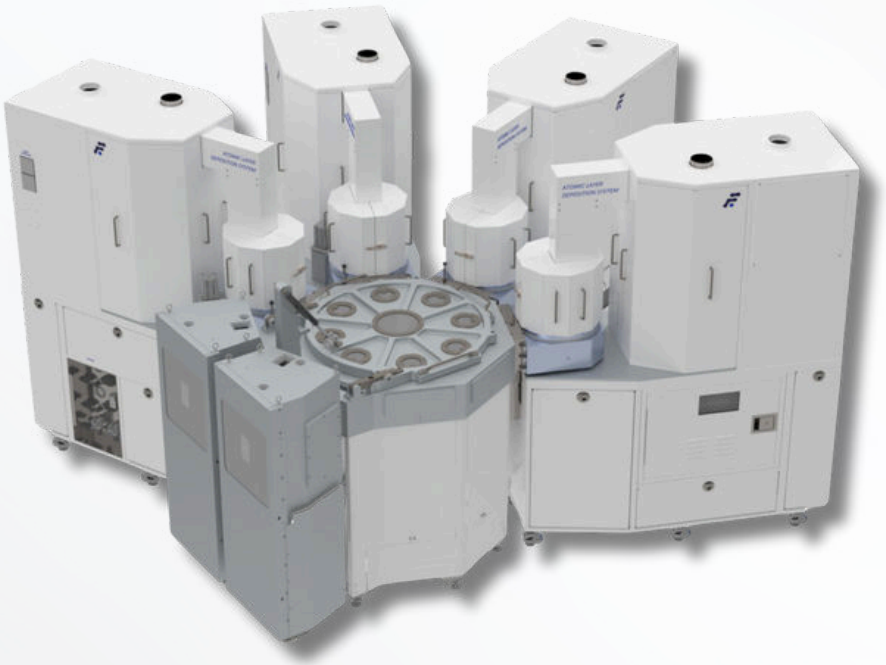
TEPHRA™

200 mm Cluster Platform

ALD^{x} Line

Single Wafer - Commercial

TEPHRA is Forge Nano's single-wafer, thermal ALD cluster platform dedicated to advanced 3D integration and More-than-Moore device manufacturing on 200 mm wafers and below. TEPHRA utilizes Forge Nano's ALDx technology, delivering unprecedented throughput to a single-wafer ALD tool without compromising on efficiency, performance or yield.



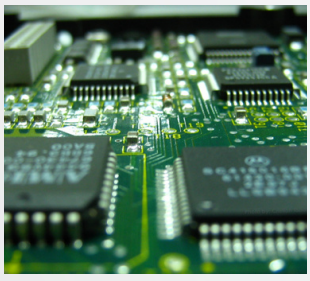
12 nm/min
deposition rates

Up to 90%
chemical utilization

35% improvement
in selected film properties

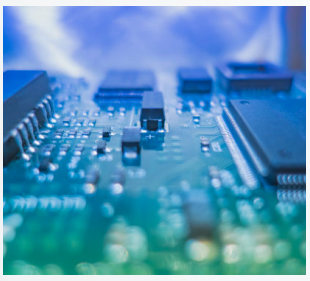
Industries & Applications

Advanced Packaging



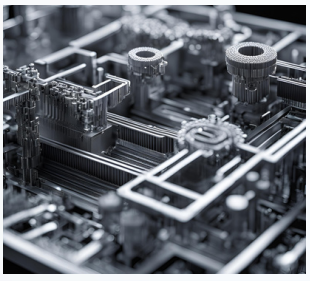
Metal Barrier Seed

Power Devices



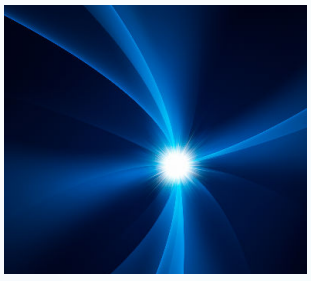
Gate Dielectric
Surface Passivation

MEMS & Sensors



Encapsulation
Metal Barrier Seed

LED & Photonics



Gap Fill
Surface Passivation

FORGE NANO

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TEPHRA™ ALD^x Line

Key Features

Hardware

Fast pneumatic valves & in situ pressure regime control enabling sub-second cycles

Easy-to-perform maintenance and less frequent PM cycles

Process

Catalyzed thermal ALD enabling high aspect ratio processing

High chemical utilization slash critical OPEX barriers

Control

Modular PLC system with SECS/GEM compliance and expanded data logging

E95 compliant graphical HMI

Specifications

TEPHRA is available in 3 configurations: a 4-sided, 6-sided and 8-sided cluster platform.

Specification	3 Process Modules	4 Process Modules	6 Process Modules
Wafer Sizes	Up to 200 mm		
Process Temperature	80C to 300C		
Precursor Channels	Up to 6		
Main Dimensions (LxWxH)	2660x3745x1960 mm	2685x3840x1960 mm	4070x3130x1960 mm
Ancillary Equipment	Main Power Distribution 300x900x1800 mm Transport Module Dry Pump 450x230x275 mm Process Module Dry Pumps 750x280x430 mm		
Certifications	SEMI S2, SEMI S8, CE		
Power Requirements	3-Phase,4-Wire 208Y/120 V @ 60Hz 3-Phase,4-Wire 400Y/230 V @ 50Hz		

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