



# Corporate Presentation

June 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 forward-looking 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 forward-looking statement, whether as a result of new information, future events or otherwise.



# Founding Team and Track Record

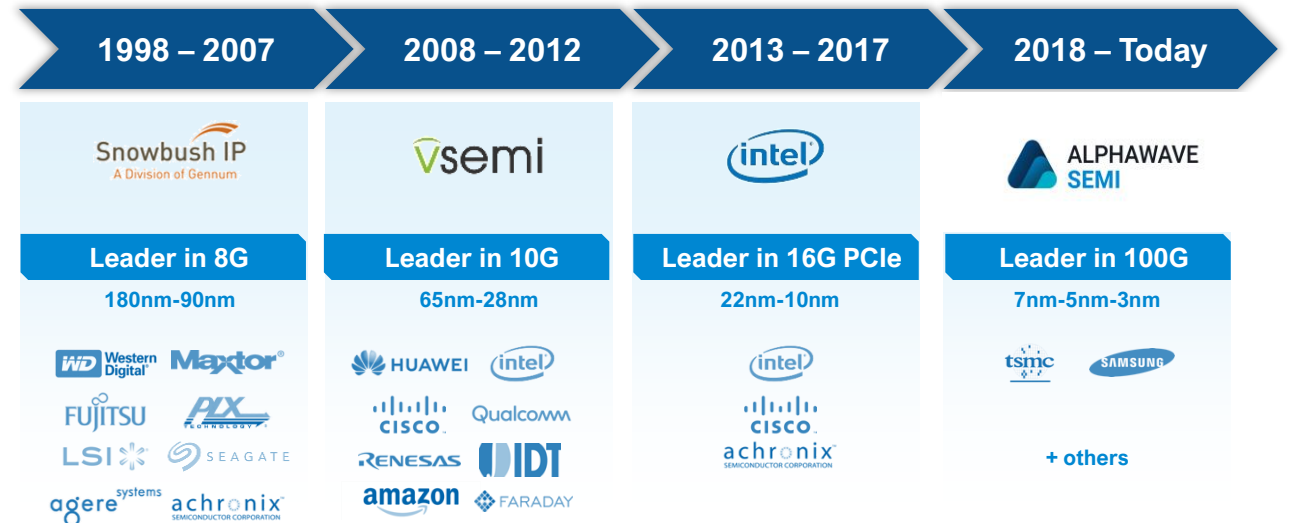
## Alphawave Semi's Founding Team Has Supplied Connectivity Solutions For Global Tier-One Customers Since 1998

### Experienced Founding Management Team

<p><b>JOHN LOFTON HOLT</b> Executive Chairman, Founder</p>		<ul style="list-style-type: none"> <li>&gt;20 years of executive and investment experience</li> </ul>
<p><b>TONY PIALIS</b> Chief Executive Officer, President, Founder</p>		<ul style="list-style-type: none"> <li>&gt;20 years of executive experience</li> </ul>
<p><b>JONATHAN ROGERS</b> SVP Engineering, Founder</p>		<ul style="list-style-type: none"> <li>&gt;20 years of executive experience</li> </ul>
<p><b>RAJ MAHADEVAN</b> SVP Operations, Founder</p>		<ul style="list-style-type: none"> <li>&gt;20 years of executive experience</li> </ul>

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

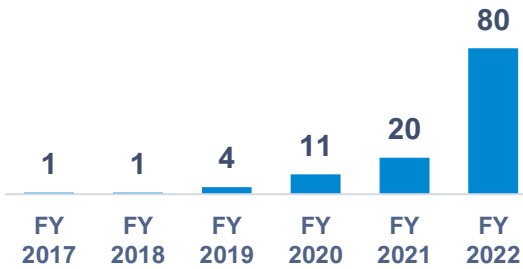
- ✓ Members of the Management team have worked together for nearly two decades
- ✓ Technical team has developed in every advanced technology from 180nm → 3nm
- ✓ Communications products shipped to Tier-One customers globally since 1998
- ✓ Founders have raised and deployed \$300M across four successful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



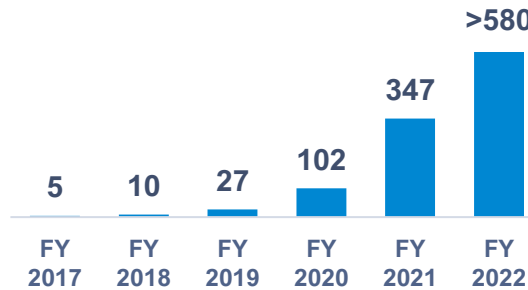
# Focused on Delivering Results Since IPO...



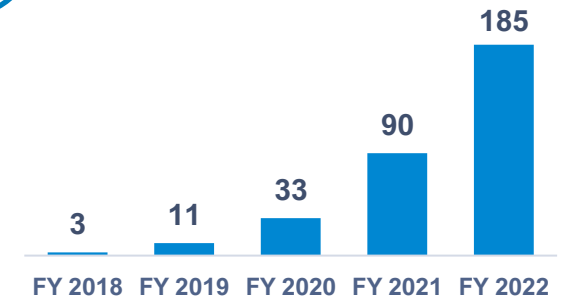
End Customers<sup>1,2</sup>



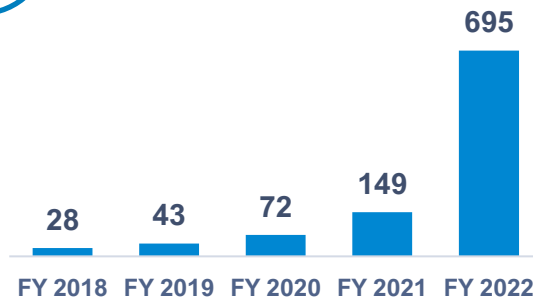
Cumulative Bookings<sup>2</sup> (US\$m)



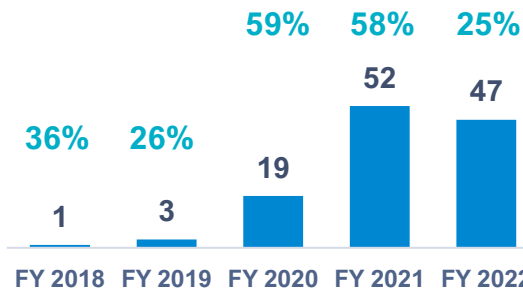
Revenue (US\$m)<sup>2</sup>



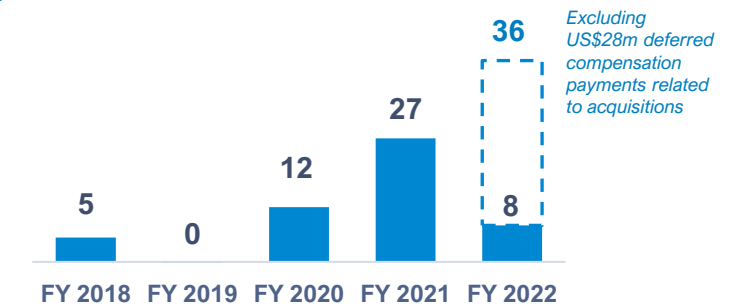
Employees<sup>2</sup>



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



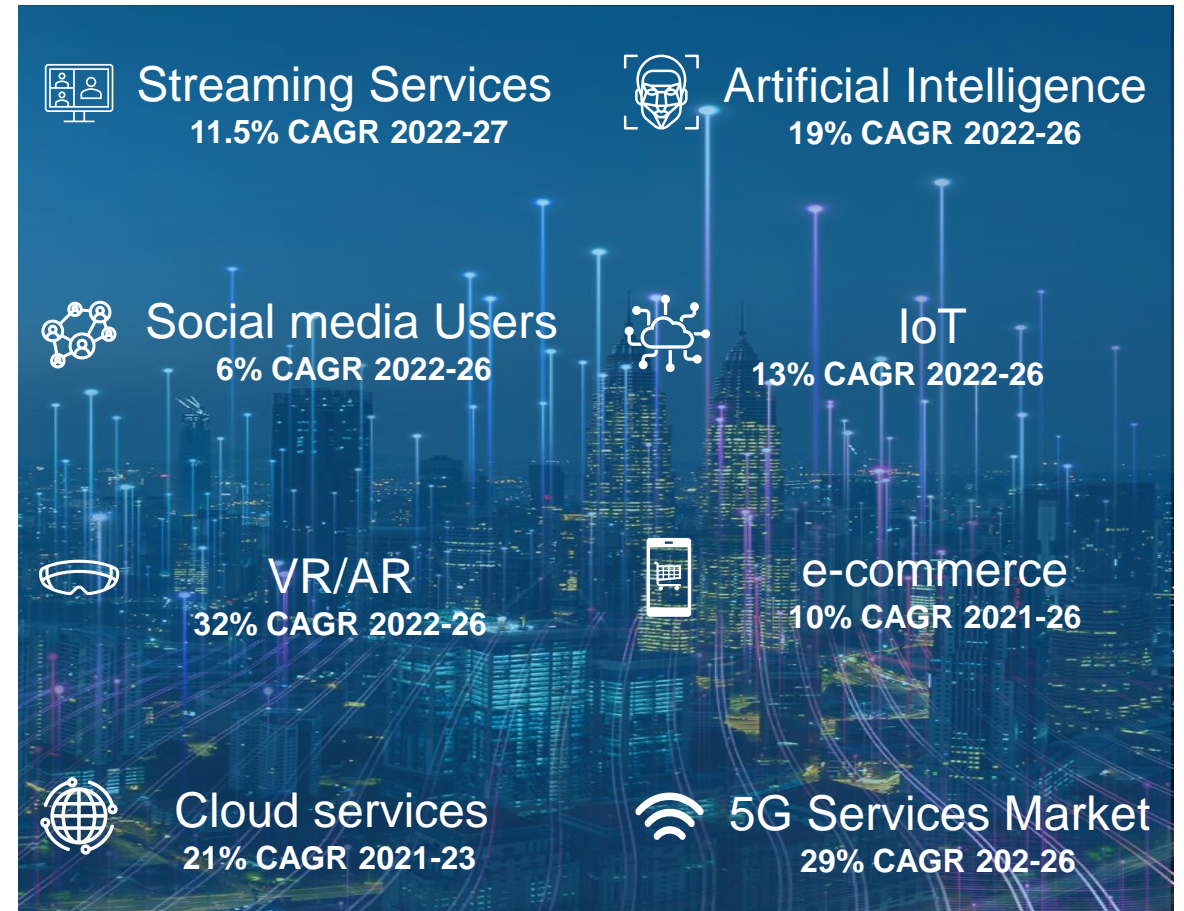
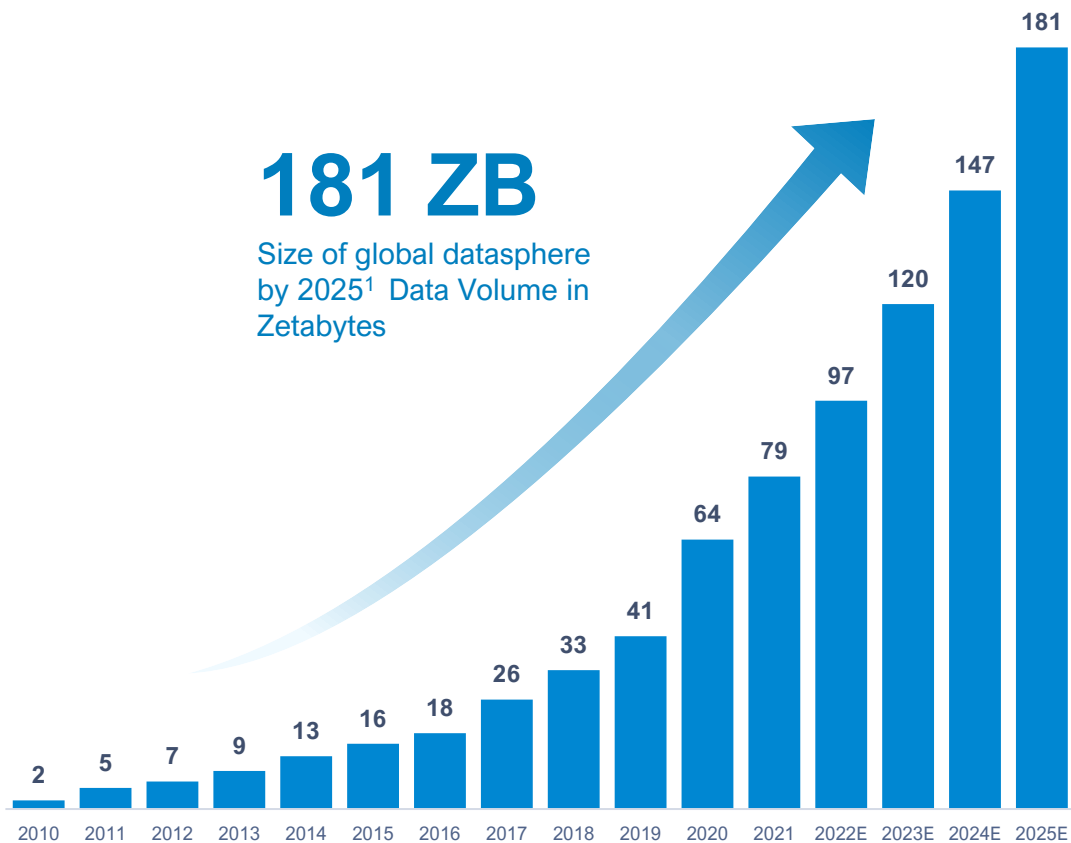
Pre-tax Operating Cash Flow<sup>2</sup> (US\$m)



1 Revenue generating customers.  
2 FY 2017 and FY 2018 as per IPO prospectus.

# The Age of Exponential Data Growth

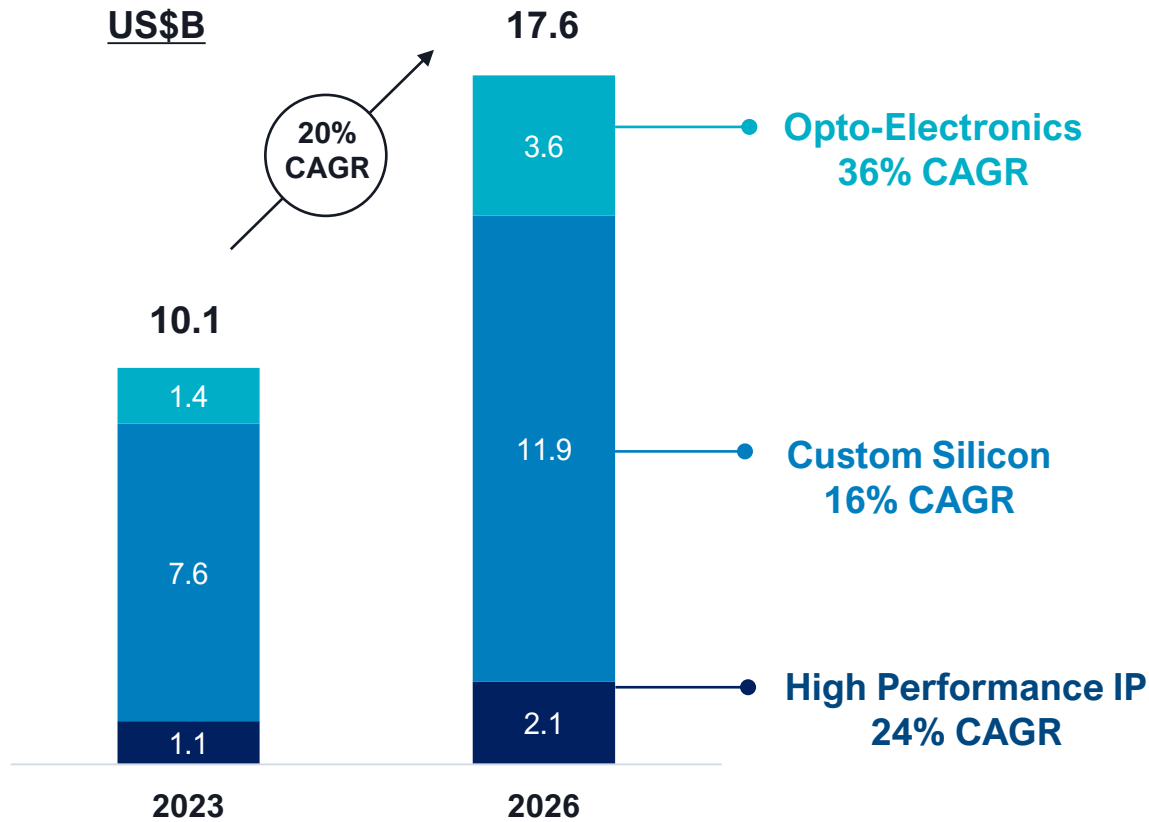
More Sensors, Devices, Images and Multimedia... More Enterprise Data



<sup>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

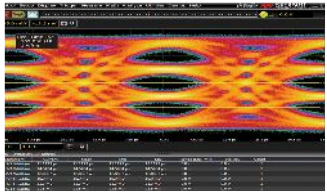
- Digitalisation drives exponential growth in data
- Data bandwidth doubles every 2-3 years driving a technology refresh of switches and transceivers
- High-speed and power-efficient connectivity technology is a key enabler
- Hyperscalers investing through the economic cycle



Semico Research Corporation, December 2022, IPNest and Lightcounting



# Alphawave Technology Strengths



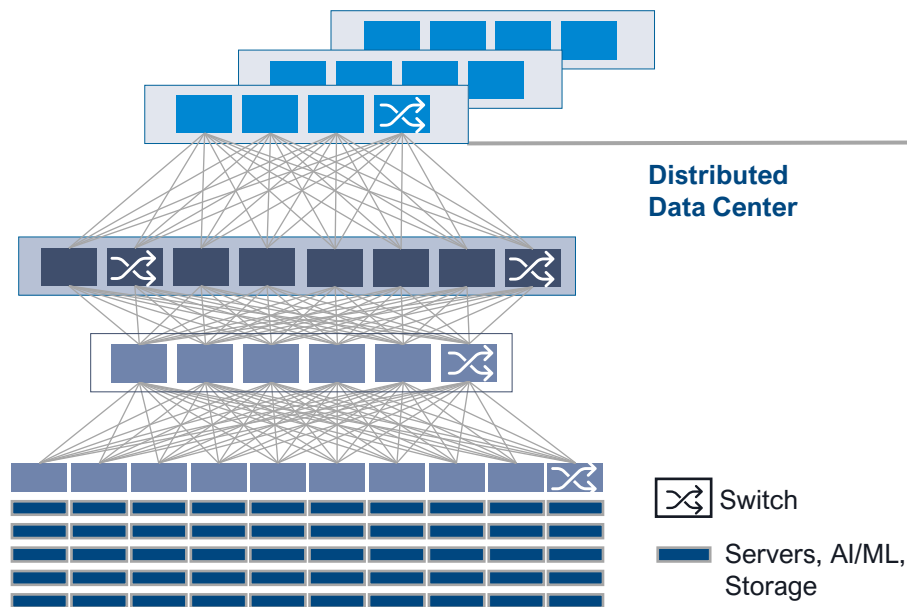
# Data Connectivity Everywhere

## 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

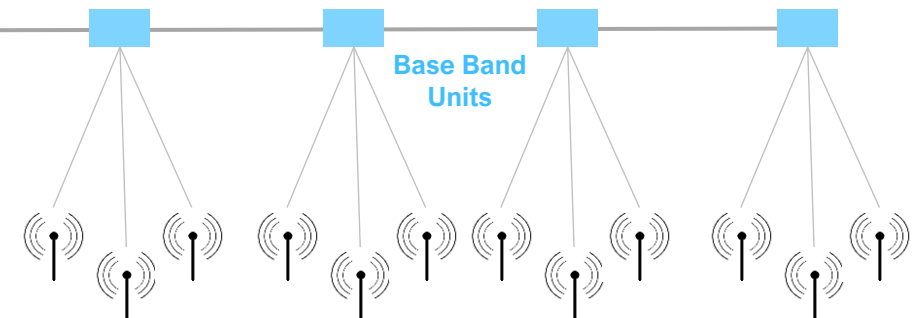
### Inside Data Centers...

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



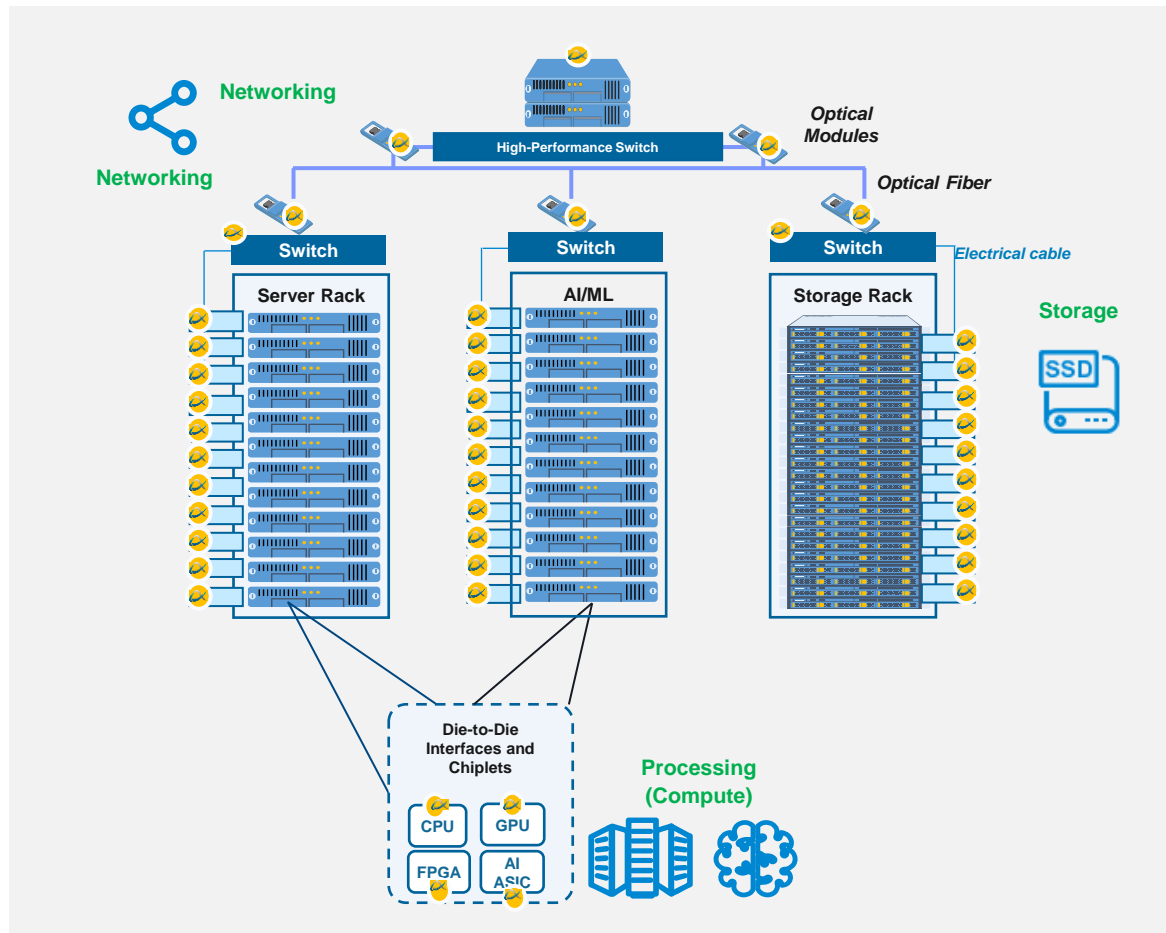
### ...and at the Edge (5G rollout a major driver)

- 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 AI/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



## Adapting to External Environment and Stage of Our Business



Maximising Value For Our Customers



Expand and Extend Technology Leadership



Greater Scale

## Building a Leading Connectivity Business



Land and Expand



High-Performance Silicon IP and Products

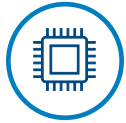
People and culture



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



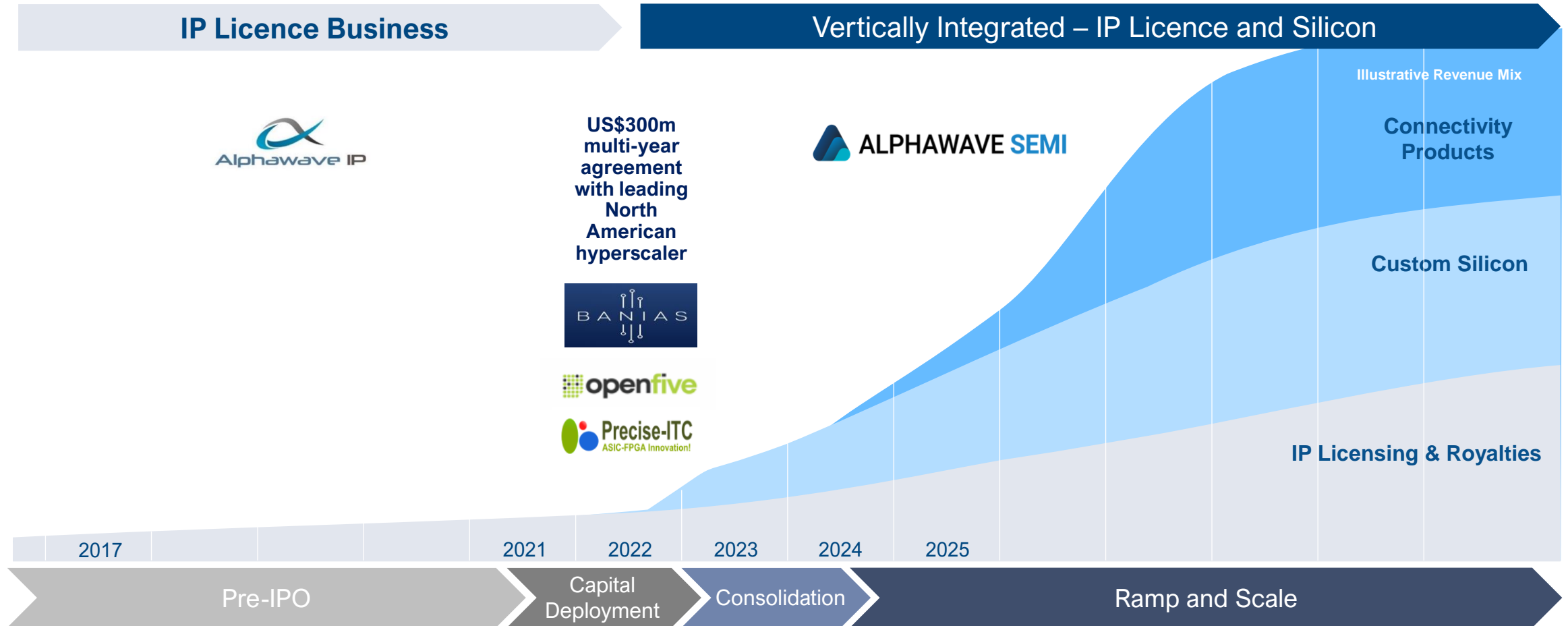
## Land & Expand

- 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



# Offering Customers a Wide Range of Products and Solutions

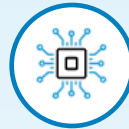
## Connectivity Silicon IP



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

> 220 IPs and partnered with TSMC, Samsung, Intel

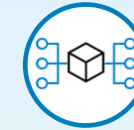
## Custom Silicon



Bespoke silicon to customers' requirements incorporating our Connectivity IP

80 active customers

## Connectivity Products



High bandwidth, advanced node optical and electrical networking products

PAM4 & Coherent Transceivers

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

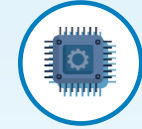
## Memory



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

HBM, LPDDR, DDR

## Chiplets

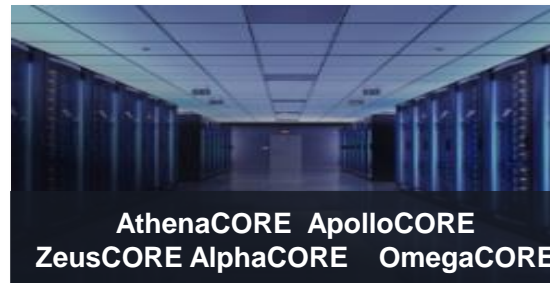


Chiplet Interface IP 2.5D and 3DIC

UCIe, BOW, Open-HBI



PipeCORE PicoCORE  
KappaCORE



AthenaCORE ApolloCORE  
ZeusCORE AlphaCORE OmegaCORE



HelenaCORE DemiCORE



AresCORE DieCORE  
GammaCORE



# 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



Synergistic Model

Complete Solution

### Silicon IP



>155 IPs and partnered with TSMC, Samsung, Intel

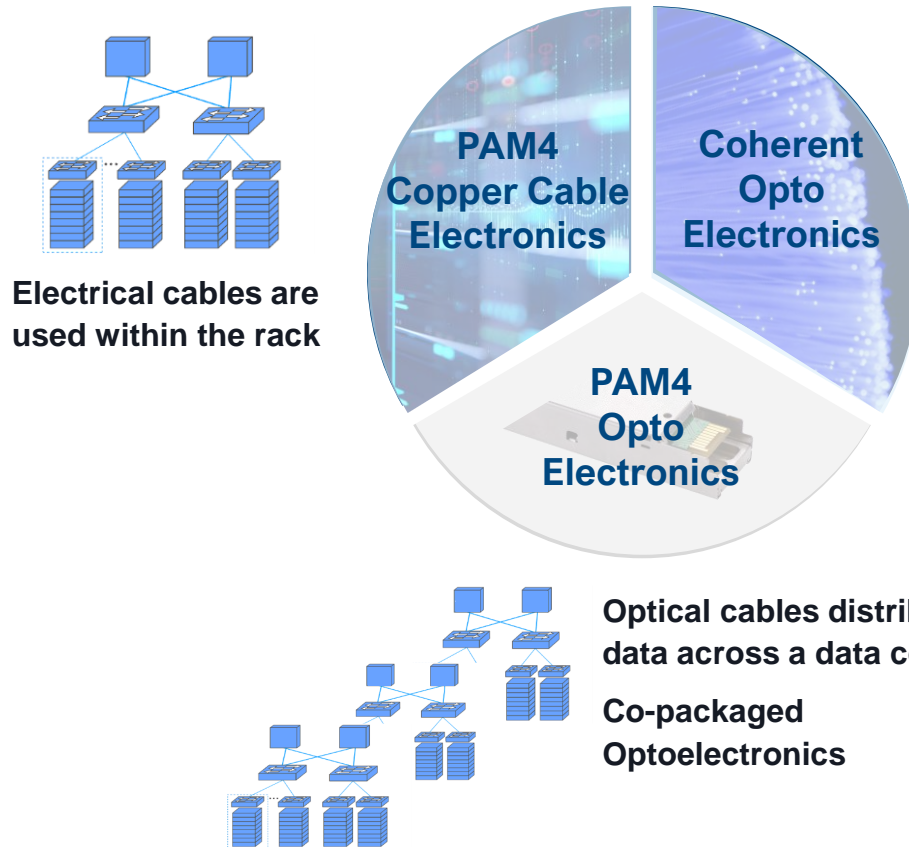
- PCIe/CXL
- 224G/ 112G
- Ethernet
- HBM, LPDDR, DDR
- Die-to-Die – Chiplets
- RiscV

## Strong Partnerships Across the Supply Chain

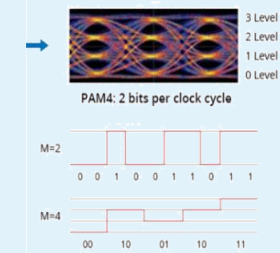


# Connectivity Products

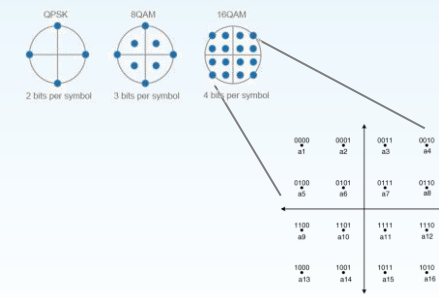
## Full Range of PAM4 and Coherent DSPs – Electrical and Optical



Direct Detect modulation such as **PAM4 DSP** for speeds up to 200G

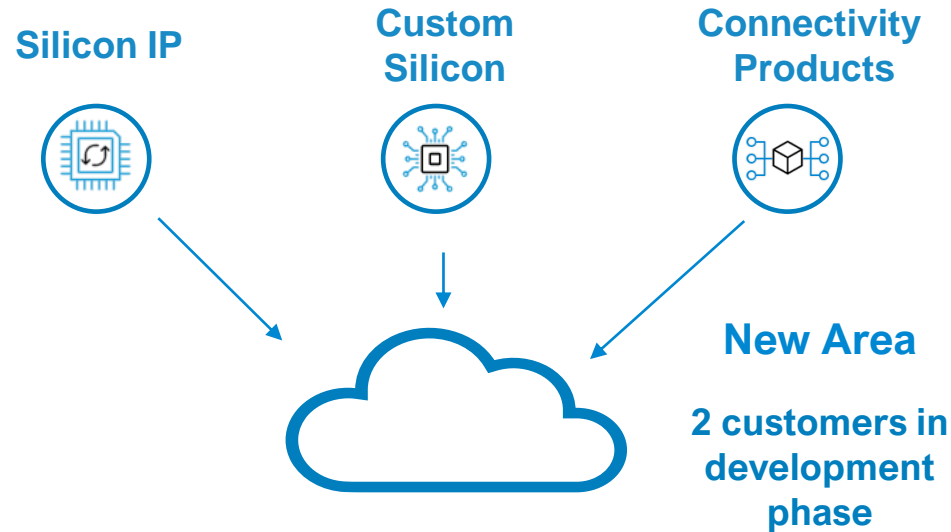


**Coherent DSP** for longer reaches and for shorter reaches at 200G and above



# Adding Value to Customers - Land & Expand

## Servicing More Connectivity Requirements



Number of Revenue  
Generating End-Customers

20

80

FY 2021

FY 2022

- 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

- Welcomed 376 new employees from Precise-ITC, OpenFive and Banias Labs
- 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



c. 700  
Employees



# Our Commitment to ESG

## Building the Team to Support a Responsible Business Expansion

- New hires in 2022 reinforcing our Governance, Finance and Comms functions
- ESG Steering Group to drive improvements and long-term sustainability strategy



### Environmental

- 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 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

Alphawave IP Receives 2022 TSMC OIP Partner of the Year Award for High-Speed SerDes IP Innovations

11.09.2022

Alphawave IP Achieves Its First Testchip Tapeout for TSMC N3E Process

10.24.2022

Acquisition of Optical DSP Developer Banias Labs

10.13.2022

OpenFive Joins Universal Chiplet Interconnect Express (UCIe) Consortium

06.16.2022



# Outlook Unchanged

US\$	2022 Act	2023 <sup>1</sup>	2025
Revenues	\$185m	\$340-360m	\$500m
Gross margin	67%		c.60%
Opex %	47%		c.30%
R&D %	37%		Below 20%
Adjusted EBITDA <sup>1</sup>	\$47m	Approx. \$87m	Approx. \$150m
Adjusted EBITDA %	25%	c. 25%	c.30%
Capex <sup>2</sup>	8%	c. 12%	c. 10%

## FY 2022

- Capitalised R&D of US\$7.2m or 4% of revenue

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

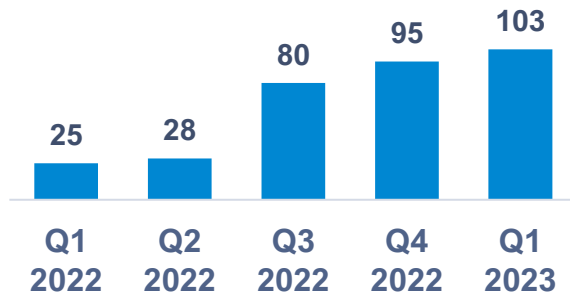
<sup>2</sup> Capex as a percentage of revenue. 2023 and 2025 exclude capitalised R&D



# Q1 2023 Bookings – Our First “Triple Digit” Bookings Quarter



## Bookings (US\$m)

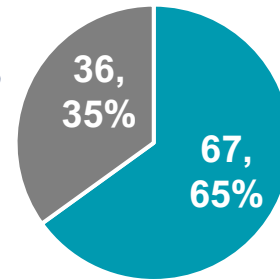


- 8 new design wins in Q1 2023
- Working with more than half of the top 20 semiconductor device companies<sup>1</sup>



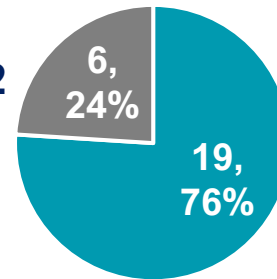
## Split by Business (US\$m)

Q1 2023



- Licence and NRE
- Royalties and Silicon

Q1 2022



- Licence and NRE
- Royalties and Silicon

## US\$103m bookings in Q1 2023

### Licence & NRE – 7 design wins

- Main contribution from EMEA and APAC customers
- First 3nm design win with a top North American hyperscaler
- Design win with a leading APAC customer for our leading Gen6 PCIe SerDes and Controller IP

### Royalties & Silicon – 1 design win

- Mainly driven by orders from Chinese and North American customers



<sup>1</sup> By market capitalisation as of 19.04.23

# FY 2022 Highlights

Backlog<sup>1</sup>

**US\$365m**

FY 2021: US\$169m

Bookings

**US\$228m**

FY 2021: US\$245m  
US\$97m excluding multi-year  
subscription contracts

Revenue

**US\$185m**

FY 2021: US\$90m

Adjusted EBITDA

**US\$47m**

FY 2021: US\$52m

Pre-Tax Operating  
Cash Flow

**US\$7.8m**

US\$36.0m exc. def. compensation<sup>2</sup>

FY 2021: US\$26.5m

Cash and Cash  
Equivalents

**US\$186m**

FY 2021: US\$501m

<sup>1</sup> Backlog excluding royalties

<sup>2</sup> Approximately US\$28.2m of deferred compensation payments related to acquisitions which are expected to be settled over time until August 2026.

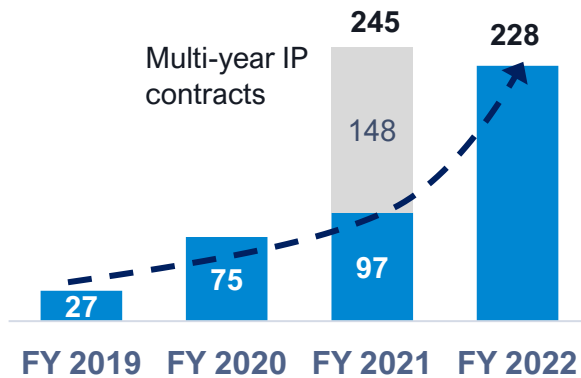


# FY 2022 Bookings Excluding Multi-Year Contracts up 135%

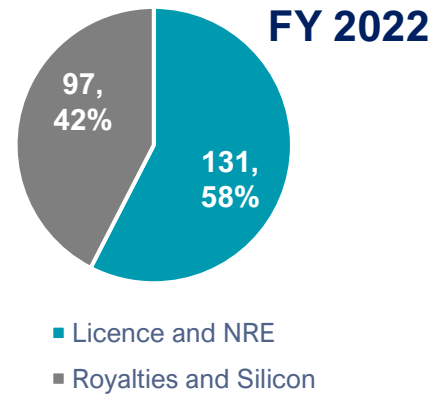
## Increased Contribution From North American Customers



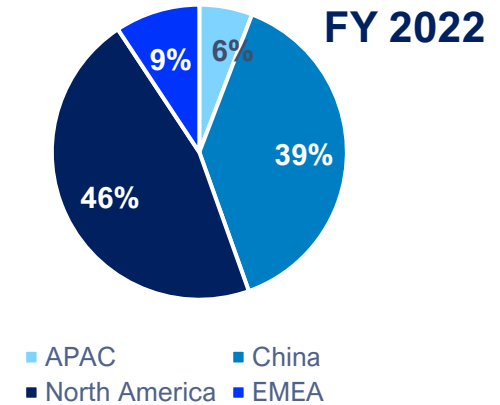
### Bookings (US\$m)



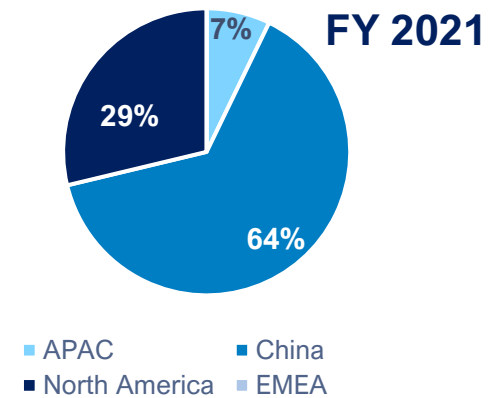
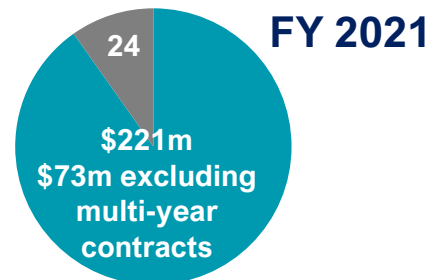
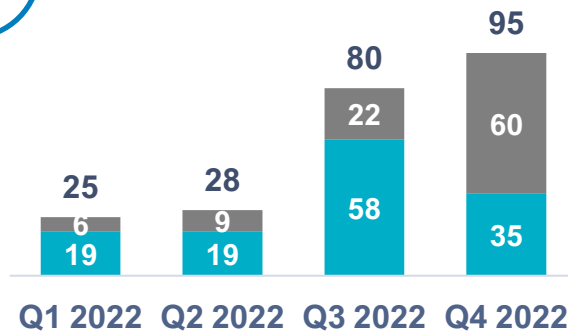
### Split by Business



### Split by Region



### By Quarter (US\$m)



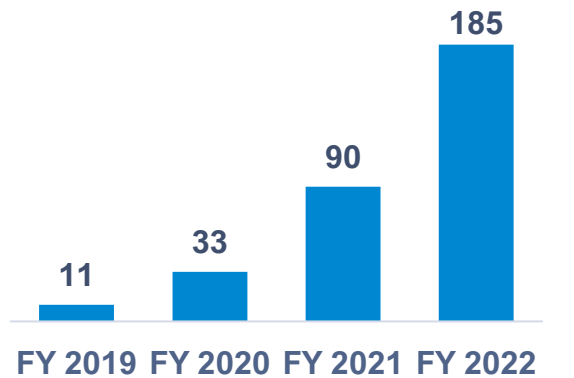
Due to rounding, numbers presented in the charts may not add up to the totals provided.

# FY 2022 Revenue Doubled Year-on-Year

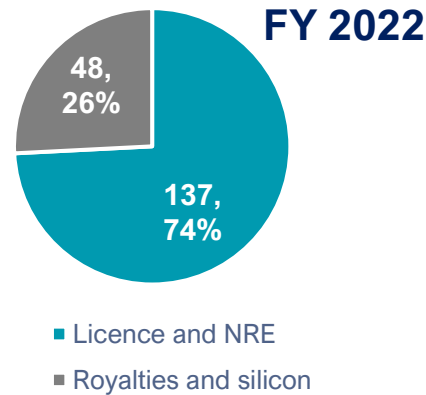
Organic Revenue Growth 33% - Revenue Outside of China US\$81m up 72% Year-on-Year



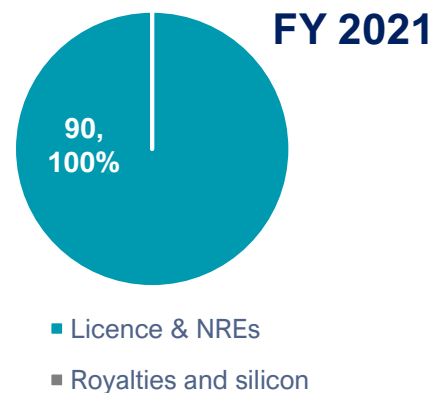
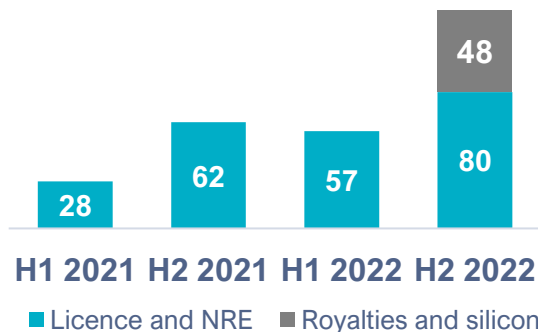
Revenue (US\$m)



Revenue (US\$m)



H1/H2 Split by Business (US\$m)



## Licence & NRE

- Growth driven by multi-year contracts as well as increased revenue in APAC and EMEA

## Royalties & Silicon

- Over ¾ from Chinese customers related to pre-existing custom designs in production

North America +36% YoY

APAC +84% YoY

First-time revenue in EMEA

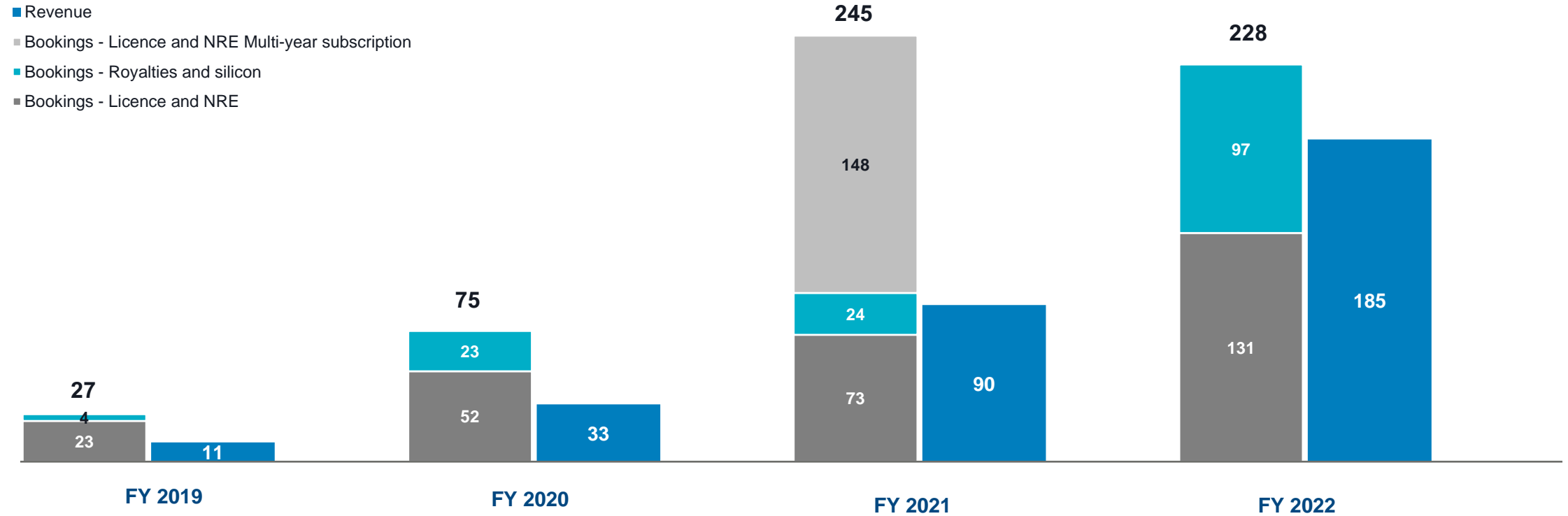


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# Backlog US\$365m

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

Backlog exc. Royalties US\$m 37.3 168.6 364.5<sup>1</sup>



<sup>1</sup> Including backlog from OpenFive and Precise-ITC of over US\$100m

Source: Company information. FY 19 data is unaudited and has been calculated based on audited IFRS financial information for the 12 months to May 31, 2019, and the 7 months to December 31, 2019.

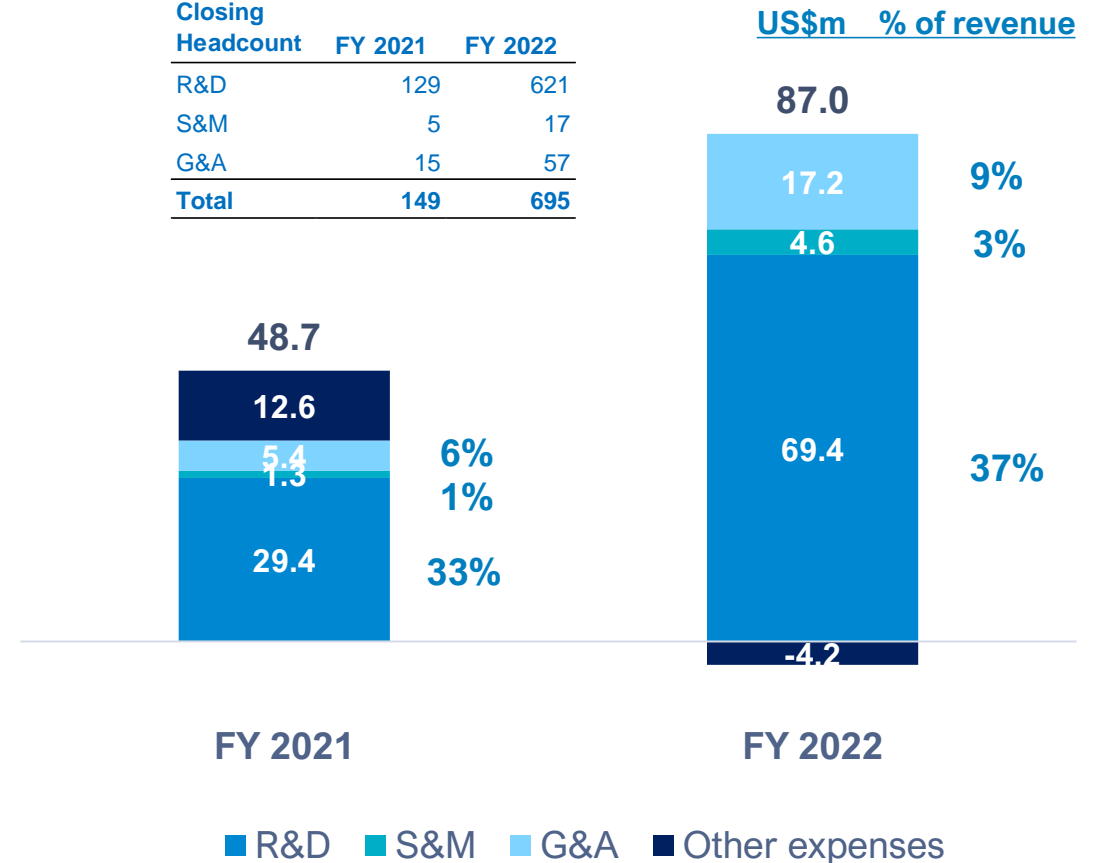


# Investing In Future Revenue Growth

## Operating Expenses Reflect Increased Headcount

- Increased headcount from 149 to 695
  - 376 employees from the acquired businesses
- US\$7.2m R&D expenses capitalised
- R&D - increased headcount and some additional IT/SW tooling required
  - US\$5.5m amortisation of acquired intangibles
- G&A – building finance, legal and HR functions
  - Includes an expected credit loss of US\$2.2m
- Other expenses/(income) in 2022 include a US\$37m exchange gain

Closing Headcount	FY 2021	FY 2022
R&D	129	621
S&M	5	17
G&A	15	57
<b>Total</b>	<b>149</b>	<b>695</b>



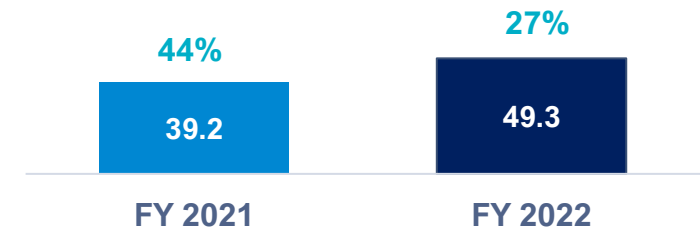
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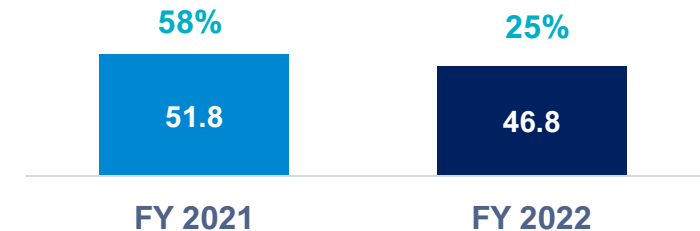
# Adjusted EBITDA Margin Reflects Business Expansion

- Increased EBITDA in 2022 including \$37m exchange gain and higher M&A-related and SPB expenses
- Adjusted EBITDA 10% below FY 2021
- Adjusted EBITDA margin of 25% reflects:
  - Higher revenue at lower gross margin driven by different business mix – IP + Silicon
  - Investment in capabilities to support our pipeline of opportunities
- Adjusted diluted EPS of \$0.98
  - Lower profit before tax and higher effective tax rate
  - Higher share count

## EBITDA (US\$m) and margin



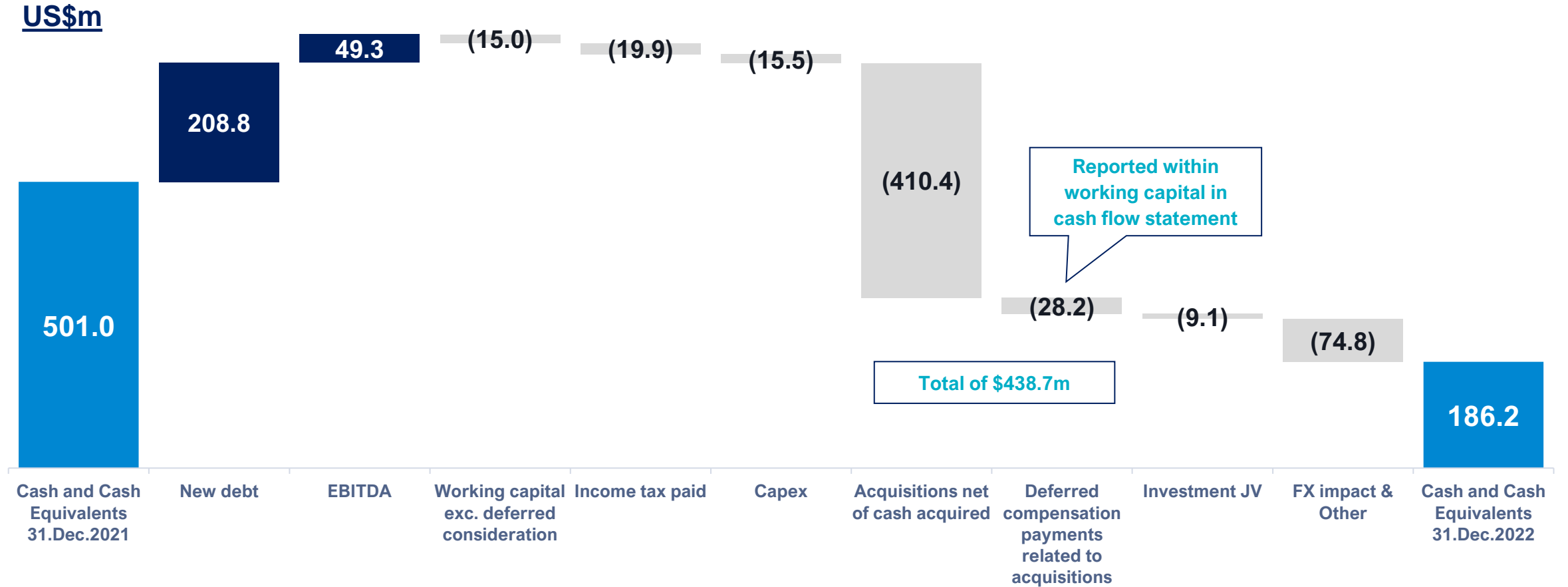
## Adjusted EBITDA (US\$m) and margin



## Adjusted Diluted EPS US\$



# FY 2022 Cash Flow Bridge



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

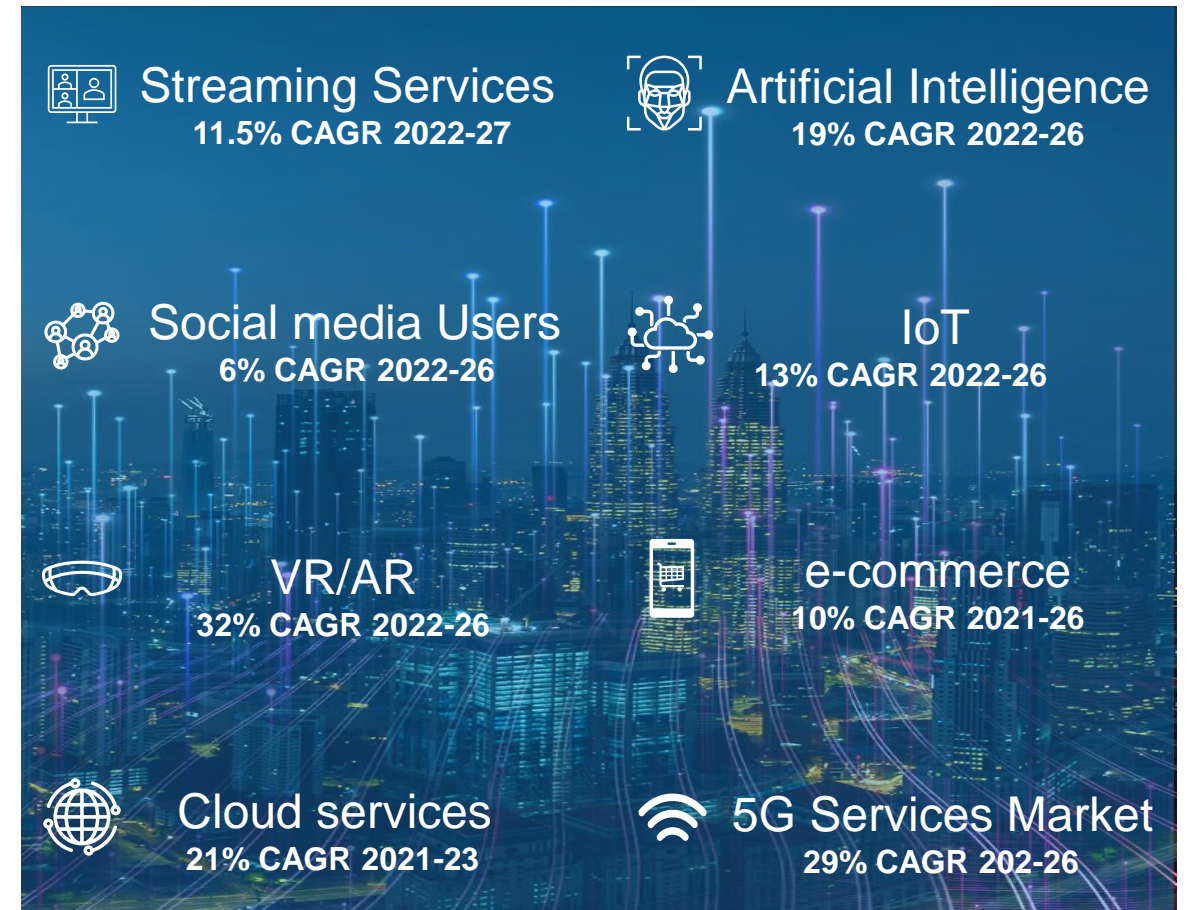




# Appendix

# References Slide 4

- **Streaming Services** [Video Streaming \(SVoD\) - Global | Statista Market Forecast](#) Revenue 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
- **AI** [IDC 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 2022 US\$m	Year ended 31 December 2021 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)
<b>Backlog (end of the year)</b>	<b>365.8</b>	<b>168.6</b>

Operating profit to EBITDA reconciliation		
	Year ended 31 December 2022 US\$'000	Year ended 31 December 2021 US\$'000
<b>Operating profit</b>	<b>45,021</b>	<b>36,035</b>
Add backs:		
Depreciation of tangible fixed assets and right-of-use assets	5,508	3,127
Amortisation	5,769	—
<b>EBITDA</b>	<b>56,298</b>	<b>39,162</b>

	Year ended 31 December 2022 US\$'000	Year ended 31 December 2021 US\$'000
<b>EBITDA</b>	<b>56,298</b>	<b>39,162</b>
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	—
<b>Adjusted EBITDA</b>	<b>53,831</b>	<b>51,776</b>

Profit for the year to adjusted profit after tax reconciliation		
	Year ended 31 December 2022 US\$'000	Year ended 31 December 2021 US\$'000
<b>Profit for the year</b>	<b>6,483</b>	<b>9,431</b>
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	—
<b>Adjusted profit for the year</b>	<b>9,145</b>	<b>22,045</b>

Adjusted profit per ordinary share attributable to the shareholders (expressed in cents per ordinary share)		
	Year ended 31 December 2022	Year ended 31 December 2021
<b>Adjusted basic earnings per share (US\$ cents)</b>	<b>1.35</b>	<b>3.52</b>
<b>Adjusted diluted earnings per share (US\$ cents)</b>	<b>1.21</b>	<b>3.14</b>



# Non-GAAP Metrics

See note 4 to the accounts **Alternative Performance Measures H1 2022 Interim Report and FY 2021 Annual Report** 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.
- Adjusted EBITDA excludes IPO-related non-recurring costs, foreign exchange adjustments, share-based payments, M&A-related expenses and one-time legal fees associated with WiseWave.

