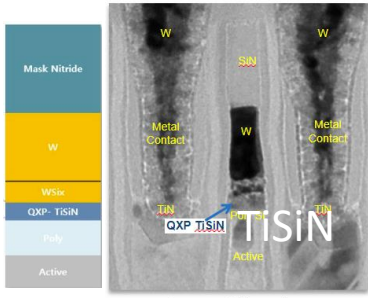
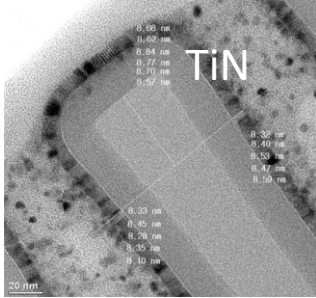
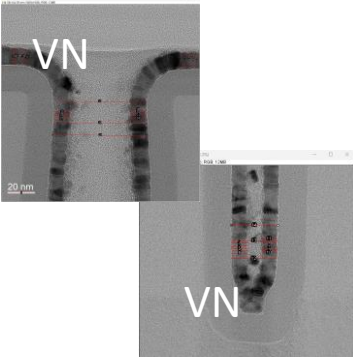
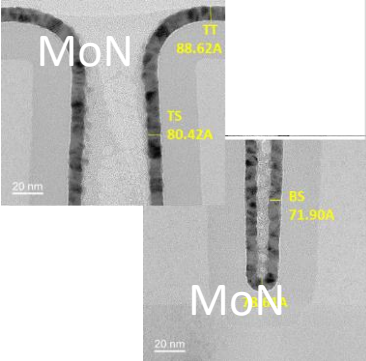
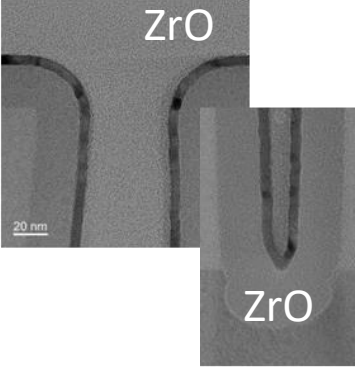
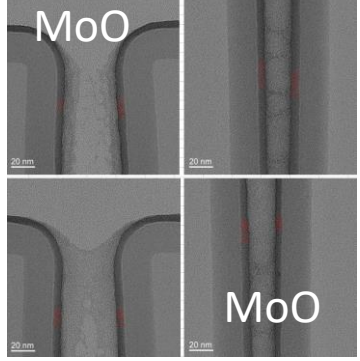


Eugenus New ALD Materials

Metal ALD; Dielectric ALD

FILM	TiSiN	TiN/TiSiN	VN	MoN	ZrO/HfO	MoO
APPLI-CATION	DRAM Barrier Metal	DRAM Bottom/Top Electrode	DRAM Bottom/Top Electrode	DRAM Bottom/Top Electrode	DRAM Capacitor Oxide	DRAM Capacitor Interface
TEM						
KEY RESULT	<ul style="list-style-type: none"> High temperature <i>thin</i> diffusion barrier 	<ul style="list-style-type: none"> TiN Step Coverage: >98% 	<ul style="list-style-type: none"> VN Step Coverage: >98% Higher WF, Lower Rs than TiN 	<ul style="list-style-type: none"> MoN Step Coverage: >90% Higher WF than TiN 	<ul style="list-style-type: none"> ZrO Step coverage: > 100% 	<ul style="list-style-type: none"> MoO Step coverage: > 100%

New ALD Materials for DRAM/3D-DRAM Scaling