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(54) Title: MODELING CRITICAL-DIMENSION (CD) SCANNING-ELECTRON-MICROSCOPY (CD-SEM) CD EXTRACTION

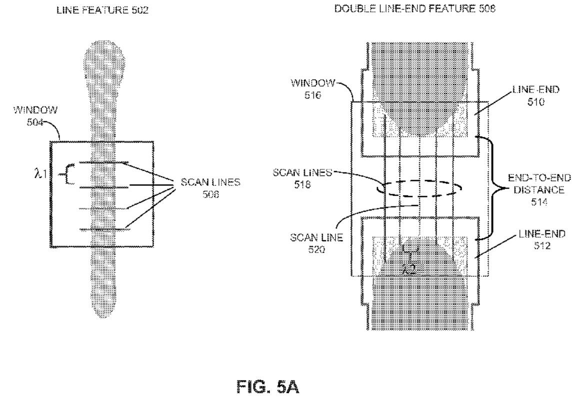

FIG. 5A

(57) Abstract: One embodiment of the present invention relates to a process that models critical-dimension (CD) scanning-electron-microscopy (CD-SEM) extraction during photolithography process model calibration. During operation, the process receives measured CD values which were obtained using a CD-SEM extraction process, wherein the CD-SEM extraction process determines a measured CD value for a feature by measuring multiple CD values of the feature along multiple electron beam scans. The process then determines simulated CD values, wherein a simulated CD value is determined based at least on a set of CD extraction cut-lines evenly placed around the target feature. During subsequent photolithography process model calibration, the process fits a parameter that models an aspect of the photolithography process based at least on both the measured CD values and the simulated CD values.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2010/030502

A. CLASSIFICATION OF SUBJECT MATTER

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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)
H01L 21/027; G06G 7/48; G06F 17/50; G06F 9/455

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:CD-SEM,OPC,photolithography

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2007-0213967 A1 (SANGBONG PARK et al.) 13 September 2007 see paragraphs [0035]-[0036]; and figure 1.	1-28
A	US 7065738 B1 (HUNG-EIL KIM) 20 June 2006 see column 2 lines 16-46, column 10 lines 34-65; and figure 8.	1-28
A	US 6463403 B1 (BURDORF; JAMES et al.) 08 October 2002 see column 2 lines 18-35, column 4 lines 21-65; and figure 8.	1-28

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
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Date of the actual completion of the international search	Date of mailing of the international search report
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Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2007-0213967 A1	13.09.2007	US 7433791 B2	07.10.2008
US 7065738 B1	20.06.2006	None	
US 6463403 B1	08.10.2002	US 2003-0014235 A1 US 6033814 A1 US 6985847 B2	16.01.2003 07.03.2000 10.01.2006