

AI Accelerators

ANMD-MRS7-062 · Advanced Semiconductor Applications

A Global Sustainability Due Diligence & Market Research Study

History 2020–2024 · Base Year 2025 · Forecast 2025–2032 · Outlooks 2035 / 2040 / 2050 · Currency US\$

WHY THIS REPORT

AI accelerators are the compute engines of the artificial-intelligence economy — the GPUs, ASIC/TPU dataflow engines, FPGAs, edge inference chips and wafer-scale systems that train and run modern models. This decision-grade study sizes the global market three ways — value, unit volume and TOPS/TFLOPS delivered — across architecture, deployment and application, across seven regions and four scenarios to 2032, with outlooks to 2050.

SUSTAINABILITY & SDG IMPACT — THE ANMD LENS

Sustainability is this report's backbone, not an afterthought. Beyond raw throughput, AI accelerators are assessed on performance-per-watt, datacenter energy and water intensity, and the lifecycle carbon of leading-edge fabrication.

Mapped Sustainable Development Goals:

SDG 7 Affordable & Clean Energy	SDG 9 Industry, Innovation & Infrastructure	SDG 12 Responsible Consumption	SDG 13 Climate Action
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Measurable sustainability outcomes assessed:

- Performance-per-watt and compute-efficiency gains
- Datacenter energy and water intensity reduction
- Lifecycle carbon of leading-edge fabrication
- Hardware turnover, e-waste and embodied carbon as material risks

Framework alignment: Double materiality mapped to GRI, SASB, ISSB, TCFD, TNFD, CSRD and the EU Taxonomy, with greenwashing and SDG-washing screens applied throughout.

WHAT'S INSIDE AT A GLANCE

53 Chapters	9 Report Parts	7 Regions Covered	40+ Country Markets
2025–32 Forecast Horizon	4 Forward Scenarios	25+ Companies Profiled	4 SDGs Mapped

REPORT COVERAGE

Geographic scope: North America, Europe, Asia Pacific, Latin America, Africa, Middle East and Rest of World — with named country intelligence. North America leads design and deployment; Asia Pacific is the scale and packaging engine; Europe focuses on sovereign and edge AI; other regions assessed on their own merits.

MARKET OVERVIEW

From insatiable compute demand to performance-per-watt — where AI silicon meets energy scrutiny.

AI silicon is the fastest-growing segment in semiconductors. Demand is driven by hyperscale training clusters, the inference build-out and the spread of edge AI, with architecture competition intensifying between GPUs, custom ASIC/TPU engines and dataflow startups. The market is read three ways — value, unit volume and TOPS/TFLOPS — and forecast under four scenarios, each region reported separately.

- **North America leads design and deployment** — United States and Canada, on hyperscale cloud build-out and CHIPS-Act incentives
- **Asia Pacific is the scale and packaging engine** — Taiwan, South Korea, China and Japan, on advanced-node foundry and HBM supply
- **Europe focuses on sovereign and edge AI** — United Kingdom and Germany, on a sovereign-compute agenda and edge inference
- **Performance-per-watt is the differentiator** — power, HBM bandwidth and interconnect increasingly gate hyperscale deployment

REGIONAL OUTLOOK

Across seven reporting regions, the report separates leading markets from high-growth and emerging ones — each profiled in full rather than aggregated into Rest of World.

Region	Stage	Lead Markets & Drivers
North America	Design leader	United States, Canada — hyperscale capex, CHIPS incentives
Asia Pacific	Scale & packaging engine	Taiwan, South Korea, China, Japan — foundry, HBM, sovereign chips
Europe	Sovereign & edge	United Kingdom, Germany — sovereign-compute agenda, edge AI
Latin America	Emerging	Brazil, Mexico — cloud-region build-out, inference demand
Africa	Frontier	South Africa, Kenya — cloud access, AI-for-development
Middle East	Accelerating	Saudi Arabia, UAE — sovereign AI clusters, sovereign investment

KEY MARKET DRIVERS & RESTRAINTS

Drivers	Restraints
<ul style="list-style-type: none"> • Generative-AI training & inference demand • Hyperscale cloud capex build-out • Edge-AI & on-device inference growth • Performance-per-watt & efficiency pressure • Sovereign-compute & CHIPS-Act incentives 	<ul style="list-style-type: none"> • Datacenter energy & water footprint • HBM & advanced-packaging supply constraints • Export controls & geopolitical fragmentation • Software-ecosystem lock-in (CUDA) • Capital intensity & rapid obsolescence

SEGMENTATION SNAPSHOT

By Architecture	GPU · ASIC/TPU · FPGA · edge AI · wafer-scale / dataflow engines
By Deployment	Datacenter training · datacenter inference · edge AI · hyperscale cloud
By Application	LLM training · inference serving · computer vision · recommendation · scientific HPC
By End User	Hyperscalers · cloud providers · enterprises · OEMs · research labs
By Node	Leading-edge (≤ 5 nm) · advanced · mature
By Business Model	Chip sale · IP licensing · foundry · cloud-instance / as-a-service

TABLE OF CONTENTS — PARTS & CHAPTERS

The full report is organised into nine parts across 53 chapters, listed below. Detailed sub-headings, country tables and directories are provided in the full report.

Part I — Report Foundation, Discovery and Strategic Intelligence

- > Chapter 1. Scope, Methodology and Report Architecture
- > Chapter 2. Industry Discovery Summary — AI Accelerators
- > Chapter 3. Executive Intelligence and Decision Dashboard
- > Chapter 4. Strategic Findings, Materiality and Investment Verdict Preview

Part II — Market Intelligence, Sizing, Forecasting and Segmentation

- > Chapter 5. Industry Overview and Market Evolution
- > Chapter 6. Market Dynamics
- > Chapter 7. Global Market Size and Forecast, 2020–2032
- > Chapter 8. Market Segmentation Analysis
- > Chapter 9. End-User and Demand-Side Intelligence
- > Chapter 10. Pricing, Cost and Commercial Model Intelligence

Part III — Regional and Country Intelligence

- > Chapter 11. Global Regional Intelligence Framework
- > Chapter 12. North America Market Intelligence
- > Chapter 13. Europe Market Intelligence
- > Chapter 14. Asia Pacific Market Intelligence
- > Chapter 15. Latin America Market Intelligence
- > Chapter 16. Africa Market Intelligence
- > Chapter 17. Middle East Market Intelligence
- > Chapter 18. Rest of World Market Intelligence

Part IV — Technology, Innovation and Category-Specific Intelligence

- > Chapter 19. Technology Landscape and Architecture
- > Chapter 20. Emerging and Next-Generation Technology Intelligence
- > Chapter 21. Category-Specific Intelligence Module
- > Chapter 22. Research, Innovation and Funding Landscape

Part V — Company, Competition, Patent and Project Intelligence

- › Chapter 23. Competitive Landscape
- › Chapter 24. Company Profiles
- › Chapter 25. Mergers, Acquisitions, Partnerships and Ecosystem Intelligence
- › Chapter 26. Patent Landscape and Intellectual Property Intelligence
- › Chapter 27. Project, Deployment and Case-Study Intelligence

Part VI — Sustainability, ESG, SDG, Climate and Natural-Capital Intelligence

- › Chapter 28. Sustainability Intelligence Suite
- › Chapter 29. ESG Intelligence and Double Materiality
- › Chapter 30. ESG and Sustainability Framework Alignment
- › Chapter 31. SDG Intelligence
- › Chapter 32. Carbon, Net-Zero and Climate-Mitigation Intelligence
- › Chapter 33. Water, Biodiversity and Natural-Capital Intelligence
- › Chapter 34. Circular Economy and Resource-Security Intelligence
- › Chapter 35. Social Impact, Human Capital and Community Intelligence
- › Chapter 36. Climate Risk, Adaptation and Resilience Intelligence

Part VII — Supply Chain, Policy, Legal, Economics and Finance

- › Chapter 37. Value Chain, Supply Chain and Geopolitical Intelligence
- › Chapter 38. Policy, Regulation and Incentive Intelligence
- › Chapter 39. Legal, Contracting and Risk-Allocation Intelligence
- › Chapter 40. Unit Economics, CAPEX, OPEX and Return Analysis
- › Chapter 41. Investment, Sustainable Finance and Bankability Intelligence

Part VIII — Scenario, Future Intelligence and Final Due Diligence Verdict

- › Chapter 42. Scenario Analysis and Future Intelligence
- › Chapter 43. Sustainability Due Diligence Framework and Data-Room Index
- › Chapter 44. Risk Register, RAG Rating and Anti-Greenwashing Screen
- › Chapter 45. Bottom-Line Verdict and Strategic Recommendations
- › Chapter 46. Implementation Roadmap and Stakeholder Playbooks

Part IX — Annexes, Directories and Reference Material

- › Chapter 47. Methodology Annex
- › Chapter 48. Corporate Directory and Company Intelligence Annex
- › Chapter 49. Patent Directory and Patent Intelligence Annex
- › Chapter 50. Project Intelligence Annex
- › Chapter 51. Forecast Annex
- › Chapter 52. Sustainability KPI Annex
- › Chapter 53. Reference Annexes

COMPETITIVE & INVESTMENT SNAPSHOT

The competitive field spans GPU leaders, hyperscaler silicon teams and a wave of dataflow and edge-AI startups. Deal activity — foundry-capacity reservations, HBM supply agreements and startup funding rounds — signals a market consolidating around a few high-bandwidth platforms while edge and inference fragment.

Representative players profiled in the full report:

NVIDIA Corporation · Advanced Micro Devices, Inc. · Intel Corporation · Broadcom Inc. · Amazon Web Services, Inc. · Cerebras Systems Inc. · Graphcore Limited · and 18+ further profiled players.

Investment intelligence: venture, infrastructure, development, climate and blended finance, green bonds and sustainability-linked loans — culminating in a bankability assessment and a conditional investment view.

KEY QUESTIONS THIS REPORT ANSWERS

- How large is the global AI accelerators market, and how fast will it grow to 2032?
- Which regions, countries and segments offer the strongest risk-adjusted opportunity?
- How does performance-per-watt change value versus raw-FLOPS comparisons?
- Who leads, and where is the competitive and patent white space?
- Is the investment case bankable — and under what conditions?
- How does the category align with the SDGs, datacenter energy and disclosure regulation?

WHY ANMD — THE DIFFERENCE

Most market studies stop at units and revenue. This report is built as a sustainability due diligence instrument — fusing market sizing with ESG, SDG, climate, water and natural-capital intelligence and a decision-ready bankability view in a single architecture.

- **Triangulated sizing** — every market read three ways so value, volume and the physical-unit views reconcile rather than conflict.
- **Region-honest forecasting** — Latin America, Africa and the Middle East reported in full, never hidden inside Rest of World, every forecast resolved to the 2025 base year.
- **Integrated evidence base** — company, patent and project databases linked to the analysis, with published-filing patents and FTO treated as an indicator, not a legal conclusion.
- **No-fabrication discipline** — every estimate carries a data-confidence rating and disclosed sources; gaps are flagged for further diligence, never filled with invented numbers.
- **Anti-greenwashing rigour** — SDG-washing and greenwashing screens plus claim-substantiation checks built into the ESG and project analysis.
- **Decision-first structure** — 9 Parts and 53 Chapters culminating in stakeholder playbooks and a clear, conditional investment view.

WHO SHOULD BUY THIS REPORT

Investors, OEMs, system designers, foundries, hyperscalers, lenders and policymakers, and strategic corporate planners and decision-makers.

Access the Full Report

The complete report delivers all 53 chapters in full, with every sub-heading, country table, company and patent directory, forecast model and due diligence checklist.

Purchase at www.anewmarketdynamics.com · Standard & Premium licences · Single-Site (SSL) and Global-Site (GSL) options at checkout.

Want the Complete Detailed Table of Contents?

This prospectus lists the nine parts and 53 chapters. The complete detailed table of contents — every sub-heading, country table, exhibit, company and patent directory and annex — is available on request to registered users. To receive it, register with your official company email at www.anewmarketdynamics.com. The full detailed table of contents will be sent directly to your registered company email address.