comparative information), 111 (statement of cash flows) and 134 to 136 (disclosures about capital) of IAS 1 Presentation of Financial Statements;
- IAS 7 Statement of Cash Flows;
- paragraphs 30 and 31 of IAS 8 Accounting Policies, Changes in Accounting Estimates and Errors (discussion of IFRSs issued but not yet adopted by the Company); and
- paragraphs 17 and 18A (compensation of key management personnel) and paragraph 19 (disclosure of transactions with wholly owned subsidiaries) of IAS 24 Related Party Transactions.

Accounting standards adopted during the year
During the year, the Company adopted the following new and amended accounting standards, none of which had a material impact on its results or financial position:

- IFRS 17 Insurance Contracts
- International Tax Reform – Pillar Two Model Rules (Amendments to IAS 12)
- Definition of Accounting Estimates (Amendments to IAS 8)
- Disclosure of Accounting Policies (Amendments to IAS 1 and IFRS Practice Statement 2)
- Deferred Tax related to Assets and Liabilities arising from a Single Transaction (Amendments to IAS 12)

An outline of the changes introduced is provided in note 1 to the consolidated financial statements.

2 Material accounting policies

Investments in subsidiaries

A subsidiary is an entity that is controlled, either directly or indirectly, by the Company. Control exists when the Company is exposed, or has rights, to variable returns from its involvement with the entity and has the ability to affect those returns through its power to direct the activities of the entity that significantly affect its returns. Generally, such power exists where the Company holds a majority of the voting rights of an entity. Each of the Company's subsidiaries is wholly owned.

Investments in subsidiaries represents the Company's directly owned interests in its subsidiaries, i.e. does not include any interests that are owned by intermediate holding companies. Investments in subsidiaries are carried at cost, less impairment losses, if any.

Foreign currency translation

Translation into the Company's functional currency

Transactions denominated in foreign currencies are recorded in pounds sterling at the exchange rate ruling at the date of the transaction. Monetary assets and liabilities denominated in foreign currencies are translated into pounds sterling at the exchange rate ruling at the end of the reporting period. All resulting currency translation differences are recognised in profit or loss. Non-monetary assets and liabilities denominated in foreign currencies are not retranslated subsequent to initial recognition.

Translation into the Company's presentation currency

Income and expenses presented in profit or loss or other comprehensive income are translated from pounds sterling into US dollars at the average exchange rate for the reporting period. Assets and liabilities are translated from pounds sterling into US dollars at the exchange rate ruling at the end of the reporting period. All resulting currency translation differences are recognised in other comprehensive income and taken to the currency translation reserve.

Financial instruments

Cash and cash equivalents

Cash and cash equivalents comprise cash at bank and on hand and bank deposits with an original maturity of 90 days or less. Cash and cash equivalents are measured at fair value on initial recognition, less an allowance for expected credit losses, and subsequently measured at amortised cost using the effective interest method.

Amounts owed by Group undertakings

Amounts owed by Group undertakings are initially measured at fair value, less an allowance for expected credit losses, and are subsequently measured at amortised cost using the effective interest method.

Other receivables

Other receivables are measured at fair value on initial recognition, less an allowance for expected credit losses, and subsequently measured at amortised cost.

Impairment of financial assets

We recognise an allowance for credit losses in respect of financial assets that is measured as the amount of expected credit losses over the next twelve months. If, however, the risk of default has increased significantly since initial recognition, we measure the allowance as the amount of lifetime expected credit losses.

If a financial asset has no realistic prospect of recovery, it is written off, firstly against any allowance made and then directly to profit or loss. We consider that a financial asset is not recoverable if the balance owing is 180 days past due and information obtained from the counterparty and other external factors indicate that the counterparty is unlikely to pay its creditors in full. Any subsequent recoveries are credited to profit or loss.

Trade and other payables

Trade payables represent the value of goods and services purchased from suppliers for which payment has not been made. Trade and other payables are measured at fair value on initial recognition and subsequently measured at amortised cost.

Loans and borrowings

Bank and other loans are measured at fair value on initial recognition, less any directly attributable transaction costs, and are subsequently measured at amortised cost using the effective interest method.

If a loan or borrowing is subject to covenants and the Company is in breach of one or more of the covenants at the end of the reporting period, the carrying amount of the liability is classified wholly as a current liability, irrespective of any element that would otherwise be payable more than one year after the end of the reporting period.

Facility arrangement costs are amortised as a finance expense over the term of the facility.

Offsetting financial instruments

Financial assets and financial liabilities are offset and the net amount presented in the balance sheet where there is a currently enforceable legal right to offset the recognised amounts and management intends either to settle on a net basis or to realise the asset and settle the liability simultaneously.

Income taxes
Tax on the profit or loss for the year comprises current and deferred tax. Tax is recognised in the profit and loss account except to the extent that it relates to items recognised directly in equity or other comprehensive income, in which case it is recognised directly in equity or other comprehensive income. The Company has determined that the global minimum top-up tax – which is required to pay under Pillar Two legislation – is an income tax in the scope of IAS 12. The Company has applied a temporary mandatory relief from deferred tax accounting for the impacts of the top-up tax and accounts for it as a current tax when it is incurred.

Deferred tax is tax expected to be payable or recoverable on temporary differences between the carrying amount of an asset or liability in the financial statements and its tax base used in the computation of taxable profit. Deferred tax liabilities are generally recognised for all taxable temporary differences. Deferred tax assets are generally recognised for all deductible temporary differences to the extent that it is probable that taxable profits will be available in the future against which they can be utilised.

Where there is uncertainty concerning the tax treatment of an item or a group of items, the amount of current and deferred tax recognised is based on management's expectation of the likely outcome of the examination of the uncertain tax treatment by the relevant tax authorities.

Current tax and deferred tax is recognised in profit or loss unless it relates to an item that is recognised in the same or a different period outside profit or loss, in which case the related tax is also recognised outside profit or loss, either in other comprehensive income or directly in equity.

Share-based payments
As described in note 27 to the consolidated financial statements, the Company operates share-based compensation plans under which it grants options and RSUs over its ordinary shares to certain of its own employees and those of its subsidiaries. Awards granted under the existing plans are classified as equity-settled awards.

For awards granted to its own employees, the Company recognises a compensation expense that is based on the fair value of the awards measured at the grant date using an appropriate valuation model. For awards granted to the employees of a subsidiary, the Company recognises the compensation expense recognised by the subsidiary, less any amounts charged to the subsidiary, as a capital contribution to the subsidiary. In either case, the Company recognises a corresponding credit to the share-based payments reserve within equity.

In the event of the cancellation of an award by the Company or by the participating employee, the compensation expense that would have been recognised over the remainder of the vesting period is recognised immediately in profit or loss or as a capital contribution to the relevant subsidiary.

3 Directors and employees
The average number of people employed by the Company during the year was ten (2022: seven).

4 Auditor's remuneration
Fees payable to the Company's auditor, KPMG LLP, are set out in note 8 to the consolidated financial statements.

5 Cash and cash equivalents

	As at 31 December	
	2023	2022
	US$'000	US$'000
Cash at bank and in hand	**16,911**	125,729
Short-term deposits	**–**	–
Total	**16,911**	125,729

6 Amounts owed by Group undertakings
Current amounts owed by Group undertakings represent balances arising from normal course trading activities that are expected to be recovered within a year.

Non-current amounts owed by Group undertakings represent balances arising from normal course trading activities and loans to non-trading entities in respect of our acquisition of OpenFive and equity investment in WiseWave that are not expected to be recovered within a year.

7 Other receivables

	As at 31 December	
	2023	2022
	US$'000	US$'000
Current		
Restricted cash	**11,611**	13,922
Prepayments	**277**	272
	11,888	14,194
Non-current		
Restricted cash	**6,392**	17,091
	6,392	17,091

Restricted cash comprises amounts held by third-party paying agents in respect of deferred consideration and future compensation amounts payable to employees of Banias Labs conditional on their remaining in the Group's employment during the respective vesting periods, the last of which expires during 2026. Cash held by the paying agent in relation to amounts that are forfeited by the employees will be returned to the Company.

8 Investments in subsidiaries

Movements in the carrying amount of interests in subsidiaries owned directly by the Company were as follows:

	US$'000
As at 1 January 2022	22,391
Additions	240,135
Capital contributions – Share-based payments	15,695
Deferred cash rights	1,702
Foreign exchange	450
As at 31 December 2022	280,373
Capital contributions – Share-based payments	**39,757**
Deferred cash rights	**8,352**
Foreign exchange	**17,681**
As at 31 December 2023	**346,163**

During 2022, the Company acquired 100% of the share capital of Solanium Labs Ltd (Banias Labs).

9 Trade and other payables

	As at 31 December	
	2023	2022
	US$'000	US$'000
Current		
Trade payables	**1,888**	1,302
Other payables	**4,823**	6,249
Accrued expenses	**2,321**	4,849
Social security and other taxes	**(92)**	—
	8,940	12,400
Non-current		
Other payables	**1,775**	4,423

Other payables include US$4.5m (2022: US$10.5m) deferred consideration and compensation payable to employees of Banias Labs.

10 Loans and borrowings

	As at 31 December	
	2023	2022
	US$'000	US$'000
Current		
Term Loan	**5,625**	5,000
Non-current		
Revolving Credit Facility	**125,000**	110,000
Term Loan	**88,125**	93,750
	213,125	203,750

In October 2022, the Company entered into a Credit Agreement with a syndicate of banks that provided it with a US dollar-denominated Delayed Draw Term Loan B ('Term Loan') facility of US$100.0m and a multi-currency Revolving Credit Facility (RCF) of US$125.0m.

In October 2022, the Company drew the Term Loan facility in full and US$110.0m from the RCF in connection with the acquisition of Banias Labs. The Company drew the remaining US$15.0m of the RCF in May 2023.

Details of the facilities, including the repayment schedule attaching to the Term Loan and the applicable financial covenants, are set out in note 22 to the consolidated financial statements.

11 Share capital and reserves

Share capital and share premium account

Details of the Company's share capital are set out in note 26 to the consolidated financial statements.

Share capital represents the nominal value of shares in issue.

The share premium account represents the difference between the nominal value of shares in issue and the fair value of the consideration received. For 2023 the amount allocated to the share premium account is US$863,000 (2022: US$775,000). The share premium account is not distributable but may be used for certain purposes specified by United Kingdom law, including to write off expenses on any issue of shares and to pay up fully paid bonus shares.

Other reserves

Merger reserve

In May 2021, the Company purchased the entire issued share capital of Alphawave IP Inc., the Group's former parent Company, by way of an exchange of shares in a Group reorganisation that was accounted for as a merger. The merger reserve represents the excess of the nominal value of the Company's ordinary shares issued over the carrying amount of Alphawave IP Inc's net assets at the date of the reorganisation.

Share-based payment reserve

The share-based payment reserve represents the cost recognised to date in respect of share-based payment awards that have not been exercised.

Currency translation reserve

The currency translation reserve comprises gains and losses arising on the translation of the Company's results and financial position from its functional currency to its presentational currency.

Distributable profits

Profits available for distribution by the Company comprise its accumulated realised profits less its accumulated realised losses, subject to the restriction that a distribution may not reduce the Company's net assets below the aggregate of its called up share capital and its undistributable reserves.

The Directors consider that the Company's loss as at 31 December 2023 amounted to US$13.2m (2022: US$18.4m profit).

12 Share-based compensation

Details of the share-based compensation plans operated by the Company, together with information about share options exercised and outstanding, is presented in note 27 to the consolidated financial statements.

During 2023, the Company recognised an expense of US$0.9m (2022: US$0.2m) in respect of awards granted to its own employees.

13 Events after the reporting period

On 27 February 2024 Alphawave 102022 Limited was dissolved.

Related undertakings

Details of the Company's related undertakings as at 31 December 2023 are as follows:

Name	Registered address	Country
Subsidiaries		
Alphawave IP Inc.	70 University Ave, 10th Floor, Toronto, Ontario, Canada M5J 2M4	Canada
Alphawave Semi US Corp. (formerly Alphawave IP Corp.)	1730 N 1st St, Suite 650, San Jose, CA, 95112	United States (Delaware)
Alphawave IP (BVI) Ltd.[1, 2]	Trinity Chambers, PO Box 4301, Road Town, Tortola	British Virgin Islands
Alphawave Call. Inc.[1, 2]	70 University Ave, 10th Floor, Toronto, Ontario, Canada M5J 2M4	Canada
Alphawave Exchange Inc.	70 University Ave, 10th Floor, Toronto, Ontario, Canada M5J 2M4	Canada
Alphawave IP Limited[1]	21 Avenida da Praia Grande, No 409, Edificio China Law, 21 andar, em, Macau	China
Precise-ITC, Inc.	170 University Avenue, 10th Floor, Toronto, Ontario, M5H 3B3	Canada
AWIPInsure Limited[1]	1st Floor, Limegrove Centre, Holetown, St. James	Barbados
Alphawave Semi International Corp. (formerly Alphawave Holdings Corp.)[1]	1730 N 1st St, Suite 650, San Jose, CA, 95112	United States (Delaware)
Alphawave Semi Inc. (formerly Open-Silicon, Inc.)	490 N McCarthy Blvd #220, Milpitas, CA 95035	United States (Delaware)
Alphawave Semiconductor Corp	1730 N 1st St, Suite 650, San Jose, CA, 95112	United States (Delaware)
Alphawave Semi Holding Corp (formerly Open-Silicon Holding Corp.)	3rd Floor, Les Cascades, Edith Cavell Street, Port Louis	Mauritius
Open-Silicon Development Corp.[2]	490 N McCarthy Blvd #220, Milpitas, CA 95035	United States (Delaware)
Open-Silicon Engineering, Inc.[2]	490 N McCarthy Blvd #220, Milpitas, CA 95035	United States (Delaware)
Open-Silicon International, Inc.[2]	490 N McCarthy Blvd #220, Milpitas, CA 95035	United States (Delaware)
Open-Silicon Japan[2]	c/o Akia Tax Consultants, Shoei Kannai Building, 22, Sumiyoshicho 2-chrome, Naka-ku, Yokohama, Kanagawa	Japan
Alphawave Semi India Pvt Ltd (formerly Open-Silicon Research Private Ltd)	No. 11/1 & 12/1 Maruthi Infotech Centre, 2nd Floor, B-Block, Indiranagar, Koramangala Intermediate Ring Road, Bangalore – 560 071.	India
Alphawave Semi Nanjing Co Ltd (formerly Yuanfang Silicon Technology (Nanjing) Co. Ltd)	Room 101, Building B, No. 300, Zhihui Road, Qilin Science and Technology Innovation Park, Jiangning District, Nanjing	China
Alphawave Semi Asia Co. Ltd	Room 702-703, Building 8, Lane 777, Gaoke East Road, Pudong New Area, Shanghai	China
Alphawave 102022 Limited (dissolved)[1,2]	65 Gresham Street, 6th Floor, London, England, EC2V 7NQ	United Kingdom, (England & Wales)
Solanium Labs Ltd[1]	24 Hanagar, Hod HaSharon 4527713	Israel
Joint venture		
WiseWave Technology Co., LTD[1,3]	Room 105, No. 6, Baohua Road, Hengqin New District, Zhuhai	China

All subsidiaries are wholly owned.

Owned directly by Alphawave IP Group plc.

Dormant.

Joint venture in which the Group has a 42.5% ownership interest and voting rights.

APPENDIX

TCFD Compliance Table

Disclosure	Response
Governance - Compliant	
a. Describe the board's oversight of climate-related risks and opportunities.	Page 18, Governance – page 17
b. Describe management's role in assessing and managing climate-related risks and opportunities.	Page 18, Governance – page 17
Strategy - Partially compliant	
a. Describe the climate-related risks and opportunities the organisation has identified over the short, medium and long term.	See Risks and Opportunities tables on pages 19-20
b. Describe the impact of climate-related risks and opportunities on the organisation's business, strategy and financial planning.	Dependency on natural, social and human capital – page 20
Strategy – page 17	
c. Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2ºC or lower scenario.	We have not performed a quantitative risk assessment or climate-related scenario analysis. In 2024 we will evaluate the additional requirements and associated costs to assess the resilience of the organisation under different climate-related scenarios. Following this evaluation we will make a decision on whether a quantitative risk assessment should be prioritised and the timing if appropriate.
Risk Management -Compliant	
a. Describe the organisation's processes for identifying and assessing climate-related risks.	Risk Management – Page 19
b. Describe the organisation's processes for managing climate-related risks.	See Risks and Opportunities tables on pages 19-20
c. Describe how processes for identifying, assessing and managing climate-related risks are integrated into the organisation's overall risk management.	Risk Management – Page 19
Metrics and Targets - Compliant	
a. Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.	Metrics and Targets – Page 18-19
b. Disclose Scope 1, Scope 2, and if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.	Table – Page 18-19
c. Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.	Metrics and Targets – Pages 18 and 19

Companies Act climate-related reporting requirements

1. A description of the company's governance arrangements in relation to assessing and managing climate-related risks and opportunities;	See page 17 – Governance
2. A description of how the company identifies, assesses and manages climate-related risks and opportunities;	See page 19 – Risk Management
3. A description of how processes for identifying, assessing and managing climate-related risks are integrated into the company's overall risk management process;	See page 19 – Risk Management
4. A description of: i. the principal climate-related risks and opportunities arising in connection with the company's operations; and ii. the time periods by reference to which those risks and opportunities are assessed;	See Risks and Opportunities tables on pages 18 – 19
5. A description of the actual and potential impacts of the principal climate-related risks and opportunities on the company's business model and strategy;	See page 17,18 – Strategy
6. An analysis of the resilience of the company's business model and strategy, taking into consideration different climate-related scenarios;	See pages 18,19 – Metrics and targets

7. A description of the targets used by the company to manage climate-related risks and to realise climate-related opportunities and of performance against those targets; and	See page 18 – Metrics and targets
8. A description of the key performance indicators used to assess progress against targets used to manage climate-related risks and realise climate-related opportunities and of the calculations on which those key performance indicators are based.	See page 18 – Metrics and targets