SEMI A1 PESCI

Production Equipment Smart Connection Interface

- The general-purpose equipment interface for smart production line -

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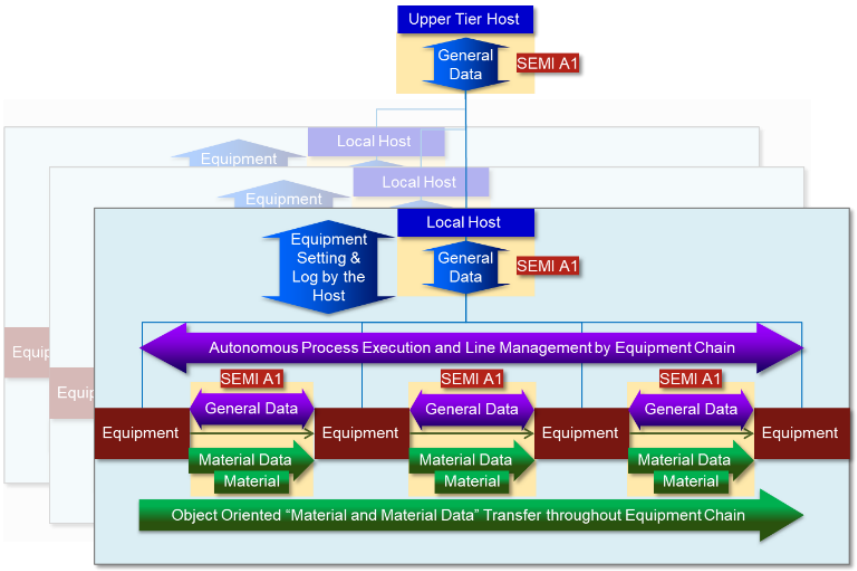
"SEMI A1 PESCI (Production Equipment Smart Connection Interface)" is an advanced general-purpose equipment connection Standard that makes production line smarter.



SEMI Standards are global standards that have been supporting semiconductor and related manufacturing lines for many years and its development process is open for those who are interested.

Functions of SEMI A1 PESCI

SEMI A1 PESCI provides the following functions essential for production line management.

- General-purpose intra-factory communications:
  - Between an upper tier host and local hosts
  - Between an upper tier host and equipment
  - Between a local host and equipment
  - Between Equipment and equipment
  - Broadcasting
- Flexible messaging by:
  - Simple Point-to-Point protocol with 'Message Propagation' extension to far Node
  - 'Addressing' capability up to 254 groups of 254 Nodes (Hosts or equipment)
  - Message thread management up to 65536 threads
  - Multiple Block management capability for large message
- Definition of Message Body is open for upper tier Standard or users.
- 'Object Oriented' simultaneous transfer of 'Material and Material Data' between adjacent equipment along the production line. Normally, Material Data contains:
  - Material ID — An identifier of the material
  - Product ID — An identifier of the product the material will be
  - Production logs — Such as production conditions or inspection results
- Various material transfer modes between adjacent equipment:
  - Uni-Direction — A material flows in one direction
  - Alternate-Direction — A material flows in both directions alternatively
  - Bi-Direction — Materials flow in bi-direction in one transfer cycle
- Up to 10 material transfer 'Tracks' capable between adjacent equipment.
- Multiple 'Handoff step' function supports various material transfer means:
  - Conveyors, robots, AGVs, etc.
- Pause – Recovery function for operator support of material transfer exceptions.

Application of SEMI A1 PESCI

User Applications (Host / E2E Interfaces)
SEMI Ax Application Specific Definitions
SEMI A1 PESCI
SEMI A1.1 TCP/IP Interface for PESCI
TCP/IP

- Definitions of actual Messages and Material Data are open for users. Normally, upper tier Standard defines them based on the industry requirements.
  For example, SEMI SMT-ELS Standards suite uses SEMI A1 PESCI as a basic protocol and uses SEMI A2 SMASH to define messages and Panel Data for SMT assembly application.
- SEMI A1 PESCI uses only TCP/IP for higher interface flexibility and simple 'Memory image exchange' type 'Communication Block' for wider platform coverage including PLC.
  These interface specifications are defined in the subordinate Standard SEMI A1.1.

Latest Version of SEMI A1 / A1.1

- SEMI A1-1019 Specification for Production Equipment Smart Connection Interface (PESCI)
- SEMI A1.1-1019 Specification for TCP/IP Interface for Production Equipment Smart Connection Interface (PESCI)

How to purchase SEMI A1 / A1.1

The Standards are available through "SEMIViews" the license to access those documents. Please ask SEMI Staff in your locale for SEMIViews.

For more up-to-date information on implementation or revisions

Please join the following SEMI activities.

SEMI Flow Manufacturing (FM) Forum

SEMI FM Forum is the place to collaboratively works on implementation knowhow, interoperability testing, feedback, etc. The forum is open for any users and suppliers of SEMI A1 PESCI. Please ask SEMI Staff for the registration.

SEMI Standards Automation Technology (AT) Committee

SEMI Standards AT committee and A1 Task Force under the committee are responsible for development and improvement of SEMI A1 PESCI. This activity is open for everyone with free Program Member registration. Please ask SEMI Staff for the registration.

Homepage: http://www1.semi.org/jp/SEMI_A1_PESCI

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