



MCIA

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# Advanced Computing Intelligence Service

**Part of the AI & Intelligent Automation Service Area Package**

Tracks and forecasts hardware and related developments in the market for AI-related computing both at the edge and in the data center. The service also examines markets for hardware products ranging from edge devices to high-performance computing.

**PRODUCT OVERVIEW | Advanced  
Computing Intelligence Service**



VMware

“ The vintage of AI chip startups funded so richly in 2021 will face a stress test in 2023

Alexander Harrowell  
Principal Analyst

# Advanced Computing Intelligence Service

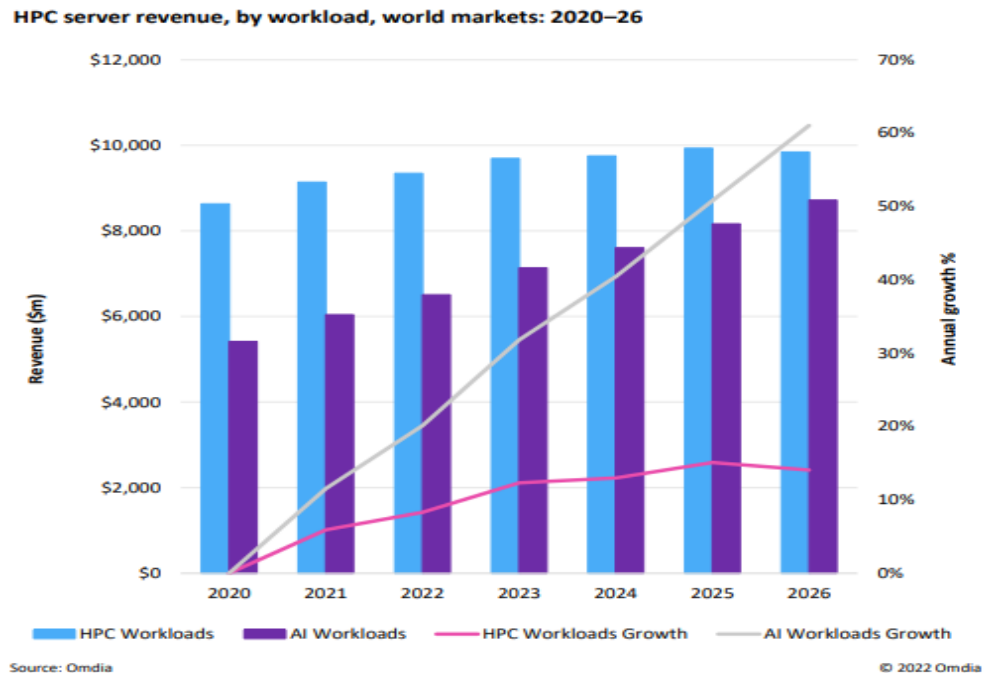
Part of the AI & Intelligent Automation Service Area Package

## HOW OMDIA HELPS YOU

- Understand the underlying technologies that are driving the future of computing.
- Build strategies that align with the upcoming shift in compute architectures.
- Identify partners and innovators.
- Deliver on a roadmap of products and solutions that take advantage of new compute paradigms.

## KEY QUESTIONS ADDRESSED

- How will leading-edge compute technologies enable new applications and business models?
- How will the unprecedented demand for compute created by very large AI models be met?
- What impact will these changes have on the semiconductor industry?
- Who are the key ecosystem participants driving new compute paradigms?
- Coverage of AI Hardware in the context of quantum, neuromorphic, blockchain and other emerging technologies.



# Advanced Computing: Our Expert Analysts



**Natalia Modjeska**  
*Research Director*  
**AI & Intelligent  
Automation**



**Alexander Harrowell**  
*Senior Analyst*  
**Advanced Computing**



**Neil Dunay**  
*Principal Forecaster*  
**AI Data Tools**

# Advanced Computing: Deliverables



## MARKET ANALYSIS

- AI Processors for Cloud and Data Center Forecast Report
- AI Processor Sustainability
- AI Chipsets for Edge Forecast Report



## VENDOR BENCHMARKS

- AI Chipsets for Edge Market Radar
- AI Chipsets for Cloud & Datacenter Market Radar
- Quantum Computing Market Radar



## REPORTS

AI Edge Servers and Appliances, Reconciling AI Applications and Hardware Growth, AI Chip IP Cores and more



## PRESENTATIONS

Quarterly briefings with analysts on research highlights from all aspects of the market.



## ANALYST INSIGHTS

Analyst commentary on market shifts, technology and regional developments, vendors, events, and more.



## ANALYST ACCESS

Prompt responses from Omdia's regional analyst team to urgent and unique questions.

# Advanced Computing: Market Data

## AI Processors for Cloud and Datacenter Forecast

This report focuses on AI processors, including CPUs, GPUs, ASICs, ASSPs and FPGAs. Revenue and shipment data is included for these chips. Data is further broken down by workloads, training vs inference, market segment and industry vertical.

**Frequency:** Annual

## AI Chipsets for Edge Forecast

This report focuses on AI CPU, GPU, ASIC, ASSP, DSP and FPGA revenue and shipment data for AI hardware at the edge covering 10 device categories – PC/tablets, mobile, drones, HMDs, smart speakers, automotive, security cameras, edge servers, machine vision and robots.

**Frequency:** Annual

## AI Edge Servers and Appliances Report

Provides shipments and revenue for AI hardware largely in the datacenter across cards, workstations, servers and storage.

**Frequency:** Annual

### Regions

- North America
- Latin America & the Caribbean
- Western Europe
- Eastern Europe
- Central & Southern Asia
- Oceania, Eastern & South-Eastern Asia
- Middle East
- Africa

### Coverage

- AI Processors
- AI Servers
- Workstations
- Storage Hardware

# Advanced Computing: Market Reports

## AI Processors for Cloud, Data Center and AI Edge Devices

**Frequency:** Annual

### A Series of eight or more Advanced Computing Research Reports

- Back catalogue of all published Advanced Computing research reports
- Key topics covered including:
  - AI Processors
  - AI Servers, Workstations and Storage
  - AI Edge Servers and Appliances
  - AI Cloud and Data Center
  - AI Edge
  - AI Hardware Development Platforms
  - AI SoC IP Cores
  - AI Workloads

### Regions

- North America
- Latin America & the Caribbean
- Western Europe
- Eastern Europe
- Central & Southern Asia
- Oceania, Eastern & South-Eastern Asia
- Middle East
- Africa

### Report Titles

- AI Chip IP Cores
- AI Edge Servers and Appliances Report
- AI Software Forecast Update
- AI Processor Sustainability
- AI Processor Strategic Advisory
- AI Processor Vertical Market Survey



# New for 2023 – New Research Content & Product Enhancements

## Advanced Computing Intelligence Service

- **AC/ Alerts/ Media: Advanced Computing Market Inflection**

- Quarterly tactical analysis of implications from a possible shift in AI semiconductor market conditions spurred by recession/ economic downturn (similar to the onset of the dot-com bust) and advisory on market direction and response strategies.

- **Database AI Processor and M&A Tracker**

- Early signs point to a shift in VC sentiment about tech start-ups in general. Also, numerous AI processor start-ups were funded in 2018-19, so a 5-year review point is coming up and investors may be considering exit plans (e.g. IPO or trade sale). The Tracker will monitor exits and M&A activity in this space. Twice per year.

- **Report: Reconciling AI Applications and Hardware Growth**

Observed and forecast AI processor market growth is running significantly faster than AI applications software revenue growth, although running applications is the purpose of a processor. This report will investigate whether we should expect applications to expand and take advantage of hardware or hardware to shrink to the available demand.

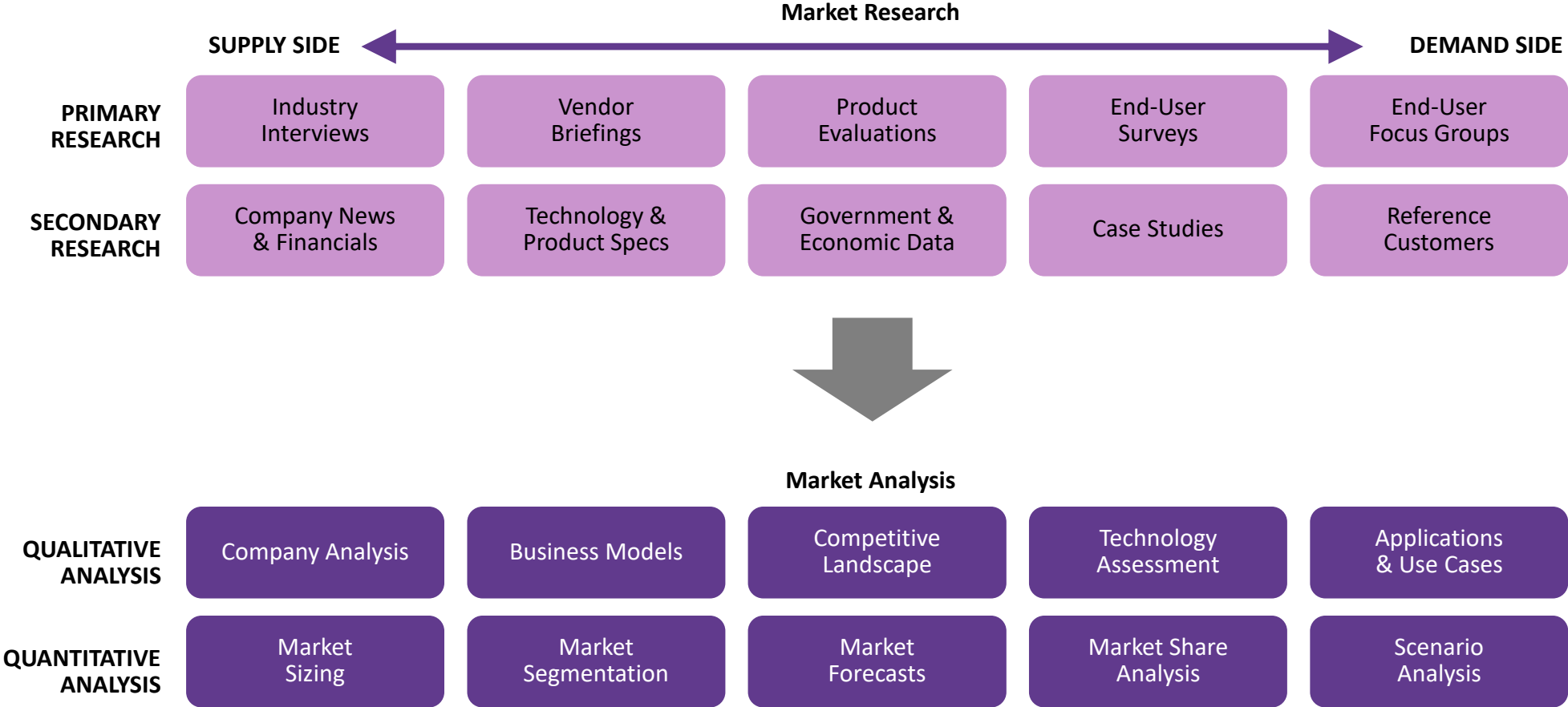
- **Report: How High Will Makimoto's Wave Go?**

We believe the industry is experiencing a Makimoto's Wave transition from standardized to customized silicon. A key question is therefore how big this phenomenon might be and how big a company needs to be to take part. Answering questions such as "Can you benefit from customization?", "Will customization strengthen your competitors?", "Should we change our strategy to serve customizers, and if so how?" Aimed at foundry, intellectual property, and EDA companies, e.g., ARM, Cadence, Synopsys, Siemens EDA; cloud providers: Google, AWS, Meta, Microsoft; possibly service providers.

# AI and Intelligent Automation – 2023 Research Themes

<b>AI vs. the World, aka AI in the age of resilience</b>	Macro societal and economic trends are impacting market progressions of all kinds in ways not seen in the last 40 years. COVID's impact on labor, supply chain, global inflation as well as wars, growing global power friction, and climate change issues will shape every aspect of AI technology markets in 2023 and beyond. How will the AI ecosystem navigate these risks and help companies use AI to do the same?
<b>AI processor Cambrian explosion</b>	The computational demands of state-of-the-art AI are transforming the semiconductor market. Having shifted from CPU to GPU computing, the industry is now shifting towards dedicated AI acceleration and from merchant to custom silicon, in a so-called Makimoto wave transition. Starting in 2023-2024, the x86 ecosystem is likely to catch up with Apple's lead as AI acceleration becomes a standard CPU feature, while at the same time, customization drains value from the ecosystem itself. Omdia can help you monitor, understand, and respond to this disruption, whether you are a user of AI hardware, an OEM customer for AI processors, or a semiconductor vendor.
<b>Data Taking Center Stage</b>	As data volume and variety rise, and as it moves more freely between premises, cloud, and multiple-clouds, new ways are emerging to manage and exchange data. Increasingly, "data-centric AI" methodology means that data sets, software, systems, and semiconductors are developed together, in a response to the sustainability and governance issues of giant data sets. Metadata repositories (data catalogs), data fabrics (data as an API service), and data exchanges/marketplaces will take center stage, helping companies do away with data silos, fragile data pipelines, and uneven security/privacy policies, all without disrupting existing infrastructure investments.
<b>AI rubber hits the road, aka Operationalizing AI</b>	AI market adoption has reached critical mass, with the number of deployments likely to double in the next 2-3 years. These early majority buyers still need to overcome many internal challenges to adopt and scale AI successfully, including budgets, literacy, organizational structure, KPIs, sustainability, risk and lifecycle management, etc. Technology vendors are building solutions for AI responsibility (privacy, transparency, bias, etc.), repeatability, delivery, and governance. Best practices are also emerging from early the adopters. Furthermore, new consumption models such as AI as a service, pre-built AI, and embedded AI will help to not just operationalize AI but to do so rapidly and at scale across the business.
<b>Democratization foreshadows oncoming AI ubiquity</b>	High demand for AI and advanced analytics in the enterprise has revealed a significant technological skills gap, one that may never be filled through human talent alone. Yet companies are beginning to glimpse the far side of this chasm through a rapidly evolving set of technologies and practices laser focused on democratizing AI. New AI-driven automated workflows and low/no-code AI development tools, along with large-scale pre-trained AI models, embedded AI business apps, and even end-to-end AI solutions spanning software to silicon, all promise to turn AI into a more readily consumable enterprise resource with far fewer specialist skills requirements. And yet, many questions remain unanswered. Can AI be trusted to build responsible AI outcomes? Will AI specialization vanish beneath a few, massive, vertically integrated platforms?
<b>AI is growing up and learning accountability, aka Responsible AI</b>	With AI having gone mainstream, its dark side is increasingly clear and worrisome: from bias and discrimination to deep fakes and nudging. Business leaders and governments have all recognized that the only way to obtain sustainable and equitable benefits is by doing AI responsibly. Globally, this means regulations, standards, audits and certifications. And within enterprises deploying AI, active governance. Best practices and tooling are emerging to support ethical AI use, explainability, assurance, and proactive disclosure. A whole new ecosystem is quickly growing, and we'll be covering it in depth over the next 12-24 months.

# Advanced Computing: Research Methodology



## AI and Intelligent Automation

### Advanced Computing

Next-generation AI compute architectures

AI hardware trends for edge, cloud, and data center

Quantum

### AI Applications

AI & IA ecosystem, use cases, market dynamics, forecasts, and trends

AI & IA market maturity and technologies adoption

Vendor benchmarks

### AI Business Toolkit

Enterprise-grade blueprints

Best practices for adopting and scaling

Benchmarks and surveys

AI KPIs

### Analytics & Data Management

Hardware, software, and services for agile, comprehensive, secure, and scalable data architectures for AI

### AI Viewpoints

High-level summaries and cutting-edge trends

### Quantum Computing

Deep-dive coverage of the commercialization of QC technology.

Enterprise adopter and Vendor Surveys

### AI & IoT Asia Viewpoint

High-level summaries and cutting-edge trends focusing on the APAC region

# AI & Intelligent Automation Overview

## About Omdia's AI & Intelligent Automation Research

The AI & Intelligent Automation research area provides a full-stack view of AI across applications, software, hardware and services. There is coverage across a wide variety of companies from AI startups, hyperscalers, chipset vendors, cloud providers, OEMs, IT vendors, AI platform vendors, AI and IT services companies, as well as several end user companies deploying AI across different vertical markets.

AI is beginning to move from proof of concept (PoC) into a stage of industrialization, with vendors and end users looking to understanding the business of AI. Omdia's AI business toolkit is aimed at bridging the gap between the technology and the economic value of AI, giving clients a range of tools to benchmark, measure and plan around the commercialization of AI.

To complete the circle, AI & Intelligent Automation also covers the impact of AI and automation from the perspective of AI hardware for cloud and edge, autonomous machines and the next-generation compute stack from quantum computing to HPC that is emerging to support new applications and services.

# Advanced Computing – 2023 Schedule

Q1	Q2	Q3	Q4
<ul style="list-style-type: none"><li>• Advanced Computing Market Inflection Watch 1Q23</li><li>• Advanced Computing Quarterly Briefing 1Q22</li><li>• AI Processor M&amp;A Activity Tracker</li><li>• AI Edge Servers and Appliances Report - 2022</li></ul>	<ul style="list-style-type: none"><li>• How High Will Makimoto's Wave Go?</li><li>• AI Edge Software Platforms Report 2023</li><li>• Advanced Computing Market Inflection 2Q22</li><li>• Reconciling AI Applications and Hardware Growth</li></ul>	<ul style="list-style-type: none"><li>• Advanced Computing Quarterly Briefing 2Q23</li><li>• AI Processors for Cloud and Data Center Forecast Report – 2023 Analysis</li><li>• AI Processors for Cloud and Data Center Forecast Report – 2023 Database</li><li>• Advanced Computing Quarterly Briefing 3Q23</li><li>• AI Processor Sustainability</li><li>• AI Chipsets for Cloud and Datacenter Market Radar – 2023</li><li>• AI Chipsets for Edge Forecast Report – 2023 Database</li></ul>	<ul style="list-style-type: none"><li>• AI Chip IP Cores</li><li>• Advanced Computing Quarterly Briefing – 4Q23</li><li>• 2024 Trends to Watch: Advanced Computing</li><li>• AI Chipsets for Edge Market Radar - 2023 Database</li><li>• AI Chipsets for Edge Market Radar – 2023 Analysis</li><li>• AI Edge Ecosystem Database – 2023 Database</li><li>• AI Edge Ecosystem Database – 2023 Analysis</li><li>• Top 25 AI Hardware startups</li></ul>

# Our “Ask an Analyst” Service Provides Best in Class Customer Support

Whether you need guidance to navigate the service, information regarding our methodologies or you want to better understand a data trend, Omdia’s support team is here to help.

## Draw on our expertise

- Make the right decisions
- Sanity-check your own findings
- Get the most out of your subscription
- Understand more about our methodologies

Our Ask an Analyst service gives you direct contact via telephone, email or face-to-face session with our expert analyst team:




**Shelley Hunter**  
*Customer Success  
Manager*




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# Thank you

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