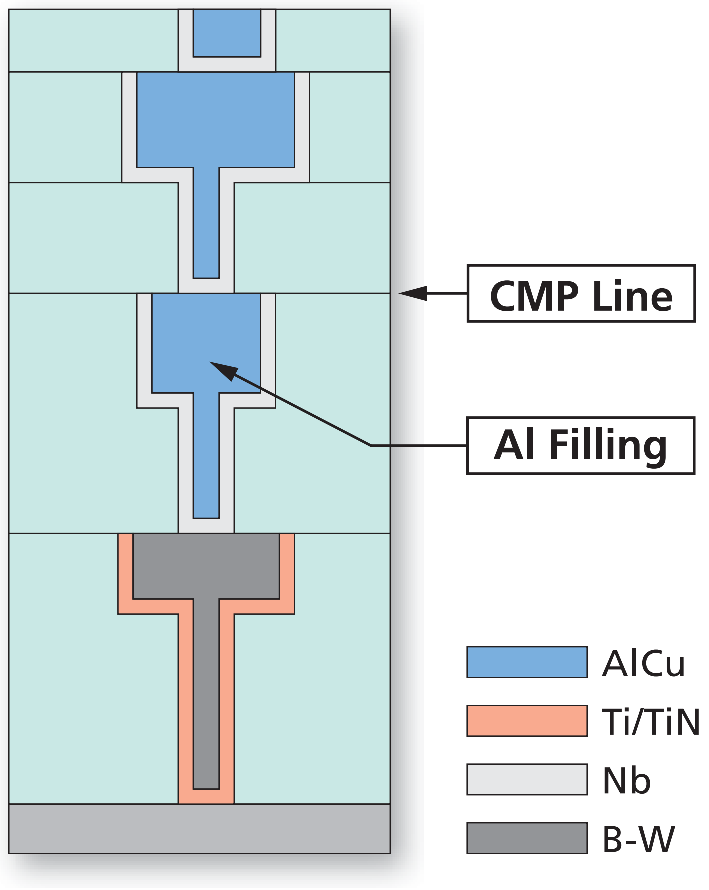
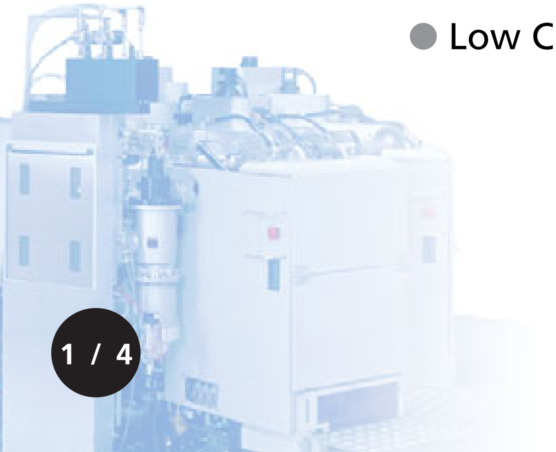
Al Interconnect

Reduction of Process number by Al Dual Damascene

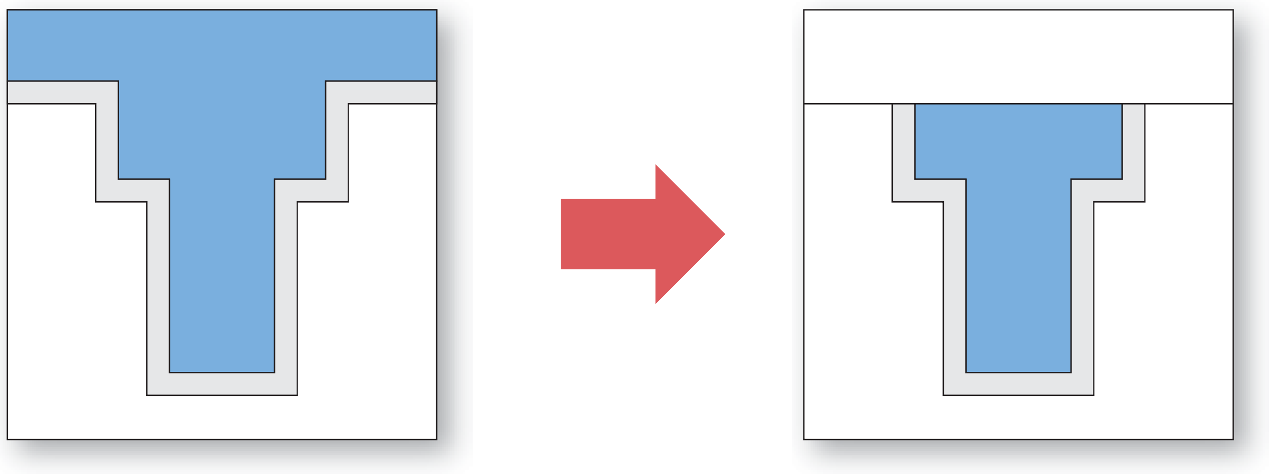
Al Dual Damascene

- **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

CMP

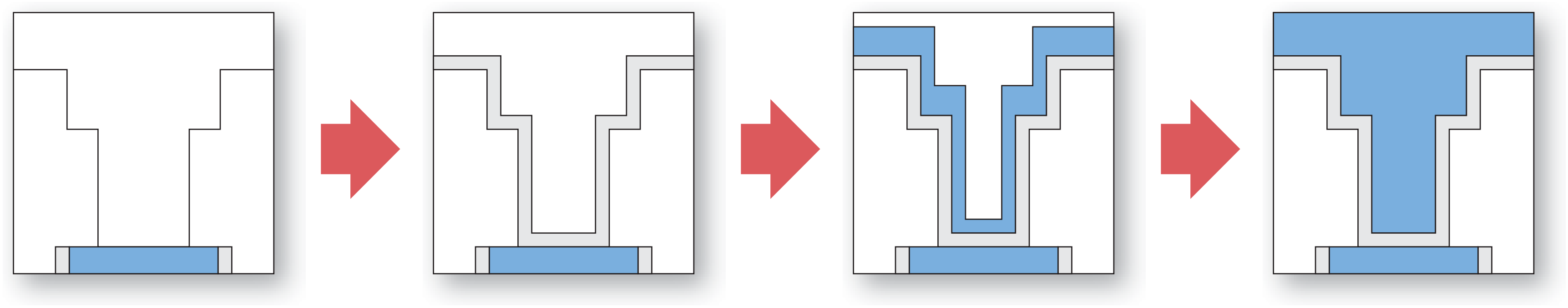
PVD System

CMP System

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**

ULVAC SOLUTIONS

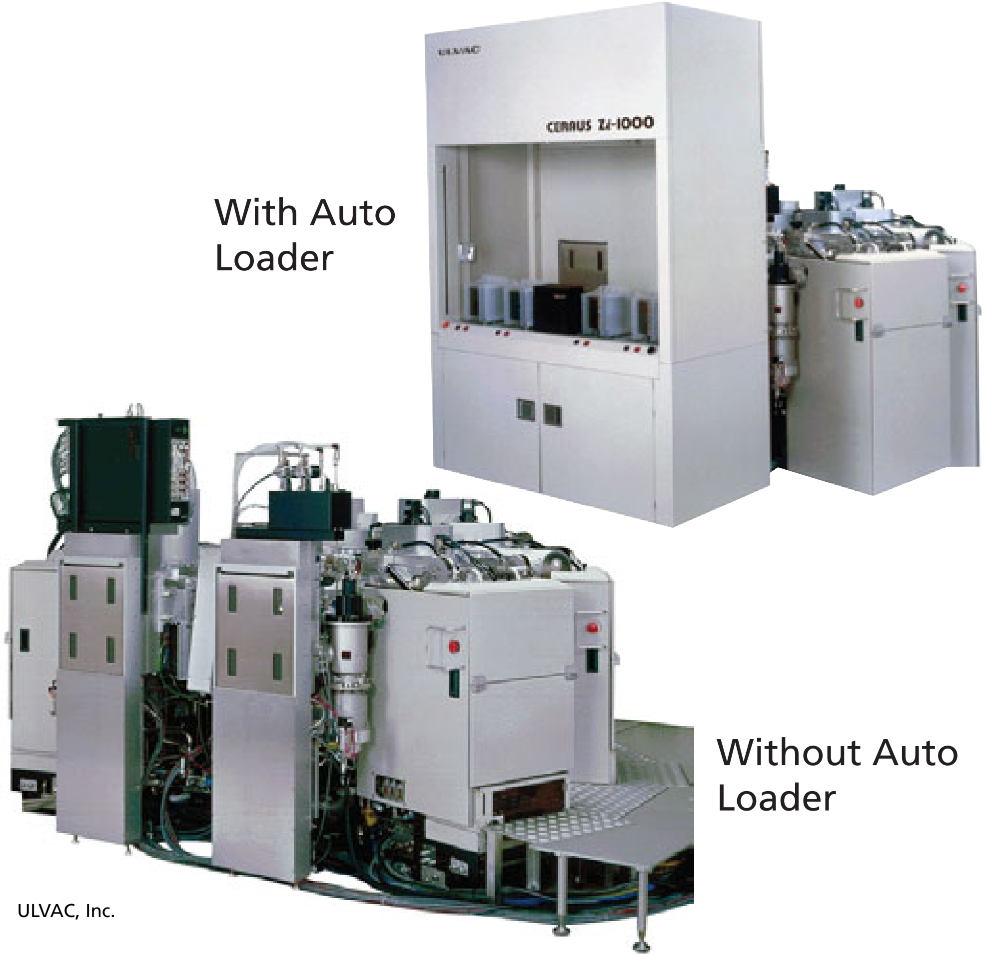
Al Interconnect

Product for Solutions

ULVAC

Sputtering System for Al Filling

CERAUS Zi-1000N



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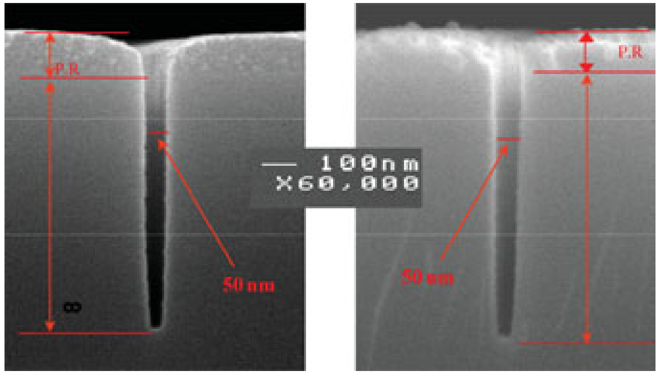
Etching System

NLD-6000

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



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