Ready Hi-Tech Software Solutions

Interface Ltd., an experienced hi-tech Russian company, offers you a number of scientific and e-commerce solutions. We can optimize and customize all these solutions to better suit your needs.

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Software for nano/micro lithography

The software developed in Interface Ltd. can be used in microelectronic and nanotechnology industries and research centers for designing and producing modern micro- and nano-electronic devices.

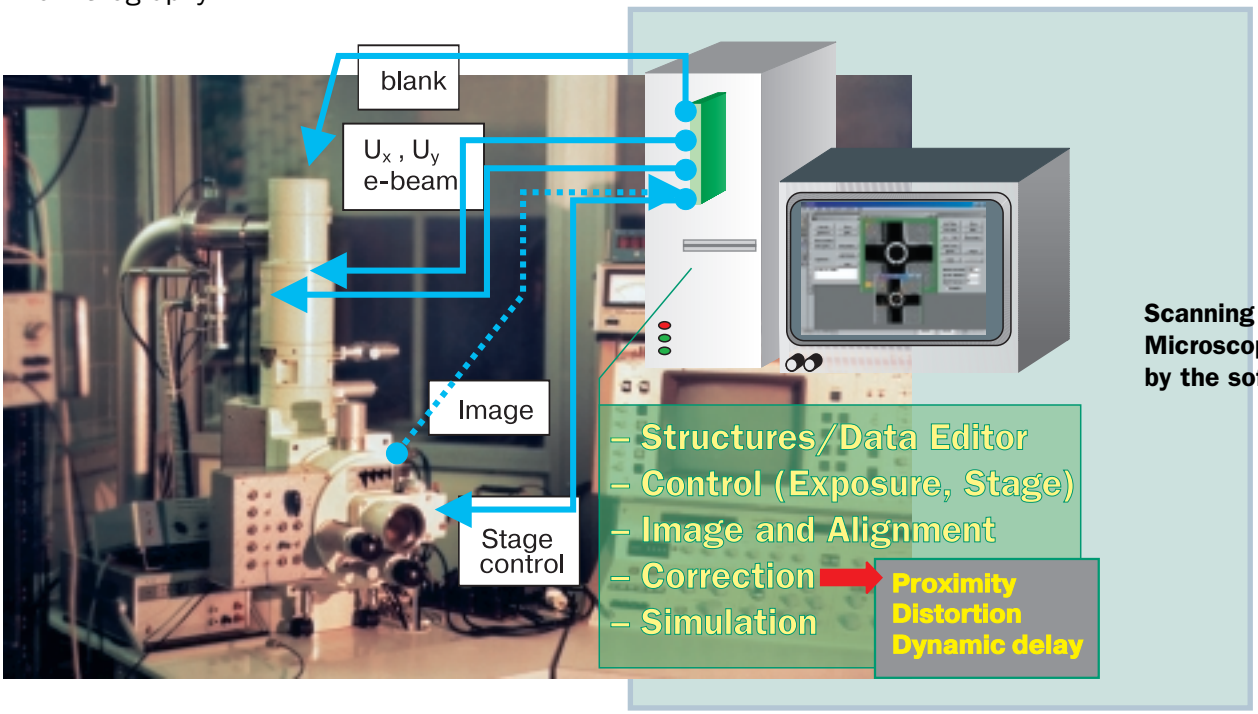
Purposes

- To obtain the ultimate lithography resolution for a technological and laboratory setup. To this end,
  - make correction for proximity effect during data preparation for lithography;
  - compensate for the distortion of a scanning system during exposure and image acquisition.
- To convert any scanning electron microscope (SEM) into an e-beam lithograph.
- To predict results of lithography by simulating.
- To ensure adjustment for various configurations of lithographic equipment; for the presence or absence of beam blanking systems, stages, etc.
- To create three-dimensional structures in a resist.
- To familiarize user with the basic principles of lithography.

Description

The software package was developed to perform three basic functions:

- Data preparation for exposure (via Graphical Data Base).
  - Manual input and transformation of data.
  - The proximity effect correction.
  - Modeling of exposure and resist development.
  - Data import and export in various formats (GDSII, DXF, ELM...).
  - Special transformation of data (Postprocessing, Group, Ungroup, Transformation, Modification, menu Edit) for selecting structure elements at boundaries (Frame), conversion of a positive image into a negative one (Negative), joining of elements (Union), etc.
- Exposure control
  - Variable exposure (dwell) times for proximity correction.
  - Synchronized movement of electron-beam and a stage.



Scanning Electron Microscope controled by the software

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- «On-the-fly» compensation of dynamic delays and distortion.
- Video control, system tuning.
- Alignment of successive lithographies via a set of marker windows.
- Digital microscope (a simple editor for creating a system of marker windows).
- System for acquisition of grayscale images.
- Procedures for the software adjustment to compensate the inaccuracies of a scanning system and a stage movement system.

Fields of application

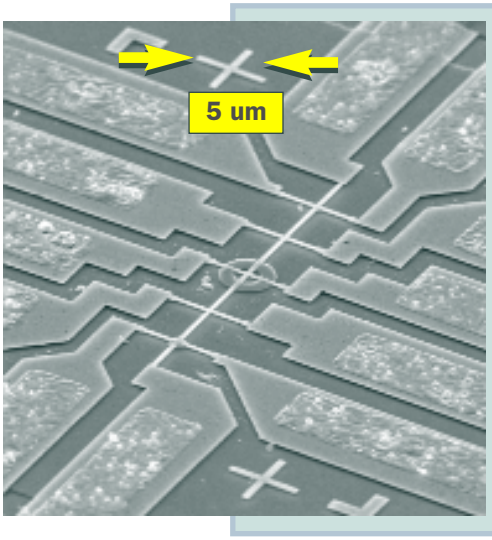
- Microelectronics.
- Nanotechnology.
- 3D nano-micro structures (including biology).
- Diffractive optics (synthetic holograms) for visible and X-ray range.
- Digital microscopy.

Easy installed on

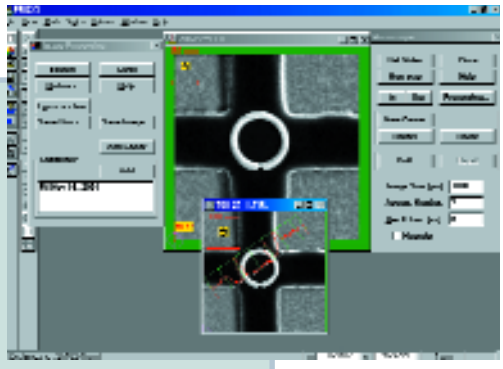
- SEMs and lithographs (JEOL, PHILIPPS, ZEISS, LEICA,..).
- Focused Ion Beam machines.
- STM/AFM's.

System requirements:

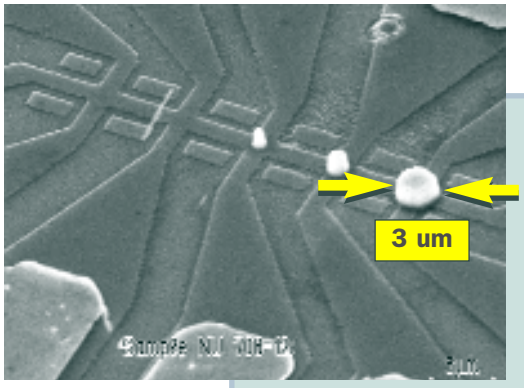
Windows NT, 2000, XP.



Alignment for successive e-beam and optical lithographies

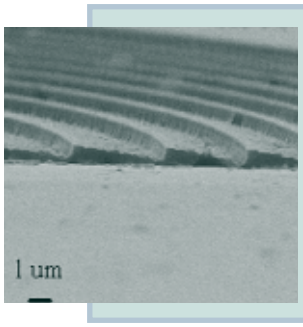


Operation with superconductive nanodevice, IMT RAS (Russia)



Microdevice on 2DEG for magnetic measurements

Image generated by X-ray phase hologram made by e-beam lithography, BESSY II (Germany), IMT RAS (Russia)



Kinoform optics by 3D lithography

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