

## Introduction to the Saturn system

### Purpose and advantages

- extends the scanning capabilities of the SEM internal scan generator, in terms of number of scan lines and total frame time
- optimizes the final bitmap in terms of resulting noise and resolution
- offers scanning modes to the user, that were not available before
- price is very attractive

### Universal

- Can be interfaced with any existing SEM/STEM
- Any image size between 320x200 up to 8x x 8k, in any frame time (limitations exist on combinations)

### Easy to use and powerful

- The main menu gives instant access to the fundamental functions for acquiring in passive as well in active modes
- Automatic or semi-automatic scale bar creation after bitmap acquisition

## Fundamental Characteristics of the Saturn system

### Operating System

- Win2K, XP and Win 7 are supported. (Win7 requires Virtual XP and must be the 32 bits version)

### Active modes

- 8 active modes are available to the user; each mode can have up to 8k pixels in X or in Y (depends on the bitmap X/Y ratio)
- Each active mode is defined by the number of lines, the expected bitmap X/Y ratio and the duration of the scan
- The scale bar area is automatically added after acquisition (on some SEMs, the magnification factor is read automatically)

### Passive modes

- Saturn acquires bitmaps in both visual and record modes
- The system automatically synchronizes when the SEM scanning speed changes and updates the available image size
- the scale bar area comes from the SEM (when available)

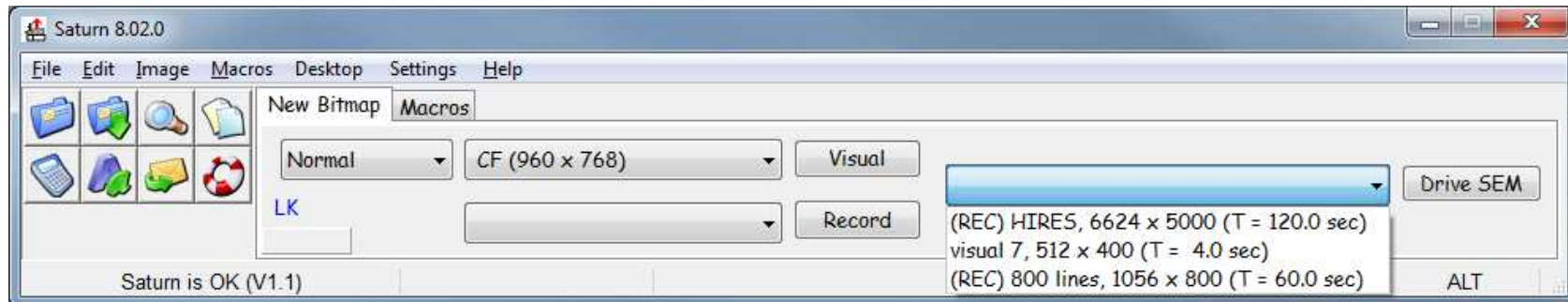
### Tools

- a set of simple to use but powerful tools is available to the user : distance measurements, extractions, annotations, etc
- all tools are all directly and very easily accessible through buttons and menus

### Cost

- very attractive price
- no additional cost : all Orion options are included in the system price
- five years warranty on the electronic boards; free, continuous updates are available from WEB site

## Main tool bar layout



This area groups all important bitmap tools like File Open/Save, zoom, annotation etc

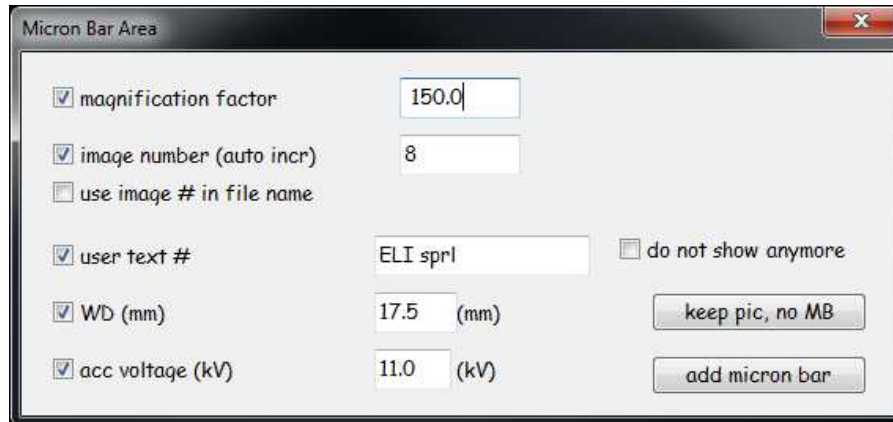
"Visual" starts the acquisition on the fly in visual mode. The image size on the left is automatically updated when the scan speed changes.

"Record" prepares the computer to acquire bitmaps in "record" "shutter" or "photo" mode. It will wait for you to press the record button on the SEM, or start it automatically (depends on the wiring).

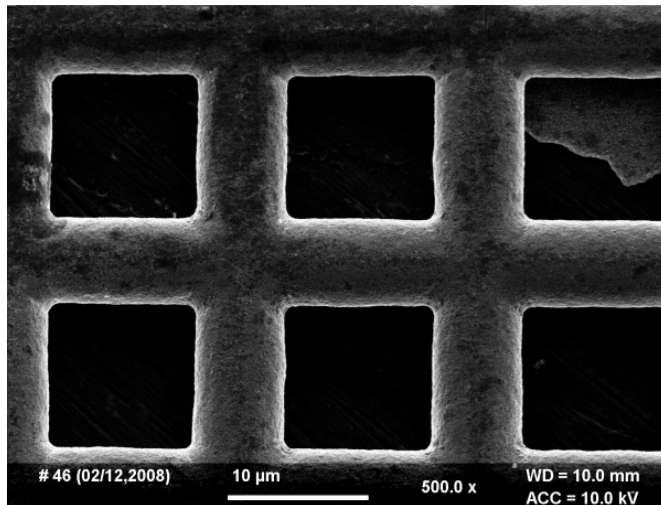
"Drive SEM" starts the bitmap acquisition in active mode; the mode is selected from the list. "(REC)" means that it's gonna be a record scan (one scan only).

After the acquisition the system will ask you confirmation for the scale bar parameters (see next page).

## Scale Bar Area

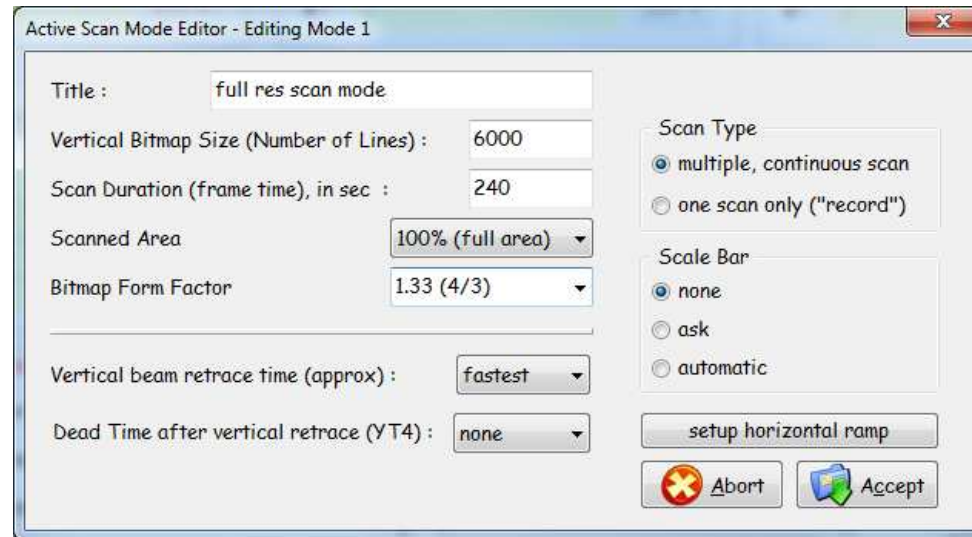


*This utility pops up right after the bitmap acquisition in active mode, in order to confirm or change the current parameters of the scale bar area*



*This is the final bitmap which includes the scale bar area. Distance measurements can be done immediately as the pixel size is known by the system.*

## A bit more technical ...



*When setting up a new active scan mode, enter the title (will be displayed in the main toolbar, in the blue list on the right), the number of lines per scan, and the frame time... That's it!  
The other parameters are also very intuitive.*

*Vertical beam retrace, YT4 and horizontal ramp setup are more technical but you just have to set them up to mimic the ramps coming out of the SEM scan generator.*