**Al Dual Damascene**

- Formation of Groove and Contact / Via holes
- Simultaneous Filling to Groove and Contact / Via holes
- Complete Interconnect after CMP

- It is unnecessary to use Metal RIE
- Decrease of the resistance of Contact / Vias by using Al
- Low COO by using Al PVD process
D-D Processes by Al Filling

Nb Liner 2 Step Flow

PVD System

CMP System

CMP

Reduction to 2 from 5 processes
2 Step Al Flow (Including Contact Process)

Process Flow

Degas / Pre-clean
- Outgas of impurities
- Removal of native oxides and other residuals: ICP Etch Clean

Wetting Layer LTS
- High step coverage: LTS
- Low temperature deposition: ESC Hot Plate

Cold AlCu LTS
- Not to generate Overhang and Bridging: LTS
- Low temperature deposition: ESC Hot Plate

Hot AlCu Conventional
- Quick increasing of temperature / Precise temperature control: ESC Hot Plate
**Sputtering System for Al Filling**

*CERAUS Zi-1000N*

- With Auto Loader

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**Etching System**

*NLD-6000*

- For Etching of Fine pattern Holes
- Neutral Loop Discharge
- Floor Space 1/2, Price 1/2