

# **Optical design limits**

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**EUVL source workshop**

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## Transmission of the IU and PO

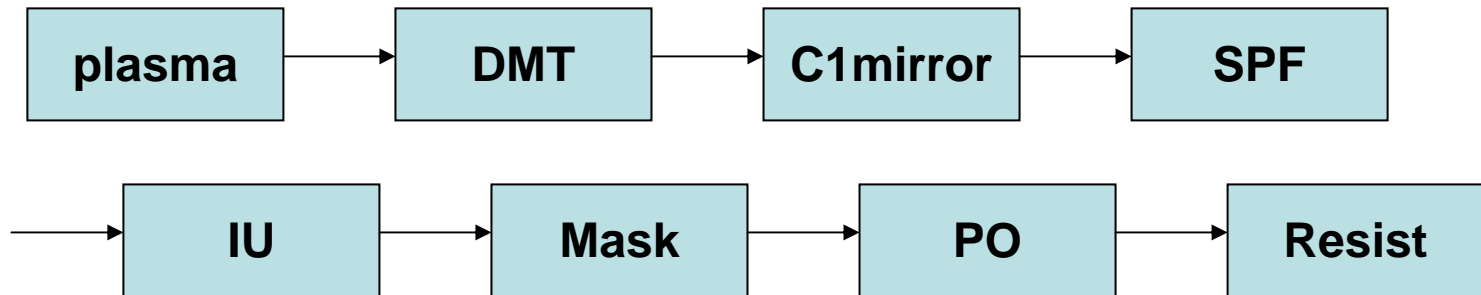
### •Assumptions for the Projection Optics

- Number of mirrors: 6, Reflectivity: 67.5%, Bandwidth matching loss: 5.0%,
- Polarization loss: 5.0%, Gas absorption loss: 5.0%

Category	Subject	Improvement is	Comment
Optical Design	Number of mirrors for IU	Difficult	novel source quality
	Number of mirrors for PO	Extremely difficult	assume 4X, 0.25NA
	Polarization	Extremely difficult	
Coating	Peak Reflectivity	Challenge	HR and LS combination
	Broad band	Difficult	
	Band Matching	Challenge	precise thickness control
Contamination	Gas absorption	Challenge	Contamination control
	Reflectivity degradation	Challenge	Contamination control

- In order to maintain the optical performance, drastic improvement might not be feasible.
- There is some possibility to make transmission better by improvements of coating technology and contamination control. But it could be little.

# What portions of the system impact throughput ?



These are:

plasma

SPF

Resist

**SPF transmittance Strong SPF or Weak SPF**  
**Size of the plasma of the OoB radiation**  
**Corrector design to prevent the OoB radiation entering IU**  
**Sensitivity of the resist to the OoB radiation**

**Discussion will be needed among suppliers.**