

e-Diagnostics Working Group Meeting

e-Diagnostics Guidelines V0.4

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INTERNATIONAL
SEMATECH

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Purpose/Scope:

The fundamental purpose of e-Diagnostics is to increase the availability of production and facilities equipment, reduce mean time to repair and provide significant reduction in field service resources/costs. This capability must be available for 200mm and 300mm fab equipment, Probe/Assembly/Test equipment, and key Facilities equipment.

e-Diagnostics definition:

Capability to enable an authorized equipment supplier's field service person to access any key production or facilities equipment from outside the IC maker's facility/factory via a network or modem connection. Access includes ability to remotely monitor, diagnose problems or faults, and configure/control the equipment in order to bring it into full productive state rapidly, within security and safety guidelines.

The e-Diagnostics solution consists of equipment and auxiliary hardware and software applications.

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Safety and Security:

- **Safety** is imperative. Potential solutions must address worker, product, and equipment safety. An operational interlock is required to ensure safety.
- Data **security** is paramount. Potential solutions must address network, communications, data encryption and other relevant issues. Only authorized personnel may be able to access the view based, relevant data to perform diagnosis.
- Remote data and control **access** must be **selectively provided**. Therefore the e-Diagnostic system must have built-in capability that determines when to allow specific remote functions to be executed based on specific states or condition of the equipment.

Architecture:

- The solutions must support **remote accessibility** of equipment diagnostic data from outside the IC maker's firewalls. **Two-way communications** between these two locations is needed to support interactive problem solving.
- The solutions must permit sharing of key diagnostics and monitoring data between multiple factory and supplier sites on an as-needed basis to enable **remote detection of issues** and proactive trouble-shooting.
- The solutions must enable **predictive maintenance**, including notification when equipment will need service or repair.
- e-Diagnostics solutions must be implemented using an **open architecture** based on mainstream computer technologies, non-proprietary standards and data models.

Collaboration:

- The solutions must provide the same equipment monitoring/diagnostics data at the **local and remote sites**. Identical representations and user interfaces at both sites are highly desired.
- The solutions must enable run-time data collection, storage, and retrieval. The e-Diagnostics system must enable **analysis of** this data and decision support capability.
- The solutions must allow **audio-visual collaboration** such as video teleconferencing or video over Internet Protocol to enable remote experts to view/diagnose equipment and sub-assembly problems in real-time and communicate with factory personnel.