GLOSSARY OF TECHNICAL TERMS

This glossary contains explanations of certain terms used in this document in connection with our Company and our business. The terminology contained in this glossary and their given meanings may not correspond to standard industry meaning or usage of these terms.

"AMHS"	automated material handling system, an intelligent semiconductor transfer system primarily comprising OHT vehicles, OHT railways, OHBs, stockers, and OLUS, along with peripheral equipment and software systems that automate the transportation, storage, and delivery of wafer carriers, improving material flow while reducing manual handling
"back-end process"	a stage in the semiconductor manufacturing where processed wafers are converted into finished chips via packaging, assembly, and testing
"Bernoulli end effector"	an end effector in semiconductor manufacturing equipment that applies the Bernoulli principle to generate a pressure differential through controlled airflow, enabling non-contact lifting, handling and transfer of wafers or substrates
"buffer"	a temporary storage area or unit within the automated handling system used to hold wafer carriers between processing steps to balance material flow and optimize equipment utilization
"carrier"	a precision-engineered container used to hold, protect, and transport silicon wafers safely between processing steps
"cassette"	a standardized container or rack designed to hold multiple semiconductor wafers in a parallel, spaced-out orientation for storage and transport between different processing steps
"chiplet"	a modular die designed to be integrated with other chiplets in a single package
"cleanroom"	a controlled environment where the concentration of airborne particles is controlled to specified limits, essential for semiconductor manufacturing
"CoWoS"	chip-on-wafer-on-substrate, an advanced 2.5D packaging technology
"die-to-wafer"	an advanced semiconductor packaging technology in which individual semiconductor dies are precisely placed and bonded onto a wafer to enable integration of device structure
"EFEM"	equipment front end module, a subsystem integrated into wafer processing tools that provides wafer loading, alignment, and transfer within a controlled micro-environment and interfaces with plant automation
"EMS"	edge management system, an integrated module within wafer handling equipment, designed to perform in-situ measurement and management of wafer edge and film uniformity parameters
"end effector"	a component attached to the end of a robotic arm in semiconductor manufacturing equipment, used to grip, handle or transfer wafers or other materials during automated processes

GLOSSARY OF TECHNICAL TERMS

"E84"	a SEMI standard for communication between semiconductor manufacturing equipment, enabling non-contact data exchange and standardized handshaking and interlock functions to ensure safe and coordinated transfer of material carriers across equipment interfaces
"ferrofluidic"	a sealing technology using magnetic fluid to create a vacuum-tight rotary seal
"FOSB"	front opening shipping box, a container used for transporting wafers between different manufacturing sites
"FOUP"	front opening unified pod, a specialized plastic enclosure designed to hold wafers securely and safely in a clean environment during transport and processing
"FFUs"	fan filter units, units used in semiconductor manufacturing to supply filtered air through high-efficiency filters to maintain clean and controlled environments within equipment or enclosures
"Frame FOUP/Box"	a carrier used to store and transport frame wafers in semiconductor manufacturing
"front-end process"	a stage in the semiconductor manufacturing where the circuitry is fabricated on the wafer
"IDM"	integrated device manufacturer, a company that designs, manufactures, and sells its own semiconductor chips
"ISO Class1"	a cleanroom classification standard representing a superior level of air cleanliness with extremely low concentrations of airborne particles
"lifter"	a vertical transport mechanism used within the automated handling system to transfer OHT vehicles between the ground and the railway
"lithography"	the process of transferring circuit patterns onto a wafer surface
"load lock"	a chamber used in semiconductor manufacturing to transfer wafers between atmospheric and vacuum environments while maintaining vacuum conditions in process chambers
"loadport"	a component of the EFEM that serves as a connector between the EFEM and wafer processing tools to receive and identify wafer carriers (e.g., FOUPs or cassettes), providing a standardized interface for carriers to be loaded onto or unloaded from the equipment
"MCP"	main control processor, a software component used in semiconductor manufacturing to coordinate and optimize material handling operations, including scheduling, routing and task execution of transport vehicles within automated material handling systems
"MCS"	material control system, a software system used in semiconductor manufacturing to control and coordinate material handling operations, including task assignment, dispatching and scheduling of transport vehicles, enabling efficient movement of materials within automated material handling systems

GLOSSARY OF TECHNICAL TERMS

"MES"	manufacturing execution system, a software system used in semiconductor manufacturing to manage and control production operations on the factory floor, including production scheduling, process tracking, and materials logistics coordination, and interfacing with equipment and automation systems
"MTBF"	mean time between failures, a measure of the predicted elapsed time between inherent failures of a mechanical or electronic system during normal system operation
"MTTR"	mean time to repair, a measure of how quickly a system recovers after an issue
"OCS"	open cassette systems, a wafer handling framework where wafers are stored and transported in open-air carriers, typically used in environments or process steps where fully sealed isolation is not required
"OCR"	optical character recognition, a technology used to convert printed text into machine-readable data, commonly applied for identification and tracking of wafers, carriers and materials in automated semiconductor manufacturing processes
"OHB"	an automated wafer carrier storage device installed on both sides of OHT railway for the temporary storage or transport of materials during semiconductor manufacturing
"OHT"	overhead hoist transport, a vital system of AMHS that utilizes a ceiling-mounted track network to transport wafer carriers (such as FOUPs and FOSBs) above the production floor, designed to eliminate ground-level traffic interference and enhance transport efficiency and cleanroom integrity
"OLUS"	operator load-unload station, a manual wafer loading system designed for maximum flexibility and precision that detects and verifies carrier alignment with wafer transfer equipment while featuring protective light curtains for operator security and a touch-screen interface for ease of use
"PA"	pre-aligner, a precision device that orients wafers prior to processing
"PLC"	programmable logic controller, an industrial computer used for automation control
"PLP"	panel level packaging, a semiconductor transfer equipment designed for glass substrates used in PLP, enabling high-precision, high-cleanliness and highly stable automated handling of large-size glass substrates throughout the packaging process
"process node"	a specific semiconductor manufacturing technology generation, typically defined by the minimum feature size
"PVD"	physical vapor deposition, a vacuum coating process used to deposit thin films onto wafers
"RFID"	radio frequency identification, a wireless technology used to identify and track wafer carriers and materials in semiconductor manufacturing processes

GLOSSARY OF TECHNICAL TERMS

"SECS/GEM"	SECS/GEM is the standard communication protocol for semiconductor manufacturing, providing the interface between automated equipment and the factory host system. SECS defines the communication layers and message data structures, while GEM specifies standard equipment behaviors and control functions. Together, they enable seamless automation, real-time data collection, and remote equipment control across the manufacturing environment
"semiconductor"	a material with electrical conductivity between a conductor and an insulator, used in electronic devices
"sorter"	a piece of equipment used to sort or rearrange wafers into different FOUPs according to specific requirements
"stocker"	an automated system designed to handle, sort, align, identify, and transfer wafers between cassettes or process equipment. It ensures that wafers are correctly oriented, placed in the right sequence, and mapped accurately for downstream processes
"TAIKO wafer"	a type of ultra-thin semiconductor wafer featuring a peripheral support ring structure, designed to enhance mechanical strength and handling stability during semiconductor manufacturing and transfer processes
"Uptime"	the amount of time a piece of equipment is operational and available for production during its scheduled period
"Vacuum robot"	a high-precision robot designed to operate within a vacuum environment to transfer wafers between process chambers without contamination
"Wafer"	a thin slice of semiconductor material, used in the manufacture of ICs and other microelectronic devices
"WPH"	wafer per hour, a key metric used to measure the yield or productivity of semiconductor processing equipment by the number of wafers processed within one hour
"yield"	a percentage of the total number of chips that were actually produced to the maximum chip count on one wafer. The higher the yield, the higher the productivity.