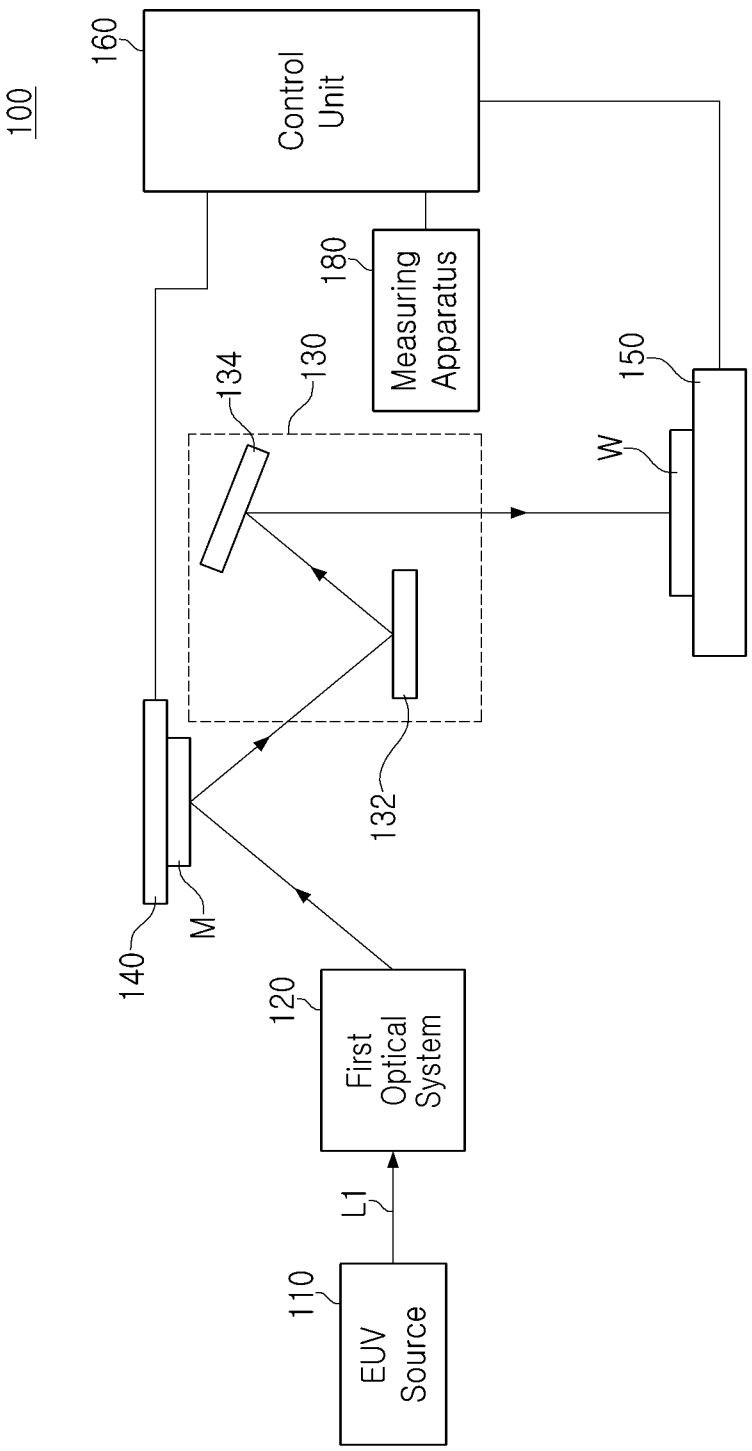

100
160
Control Unit
180
Measuring Apparatus
130
134
150
W
132
M
140
120
First Optical System
L1
110
EUV Source

FIG. 1

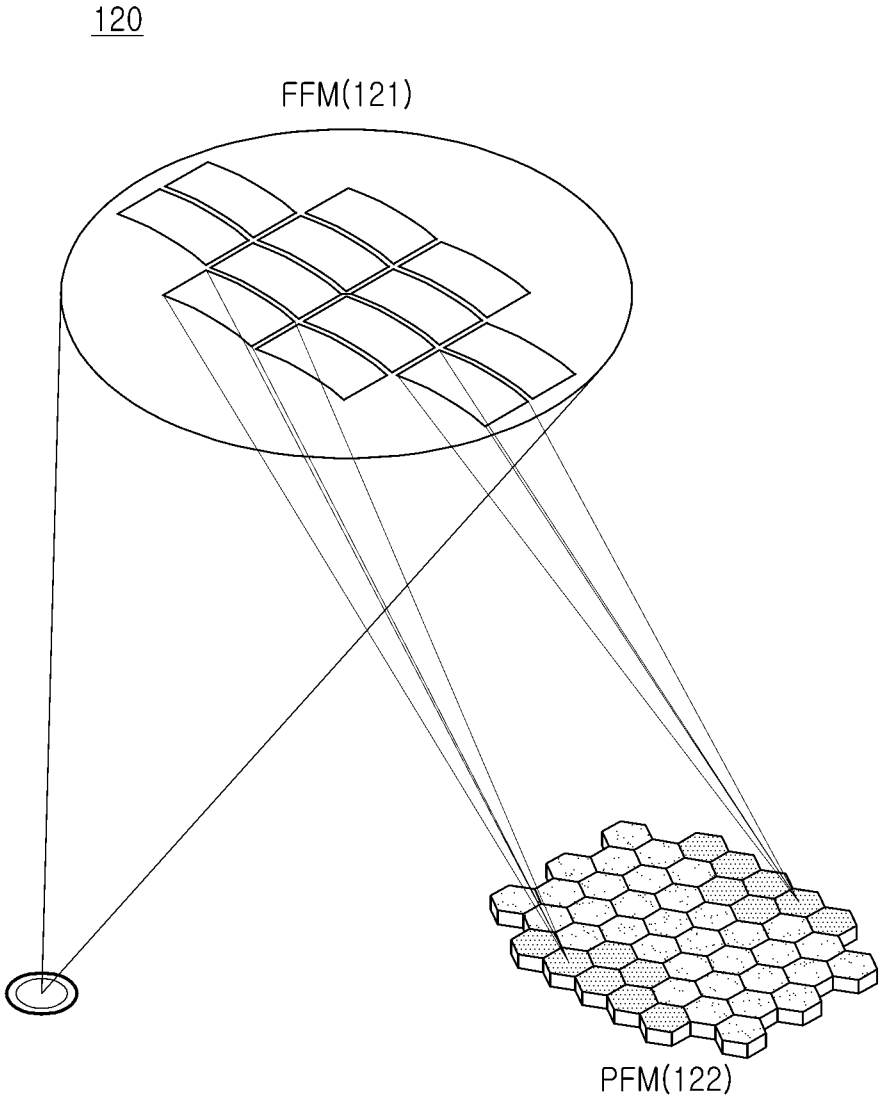


FIG. 2

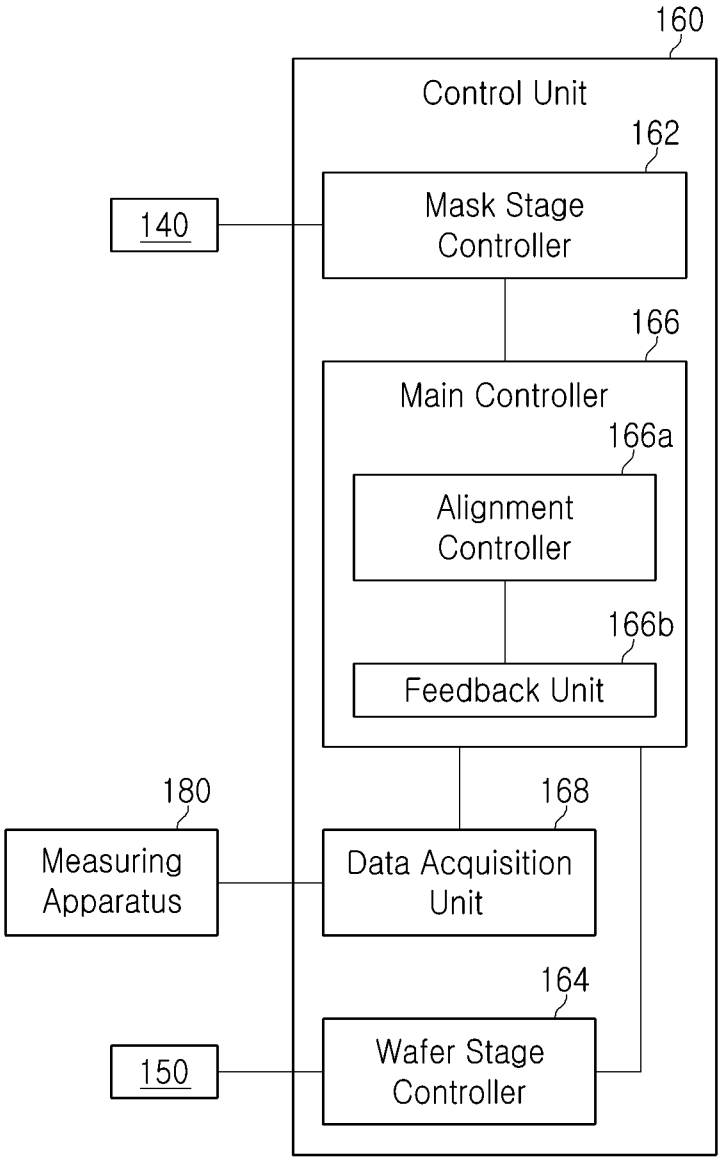

160
Control Unit
162
Mask Stage Controller
140
166
Main Controller
166a
Alignment Controller
166b
Feedback Unit
180
168
Measuring Apparatus
Data Acquisition Unit
164
Wafer Stage Controller
150

FIG. 3

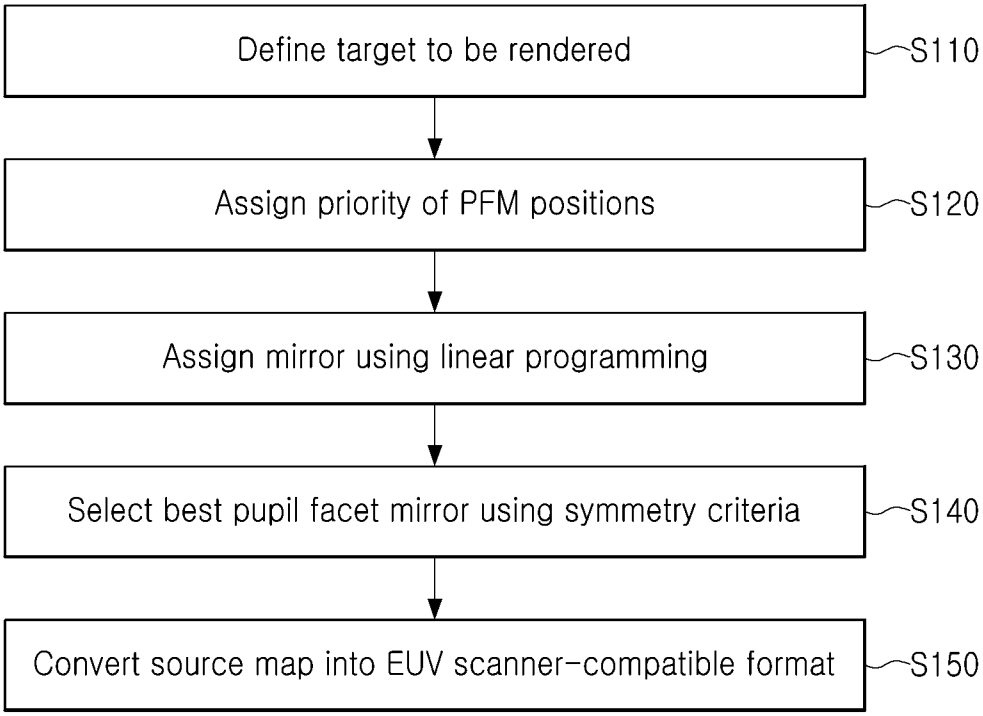

Define target to be rendered
S110
Assign priority of PFM positions
S120
Assign mirror using linear programming
S130
Select best pupil facet mirror using symmetry criteria
S140
Convert source map into EUV scanner-compatible format
S150

FIG. 4

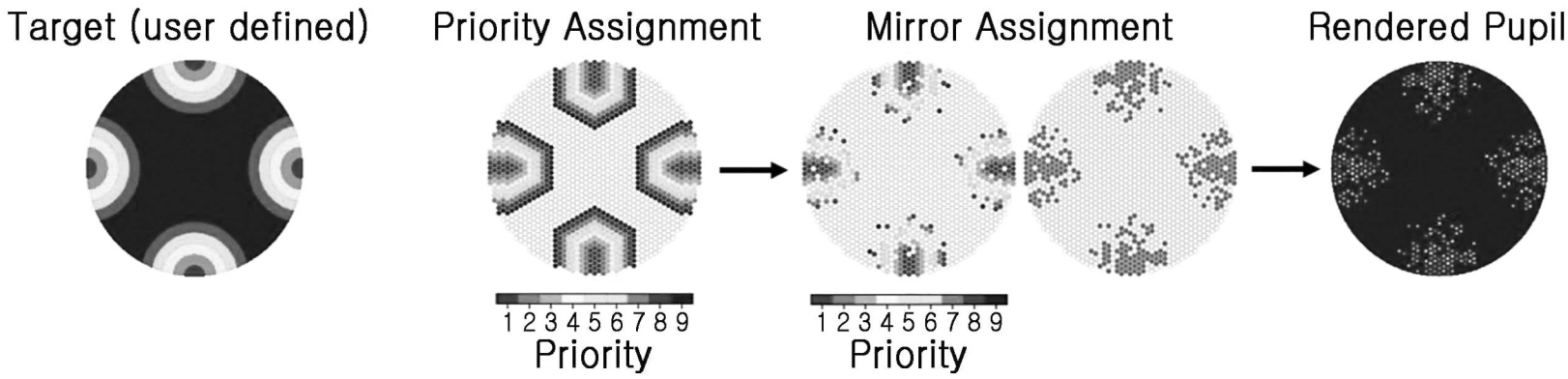

Target (user defined)
Priority Assignment
Mirror Assignment
Rendered Pupil
1 2 3 4 5 6 7 8 9
Priority
1 2 3 4 5 6 7 8 9
Priority

FIG. 5

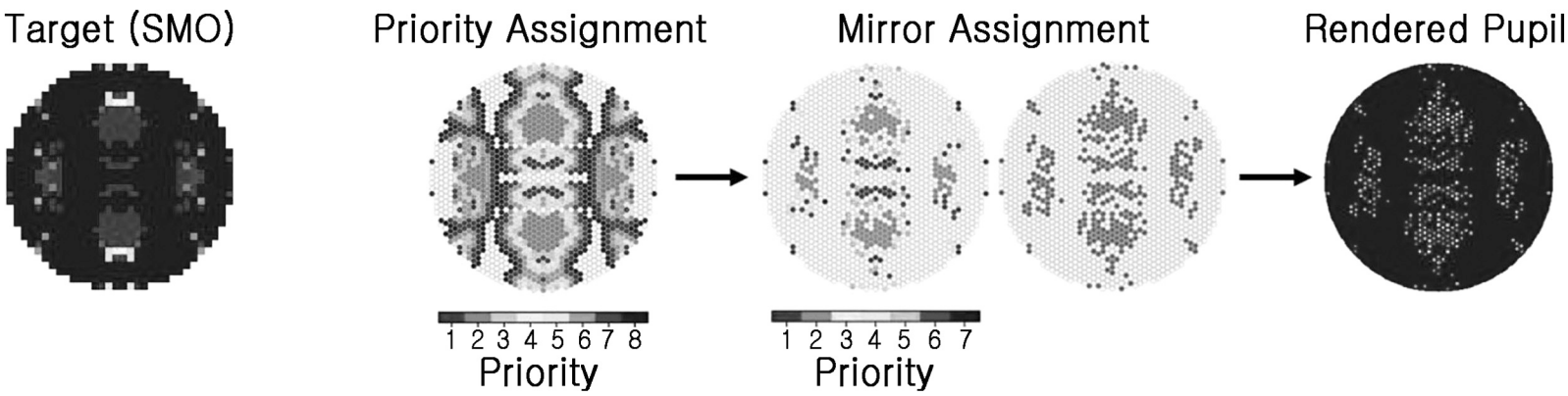

Target (SMO)
Priority Assignment
Mirror Assignment
Rendered Pupil
1 2 3 4 5 6 7 8
Priority
1 2 3 4 5 6 7
Priority

FIG. 6

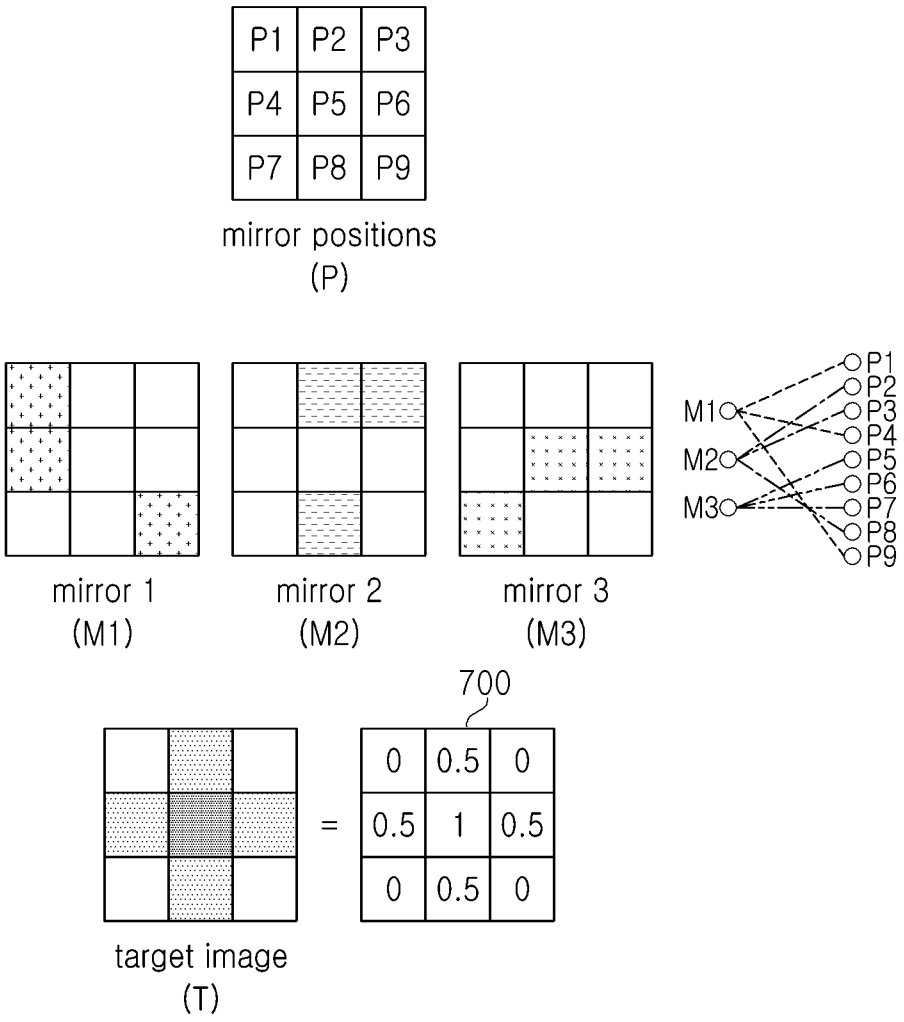

P1
P2
P3
P4
P5
P6
P7
P8
P9
mirror positions
(P)
mirror 1
(M1)
mirror 2
(M2)
mirror 3
(M3)
M1
M2
M3
P1
P2
P3
P4
P5
P6
P7
P8
P9
700
0
0.5
0
0.5
1
0.5
0
0.5
0
=
target image
(T)

FIG. 7

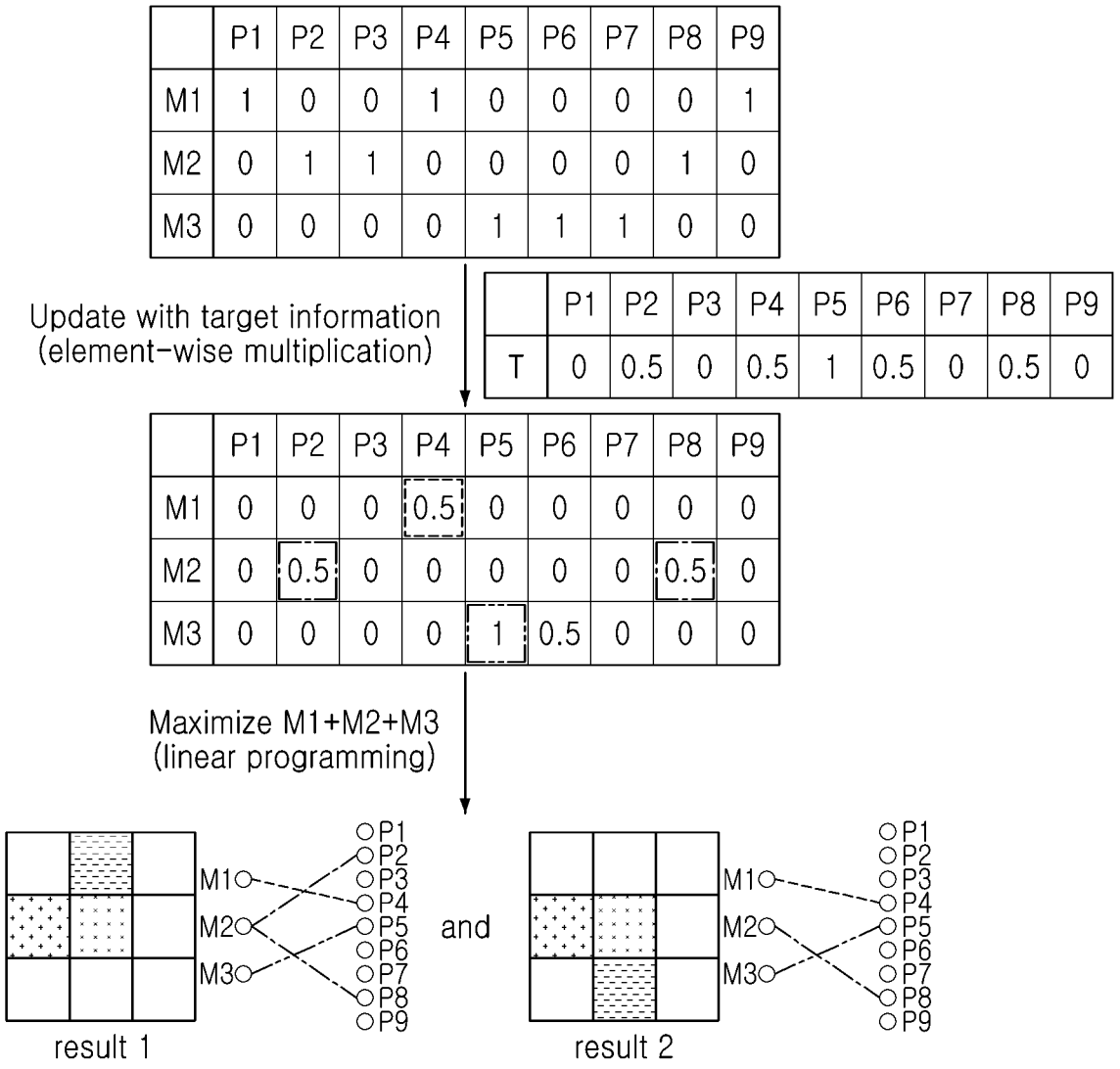

P1 P2 P3 P4 P5 P6 P7 P8 P9
M1 1 0 0 1 0 0 0 0 1
M2 0 1 1 0 0 0 0 1 0
M3 0 0 0 0 1 1 1 0 0
Update with target information
(element-wise multiplication)
T 0 0.5 0 0.5 1 0.5 0 0.5 0
M1 0 0 0 0.5 0 0 0 0 0
M2 0 0.5 0 0 0 0 0 0.5 0
M3 0 0 0 0 1 0.5 0 0 0
Maximize M1+M2+M3
(linear programming)
M1
M2
M3
P1 P2 P3 P4 P5 P6 P7 P8 P9
result 1
and
result 2

FIG. 8

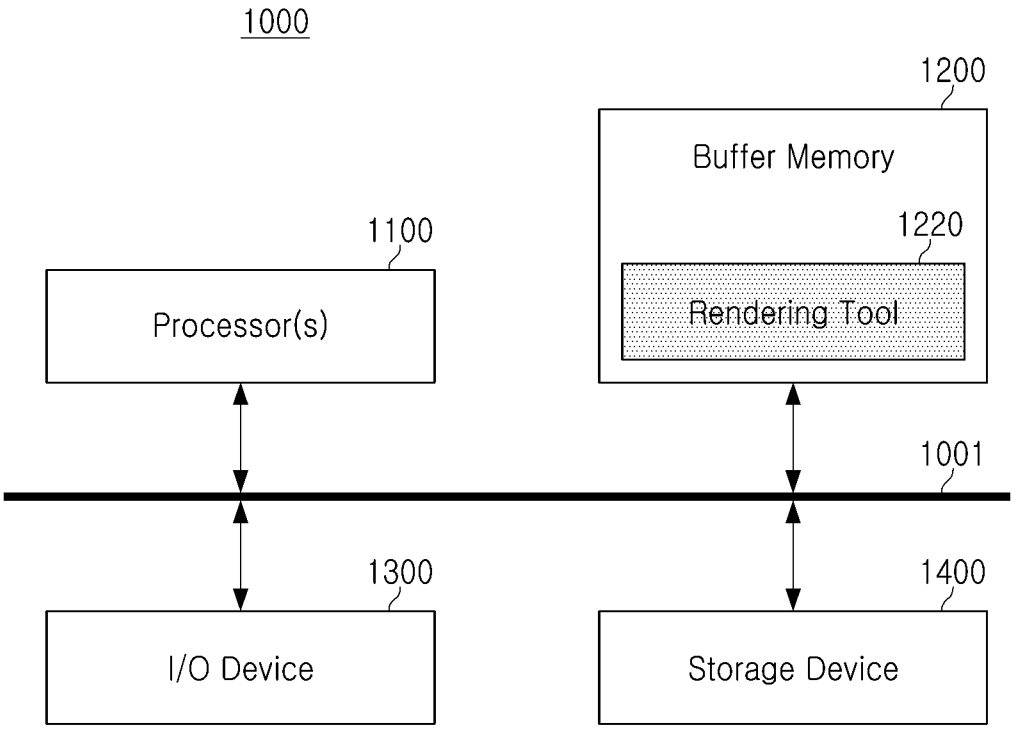

1000
1200
Buffer Memory
1220
Rendering Tool
1100
Processor(s)
1001
1300
I/O Device
1400
Storage Device

FIG. 9

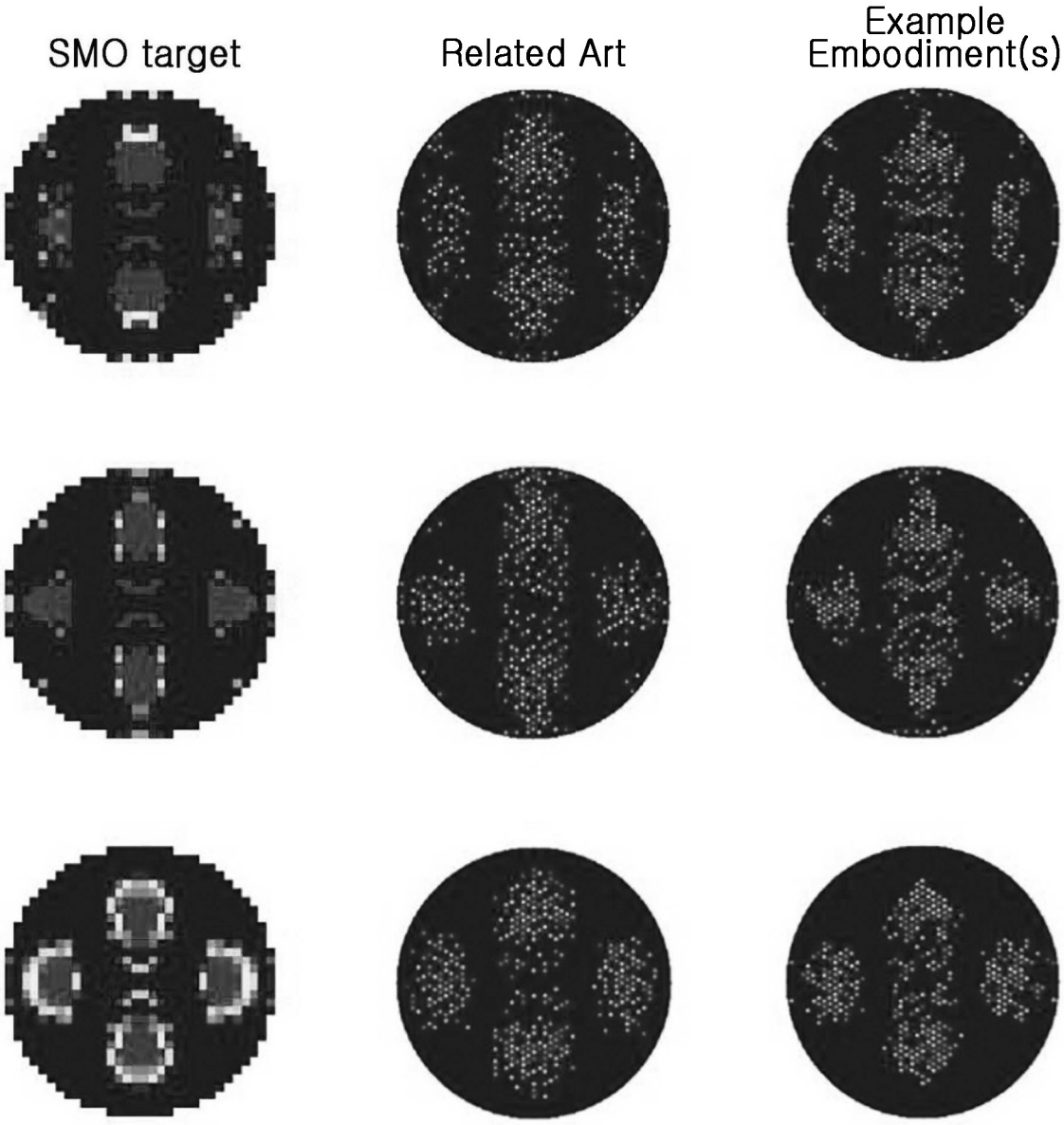


FIG. 10