

# Corporate Presentation

October 2023

# Forward-Looking Statement

Certain statements included herein may constitute forward-looking statements within the meaning of the securities laws of certain jurisdictions. Certain such forward-looking statements can be identified by the use of forward-looking terminology such as "believes", "expects", "may", "are expected to", "intends", "will", "will continue", "should", "would be", "seeks", "anticipates" or similar expressions or the negative thereof or other variations thereof or comparable terminology. These forward-looking statements include all matters that are not historical facts. They include statements regarding Alphawave IP Group Plc's ("Alphawave IP") intentions, beliefs or current expectations concerning, amongst other things, its results in relation to operations, financial condition, prospects, growth, strategies and the industry in which it operates. By their nature, forward-looking statements involve risks and uncertainties because they relate to events and depend on circumstances that may or may not occur in the future. Forward-looking statements are not guarantees of future performance and Alphawave IP's actual results of operations, financial condition, and the development of the industry in which it operates, may differ materially from those made in or suggested by the forwardlooking statements contained in this Presentation. In addition, even if Alphawave IP's results of operations, financial condition, or the development of the industry in which it operates are consistent with the forward-looking statements contained in this Presentation, those results or developments may not be indicative of results or developments in subsequent periods. Important factors that could cause those differences include, but are not limited to customer demand, Alphawave IP's innovation and R&D and technology capabilities, target market trends, industry trends, customer activities and end-market trends, market acceptance of Group technologies; increased competition; macroeconomic conditions; changes in laws, regulations or regulatory policies; and timing and success of strategic actions. These forward-looking statements speak only as of the date of this Presentation. As such, undue reliance should not be placed on forward-looking statements. Other than in accordance with legal and regulatory obligations, Alphawave IP undertakes no obligation to publicly update or revise any forwardlooking statement, whether as a result of new information, future events or otherwise.



## Founding Team and Track Record

### Alphawave Semi's Founding Team Has Supplied Connectivity Solutions For Global Tier-One Customers Since 1998

#### **Experienced Founding Management Team**

#### JOHN LOFTON HOLT

Executive Chairman, Founder

# Spowbush IP

achronix \$3

HOLT BROTHERS

Capital Partners

 >20 years of executive and investment experience

#### **TONY PIALIS**

Chief Executive Officer, President. Founder





 >20 years of executive experience

#### JONATHAN ROGERS

SVP Engineering, Founder







 >20 years of executive experience



Snowbush IP

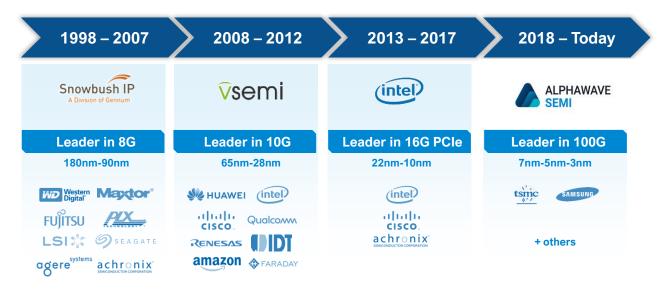




 >20 years of executive experience

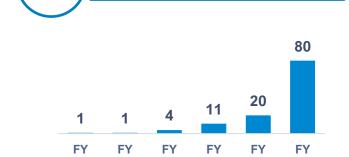
#### Swift Success at Alphawave Underpinned by a >20 Year Track Record

- ✓ Members of the Management team have worked together for nearly two decades
- ✓ Technical team has developed in every advanced technology from 180nm → 3nm
- ✓ Communications products shipped to Tier-One customers globally since 1998.
- ✓ Founders have raised and deployed \$300M across four successful semiconductor companies that have generated nearly \$3B of value since 2004





# Focused on Delivering Results Since IPO...

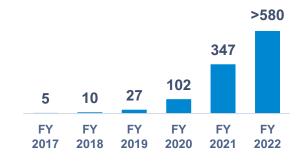


2019

End Customers<sup>1,2</sup>

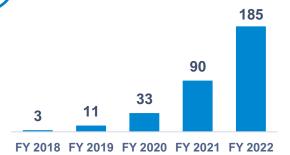


### Cumulative Bookings<sup>2</sup> (US\$m)





#### Revenue (US\$m)<sup>2</sup>

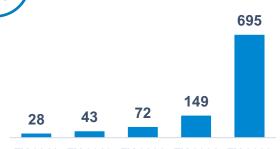




2017

#### **Employees<sup>2</sup>**

2018



2021

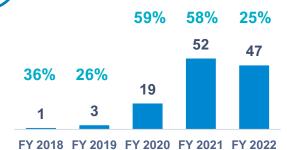
2020

2022

FY 2018 FY 2019 FY 2020 FY 2021 FY 2022

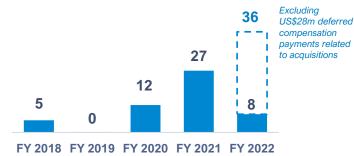


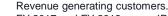
#### Adjusted EBITDA<sup>2</sup> (US\$m) & Margin





#### Pre-tax Operating Cash Flow<sup>2</sup> (US\$m)

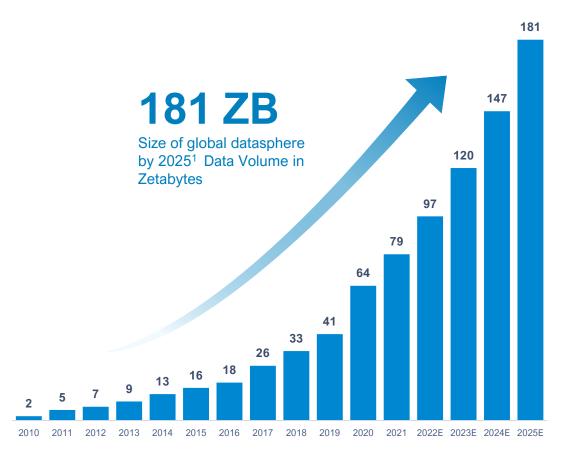


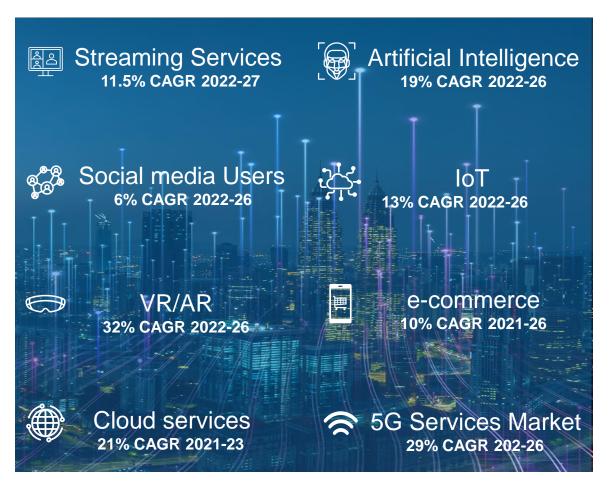


FY 2017 and FY 2018 as per IPO prospectus.

# The Age of Exponential Data Growth

More Sensors, Devices, Images and Multimedia... More Enterprise Data

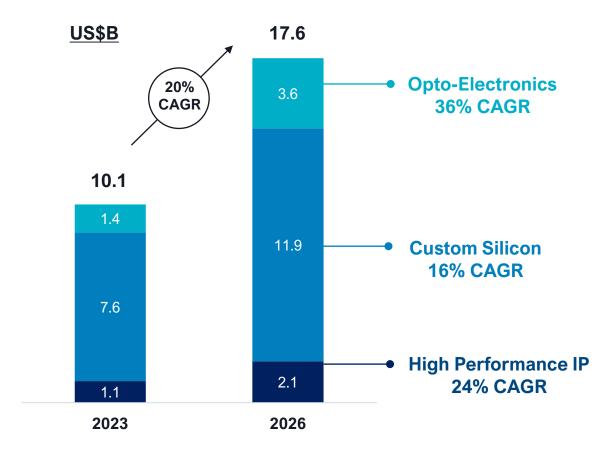




<sup>&</sup>lt;sup>1</sup> The Data Center Journey, From Central Utility To Center Of The Universe (semiengineering.com). Source Statista See slide 93 for all other references



# Addressable Market Expanding to \$18B by 2026



#### **Market Drivers**

- Digitalisation drives exponential growth in data
- Data bandwidth doubles every 2-3 years driving a technology refresh of switches and transceivers
- High-speed and power-efficient connectivity technology is a key enabler
- Hyperscalers investing through the economic cycle



Semico Research Corporation, December 2022, IPNest and Lightcounting



# Alphawave Technology Strengths

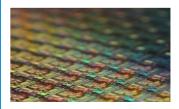
# **Leading Edge Capabilities and Technologies to Deliver the Fastest Connectivity Solutions**

## High-Speed Connectivity IP



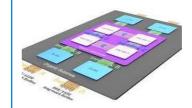
- 224Gbps,112Gbps, chiplets
- #1 TSMC OIP partner 2020-2022
- 2022 Samsung Best Collaboration Award

#### **Advanced Silicon**



• First in 7nm, 6nm, 5nm, 4nm and 3nm

#### Chiplet – Package Design



- Deep expertise in chiplet packages design
- 2.5D and 3D package designs in production

#### **Opto-Electronics**



- PAM4, Coherent DSPs, and silicon photonics for 1.6T Ethernet
- 224Gbps photonics in silicon





# Data Connectivity Everywhere

### Our Expertise is in The Circuits and Systems Required to Communicate Data...

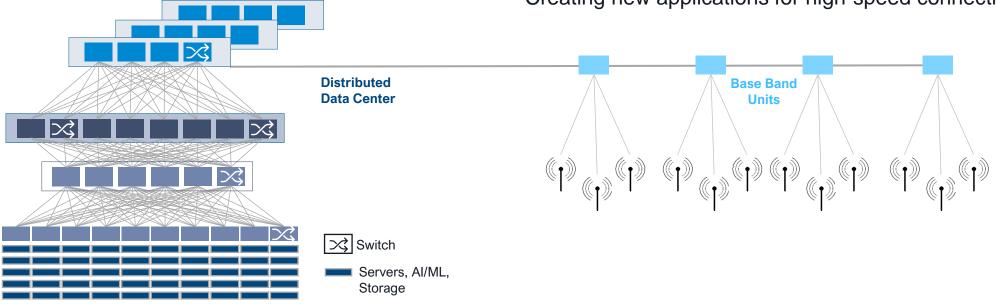
...Whether separated by kilometres of optical fibre or meters of copper cable, sub-millimetre printed wiring, the start- and end-points of data are silicon chips

#### Inside Data Centers...

 Up to 76% of all data centre internet traffic traverses internally within data centres

### ...and at the Edge (5G rollout a major driver)

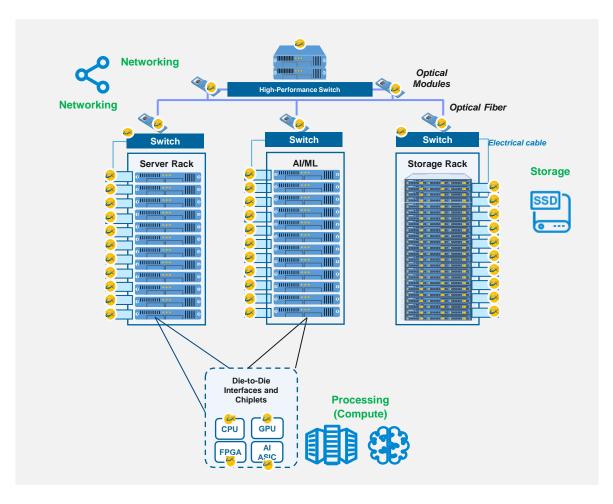
- Placing application-specific compute close to the sources of data
- Creating new applications for high-speed connectivity





# Our Technology Enables High-Speed Data Transmission

### **In Key Applications Inside Data Centers**



# Semiconductors are at the start and end points of any transmission of data

	Applications	Where
Processing (Compute)	CPU, GPU, FPGA, AI	In Servers and AI/ML racks
Networking	Network cards (NICs), Switch, optical modules and cabling	In servers and Al/ML racks, switches, optical modules, and cabling
Storage	Solid State Drives (SSD), Flash Memory, Hard Disk Drives (HDD)	In storage rack



# **Key Technology Trends**

# Optics Getting Closer to The End Points

Increasing use of optical cables over copper and co-packaged optics for lower cost, power and latency

### **Coherent Optical**

Increasing use of coherent optical communication inside data centers to overcome the bandwidth limitations of optical components

#### **Disaggregated Computing**

Disaggregation of compute and storage to increase efficiency

#### **Advances on CMOS Technology**

Higher development and manufacturing costs of high-end semiconductors

#### Chiplet

Emergence of the chiplet design paradigm



# Long-Term Technology Trends

### **Today**

- Emphasis on using copper connectivity wherever possible to keep costs low
- Computer and system designers select packaged electronic parts and wire them together on a custom circuit board
- Global and interconnected supply chain

#### 10 Years

- Ubiquitous use of low-cost optical connectivity solutions, even over short reaches
- Complete systems
   designed and made by
   packaging multiple
   standard silicon chiplets
   within a few centimetres
- Complete on-shore ecosystem for integrated circuits, chiplets, advanced packaging

# Alphawave Semi is well-positioned to:

Extend and expand technology leadership

Deliver solutions for emerging optical connectivity

Offer complete custom silicon expertise and chiplet IP

Leverage solid relationships with major western companies and governments



### **Drivers of Our Vision and Ambition**



### **Building a Leading Connectivity Business**



Land and Expand



High-Performance
Silicon IP and Products

People and culture



Vertically Integrated



# **Building a Leading Connectivity Business**



# High-Performance Silicon IP and Products

- Leading edge connectivity IP
- Delivering the fastest connectivity solutions
- Complete set of products and expertise aligned to long-term market trends



### Vertically Integrated

- Monetising our IP through IP licences, custom silicon and connectivity products
- Greater scale
- Enhanced competitive position



### People and Culture

- Technology-centric, open and diverse culture fosters innovation
- Approximately 700 employees
- Key design centres in Canada, US, Israel and India



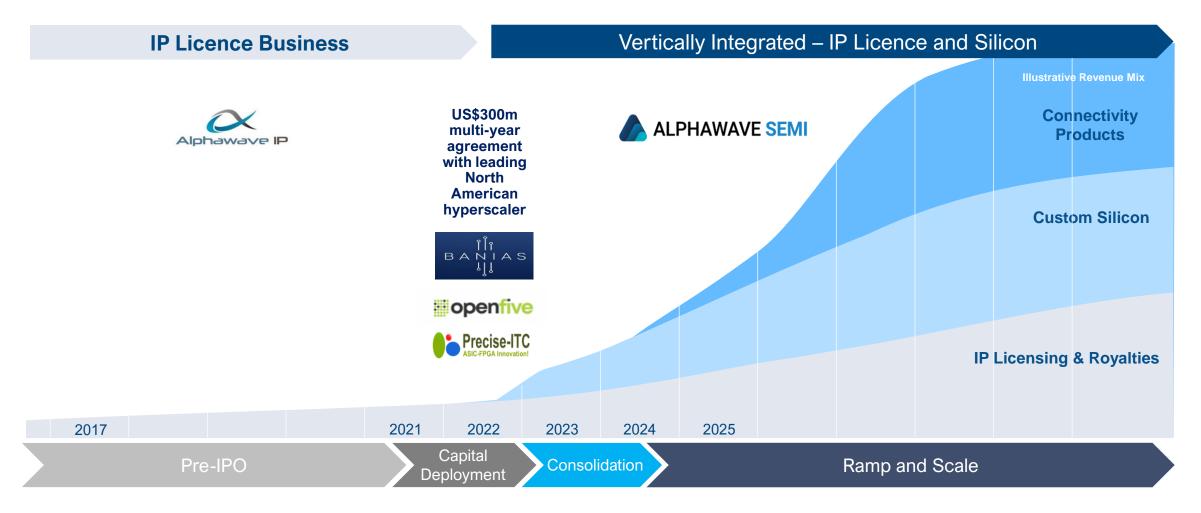
### Land & Expand

- Adding value to customers by servicing more of their connectivity needs
- Growing opportunity with large cloud, wireless infrastructures and hyperscalers
- Collaborative approach with customers promotes innovation



# Leading Connectivity Technology for Digital Infrastructure

**Vertically Integrated - Monetising our IP Through IP Licence and Silicon** 





# Growth Strategy Built on a Broad Product Portfolio

### **Leading Connectivity IP and Silicon**

### **Connectivity Silicon IP**



Networking, Optical, Compute, Storage, AI, CPU, 5G Infrastructure, Automotive

#### **Custom Silicon**



Bespoke silicon to customers' requirements incorporating our Connectivity IP

### **Connectivity Products**



High bandwidth, advanced node optical and electrical networking products

First revenue 2024

**PAM4 & Coherent Transceivers** 

>230 IPs and partnered with TSMC, Samsung, Intel 85 revenue generating end customers

### Leveraging our IP



# Connectivity Silicon IP

**Servers and Storage** 



High-speed Interface IP for data centre compute – CPU, GPU, AI & FPGA

PCIe Gen6 / CXL 3.0



**Networking** 



Interface IP for Networks – Switches, Routers, DPUs, NICs

400G, 800G, 1.6T Ethernet



**Memory** 



Memory Interface IP for DRAMs & HBM – CPU, GPU, AI, FPGA, DPUs

HBM, LPDDR, DDR



**Chiplets** 



Chiplet Interface IP 2.5D and 3DIC

**UCIe, BOW, Open-HBI** 





## **Custom Silicon**

### Silicon Proven Solutions Leveraging Our High-Performance IP



### **Custom Silicon Expertise**

- Experienced engineering teams and advanced packaging expertise (2.5/3D)
- Reliable operations and partnerships
- Proven design flow and methodology for leading nodes
- Application optimized IP sub-systems





#### Silicon IP



>155 IPs and partnered with TSMC, Samsung, Intel

- PCIe/CXL
- 224G/ 112G
- Ethernet
- HBM, LPDDR, DDR
- Die-to-Die Chiplets
- RiscV

## Strong Partnerships Across the Supply Chain



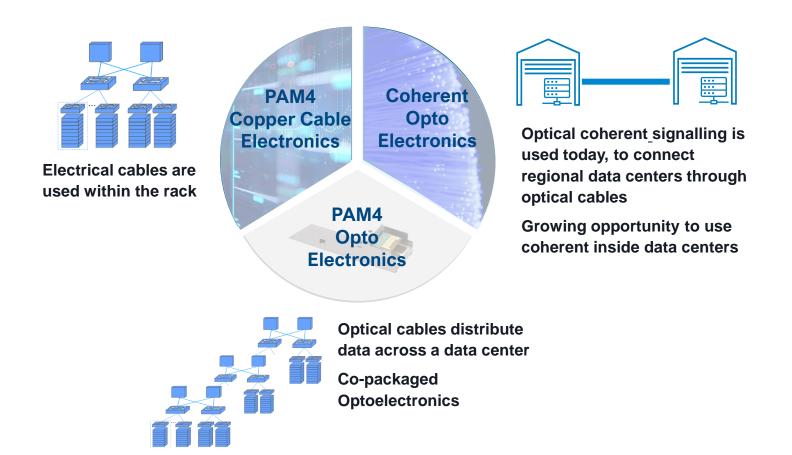


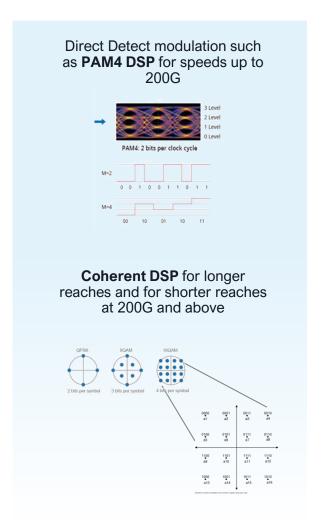




# **Connectivity Products**

### Full Range of PAM4 and Coherent DSPs – Electrical and Optical

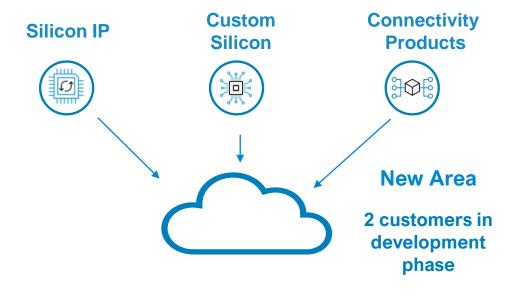






# Adding Value to Customers - Land & Expand

### **Servicing More Connectivity Requirements**



Number of Revenue
Generating End-Customers

20 85

FY 2021 H1 2023

- Technology refresh/upgrade provide an opportunity to work with new customers
- Once technology is qualified and deployed is easier for customers to increase adoption
- Close R&D collaboration with customers drives product development
- Hyperscaler multi-year agreement provides unique platform to develop new products and scale the business



# People and Culture

### Attracting Talent and Creating an Environment to Foster Leading Innovation

- Attracting and retaining talent:
  - Employee share ownership aligned to shareholder's interests
  - Working on leading edge technology
  - Supporting employees' wellbeing through period of accelerated business expansion
- Technology-centric culture focused on solving the hardest challenges
- Promoting an open and diverse environment to foster innovation





~20% Female





## Our Commitment to ESG

### **Building the Team to Support a Responsible Business Expansion**

ESG Steering Group to drive improvements and long-term sustainability strategy



- Our products contribute to more sustainable data centers
- Fabless business model with relatively lower carbon footprint
- Ongoing commitment to actively manage and reduce our carbon footprint
- Environmental disclosures following TCFD recommendations



### **Social**

- Talent identification and retention programme
- Commitment to Diversity & Inclusion
- Corporate values fostering innovation and the next wave of innovators
- University Relations, Internships, and Community Engagement programme



### Governance

- Responsible Company adhering to high standards as per our Code of Ethics and Business Conduct
- Increasing focus on Supply Chain Governance
- Head of Governance driving further improvements



# Recent Company Announcements

Alphawave Semi Announces Appointment of Rahul Mathur as Chief Financial Officer

10.23.2023

Alphawave Semi Elevates Chiplet-Powered Silicon Platforms for Al Compute through Arm Total Design

10.17.2023

Alphawave Semi Announces Appointment of David Reeder to Board of Directors

09.01.2023

Alphawave Semi Spearheads Chiplet-Based Custom Silicon for Generative AI and Data Center Workloads with Successful 3nm Tapeouts of HBM3 and UCIe IP

07.10.2023

Alphawave Semi Expands Collaboration with Samsung, Adds 3nm Connectivity IP to Meet Accelerated AI and Data Center Demand

06.14.2023

Alphawave Semi Showcases 3nm Connectivity Solutions and Chiplet-Enabled Platforms for High Performance Data Center Applications

04.25.2023



# Outlook Unchanged

US\$	2023 <sup>1</sup>	2025
Revenues	\$340-360m	\$500m
Gross margin		c.60%
Opex %		c.30%
R&D %		Below 20%
Adjusted EBITDA <sup>1</sup>	Approx. \$87m	Approx. \$150m
Adjusted EBITDA %	c. 25%	c.30%
Capex (exc. Cap R&D)	c. 12%	c. 10%

#### H<sub>1</sub> 2023

- Depreciation and amortisation US\$13.3m
- Share-based payments US\$18.5m
- Deferred compensation US\$4.1m
- Capex US\$14.6m or 8% of revenue
- Capitalised R&D of US\$24.7m or 13% of revenue

<sup>1 2023</sup> assumes mid-point of the guidance range and 25% adjusted EBITDA margin; 2025 assumes US\$500m revenue and 30% adjusted EBITDA margin

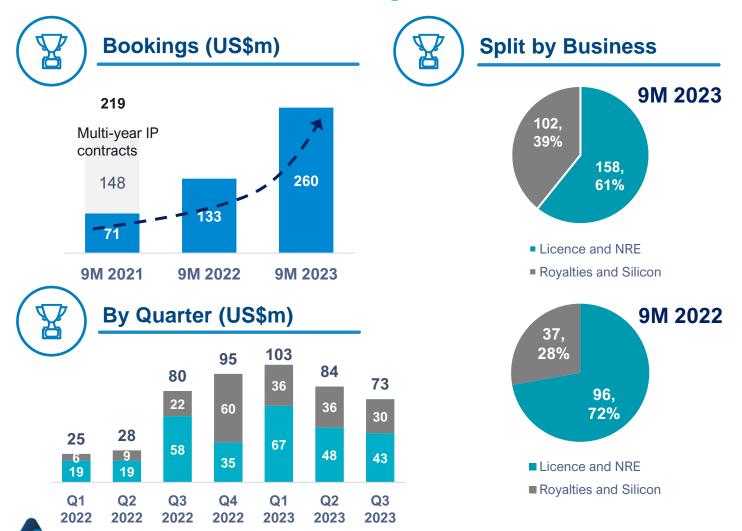




Bookings 9M 2023

# 9M 2023 Bookings up 95% Year-on-Year

### Almost 80% of IP & NRE Bookings in Advanced Nodes



■ Royalties & Silicon

■ Licence & NREs

#### **Licence & NRE**

- Main contribution from North American customers
- Increased contribution from APAC and EMEA
- Custom silicon NRE booking of over US\$20m slipped into Q4 2023
- First 3nm custom silicon design win with 224G Ser-Des IP enabling 800G/1.6T connectivity
- Design win with a leading APAC customer for our leading Gen6 PCIe SerDes and Controller IP

#### **Royalties & Silicon**

 Mainly driven by orders from legacy Chinese customers



Financial Results
H1 2023

# H1 2023 Highlights

Bookings

**US\$187m** 

H1 2022: US\$53m

Revenue

**US\$187m** 

H1 2022: US\$57m

Adjusted EBITDA<sup>1</sup>

**US\$32m** 

H1 2022: US\$23m

**Design Wins** 

16

H1 2022: 13

**End-Customers** 

85

FY 2022: 80

H1 2022: 28

**Employees** 

744

FY 2022: 695

H1 2022: 251

1 See slide 36 for reconciliation of non-GAAP metrics



# H1 2023 Highlights

Backlog<sup>1</sup>

**US\$365m** 

Dec 2022: US\$365m

Bookings

**US\$187m** 

H1 2022: US\$53m

Revenue

**US\$187m** 

H1 2022: US\$57m

Adjusted EBITDA

**US\$32m** 

H1 2022: US\$23m

Pre-Tax Operating Cash Flow

US\$(31)m

H1 2022: US\$32m

Cash and Cash Equivalents

**US\$123m** 

H1 2022: US\$452m

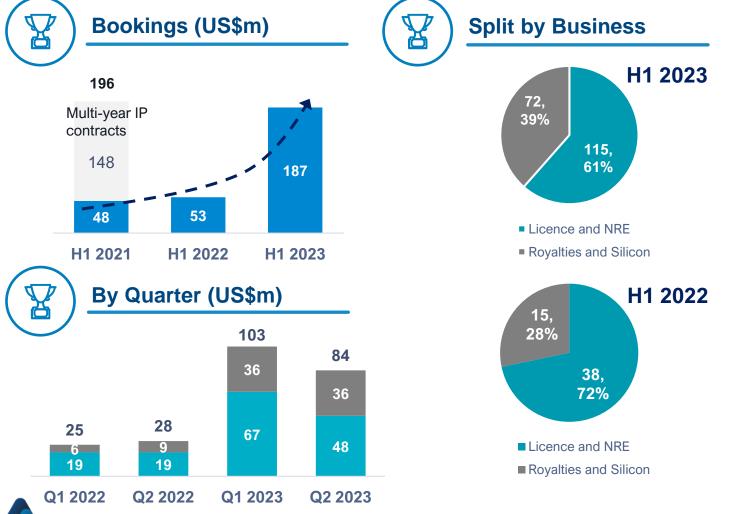


# H1 2023 Bookings up 251% Year-on-Year

### 75% of IP & NRE Bookings in Advanced Nodes

■ Royalties & Silicon

■ Licence & NREs



#### **Licence & NRE**

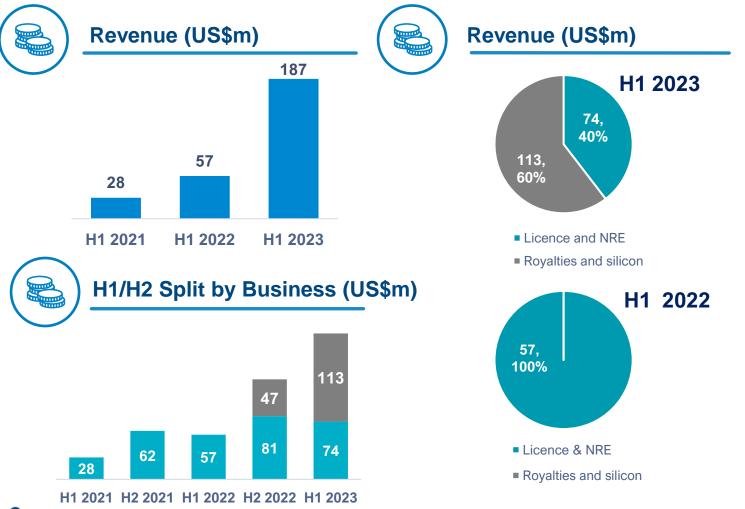
- Main contribution from North
  American customers
- Increased contribution from EMEA and APAC
- First 3nm custom silicon design win with 224G Ser-Des IP enabling 800G/1.6T connectivity
- Design win with a leading APAC customer for our leading Gen6 PCle SerDes and Controller IP

### **Royalties & Silicon**

 Mainly driven by orders from Chinese and North American customers

# H1 2023 Revenue up 228% Year-on-Year

### Revenue Outside of China US\$63m up 79% Year-on-Year



■ Royalties and silicon

#### **Licence & NRE**

Growth mainly driven by multiyear contracts

### **Royalties & Silicon**

 Approximately ¾ from Chinese customers related to preexisting custom designs in production

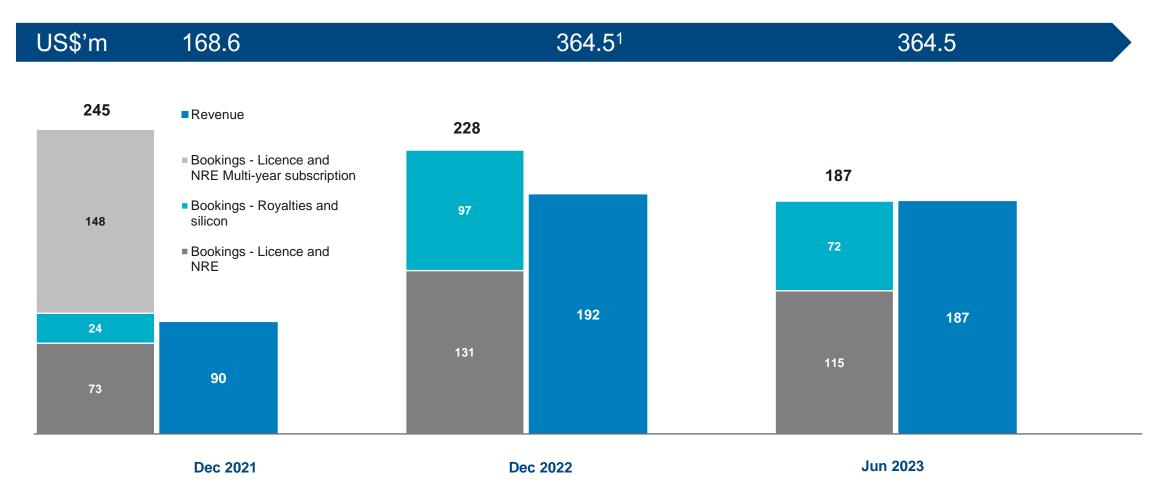
North America +134% YoY

H1 2023 Gross margin at 44% reflects business mix including legacy silicon revenue from OpenFive

Licence and NRE

# Backlog US\$366m

### Large Diverse Backlog Drives Stability and Predictability With 18+ Months of Visibility



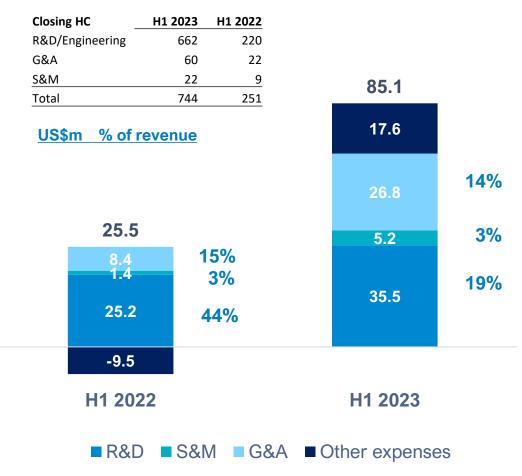




# Investing In Future Revenue Growth

### **Operating Expenses Reflect Increased Headcount**

- Increased headcount from 251 to 744
  - Approximately 350 employees from the acquisitions of OpenFive and Banias Labs
- R&D increased headcount and some additional IT/SW tooling required
  - US\$24.7m R&D expenses capitalised in H1 2023 (H1 2022: US\$nil)
  - US\$6.3m amortisation of acquired intangibles
- G&A building finance, legal and HR functions
  - Includes US\$4.1m of deferred compensation payments related to acquisitions
- Other expenses/(income) in H1 2022 include a US\$19.3m exchange gain
  - H1 2023 SBP US\$18.5m (H1 2022: US\$7.2m)



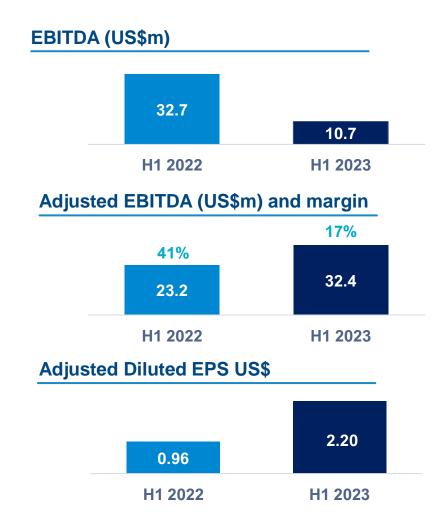
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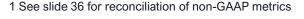


# Higher Adjusted EBITDA Reflects Increasing Scale

### Adjusted EBITDA Margin Reflects Business Mix and Investment in Growth

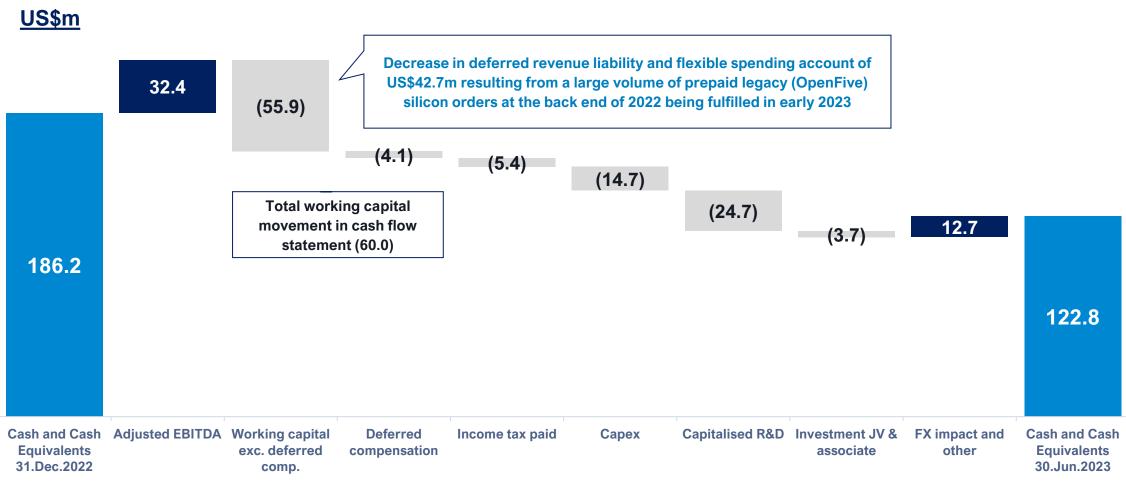
- EBITDA¹ in H1 2022 included US\$19m exchange gain
- Adjusted EBITDA of US\$32.4m, 40% over H1 2022
- Adjusted EBITDA margin of 17% reflects:
  - Acquired legacy custom silicon revenue at low margin
  - Investment in capabilities to support our pipeline of opportunities
- Adjusted diluted EPS of \$2.20
  - Higher adjusted operating profit
  - Higher share count







## H1 2023 Cash Flow Bridge



Due to rounding, numbers presented in the chart may not add up to the totals provided.



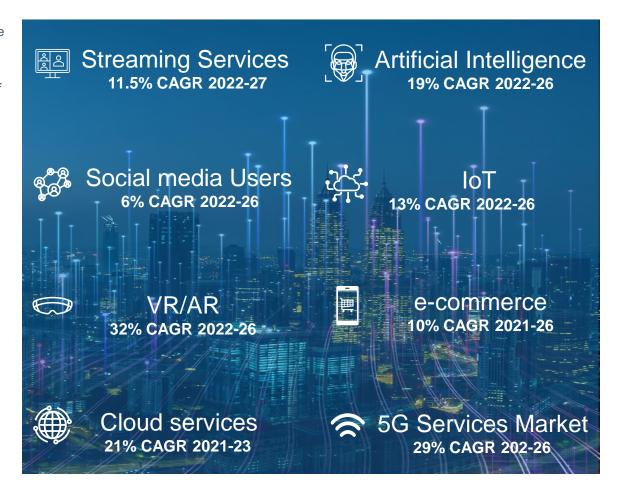


# Appendix

### References Slide 4

- Streaming Services <u>Video Streaming (SVoD) Global | Statista Market Forecast Revenue</u> is expected to show an annual growth rate (CAGR 2022-2027) of 11.48%, resulting in a projected market volume of US\$139.20bn by 2027
- Social Media Users Number of worldwide social network users 2027 | Statista Number of users from 4.26 billion in 2021 to almost six by 2027
- VR/AR IDC Spending Guide Forecasts Strong Growth for Augmented and Virtual Reality
   The five-year compound annual growth rate (CAGR) for AR/VR spending will be 32.3%.

   Virtual reality will account for more than 70% of all AR/VR spending throughout the 2022-2026 forecast
- Cloud Services Gartner Forecasts Worldwide Public Cloud End-User Spending to Reach Nearly \$500 Billion in 2022\_2021:\$419m 2023 \$600m
- Al <u>IDC</u> Forecasts 18.6% Compound Annual Growth for the Artificial Intelligence Market in 2022-2026
- IoT https://www.statista.com/statistics/1183457/iot-connected-devices-worldwide/
- **e-commerce** Global Ecommerce Growth Forecast 2022 | Morgan Stanley Over the long term, the e-commerce market has plenty of room to grow and could increase from \$3.3 trillion today to \$5.4 trillion in 2026.
- 5G Services Market Global 5G Services Market Size is Anticipated to Reach
   (globenewswire.com) The global size to grow from USD 53.0 billion in 2020 to USD 249.2
   billion by 2026, at a Compound Annual Growth Rate (CAGR) of 29.4% during the forecast period.





## Non-GAAP Metrics

# See note 4 to the accounts Alternative Performance Measures FY 2022 Preliminary Results Report and FY 2021 Annual Report at https://www.awaveip.com/en/investors/results-reports-presentations/

	Year ended 31 December	Year ended 31 December
	2022	2021
	US\$m	US\$m
Backlog (end of the prior year)	168.6	37.3
Add: New bookings excluding IP royalties	213.0	220.8
Add: Backlog acquired with OpenFive and Precise-ITC	176.5	_
Less: Revenues recognised in the period <sup>1</sup>	(192.4)	(89.4)
Backlog (end of the year)	365.8	168.6
Operating profit to EBITDA reconciliation		
	Year ended	Year ended
	31 December 2022	31 December 2021
	US\$'000	US\$'000
Operating profit	45,021	36,035
Add backs:		
Depreciation of tangible fixed assets and right-of-use assets	5,508	3,127
Amortisation	5,769	_
EBITDA	56,298	39,162
	Year ended	Year ended
	31 December	31 December
	2022 US\$'000	2021 US\$'000
EBITDA	56,298	39,162
Add backs:		
Non-recurring Initial Public Offering costs	_	9,961
M&A-related costs	16,973	533
Share-based payment	15,695	6,143
Exchange gain	(36,838)	(4,023)
Retention payments	1,703	
Adjusted EBITDA	53,831	51,776

Profit for the year to adjusted profit after tax reconciliation		
	Year ended 31 December 2022 US\$'000	Year ended 31 December 2021 US\$'000
Profit for the year	6,483	9,431
Add backs:		
Non-recurring Initial Public Offering costs	_	9,961
M&A-related costs	16,973	533
Share-based payment	15,695	6,143
Exchange gain	(36,838)	(4,023)
Retention payments	1,703	_
Amortisation of acquired intangibles	5,129	_
Adjusted profit for the year	9,145	22,045
Adjusted profit per ordinary share attributable to the shareholders (expressed in ce	nts per ordinary share)	
	Year ended 31 December 2022	Year ended 31 December 2021
Adjusted basic earnings per share (US\$ cents)	1.35	3.52
Adjusted diluted earnings per share (US\$ cents)	1.21	3.14



## Non-GAAP Metrics

# See note 4 to the accounts Alternative Performance Measures H1 2023 Results Report at https://www.awaveip.com/en/investors/results-reports-presentations/

	Six months ended 30 June	Year ended 31 December
	2023	2022
	US\$m	US\$m
Backlog (end of the prior year)	364.5	168.6
Add: New bookings excluding IP royalties	187.2	213.0
Add: Backlog acquired with OpenFive and Precise-ITC	-	168.3
Less: Revenues recognised in the period <sup>1</sup>	(187.2)	(185.4)
Backlog (end of the period)	364.5	364.5

#### Operating profit to EBITDA reconciliation

	Six months	Six months
(US\$'000)	ended 30 June 2023	ended 30 June 2022
Operating (loss)/profit	(2,580)	29,898
Add backs:		
Depreciation and amortisation	13,307	2,839
EBITDA	10,727	32,737

#### EBITDA to adjusted EBITDA reconciliation

(US\$'000)	Six months ended 30 June 2023	Six months ended 30 June 2022
EBITDA	10,727	32,737
Add backs:		
Non-recurring M&A-related (income)/costs	(263)	2,537
Share-based payment	18,502	7,192
Exchange gain	(592)	(19,271)
Retention payments	4,069	-
Adjusted EBITDA	32,443	23,195

#### Profit after tax to adjusted profit after tax reconciliation

(US\$'000)	Six months ended 30 June 2023	Six months ended 30 June 2022
Profit after tax	(13,431)	16,252
Add backs:		
Non-recurring M&A-related (income)/costs	(263)	2,537
Share-based payment	18,502	7,192
Exchange gain	(592)	(19,271)
Retention payments	4,069	-
Amortisation of acquired intangibles	6,328	-
Tax effect of above adjustments	823	
Adjusted profit after tax	15,436	6,710

Adjusted profit per ordinary share attributable to the shareholders (expressed in cents per ordinary share)

	Note	Six months ended 30 June 2023	Six months ended 30 June 2022
Adjusted basic earnings per share	13	2.20	1.00
Adjusted diluted earnings per share	13	2.20	0.96



### Non-GAAP Metrics

See note 4 to the accounts Alternative Performance Measures H1 2022, FY 2022 and H1 2023 at https://www.awaveip.com/en/investors/results-reports-presentations/

- Bookings are a non-IFRS measure representing legally binding and largely non-cancellable commitments by customers to license our technology. Bookings comprise licence fees, non-recurring engineering, support and, in some instances, our estimate of potential future royalties.
- Backlog is a non-IFRS measure representing our bookings less revenues recognised to date.

