

SEMICONDUCTOR TECHNICAL BRIEF

Semiconductor Inspection Data

A distributed data foundation for fast traceability at 100-billion-file scale

DATARAM AI

Dataram AI Technical Resource

2026 Edition

The data challenge

Semiconductor inspection environments generate huge volumes of images, measurements, and process records across diverse tools. Dataram IDM and MOS unify this data without compromising production continuity, long-term durability, or retrieval speed.

- Fragmented AOI, SEM, Surfscan, AVI, and process data across equipment and file servers
- Rapid file-count growth that makes directory scans, backup, and lifecycle operations impractical
- Quality teams that need specified inspection data within seconds, even at 100-billion-file scale

A practical Dataram approach

Acquire	Collect data from heterogeneous tools with line-side continuity and centralized governance.
Index	Attach product, lot, wafer, equipment, defect, and time metadata for multidimensional retrieval.
Scale	Expand distributed object capacity online while applications continue to use standard interfaces.
Govern	Apply lifecycle, access, protection, and retention policies across the complete data estate.

Expected operational outcomes

- Specified quality records retrieved within seconds at massive file scale
- A durable data foundation for traceability, root-cause analysis, analytics, and AI
- Independent capacity growth with fewer disruptive migrations and storage silos

Next step

Use this brief to align quality, manufacturing, IT, and data teams on the first measurable deployment scope. Dataram can then assess workload behavior, integration requirements, growth, protection, and lifecycle objectives for a production-ready design.

[Learn more at dataram.ai](https://www.dataram.ai)