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[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR INSPECTING A REFLECTIVE LITHOGRAPHIC MASK BLANK AND IMPROVING MASK QUALITY

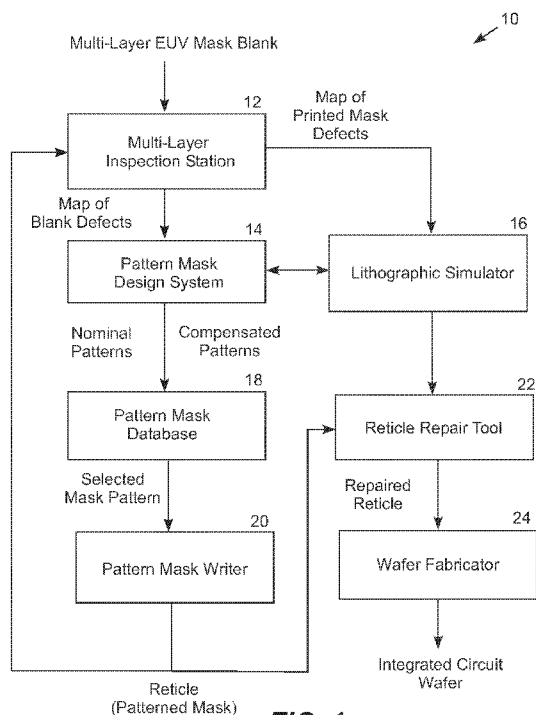


FIG. 1

(57) Abstract: An EUV integrated circuit fabrication method and system EUV that includes blank inspection, defect characterization, simulation, pattern compensation, modification of the mask writer database, inspection and simulation of patterned masks, and patterned mask repair. The system performs blank inspection to identify defects at multiple focal planes within the blank. The mask can be relocated on the blank and alterations to the pattern can be developed to compensate for the defects prior to patterning the mask. Once the mask has been patterned, the reticle is inspected to identify any additional or remaining defects that were not picked up during blank inspection or fully mitigated through pattern compensation. The patterned reticle can then be repaired prior to integrated circuit fabrication.



LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK,
SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
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A. CLASSIFICATION OF SUBJECT MATTER**G03F 1/22(2012.01)i, G03F 1/84(2012.01)i, G03F 1/72(2012.01)i**

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

G03F; G06F; G03C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: EUV, integrated circuit, compensated mask, mitigation, defect

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2006-0234135 A1 (STEFAN P. HAU-RIEGE et al.) 19 October 2006 See abstract, pages 1-2 and claims 1-34.	1-24
A	US 2009-0325083 A1 (YASUSHI OKUBO et al.) 31 December 2009 See abstract, pages 1-8 and claims 1-4.	1-24
A	US 6872497 B1 (HARRY LEVINSON et al.) 29 March 2005 See abstract, columns 1-12 and claims 1-21.	1-24
A	US 2010-0064273 A1 (SANTO CREDENDINO et al.) 11 March 2010 See abstract, pages 1-4 and claims 1-22	1-24



Further documents are listed in the continuation of Box C.



See patent family annex.

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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US 2009-0325083 A1	31.12.2009	DE 102009030299 A1 JP 2010-008738 A JP 4536804 B2 KR 10-1117878 B1 KR 10-2010-0002208 A TW 201003301 A US 8021804 B2	31.12.2009 14.01.2010 01.09.2010 30.05.2012 06.01.2010 16.01.2010 20.09.2011
US 6872497 B1	29.03.2005	None	
US 2010-0064273 A1	11.03.2010	None	