

AI Frontier Compute HHI - Evidence Package

File Hashes and Traceability

Source Data Files:

- **Hardware Market Data:** ai_frontier_hw_market_Q3_2024_Q2_2025.json
- SHA256: 159960f73a05800f7f5566e2b3a1952651db56c0258c799ea0fdaa9a865967ee
- Access Date: 2025-09-18T14:10:12.895140
- **Inference Market Data:** ai_frontier_inference_market_Q3_2024_Q2_2025.json
- SHA256: 1ec8833eb1296dc73e3315b3af3bb117a070dd47d1ed4a747b4ff51ab798a6f1
- Access Date: 2025-09-18T14:10:12.895140

Processing Script:

- **Calculator:** ai_frontier_hhi_calculator.py
- Version: 1.0.0
- Execution Date: 2025-09-18T14:10:12

Generated Artifacts

Primary Deliverables

1. **HHI Visualization:** ai_frontier_hhi_chart.png
 - Professional time series chart with uncertainty bands and trigger thresholds
 - Format: PNG (1200x800, high resolution)
2. **Executive Report:** ai_frontier_hhi_executive_report.md
 - Comprehensive 2-page analysis with methodology, results, and recommendations
 - Format: Markdown

Technical Specifications

1. **Data Product Spec:** ai_frontier_hhi_data_product_spec.json
 - Complete specification for BI/dashboard integration
 - Dimensions, metrics, formulas, SLAs, and lineage
2. **Trigger Specification:** ai_frontier_hhi_trigger_spec.json
 - Automated monitoring rules and escalation procedures
 - Concentration bands, persistence rules, and stakeholder actions

Complete Dataset

1. **Full Results:** ai_frontier_hhi_complete_results.json
 - All calculations, market shares, sensitivity analysis, and metadata
 - Complete audit trail and intermediate results

Key Findings Summary

Market Concentration Level: HIGH (consistently above 2,500 HHI points)

HHI Results by Quarter:

- Q3 2024: 2,857 points
- Q4 2024: 2,851 points
- Q1 2025: 2,852 points
- Q2 2025: 2,845 points

Trigger Alert: Sustained high concentration for 4 quarters triggers “audit_access_practices” recommendation.

Methodology Validation

- ✓ **Composite Market Definition:** Hardware (40%) + Inference (60%) dimensions
- ✓ **Entity Mapping:** 7 vertically integrated entities identified
- ✓ **Vertical Integration Adjustment:** No entity met >30% threshold in both dimensions
- ✓ **Sensitivity Analysis:** $\pm 60\%$ scenarios provide uncertainty bands
- ✓ **Source Traceability:** All calculations linked to source data with hashes
- ✓ **Professional Standards:** Replicable methodology with documented assumptions

Data Quality Assessment

Hardware Dimension: High reliability - based on SEC filings and unit shipments

Inference Dimension: Medium reliability - triangulation from multiple sources required

Overall Confidence: Medium - appropriate uncertainty bands provided

Regulatory Implications

The sustained high concentration levels (>2,500 HHI for 4 quarters) suggest the market warrants:

- Enhanced monitoring of competitive practices
- Evaluation of interoperability requirements
- Assessment of supply chain diversification needs
- Consideration of regulatory frameworks for AI infrastructure access

Evidence package generated on 2025-09-18 by AI Frontier Compute HHI Analysis System v1.0.0