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(71) Applicants: **INFINEON TECHNOLOGIES NORTH AMERICA CORP.** [US/US]; 1730 North First Street, San Jose, CA 95112-4508 (US). **INTERNATIONAL BUSINESS MACHINES CORPORATION** [US/US]; New Orchard Road, Armonk, NY 10504 (US).

(72) Inventors: **MANSFIELD, Scott, M.**; 159 Stormville Road, Hopewell Junction, NY 12533 (US). **LIEBMANN,**

Lars, W.; 5 Cornwell Street, Poughquag, NY 12570 (US). **BUTT, Shahid**; 117 South Highland Avenue #1C, Ossining, NY 10562 (US). **HAFFNER, Henning**; Apartment D, 15 Greenhill Drive, Fishkill, NY 12524 (US).

(74) Agents: **BRADEN, Stanton, C.** et al.; Siemens Corporation, Intellectual Property Dept., 186 Wood Avenue South, Iselin, NJ 08830 (US).

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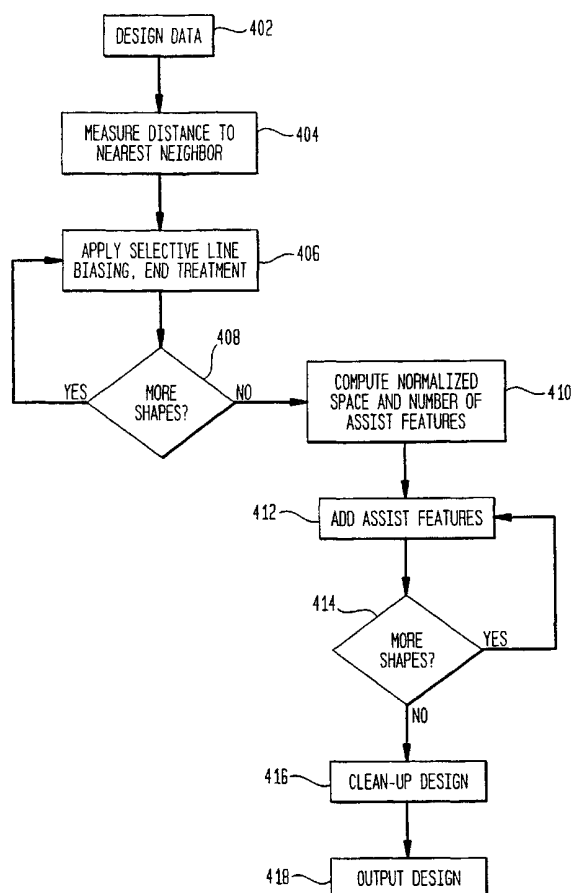
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(54) Title: DESIGN OF PHOTOMASKS FOR SEMICONDUCTOR DEVICE FABRICATION



(57) Abstract: A semiconductor device can be fabricated using a photomask that has been modified using an assist feature design method based on normalized feature spacing. Before the device can be fabricated, a layout of original shapes is designed (402). For at least some of the original shapes, the width of the shape and a distance to at least one neighboring shape are measured (404). A modified shape can then be generated by moving edges of the original shape based on the width and distance measurements (406). This modification can be performed on some or all of the original shapes (408). For each of the modified shapes, a normalized space and correct number of assist features can be computed (410). The layout is then modified by adding the correct number of assist features in a space between the modified shape and the neighboring shape (412). This modified layout can then be used in producing a photomask, which can in turn be used to produce a semiconductor device.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G06F17/50

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)

IPC 7 G06F

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

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

EPO-Internal, WPI Data, PAJ, INSPEC, COMPENDEX, IBM-TDB

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 537 648 A (LIEBMANN LARS W ET AL) 16 July 1996 (1996-07-16) abstract column 1, line 15 -column 4, line 47 figures 1A-1C,2-17	1,22,26, 32,36-38
A	TAE-SEUNG EOM ET AL.: "Comparison Study of Mask Error Effects for Various Mask Making Processes" PROC. OF THE SPIE 19TH ANNUAL SYMPOSIUM ON PHOTOMASK TECHNOLOGY, vol. 3873, 15 - 17 September 1999, pages 734-745, XP000926305 Section: Introduction figures 1-11	1,22,26, 32,36-38

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Schmidt, A

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
US 5537648 A	16-07-1996	US 5636131 A	03-06-1997
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