What’s new in MEMS Pro V8.0
Highlights
Contents

- New platform support
- File I/O enhancements
- 3D Modeling enhancements
- Layout enhancements
- New behavioral models
- New examples
- Improved documentation
Platform Support

- MEMS Pro v8.0 supports:
  - L-Edit Pro v15.01
  - T-Spice Pro v15.01

- MEMS Pro v8.0 supported OS:
  - Windows:
    - XP
    - VISTA
    - Windows 7
  - OS types
    - 32 (first shipping) and 64 bits (update)
Users are now able to generate multiple models from MEMS Pro.

The values of several steps can be parameterized and MEMS Pro will generate a model for all combinations of the parameters:
- For the wafer and deposit steps the wafer thickness may be constant or a variable.
- The user specifies initial values, ending values and an increment and the tool will generate a model for each value of the thickness specified.

This new capability will enable users to do parametric studies easily.
For the Etch command - 3 parameterizations are possible:

1) Fixed etch.
2) Linking each etch to a deposit step for that material so that each pair of etches and deposits will deposit/remove the same thickness.
3) Independently etch different thicknesses so that for each deposit, etches with different etch depth will be performed.

The etch angle and etch undercut may also be parameterized as shown.
The user can generate multiple models using the toolbar icon or the menu command under the 3D tools menu.

A dialog then comes up and asks the user for a file base name.

Users may generate (.sat) files or APDL files for ANSYS.

If the ANSYS option is chosen, the user may also choose to glue the volumes before export.
Once the multiple model dialog closes, MEMS Pro generates a batch script with all the commands and files needed to generate all of the models.

The user may then execute the script to generate the models.

The program also generates a text file that documents which model files have which values of the chosen parameters.
3D Ruler

- A ruler now allows measurement of dimensions of the 3D model.

Length is 16.4750
Layout Enhancements - Boundary Conditions

- Users can now view the wire extrude on the layout
- Default BC visibility will be ON
- The default setting for Individual Enable BC will be ON
Curve Enhancements

- Enhancements to fillet
  - Editing has been added as a fillet
  - Support for native curves has been added.
  - Fillet tool is now recognized as a Curved Polygon.
The following issues have been fixed in MEMS Pro v8.0 DXF:

- The presence of an SEQ END after an attribute would create problems.
- An entity that follows an unsupported entity cannot be imported.
- Files with extensions of capital letters would not export correctly.
MEMS Pro now supports multiple cross sections
Import of SAT file as a Starting Wafer

- Users will be able to read in a SAT file containing geometry and continue processing it with more process steps;
- Instead of starting with a wafer step we can start with a SAT model (file) and build a new model.
- This feature allows users to start off with a SAT file from the output of etching simulators or models from SolidWorks.
- The user specifies the SAT file to use to begin processing.
Enhanced Overall Performance and Stability of 3D Modeler

- Users can now choose to have the log file saved to a specified location automatically and as a default for each run.
- Upon completion, users can now choose to save the log file or exit without saving.

- For large models, the progress bar will more accurately reflect status relative to model generation.
New Wafer Bonding Feature

- Wafer bonding distance will have a minimum value of zero, and a flip before bonding placement.
Users can now choose to have a straight wall implant and a curved implant.
New Etching Feature

- Users can choose between two types of etching profiles

[Diagram showing etching feature]
2D Extrude

- 2D Models can now be extruded
- Output will be a 3D sat file or .mac file
- User enters a thickness by which the 2D model is extruded
- This allows fast generation for large models
Isotropic Etch

- The Isotropic etch will now etch the same amount in all directions.

- The following figure shows how the etching takes place with a depth of the material to be etched “Film” equal to “R”.

![Diagram showing isotropic etch process]

- Mask
- Film
- Bulk
Isotropic Etch

- The following figure shows the final look for etching with “R” greater than the Depth etched material “Film”.

- The following figure shows the final look for etching with “R” smaller than the Depth of the etched material “Film”.
Schematic Library Enhancements

- The hierarchy of the MEMS Pro v8.0 schematic files has been changed to improve accessibility.

- Test circuits for each library element are placed within the library.

- Libraries have been re-organized based on function.

- Test circuits have been renamed based on whether they are schematic or behavioral; schematic circuits have the schematic tag added to their names and behavioral circuits have the behavioral tag added to their names.