Release of MemsONE Version 4.0

Upon the release of version 1.0 of MemsONE (Computer Aided Engineering System for MEMS) in February 2008, the Micromachine Center initiated activities to disseminate MemsONE throughout Japan. For the past three years, we have kept up these dissemination activities using such catchphrases as "an analytical tool providing powerful support for MEMS design and manufacturing processes" and "a tool suitable both for experts and novices with little experience in MEMS." During this period, versions 1.1, 2.0, and 3.0 of the product were released, each release offering enhanced and more powerful functions with greater stability.

Version 4.0, anticipated for release in February of this year, will have even more improvements in analysis capabilities, user-friendliness, and the operating environment. The following are some of the improvements and enhanced features in version 4.0.

(1) Added support for Windows 7

MemsONE can now be used in the Windows 7 environment. The program was tested on various models of notebook and desktop computers to identify any issues. Recommended computer specifications are clearly noted in the product.

(2) Improved and strengthened the analytical functions

a. Added a contact analysis function for the large deformation problem in elastoplastic analysis and thermal elastoplastic analysis. This function enables analysis of the following contact state.
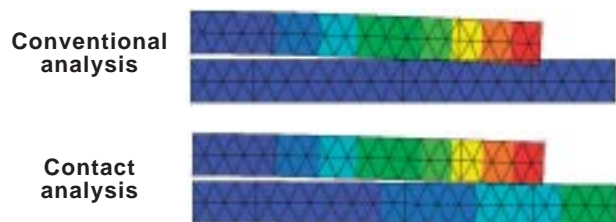
b. Included process recipes for company-supplied multiprocess emulators

c. Improved and strengthened the MEMS circuit simulator
- Added a function for extracting a macro model to generate MEMS elements from results of structural analysis.
- Added the ability to adjust the number of nodes on a rigid plate.
- Enabled pull-in analysis of gap elements.
- Improved the editor function and strengthened the post-process functions.

(3) Improved and strengthened the feature for setting analytical conditions

a. Enhanced the functions for browsing the material database in the conditional settings for mechanical analysis and enabled the inclusion of matrix data.

b. Added a time history table to the boundary conditions for electric potential in piezoelectric analysis.

c. Integrated the number of output steps with the number of computational steps.

(4) Enhanced functions and expanded data in the material database

a. Enhanced the function that allows characteristic data of specified materials to be referenced and recorded together in a table.

b. Added supplemental characteristic data for piezoelectric materials (particularly matrix data) required for piezoelectric analysis.

(5) Improved and enhanced pre-process functions

a. Added a function to compute mass properties (area and volume).

b. Improved user-friendliness of operations for setting local subdivisions in hexahedral mesh division.

c. Made it possible to specify the number of divisions in hexahedral mesh division.

d. Relaxed restrictions on the inheritance and data quantity for input parameters in the command "Sweep shell elements."

(6) Improved and enhanced post-process functions

a. Resolved the issue of small text being difficult to read in the display of analytical results.

b. Improved the post-process function so that the rotated state in the CAD modeler is reflected in the display of analytical results.

(7) Upgraded the installation environment

a. Reduced the number of installation steps and improved messages displayed for suggesting measures required to resolve problems that occur during installation.

b. Eliminated virtual drive R, using only drives P and Q while MemsONE is executing.

(8) Added a network license function

Added a function that enables multiple users, within the number specified in the license agreement, to use MemsONE simultaneously on computers connected to a LAN.

Through the improvements and enhancements described above, version 4.0 of MemsONE is anticipated to be a more complete tool with remarkable advances in the quality and user-friendliness of its features. Sales and distribution of version 4.0 will begin in February 2011, and the MMC is committed to product dissemination. At the same time, will be offering user assistance through training courses and technology forums, for example, and will work to attract new users and expand our regular user base.