1985: A great year for PC-based CAD

Microcomputer-based CAD/CAM/CAE grew at an explosive rate in 1985, with more than 90,000 units shipped by the end of the third quarter, according to a recent report from Daratech. The reason is simple: Users find that PC-based CAD systems deliver 70 percent of the capability of larger systems at 20 percent of the cost.

This trend is hurting sales of larger systems, particularly single-user systems in the $15,000 to $50,000 category.

"We'll remember 1985 as the year PC CAD entrenched itself in the CAD/CAM industry," said Eric Telchok, president of Graphics Systems, Inc. "The emergence of the true 32-bit micro, a major event in 1985, allowed the supermicro to make its challenge against traditional high-end systems."

Daratech reports that users are increasingly concerned about both the stability of the vendors they deal with and issues of compatibility and integration with existing data processing systems. Users apparently prefer to buy personal computer hardware independently or make use of computers that had been purchased for other purposes.

Autodesk continues to lead the field in PC-based CAD with its AutoCAD drafting and design system, and is currently shipping more than 2500 units per month. AutoCAD runs on 30 different models of personal computers. Daratech estimates that AutoCAD has about twice as many users as any other CAD system, a factor that has given Autodesk an influence on the market that is "altogether out of proportion to its revenues."

T&W Systems, which pioneered PC-based CAD in 1982 with CAD-APPLE, is Autodesk's closest rival in the PC CAD business. It did well in 1985, with about 12,400 of its Versa-CAD systems installed by the end of the third quarter.

IBM, firmly established as the overall CAD/CAM/CAE sales leader, has just released several single-user, standalone workstations, including one based on its Model 5080 intelligent graphics terminal. These systems are 32-bit, RISC-type machines in the one-to-four-MIPS class.

McDonnell Douglas is one of the few CAD/CAM/CAE vendors to report outstanding growth in 1985 and probably stands in fifth place now, according to Daratech. Its software has an open architecture and runs on three of the most popular computers and operating systems, using the particular data management component of each to facilitate integration.

In August 1985 McDonnell Douglas set up an autonomous business unit, PC Productivity Systems, to investigate, develop, and market PC-based software for CAD/CAM/CAE and other applications. The new company functions as an autonomous group and its products will be marketed through retail outlets.

"The company's initial target is the low-end, single-user system installation in engineering establishments with a need for advanced 3D mechanical design functionality," said Tom Rafferty, senior director of new ventures at McDonnell Douglas. The first product, scheduled for release in the first quarter of this year, is a CAD/CAM software package for use with the IBM PC family of computers and compatibles.

There are successful CAD/CAM/CAE vendors that are not following the PC trend. Intergraph is number two behind IBM and continues to enjoy outstanding user acceptance of systems based on 32-bit VAX computers and Intergraph's proprietary dual-screen graphics terminals. According to Daratech, PC-based systems do not figure prominently in Intergraph's plans.

Similarly, Control Data sees a growing acceptance of large, host-centered configurations for CAD/CAM/CAE by large companies because of their lower costs per seat, easier integration with software developed in-house, and the substantial amounts of computer power they can provide for engineering analysis.

Errata

Paragraph dropped from article

Due to a production error, a paragraph was dropped from an article in the January issue of IEEE CG&A. The article was by Nick England, "A Graphics System Architecture for Interactive-Specific Display Functions."

CG&A apologizes to the author and our readers for the mishap. The paragraph, which should have appeared at the bottom of the first column on page 66, reads as follows:

"Worth noting here is the fact that calculation of surface normals for these curved surfaces (and for polygonally defined surfaces) is carried out locally in microcode. From the normals, either vertex shade is calculated and interpolated across each polygon (Gouraud shading) or the normals are interpolated with shade calculation taking place at every pixel (Phong shading). Other graphics systems that provide Gouraud or Phong shading functions actually require that normals (or shades) for every vertex be calculated by the application program and not within the graphics device where the task logically belongs. Van Hook has included transparency and antialiasing by using additional portions of image memory to hold information about density and partial pixel coverage, respectively.

Missing line in review

Also in the January issue, a line was inadvertently dropped from a review by Ronald K. Dillion. CG&A regrets the error. The review should have read:


The IBM PC Enhancement Handbook is a catalog of a broad range of enhancement products marketed by Cyber Research, Inc. under their own brand names. While the handbook does have descriptions and definitions helpful to the computer novice in selecting enhancement hardware and software, most PC users would be better advised to read the product ads and reviews in one of the better PC magazines.