Status of PC Products

Don McLean
Vice President, Advanced Projects
The MacNeal-Schwendler Corp.

Our current PC Products for engineering analysis can be divided into several groups: **Stress and Vibration Analysis**, **Heat Transfer Analysis**, **Engineering Equations**, **Matrix Equations**, and **CAD Interfaces**. The products in these groups are listed below.

Stress and Vibration Analysis:

MSC/pal, our original product (300 nodes) released in 1984
MSC/pal 2, a more powerful version (1000 nodes) released in 1985
MSC/pal 2 Version 2, with better graphics and larger model size, released 12-'86
MSC/pal (Mac), an Apple Macintosh version of MSC/pal–MSC/pal 2 hybrid
MSC/pal 2C, 100-node version for classroom use
MSC/pal INTRO, 25-node version for student and demo use

Heat Transfer Analysis:

MSC/cal, with 1000 nodes, released 1-'87
MSC/cal C, 100-node classroom version
MSC/cal INTRO, 25-node version for student and demo use

Engineering Equations:

MSC/CASE, graphical solution of engineering equations

Matrix Equations:

MSC/mate, matrix equation solution
MSC/mate INTRO, reduced-size matrices for student and demo use

CAD Interfaces:

MSC/AutoFEM, a mesher for AutoCAD drawings
ADCAD2, converts CAD drawings to MSC/pal 2 format

Except for MSC/pal (Mac), these programs operate on IBM PCs and compatibles.

MSC/pal 2 Version 2 adds color shaded contours (with an EGA card and monitor) and monochrome shaded contours (with a CGA card and monitor); the problem size has been increased effectively 2-4 times over MSC/pal 2 Version 1 via a modified out-of-core solution technique. CAD interfaces are added with **ADCAD2**, which translates CAD-meshed drawings into model files for MSC/pal 2 and MSC/pal. ADCAD2 supports **AutoCAD**, **CADKEY**, **VersaCAD**, **RoboCAD**, **Anvil 1000**, and any other CAD system that supports their formats (DXF, CADL, and NFL). The **INTRO** programs are inexpensive ($45) and are ideal for training purposes.

Bill Moffitt's paper (this afternoon) describes MSC/AutoFEM and ADCAD2, and tomorrow's papers in the Education and Training session describe MSC/pal 2C and MSC/pal INTRO.

Our products also interface with third-party products. In addition to interfacing to PC CAD programs, we also interface to several finite element modelers for interactive preprocessing. These include **PDFEM** by Computervision, **mTAB** by Structural Analysis, Inc., and **FEMAP** by Enterprise Software, Inc.

These products are discussed in this afternoon's papers.

For spreadsheet users, **MSC/mate** can write to and read from **Lotus 1-2-3** format. Lotus 1-2-3 can also read MSC/pal 2 text output, as well.

The near-term future plans include the **MSC/pal PRO** series, with enhancements to **MSC/pal 2** and to **MSC/cal**, and the addition of an interactive preprocessor that will interface to **MSC/pal 2**, **MSC/cal**, and **MSC/NASTRAN**. Primary additional features include:

MSC/pal 2:

Increased model size (more DOF)
Solid elements
Axisymmetric elements
Thermal stresses
More graphic features

MSC/cal:

Nonlinear transient and steady-state solutions
Solid elements
Phase change capability
Enclosure radiation
Contact resistance

The modeler will enable the user to create and edit data interactively. These will consist of node, element, material, load, and boundary condition data. The modeler will be the key link in passing data from one analysis program to another.

Tomorrow's panel discussion will further describe these and other plans.