Mask Inspection
Inspection Flow

Mask -> Inspection Tool (KLA Tencor Terascan) -> Defect Review -> Mask Repair/Replacement -> AIMS -> To Fab
Inspection Tool

Key Features:
- Transmitted Illuminator allows different contrast for binary and PSM
- Time Domain Integration (TDI) sensor: Faster, lower light levels required compared to CCD
Inspection Tool

• Modes: Die-die and die-database

• Defects <20nm can be detected

• Current tools have reflection illumination also

• Generates 1000+ defects, most nuisance
Defect Review

Criteria for Defect classification:

• Size
• Type
• Location
• wafer CD change(simulation)
Aerial Imaging Measurement System (AIMS)
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- Gold Standard
- Emulates Stepper with adjustable NA, exposure, etc.
- Image equivalent to that on photo resist

Issue:
- Too slow